

Welcome to the

**ANCORP**

HIGH VACUUM  
PRODUCT CATALOG

**ANCORP** is committed to delivering excellence in every product we manufacture.

We do so through our people, products, support, and resources.

We are committed to helping our customers solve the unique and  
ever-evolving problems faced in their industries.

We strive to honor our commitments to our customers,  
to exhibit excellence in everything we do, to care for our environment,  
and to serve the communities we live in.



ANCORP is a family-owned U.S. manufacturer of high and ultra-high vacuum chambers, valves, and components. The company was founded in 1965 by Norman Vaudreuil in Worcester, Massachusetts as A&N Corporation.

When A&N was founded, the country was racing to put a man on the moon. Therefore, our first products were vacuum couplings used by space related industries. Shortly thereafter, we developed one of the first ball valves that would perform in high vacuum. A&N Corporation moved from Massachusetts to Inglis, Florida in 1976.



During the 1980s, our product offering continued to expand with the addition of ISO and metal sealed flanges and components. In 1995, David Vaudreuil, President and second generation owner, determined that a new facility was needed. Therefore, design and construction of our new headquarters commenced. In 1997, we moved into our new 40,000 square foot state-of-the-art manufacturing plant. This move positioned A&N Corporation to expand all phases of our high vacuum component development, including a new focus on providing our customers with their custom requirements.

In 2010, Daniel and Glenn Vaudreuil became third generation owners, as President and Vice President respectively. Under the direction of Daniel and Glenn, the new leadership of the company focused on innovation of the product line. This innovative focus gave birth to a patent approval for the XL Ball Valve, which we believe to be the world's best high vacuum ball valve.

In 2012, the factory in Williston, FL was expanded by 6,500 square feet to meet the growing demand for the Custom Fabrication division. The expansion centers around our new Okuma 5-Axis Vertical



Multitasking Machine that allows us to produce one-of-a-kind and production runs of custom chambers.

Our 46,500 square foot state-of-the-art facility is equipped with the latest manufacturing technology for CNC mills, lathes, and welding tools. While the tools and facility are important, our craftsmanship is what keeps our customers coming back to us. Our fabrication team is comprised of machinists who have decades of experience.

We've utilized decades of welding-



knowledge to create a vacuum welding program that AWS and ASME have thoroughly reviewed and certified. Our Quality Control procedures include dimensional checks using a Coordinate Measuring Machine (CMM) and leak checks using state-of-the-art helium mass spectrometer leak detectors.

In 2017, the company was rebranded to reflect the innovative culture of the new leadership. The name of the company was changed from A&N Corporation to **ANCORP**, and the slogan was changed to “Empowering Science and Technology Since 1965”.

Over the years, **ANCORP** has established itself as a world-class manufacturer of high and ultra-high vacuum products. **ANCORP** offers over 3,600 standard products including flanges, fittings, feed-throughs, traps, viewports, and valves. We routinely manufacture customer specified products to meet the unique needs of our customers.

opportunities as we joined forces with **VAT Group**, a world leader in vacuum valves. We believe this partnership has merged the world's best high vacuum valves all in one place for our customers.

Big things are happening! **ANCORP** continues to innovate our products and update our facility with the latest technology to provide you with high quality products and faster service. Contact us today for a free estimate at:

**Sales & Customer Service:**  
**(800) FLANGE-1 (800-352-6431)**

**Corporate Offices:**  
(352) 528-4100 • Fax: (352) 528-3441

**Order Online:**  
[www.ancorp.com](http://www.ancorp.com)

**ANCORP's** web site allows users to order on-line, download electronic files and find contact information for your local sales representative or distributor.



# THE ANCORP WAY

Empowering science and technology since 1965, ANCORP is committed to excellence in everything we do. The foundation for it all is our unique culture. The 26 Fundamentals that follow describe the behaviors that define that culture. They're what set us apart and drive our success. We call it: **The ANCORP Way**.

1. THINK **SAFE**, WORK **SAFE**.
2. Do the **RIGHT THING**, ALWAYS.
3. Do **QUALITY WORK**.
4. Be a **CUSTOMER ADVOCATE**.
5. **TAKE PRIDE** in our appearance.
6. Honor **COMMITMENTS**.
7. Treat others with **RESPECT** and **KINDNESS**.
8. **FIND A WAY**.
9. Be **RELENTLESS** about **IMPROVEMENT**.
10. Practice **BLAMELESS PROBLEM-SOLVING**.
11. Get **CLEAR** on **EXPECTATIONS**.
12. **TAKE OWNERSHIP**.
13. Show Meaningful **APPRECIATION**.
14. Think **TEAM FIRST**.
15. Be a **CONTINUOUS LEARNER**.
16. **LISTEN GENEROUSLY**.
17. **SPEAK STRAIGHT**.
18. “**BRING IT**” every day.
19. Invest in **RELATIONSHIPS**.
20. **OWN YOUR WORK**.
21. **BE A FANATIC** about **RESPONSE TIME**.
22. Maintain **WORK-LIFE HARMONY**.
23. **EMBRACE CHANGE**.
24. **PITCH IN** wherever necessary.
25. Reduce or **ELIMINATE WASTE**.
26. **KEEP THINGS FUN!**

## CORE VALUES

### HUMILITY

While confident in our abilities, we continuously strive to learn and improve.

### DRIVEN

We are enthusiastic and committed to achieving our goals and delivering on our promises.

### FAMILY

We create a safe, caring environment. We celebrate good times and provide support and compassion in times of need.

“Humility, I have learned, must never be confused with meekness. Humility is being open to the ideas of others.” - **Simon Sinek**

“You can't build a reputation on what you're going to do.”  
- **Henry Ford**

“A great place to work is one where employees trust the people they work for, have pride in what they do, and enjoy the people they work with.” - **Robert Levering**, Great Place to Work Institute

## CORE PURPOSE

### DEVELOP GREAT PEOPLE

### DELIVER GREAT PRODUCTS

“People are the only sustainable advantage of an organization.”  
- **Richard Teerlink**, CEO of Harley Davidson

“If I cannot do great things, I can do small things in a great way.”  
- **Dr. Martin Luther King, Jr.**



Learn more about what makes us different.

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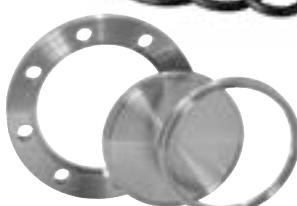
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The logo for ANCORP, featuring the word "ANCORP" in a bold, sans-serif font. The letter "O" is stylized with a green horizontal bar through its center.

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## ISO QF/KF/NW/LF Flanges & Fittings



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## TECH TIP



## Did you know?

ISO QF and LF flanges are known by several other names. QF is also called KF, NW, DN and Pneurop. LF is also called MF, PF, ISO-K, ISO-F

# ISO-QF and LF FLANGES &



## Overview

ISO-QF (Quick Flange) and LF (Large Flange) flanges are part of the same family of ISO standard elastomer sealed vacuum components. **ANCORP** ISO flanges and fittings are manufactured in accordance with ISO (International Standard Organization) 2861 standards and tolerances. These flanges are an economical, convenient and simplified means of constructing custom vacuum systems.

ISO flanges provide a complete range of fittings to mount with tubing sized 1/2 inch up to 20 inches in diameter. The flange system consists of two sexless, 360° rotatable flanges, a centering ring for alignment and support of the sealing ring and a fastener to compress the seal between the two flanges. ISO-QF and LF sealing components are similar, however, their fastening methods differ. **ANCORP** offers a complete line of flanges, fittings, valves, traps and accessories with ISO connections that can be used to create a complete vacuum system or pumping line.

## Specifications:

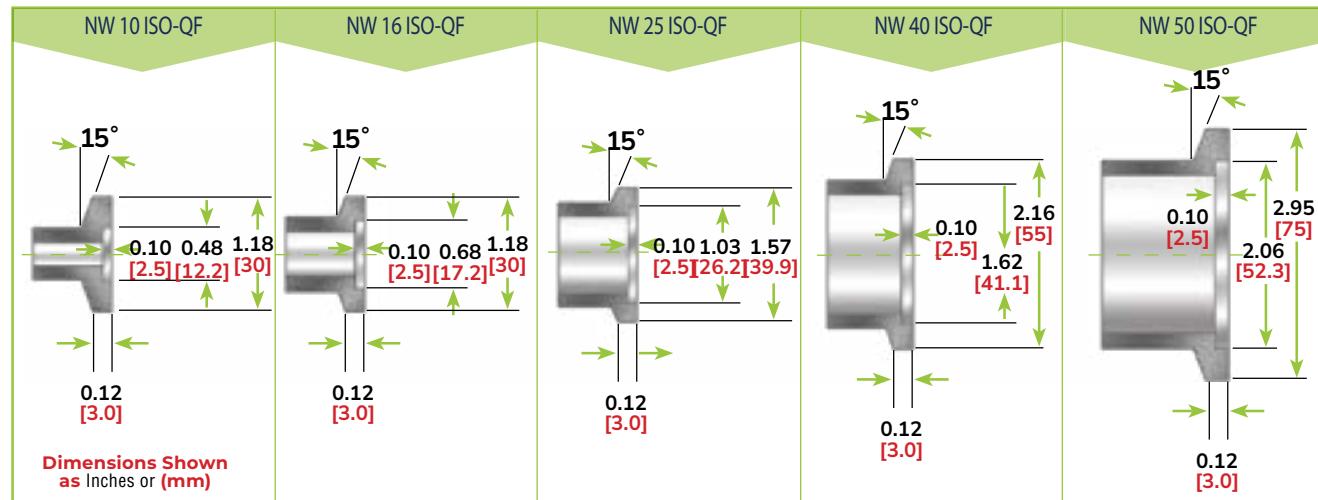
- Vacuum rated to  $1 \times 10^{-8}$  Torr.
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -50°C to 200°C <sup>\*2</sup>
- Materials:
  - Flanges and fittings: 304L stainless steel, 6061 T6 aluminum
  - Elastomer seals: Viton®, Buna, silicone

## Features:

- Quickly connect and disconnect
- Reusable flanges and seals
- 360° rotatable
- Sexless flanges
- Adapters to other flange systems available
- Compatible with U.S. standard (imperial) and metric measurements
- Multiple fastening options
- Interchangeable with all other flanges and assemblies made to ISO standards

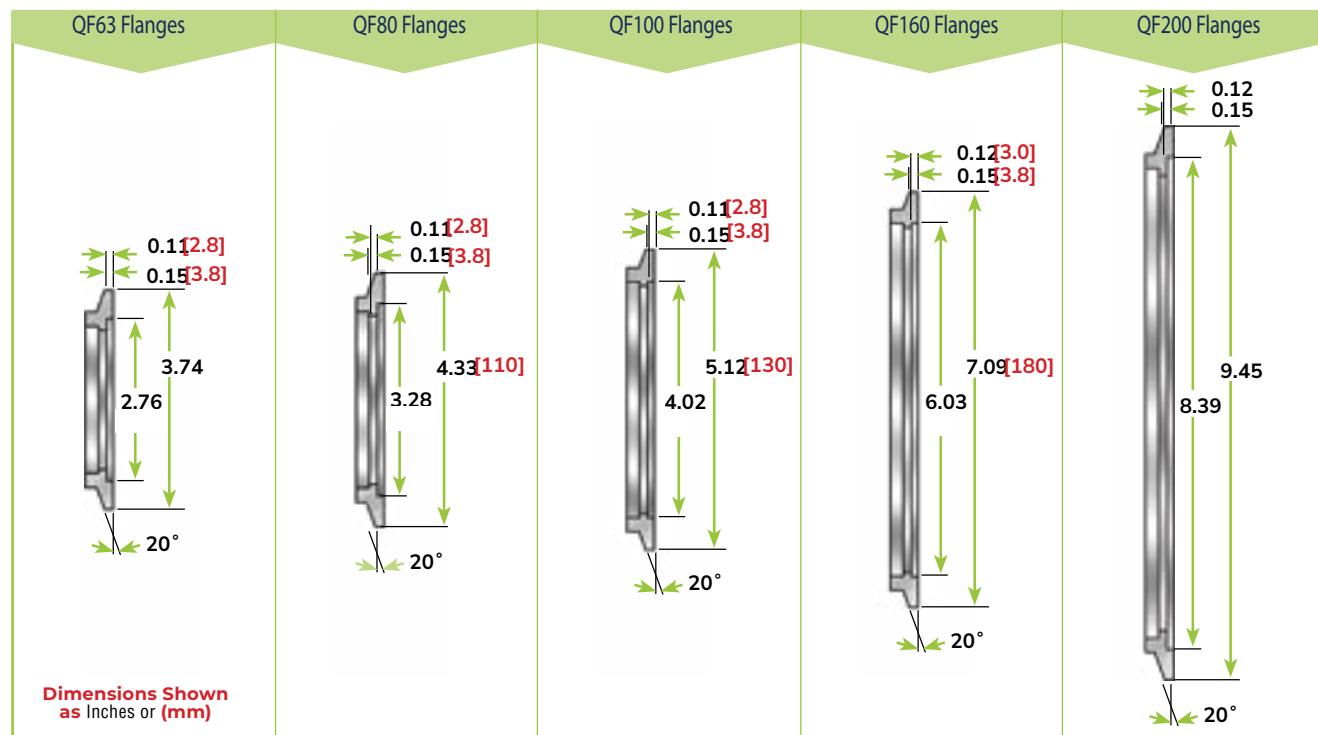
## ISO Quick Flange Dimensions

The ISO standard flange interface dimensions are shown on these two pages and are not repeated throughout the catalog. Fittings (tees, crosses, elbows, etc.) and adapters, however, have no universal standards. These dimensions are shown throughout the catalog. See page 1.9 for a dimension cross-reference.



## Large Size Quick Flange Dimensions

ANCORP now offers quick flanges up to size QF200 (8 inch tube outer diameter). ISO standards only apply to quick flanges up to size NW50 (2 inch tubing diameter). The sizes listed below were developed by vacuum component manufacturers within the United States. Quick clamps for these flanges are available in a variety of materials and designs. Adaptive fasteners are also available to allow users to seal directly from an LF or LFB style ISO flange to these more convenient large QF style flanges.



## ISO Large Flange Dimensions

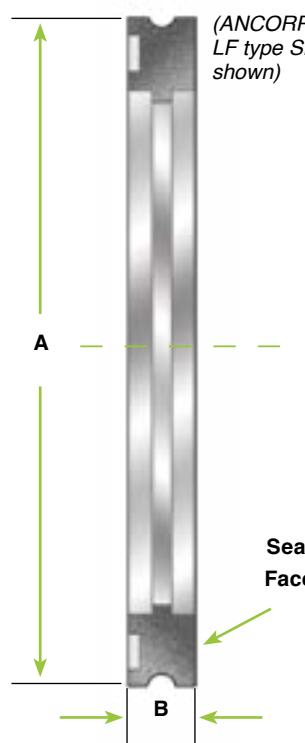
### Clamp Fastener Style (ISO-LF)

Dimensions Shown  
as Inches (mm)

| FLANGE SIZE | COMPATIBLE TUBE/PIPE O.D.       | OUTER DIMENSIONS A | THICKNESS B | # CLAMPS REQUIRED |
|-------------|---------------------------------|--------------------|-------------|-------------------|
| LF63        | 2.50 [63.5]                     | 3.74 [95]          | 0.47 [12]   | 3-4               |
| LF80        | 3.00 [76.2]                     | 4.33 [110]         | 0.47 [12]   | 4-8               |
| LF100       | 4.00 [101.6]                    | 5.12 [130]         | 0.47 [12]   | 4-8               |
| LF160       | 6.00 [152.4]                    | 7.09 [180]         | 0.47 [12]   | 4-8               |
| LF200       | 8.00 [203.2]                    | 9.45 [240]         | 0.47 [12]   | 6-12              |
| LF250       | 10.00 [254]                     | 11.42 [290]        | 0.47 [12]   | 6-12              |
| LF320       | 12 [304.8]<br>or 12.75 [323.85] | 14.57 [370]        | 0.67 [17]   | 8-12              |
| LF400       | 16.00 [406.4]                   | 17.72 [450]        | 0.67 [17]   | 8-16              |
| LF500       | 20.00 [508]                     | 21.65 [550]        | 0.67 [17]   | 12-16             |

ISO Multi-Fastener Flange

(ANCORP LF type SF shown)

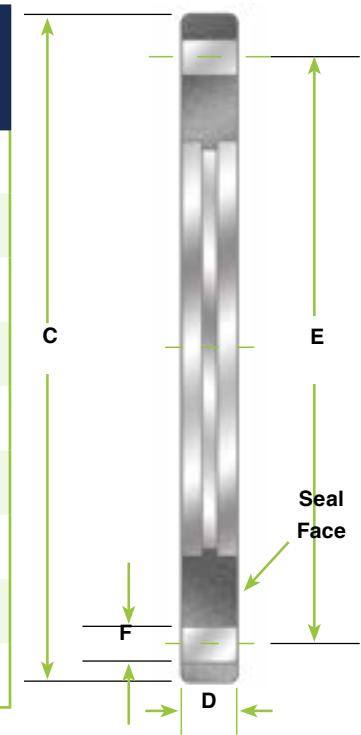


## ISO Large Flange Dimensions

### Bolt Fastener Style (ISO-LFB)

Dimensions Shown  
as Inches (mm)

| FLANGE SIZE | COMPATIBLE TUBE/PIPE O.D.       | OUTER DIMENSIONS C | THICKNESS D | BOLT CIRCLE E | BOLT HOLES F | # OF HOLES | WRENCH (mm) |
|-------------|---------------------------------|--------------------|-------------|---------------|--------------|------------|-------------|
| LFB63       | 2.50 [63.5]                     | 5.12 [130]         | 0.47 [12]   | 4.33 [110]    | 0.35 [9]     | 4          | 13          |
| LFB80       | 3.00 [76.2]                     | 5.71 [145]         | 0.47 [12]   | 4.92 [125]    | 0.35 [9]     | 8          | 13          |
| LFB100      | 4.00 [101.6]                    | 6.50 [165]         | 0.47 [12]   | 5.71 [145]    | 0.35 [9]     | 8          | 13          |
| LFB160      | 6.00 [152.4]                    | 8.86 [225]         | 0.63 [16]   | 7.87 [200]    | 0.43 [11]    | 8          | 17          |
| LFB200      | 8.00 [203.2]                    | 11.22 [285]        | 0.63 [16]   | 10.24 [260]   | 0.43 [11]    | 12         | 17          |
| LFB250      | 10.00 [254]                     | 13.19 [335]        | 0.63 [16]   | 12.20 [310]   | 0.43 [11]    | 12         | 17          |
| LFB320      | 12 [304.8] or<br>12.75 [323.85] | 16.73 [425]        | 0.79 [20]   | 15.55 [395]   | 0.55 [14]    | 12         | 19          |
| LFB400      | 16.00 [406.4]                   | 20.08 [425]        | 0.79 [20]   | 18.90 [480]   | 0.55 [14]    | 16         | 19          |
| LFB500      | 20.00 [508]                     | 24.02 [610]        | 0.79 [20]   | 22.83 [580]   | 0.55 [14]    | 16         | 19          |

ISO Bolted Flange  
(ANCORP LFB type SF shown)

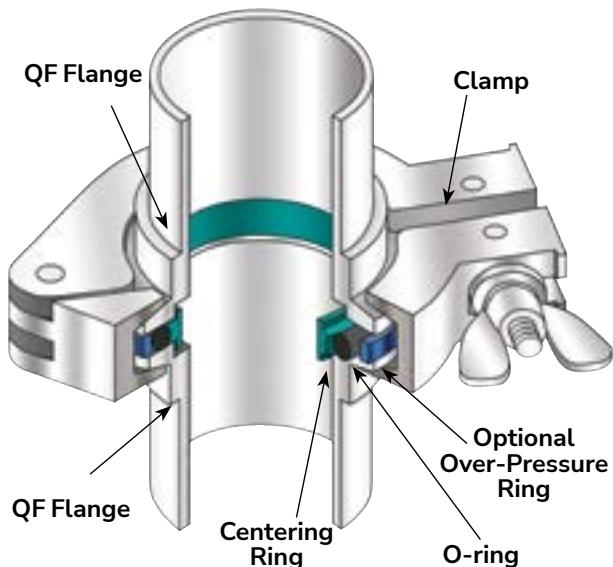
## ISO Standard Sealing Assemblies

An ISO seal assembly consists of 3 types of sub-components: two sexless, 360° rotatable flanges, a centering ring for alignment and support of the sealing ring and a fastener to compress the seal between the two flanges. ISO-QF and LF sealing components are similar, however their fastening methods differ. Because of this, there are some differences in flange appearance depending on which fastening method you employ.

**ANCORP** uses different Reference Number prefixes to distinguish between ISO flange types. See the illustrations below and on the following pages for quick reference.

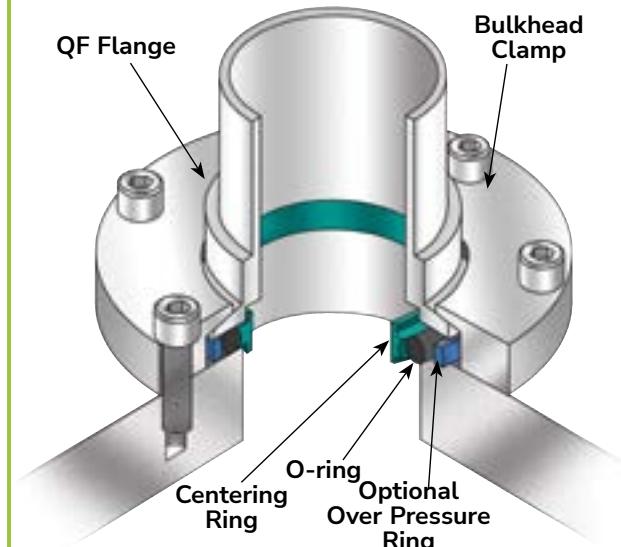


### ISO-QF Quick Clamp Seal Assembly



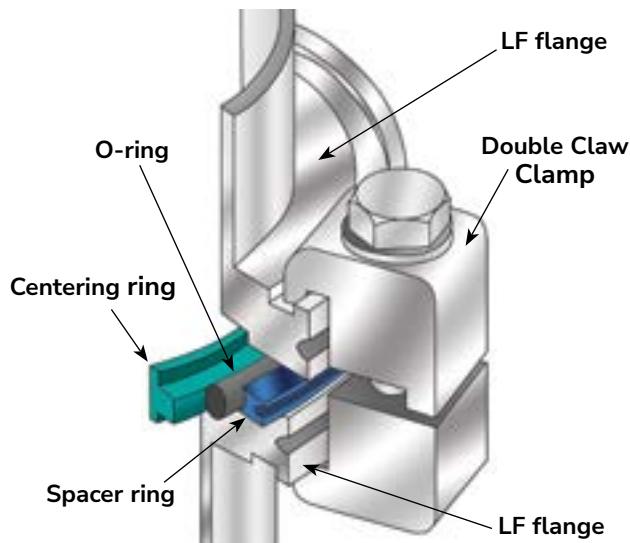
This is the commonly preferred method for fastening ISO flange connections due to the fact that the quick clamp offers the fastest and easiest fastening method for creating a reliable ISO vacuum seal. Traditionally these clamps have been limited to use with ISO flanges QF10 to QF50 (.75 inch to 2 inch tube outer diameter), but **ANCORP** now offers quick clamps and compatible flanges up to size QF200 (8 inch tube outer diameter). Quick clamps are available in a variety of materials and designs.

### ISO-QF Bulkhead Clamp Seal Assembly



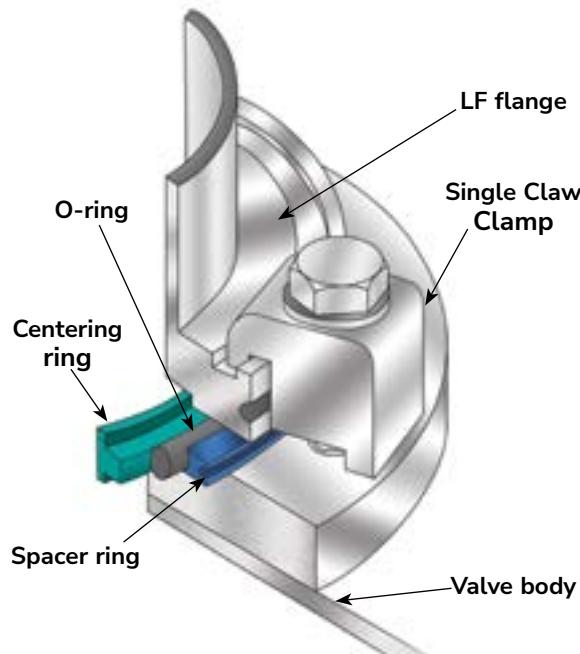
Bulkhead clamps are used to fasten ISO-QF style clamps directly to valves, chamber walls or base-plates. The object to which the flange is sealing must have a compatible bolt hole pattern and sealing groove machined into the sealing surface.

## ISO-LF Double Claw Clamp Seal Assembly



This is traditionally the most popular clamp fastening system for ISO sizes LF63 (2.5 inch tube outer diameter) and larger. This fastening system requires the use of more than one clamp per flange connection. They require more work per seal assembly, but they offer greater strength than the quick clamp if the seal assembly must bear a lateral load. These clamps are the only clamps capable of sealing sizes LF250 to LF500 (10 inch to 20 inch tubing outer diameter).

## ISO-LF Single Claw Clamp Seal Assembly

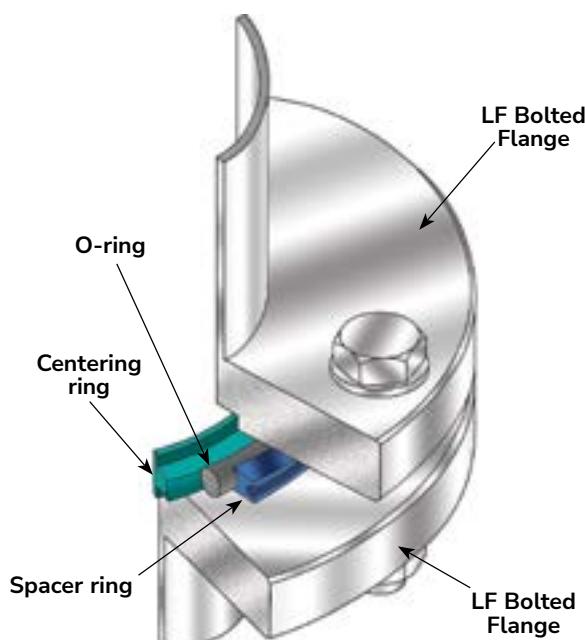


Single claw clamps are used to fasten ISO-LF style clamps directly to LFB flanges with tapped bolt holes, valves, chamber walls or baseplates. The object to which the flange is sealing must have a compatible bolt hole pattern and sealing groove machined into the sealing surface.

## ISO-LFB Clamp Seal Assembly

The original means of fastening ISO flange connections offers good lateral load strength like the claw clamp, but also requires more than one bolt set per flange connection like the claw clamp. One great disadvantage to using this fastening system is that the user loses the ability to have infinitely rotatable flanges. Great care must be taken to achieve bolt hole alignment through careful design and installation or the use of rotatable and non-rotatable flanges within your system.

**Note:** To create a rotatable LFB flange a rotatable bolt ring is added to a standard LF style flange.



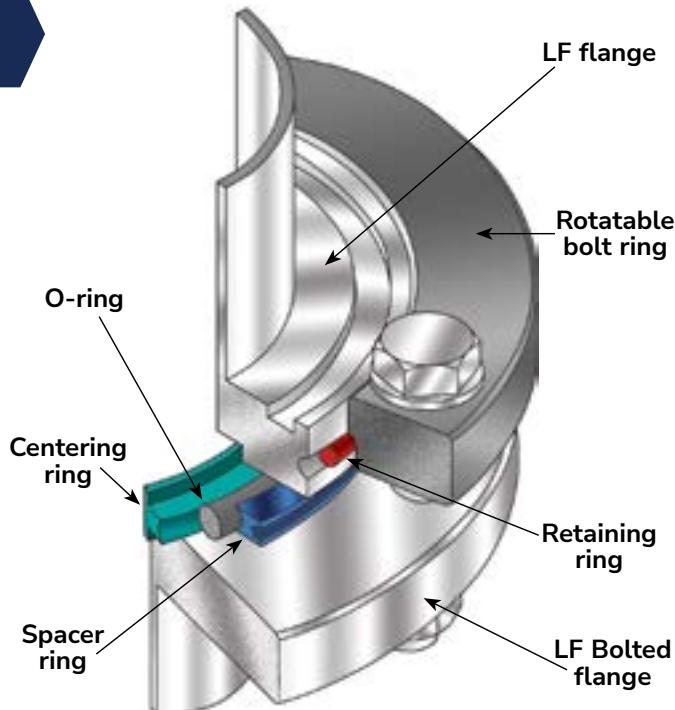
## ISO Adaptive Sealing Assemblies

The ISO vacuum flange system accommodates the need to connect different styles of ISO flanges and fasteners through adaptive subcomponents. These adaptive components fit around the outer diameter of the flange and allow the direct connection of two different types of ISO flange.

### ISO-LF to ISO-LFB Adaptive Seal Assembly

This fastener subcomponent fits around the outer diameter of a claw clamp style LF flange. This allows the flange to behave as a rotatable bolted style LFB flange to ease bolt-hole alignment issues when assembling the vacuum system.

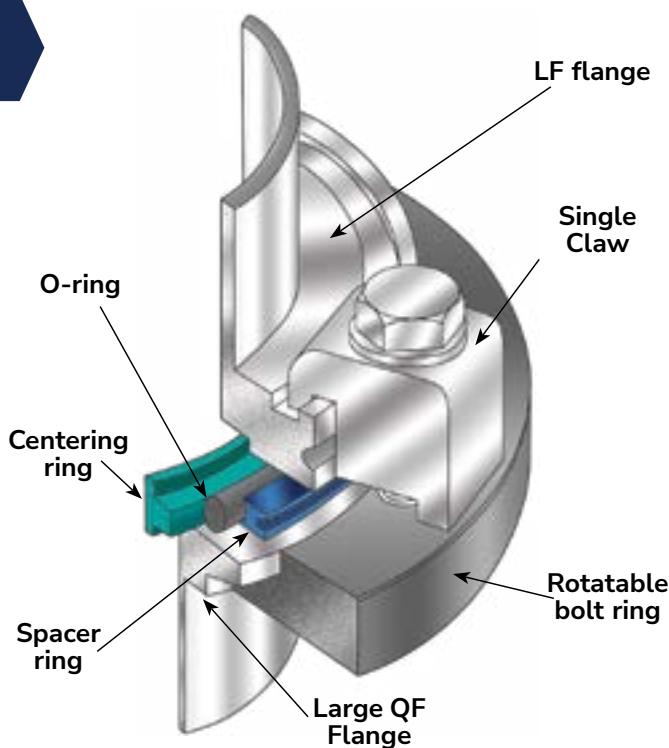
This assembly also has the advantage of having a low profile as compared to claw clamp fasteners. After the rotatable bolt ring is mounted to the LF flange a bolt kit is used to fasten the two flanges together.



### ISO-LF to ISO-QF Adaptive Seal Assembly

Adaptive fasteners allow vacuum users to convert directly from one style of ISO fastening flanges to another without the purchase of an adaptive nipple fitting. This saves money and reduces the space needed to accomplish the flange adaptation within your system.

The **ANCORP** adaptive ISO fastener can convert a bolted or claw clamp style flange directly to a quick clamp flange for the same tubing diameter.



## Sizes and Dimensions

All manufacturers of ISO components machine these flanges to measurements determined by the ISO standards referenced on the first page of this introduction, and as such, are interchangeable. It is worth noting that three of the flange sizes detailed on this page, namely the NW10, NW20 and NW32 are rarely used by modern vacuum equipment manufacturers in the United States and as such are not kept in stock by **ANCORP**. These can be manufactured upon request, but a better option is to use our adaptive centering ring. With our adaptive centering ring you can adapt directly from a QF10 to a QF16, QF20 to QF25, or QF32 to QF40. The connections can then be fastened with a standard clamp that corresponds with the larger of the two sizes.

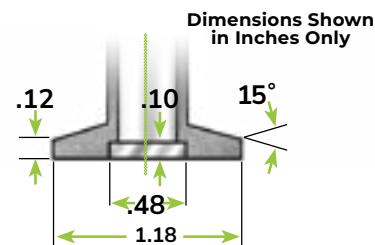
The ISO standard flange interface dimensions are shown on pg. 1.5 and are not repeated throughout the catalog.

Fittings (tees, crosses, elbows, etc.) and adapters have no universal standards; therefore, these dimensions are shown throughout the catalog. **ANCORP** uses U.S. dimensional standards for our ISO components. U.S. dimensional information is given in inches and references a tube's outer diameter. The international specifications for these flanges are stated in millimeters and refer to a tube's inside diameter. See the chart below for a cross-reference between the two standards.

| ISO SIZE | TUBING I.D. (mm) | ANCORP REF # | TUBING O.D. (in) |
|----------|------------------|--------------|------------------|
| NW10     | 10               | QF10         | 0.50             |
| NW16     | 16               | QF16         | 0.75             |
| NW25     | 25               | QF25         | 1.00             |
| NW40     | 40               | QF40         | 1.50             |
| NW50     | 50               | QF50         | 2.00             |
| NW63     | 63               | LF63         | 2.50             |
| NW80     | 80               | LF80         | 3.00             |
| NW100    | 100              | LF100        | 4.00             |
| NW160    | 160              | LF160        | 6.00             |
| NW200    | 200              | LF200        | 8.00             |
| NW250    | 250              | LF250        | 10.00            |
| NW320    | 320              | LF320-1200   | 12.00            |
| NW320    | 320              | LF320-1275   | 12.75            |
| NW400    | 400              | LF400        | 16.00            |
| NW500    | 500              | LF500        | 20.00            |

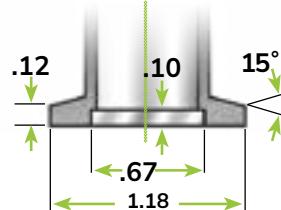
### ISO NW10

Mates with **ISO QF16** using an adaptive centering ring.



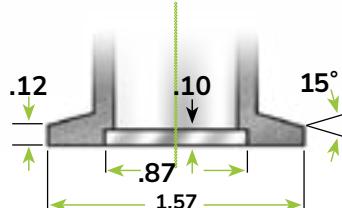
### ISO QF16

Standard **ANCORP Quick Flange**



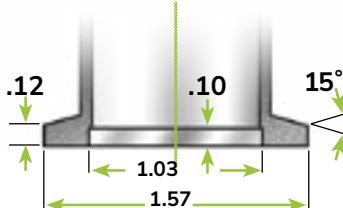
### ISO NW20

Mates with **ISO QF25** using an adaptive centering ring.



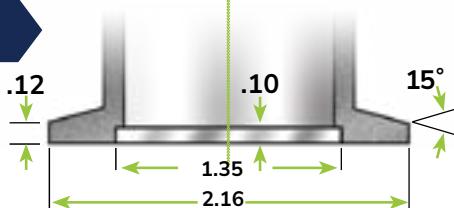
### ISO QF25

Standard **ANCORP Quick Flange**



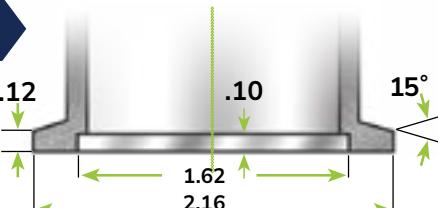
### ISO NW32

Mates with **ISO QF40** using an adaptive centering ring.



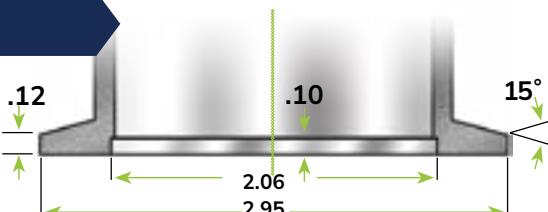
### ISO QF40

Standard **ANCORP Quick Flange**



### ISO QF50

Standard **ANCORP Quick Flange**



# ISO Clamps and Fasteners

The ISO flange system has three traditional choices with which to fasten together your flanges and create a seal. These are the quick clamp connection, claw clamp connection and bolt kits. In addition to these fasteners there are adaptative bolt rings and bulkhead fasteners for special applications.

All of these fasteners have advantages for different applications and are described in detail below.



## Specifications:

- High vacuum rated to  $1 \times 10^{-8}$  Torr
- Fasteners for all sizes of quick flange (ISO-QF) and large flange (ISO-LF) flanges
- Fastening materials: aluminum or stainless steel
- Compatible with all ISO standard vacuum flanges and fittings

## Features:

- Reusable seals
- Sexless interface
- Infinitely rotatable
- Quick sealing and disassembly
- Ease installation
- Variety of fastening options
- Imperial and metric sizes available

## Quick Clamps



This is the commonly preferred method for fastening ISO flange connections due to the fact that they offer the fastest and easiest fastening method for creating a reliable ISO vacuum seal. Traditionally these clamps have been limited to use with ISO

flange sizes QF10 to QF50 (.75 inch to 2 inch tube outer diameter), but **ANCORP** now offers quick clamps and compatible flanges up to size QF200 (8 inch tube outer diameter). Quick clamps are available in a variety of materials and designs.

## Claw Clamps

Claw clamps require the use of more than one clamp per flange connection. They require more work per seal assembly, but they offer greater strength than the quick clamp if the seal assembly must bear a lateral load. Claw clamps are traditionally the most

popular clamps for ISO sizes LF63 (2.5 inch tube outer diameter) and larger. These clamps are the only clamps capable of sealing sizes LF250 to LF500 (10 inch to 20 inch tubing outer diameter).



## Bolt Kits

The original means of fastening ISO flange connections offers good lateral load strength like the claw clamp, but also requires more than one bolt set per flange connection like the claw clamp.



One great disadvantage to using this fastening system is that the user loses the ability to have infinitely rotatable flanges. Great care must be taken to achieve bolt-hole alignment through careful design and installation or the use of rotatable and non-rotatable flanges within your system.

## Adaptive Bolt Ring

Adaptive bolt rings allow vacuum users to convert directly from one style of ISO fastening flanges to another without the purchase of an adaptive nipple fitting.



This saves money and reduces the space needed to accomplish the flange adaptation within your system. The **ANCORP** adaptive ISO fastener can convert a bolted or claw clamp style flange directly to a quick clamp flange for the same tubing diameter.

## TECH TIP

To create a rotatable LFB flange, a Rotatable bolt ring is added to a standard LF style flange.



## Bulkhead Clamps



Bulkhead clamps are used to fasten ISO-QF style flanges and components directly to valves, chamber walls, baseplates or bulkheads. The object to which the flange is sealing must have a compatible bolt hole pattern and sealing groove machined into the sealing surface.

## Rotatable Bolt Ring

Rotatable bolt rings are a subcomponent that fits around the outer diameter of a claw clamp style LF flange. This allows the flange to behave as a rotatable bolted style LFB flange to ease bolt-hole alignment issues when assembling the vacuum system.

This assembly also has the advantage of having a low profile as compared to claw clamp fasteners. After the rotatable bolt ring is mounted to the LF flange a bolt kit is used to fasten the two flanges together.

## Clamps

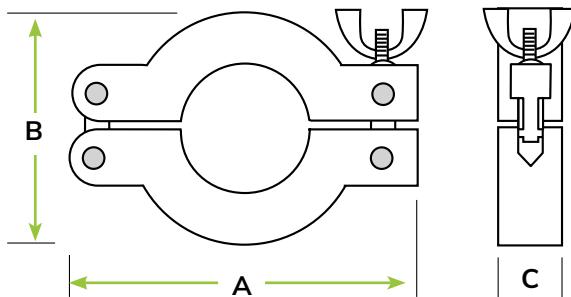
## Wing-Nut Aluminum Clamp

## Materials:

- Body: die-cast aluminum

## Product Notes:

- Economy design for non-stressing vacuum applications



| PART #  | REFERENCE ID   | TUBE SIZE (in) | A (in) | B (in) | C (in) |
|---------|----------------|----------------|--------|--------|--------|
| 4040000 | QF10/16-WNC-AL | 0.50 + 0.75    | 2.45   | 1.67   | 0.65   |
| 4040001 | QF25-WNC-AL    | 1.00           | 2.86   | 2.16   | 0.65   |
| 4040002 | QF40-WNC-AL    | 1.50           | 3.53   | 2.73   | 0.65   |
| 4040003 | QF50-WNC-AL    | 2.00           | 4.80   | 3.70   | 0.90   |

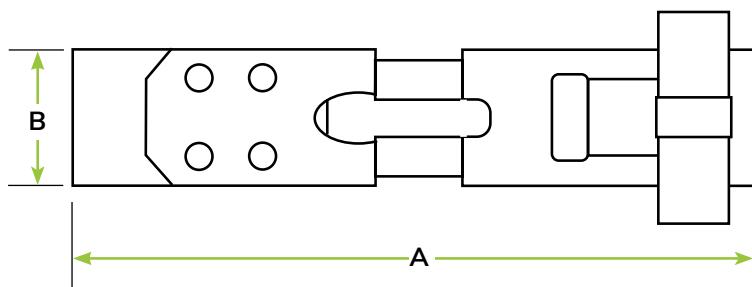
## Band Clamp

## Materials:

- Body: stainless steel

## Product Notes:

- Fastens large size ISO-QF flanges with elastomer seals



| PART #  | REFERENCE ID | TUBE SIZE (in) | A (in) | B (in) |
|---------|--------------|----------------|--------|--------|
| 4040008 | QF63-BC      | 2.50           | 3.90   | 0.93   |
| 4040009 | QF80-BC      | 3              | 4.75   | 0.93   |
| 4040010 | QF100-BC     | 4              | 5.38   | 0.93   |
| 4040011 | QF160-BC     | 6              | 7.25   | 0.93   |
| 4040012 | QF200-BC     | 8              | 9.56   | 0.93   |

**ORDERING NOTE:** ANCORP recommends our line of CNC machined clamps for all connections that may bear a lateral load, positive pressure or dangerous substances.

## ANCORP CNC Aluminum Clamp

**Materials:**

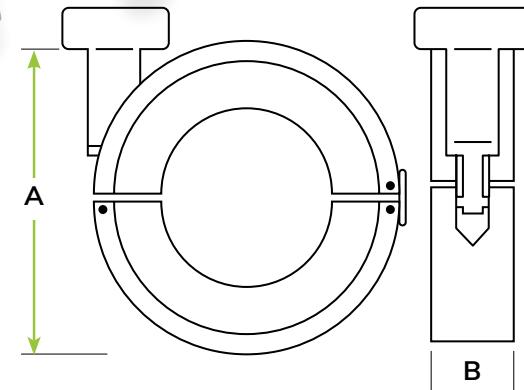
- Body: aluminum
- Hardware (pins, studs and hinges): stainless steel

**Product Notes:**

- Machined from solid bar for greatly increased strength
- Integrated handle lock to prevent accidental opening

**TECH TIP**


The design of this clamp eliminates the need for over pressure rings on sizes QF16, QF25 and QF40



| PART #  | REFERENCE ID    | TUBE SIZE (in) | A (in) | B (in) |
|---------|-----------------|----------------|--------|--------|
| 4050000 | QF10/16-CLMP-AL | 0.50 + 0.75    | 1.94   | 0.63   |
| 4050001 | QF25-CLMP-AL    | 1.00           | 2.45   | 0.63   |
| 4050002 | QF40-CLMP-AL    | 1.50           | 2.94   | 0.63   |
| 4050003 | QF50-CLMP-AL    | 2.00           | 3.94   | 0.63   |

## ANCORP CNC Stainless Steel Clamp

**Materials:**

- Body: stainless steel
- Hardware (pins, studs and hinges): stainless steel

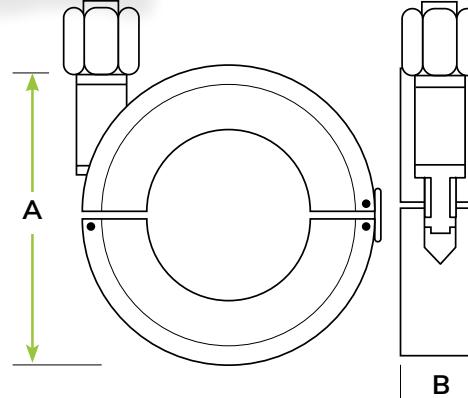
- Integrated handle lock to prevent accidental opening
- Ideal for corrosive, high torque, high heat and low temperature applications
- Maximum closing torque = 6 ft. lbs.

**Product Notes:**

- Machined from solid bar for greatly increased strength

**TECH TIP**


The design of this clamp eliminates the need for over pressure rings on sizes QF16, QF25 and QF40



| PART #  | REFERENCE ID | TUBE SIZE (in) | A (in) | B (in) |
|---------|--------------|----------------|--------|--------|
| 4050015 | QF10/16-CS   | 0.50 + 0.75    | 1.94   | 0.63   |
| 4050016 | QF25-CLMP-SS | 1              | 2.45   | 0.63   |
| 4050017 | QF40-CLMP-SS | 1.50           | 2.94   | 0.63   |
| 4050018 | QF50-CLMP-SS | 2              | 3.94   | 0.63   |

## Bulkhead Clamp

### Bulkhead Clamp

Bulkhead clamps are used to fasten ISO-QF style flanges and components directly to valves, chamber walls, baseplates or bulkheads. The object to which the flange is sealing must have a compatible bolt hole pattern and sealing groove machined into the sealing surface.

#### Materials:

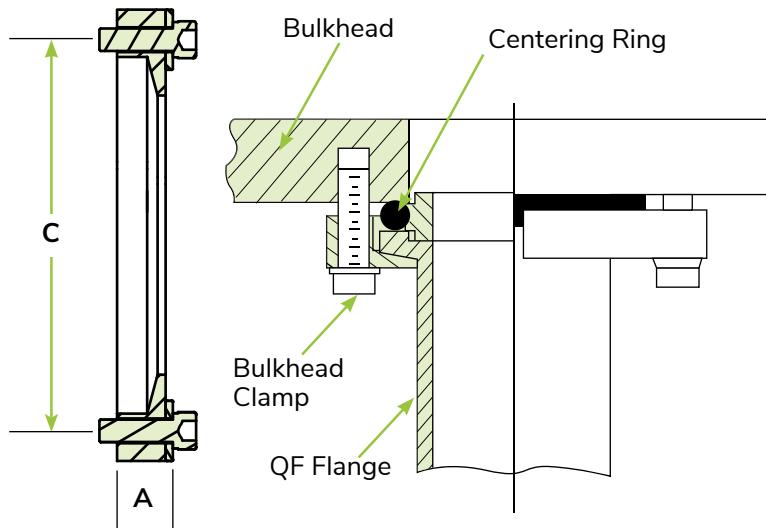
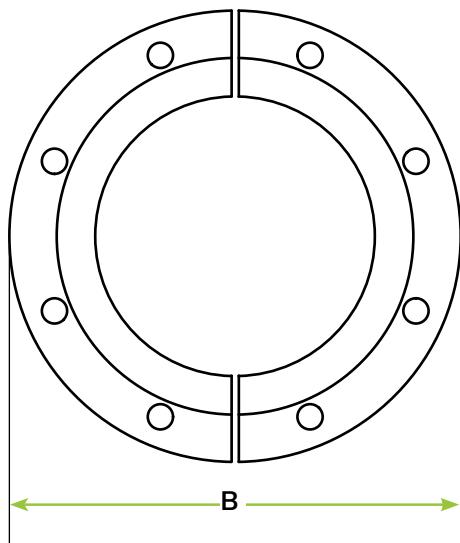
- Body: aluminum
- Hardware (bolts and washers): stainless steel
- Bolt size: 10-32x5/8

#### Product Notes:

- Utilizes a standard QF seal assembly
- Bolts included

#### TECH TIP

The design of this clamp eliminates the need for over pressure rings on sizes QF16, QF25 and QF40



| PART #  | REFERENCE ID | # OF BOLTS | A (in) | B (in) | C (in) |
|---------|--------------|------------|--------|--------|--------|
| 4000000 | QF10/16-BHC  | 6          | 0.36   | 2.00   | 1.50   |
| 4000001 | QF25-BHC     | 6          | 0.39   | 2.38   | 1.89   |
| 4000002 | QF40-BHC     | 6          | 0.37   | 2.94   | 2.44   |
| 4000003 | QF50-BHC     | 8          | 0.40   | 3.75   | 3.25   |

## Double Claw Clamp

**Materials:**

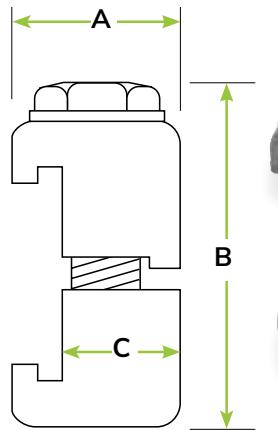
- Body: aluminum
- Hardware (bolts and washers): stainless steel

**Product Notes:**

- Fastens ISO-LF flanges

**Options:**

- Call for price and delivery**
- Stainless steel clamp body



| PART #  | REFERENCE ID  | FLANGE SIZE   | A (in) | B (in) | C (in) |
|---------|---------------|---------------|--------|--------|--------|
| 4500000 | LF63/100-DCC  | 63, 80, 100   | 0.96   | 1.99   | 0.66   |
| 4500001 | LF160/250-DCC | 160, 200, 250 | 1.10   | 2.05   | 0.80   |
| 4500002 | LF320/500-DCC | 320, 400, 500 | 1.34   | 2.56   | 1.04   |

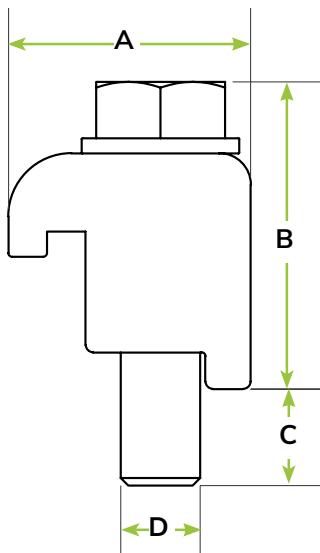
## Single Claw Clamp

**Materials:**

- Body: aluminum
- Hardware (bolts and washers): stainless steel

**Product Notes:**

- Fastens ISO-LF flanges to tapped ISO-LFB flanges or components (valves, chambers) with a compatible bolt hole pattern and sealing groove.


**Options: Call for price and delivery**

- Stainless steel clamp body

| PART #  | REFERENCE ID  | BOLT SIZE | FLANGE SIZE   | A (in) | B (in) | C (in) | D (in) |
|---------|---------------|-----------|---------------|--------|--------|--------|--------|
| 4500003 | LF63/100-SCC  | M8x35     | 63, 80, 100   | 0.95   | 1.20   | 0.655  | 0.39   |
| 4500004 | LF160/250-SCC | M10x35    | 160, 200, 250 | 1.10   | 1.25   | 0.785  | 0.39   |
| 4500005 | LF320/500-SCC | M12x50    | 320, 400, 500 | 1.34   | 1.57   | 0.965  | 0.72   |

## ISO Flange Bolts

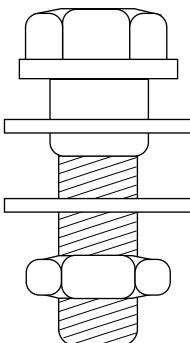
### Double Flange Bolts

**Materials:**

- Hardware (bolts, nuts and washers): stainless steel

**Product Notes:**

- Fastens ISO-LF flanges
- Bolt kits include all of the bolt sets you will need for 1 ISO-LF sealing assembly.



| PART #  | REFERENCE ID   | BOLT SIZE | # PER SET |
|---------|----------------|-----------|-----------|
| 0604501 | LFB63-DFB      | M8x40     | 4         |
| 0604502 | LFB80/100-DFB  | M8x40     | 8         |
| 0604503 | LFB160-DFB     | M10x50    | 8         |
| 0604504 | LFB200/250-DFB | M10x50    | 12        |
| 0604505 | LFB320-DFB     | M12x60    | 12        |
| 0604506 | LFB400/500-DFB | M12x60    | 16        |

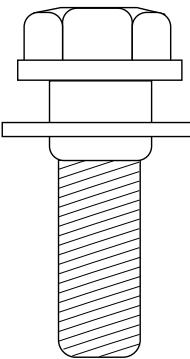
### Tapped Flange Bolts

**Materials:**

- Hardware (bolts, nuts and washers): stainless steel

**Product Notes:**

- Fastens ISO-LFB flanges to tapped ISO-LFB flanges or components (valves, chambers) with a compatible bolt hole pattern and sealing groove.
- Bolt kits include all of the bolt sets you will need for one ISO-LF sealing assembly.



| PART #  | REFERENCE ID   | BOLT SIZE | # PER SET |
|---------|----------------|-----------|-----------|
| 0604510 | LFB63-TFB      | M8x30     | 4         |
| 0604511 | LFB80/100-TFB  | M8x30     | 8         |
| 0604512 | LFB160-TFB     | M10x35    | 8         |
| 0604513 | LFB200/250-TFB | M10x35    | 12        |
| 0604514 | LFB320-TFB     | M12x45    | 12        |
| 0604515 | LFB400/500-TFB | M12x45    | 16        |

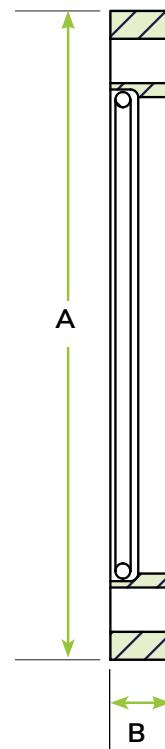
## Rotatable Bolt Ring

**Materials:**

- Body: aluminum
- Retaining ring: stainless steel

**Product Notes:**

- Converts ISO-LF flanges to Rotatable ISO-LFB flanges
- O.D. and bolt pattern match ISO-LFB flanges
- **Retaining ring included**
- See pg. 1.18 for additional details



**Rotatable Bolt Ring**

| PART #  | REFERENCE ID   | A<br>O.D. (in) | B<br>THICKNESS (in) |
|---------|----------------|----------------|---------------------|
| 4500060 | LF63-250-RBR   | 5.12           | 0.47                |
| 4500061 | LF80-300-RBR   | 5.71           | 0.47                |
| 4500062 | LF100-400-RBR  | 6.50           | 0.47                |
| 4500063 | LF160-600-RBR  | 8.86           | 0.63                |
| 4500064 | LF200-800-RBR  | 11.22          | 0.63                |
| 4500065 | LF250-1000-RBR | 13.19          | 0.63                |
| 4500066 | LF320-1200-RBR | 16.73          | 0.79                |
| 4500067 | LF400-1600-RBR | 20.08          | 0.79                |
| 4500068 | LF500-2000-RBR | 24.02          | 0.79                |

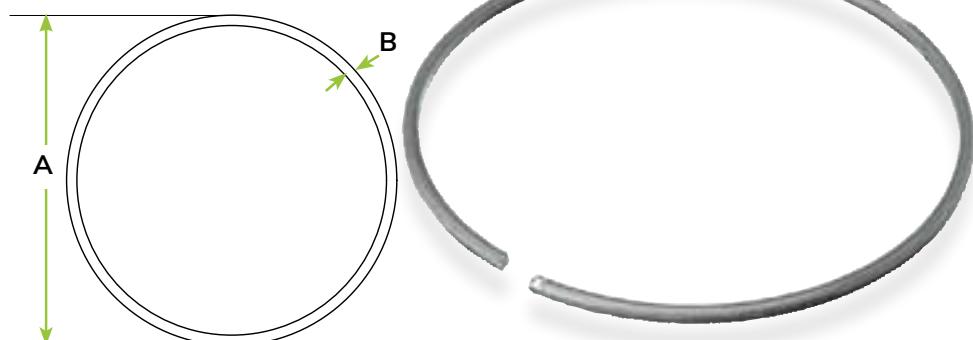
## Replacement Retaining Ring

**Materials:**

- Stainless steel

**Product Notes:**

- Converts ISO-LF flanges to rotatable ISO-LFB flanges
- O.D. and bolt pattern match ISO-LFB flanges



| PART #  | REFERENCE ID  | A<br>O.D. (in) | B<br>THICKNESS (in) |
|---------|---------------|----------------|---------------------|
| 4510036 | LF63-250-RR   | 3.840          | 0.125               |
| 4510037 | LF80-300-RR   | 4.456          | 0.125               |
| 4510038 | LF100-400-RR  | 5.25           | 0.120               |
| 4510039 | LF160-600-RR  | 7.26           | 0.180               |
| 4510040 | LF200-800-RR  | 9.25           | 0.190               |
| 4510041 | LF250-1000-RR | 11.674         | 0.175               |
| 4510042 | LF320-1200-RR | 14.37          | 0.188               |
| 4510043 | LF400-1600-RR | 18.063         | 0.315               |
| 4510044 | LF500-2000-RR | 22.00          | 0.310               |

## Adaptive Bolt Ring

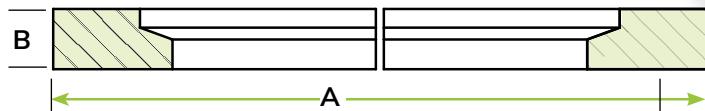
### Adaptive Bolt Ring

**Materials:**

- Body: aluminum

**Product Notes:**

- Converts ISO-LF and ISO-LFB flanges to ISO-QF flanges
- O.D. and bolt pattern match ISO-LFB flanges



| PART #  | REFERENCE ID  | A<br>O.D. (in) | B<br>THICKNESS (in) |
|---------|---------------|----------------|---------------------|
| 4001086 | QF63-250-ABR  | 5.12           | 0.47                |
| 4001087 | QF80-300-ABR  | 5.71           | 0.47                |
| 4001088 | QF100-400-ABR | 6.50           | 0.47                |
| 4001089 | QF160-600-ABR | 8.86           | 0.47                |
| 4001090 | QF200-800-ABR | 11.22          | 0.47                |

### Rotatable Bolt Ring

ISO-LFB bolt fastener flange fastened to an ISO-LF flange with a rotatable bolt ring

Rotatable bolt rings are a subcomponent that fits around the outer diameter of a claw clamp style LF flange. This allows the flange to behave as a rotatable bolted style LFB flange to ease bolt-hole alignment issues when assembling the vacuum system.

This assembly also has the advantage of having a low profile as compared to claw clamp fasteners. After the rotatable bolt ring is mounted to the LF flange a bolt kit is used to fasten the two flanges together.



### ISO Adaptive Bolt Ring

Adaptive bolt rings allow vacuum users to convert directly from one style of ISO-LF fastening flange to another without the purchase of an adaptive fitting. This saves money and reduces the space needed to accomplish the flange adaptation within your system. The **ANCORP** adaptive ISO

fastener can convert a bolted or claw clamp style ISO-LF flange directly to a quick clamp flange for the same tubing diameter. (i.e. an LF80-300-SF can adapt directly to a QF80-300-SF)



ISO-LF clamp fastened flange directly adapted to an ISO-QF clamp flange of the same size.

ISO-LFB bolt fastened flange directly adapted to an ISO-QF clamp flange of the same size.

## ISO Seals



ISO Seals

**ANCORP** provides ISO high vacuum seals and sealing assemblies for all ISO standard sizes.

We offer three different types of elastomer sealing rings and two different types of metallic supportive rings which can be configured to meet the needs of your specific application.

### Specifications:

- High vacuum rated to  $1 \times 10^{-8}$  Torr
- Sealing materials: Viton®, Buna or silicone
- Compatible with all ISO standard vacuum flanges

### Features:

- Reusable seals
- Sexless interface
- Infinitely rotatable
- Quick sealing and disassembly
- Ease installation
- Self-centering supportive ring
- Imperial and metric sizes available

## Centering Ring Assemblies

The basic seal for the ISO flange system includes a supportive inner stainless steel ring and an elastomer outer ring (O-ring) which is compressed between the ISO flanges to create a vacuum tight seal.

**ANCORP** offers a choice of three different elastomers for the sealing ring (Viton®, Buna and silicone).



## Adaptive Centering Ring Assemblies



These sealing assemblies allow you to adapt directly from the rarely used ISO-QF sizes (QF10, QF20 and QF32) to commonly available ISO-QF sizes (QF16, QF25 and QF40). The adapted assembly can then be fastened with a standard clamp that corresponds with the larger of the two sizes.

## Replacement O-rings



The elastomer sealing rings (O-ring) for the ISO seal assembly must be used in conjunction with a metallic supportive ring. The elastomer component of this sealing assembly is a consumable item. When the O-ring no longer provides consistent vacuum tight seals replacement elastomer O-rings can be purchased separately from the supportive metallic ring to decrease cost of system maintenance. **ANCORP** offers a choice of three different elastomers for the sealing ring (Viton®, Buna and silicone).

## Screen Mesh Centering Ring Assemblies



These sealing assemblies are useful in many situations in which a vacuum system or instrument needs to be protected from contamination by particulate generated from outside the system or from within. These seal assemblies are made of the same sub-components as the standard centering ring assemblies described on the opposite page. The difference is that the supportive metallic ring for these seals has a screen mesh insert covering the inner aperture.

## Over-Pressure Rings



This centering ring accessory creates a barrier on the outer diameter of the elastomer sealing ring to prevent "blow out" due to the presence of pressures greater than 1 standard atmosphere within a vacuum system. A centering ring assembly with over-pressure ring can withstand up to 100psi of pressure depending on the size of the flange you are using. **ANCORP** CNC machined clamps have a built-in over-pressure ring design for sizes QF16, QF25, and QF40. With the use of these clamps there is no need for the added expense of an over-pressure ring addition to the centering ring assembly.

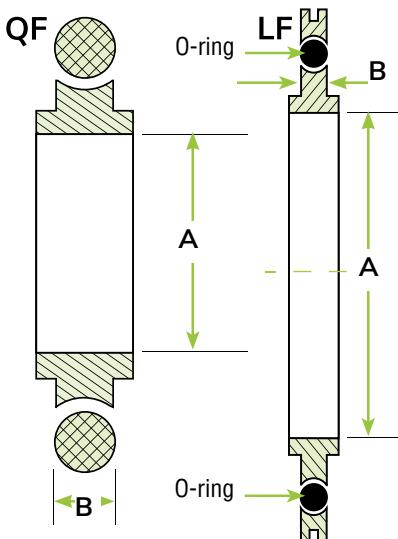
## Centering Ring Assembly - Stainless Steel

**Materials:**

- Centering ring: stainless steel
- O-ring: Buna-N, Viton® or silicone
- Spacer ring (LF sizes only): aluminum

**Product Notes:**

- Metal centering ring aligns flanges during seal assembly and provides support for the elastomer sealing ring.



| TEMPERATURE LIMITS |       |                |                  |
|--------------------|-------|----------------|------------------|
| O-ring MATERIAL    | LOW   | SUSTAINED HIGH | INTERMITTENT USE |
| Viton®             | -26°C | 150°C          | 205°C            |
| Buna               | -20°C | 80°C           | 100°C            |
| Silicone           | -50°C | 150°C          | 200°C            |

Silicone is chemically resistant

### Stainless Steel Centering Ring

| PART #              | REFERENCE ID      | A (in) | B (in) | PART #              | REFERENCE ID      | A (in) | B (in) |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
|---------------------|-------------------|--------|--------|---------------------|-------------------|--------|--------|---------|-----------------|------|------|---------|-------------------|-------|------|---------|-----------------|------|------|---------|-------------------|-------|------|---------|-----------------|------|------|---------|-------------------|-------|------|---------|-----------------|------|------|---------------------|--|--|--|--|--|--|--|---------|-----------------|------|------|---------|-----------------|------|------|---------|-----------------|------|------|---------|-----------------|------|------|---------|-----------------|------|------|---------|------------------|------|------|---------|-----------------|------|------|---------|------------------|------|------|---------|-----------------|------|------|---------|------------------|------|------|---------|-----------------|------|------|---------|-------------------|-------|------|--|--|--|--|---------|-------------------|-------|------|--|--|--|--|---------|-------------------|-------|------|--|--|--|--|---------|-------------------|-------|------|
| <b>Viton® Seals</b> |                   |        |        |                     |                   |        |        |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000005             | QF16-075-CTR-VT   | 0.63   | 0.21   | 4500012             | LF100-400-CTR-BN  | 3.90   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000006             | QF25-100-CTR-VT   | 0.98   | 0.21   | 4500015             | LF160-600-CTR-BN  | 5.91   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000007             | QF40-150-CTR-VT   | 1.53   | 0.21   | 4500018             | LF200-800-CTR-BN  | 8.27   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000008             | QF50-200-CTR-VT   | 1.97   | 0.21   | 4500021             | LF250-1000-CTR-BN | 10.14  | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500008             | LF63-250-CTR-VT   | 2.64   | 0.15   | 4500024             | LF320-1200-CTR-BN | 12.28  | 0.22   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500011             | LF80-300-CTR-VT   | 3.15   | 0.15   | 4500027             | LF400-1600-CTR-BN | 15.42  | 0.22   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500014             | LF100-400-CTR-VT  | 3.90   | 0.15   | 4500030             | LF500-2000-CTR-BN | 19.41  | 0.22   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500017             | LF160-600-CTR-VT  | 5.91   | 0.15   | <b>Buna-N Seals</b> |                   |        |        |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500020             | LF200-800-CTR-VT  | 8.27   | 0.15   | 4500023             | LF250-1000-CTR-VT | 10.14  | 0.15   | 4000015 | QF16-075-CTR-SN | 0.63 | 0.21 | 4500026 | LF320-1200-CTR-VT | 12.28 | 0.22 | 4000016 | QF25-100-CTR-SN | 0.98 | 0.21 | 4500029 | LF400-1600-CTR-VT | 15.42 | 0.22 | 4000017 | QF40-150-CTR-SN | 1.53 | 0.21 | 4500032 | LF500-2000-CTR-VT | 19.41 | 0.22 | 4000018 | QF50-200-CTR-SN | 1.97 | 0.21 | <b>Buna-N Seals</b> |  |  |  |  |  |  |  | 4000010 | QF16-075-CTR-BN | 0.63 | 0.21 | 4500007 | LF63-250-CTR-SN | 2.65 | 0.15 | 4000011 | QF25-100-CTR-BN | 0.98 | 0.21 | 4500010 | LF80-300-CTR-SN | 3.15 | 0.15 | 4000012 | QF40-150-CTR-BN | 1.53 | 0.21 | 4500013 | LF100-400-CTR-SN | 3.90 | 0.15 | 4000013 | QF50-200-CTR-BN | 1.97 | 0.21 | 4500016 | LF160-600-CTR-SN | 5.91 | 0.15 | 4500006 | LF63-250-CTR-BN | 2.65 | 0.15 | 4500019 | LF200-800-CTR-SN | 8.27 | 0.15 | 4500009 | LF80-300-CTR-BN | 3.15 | 0.15 | 4500022 | LF250-1000-CTR-SN | 10.14 | 0.15 |  |  |  |  | 4500025 | LF320-1200-CTR-SN | 12.28 | 0.22 |  |  |  |  | 4500028 | LF400-1600-CTR-SN | 15.42 | 0.22 |  |  |  |  | 4500031 | LF500-2000-CTR-SN | 19.41 | 0.22 |
| 4500023             | LF250-1000-CTR-VT | 10.14  | 0.15   | 4000015             | QF16-075-CTR-SN   | 0.63   | 0.21   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500026             | LF320-1200-CTR-VT | 12.28  | 0.22   | 4000016             | QF25-100-CTR-SN   | 0.98   | 0.21   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500029             | LF400-1600-CTR-VT | 15.42  | 0.22   | 4000017             | QF40-150-CTR-SN   | 1.53   | 0.21   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500032             | LF500-2000-CTR-VT | 19.41  | 0.22   | 4000018             | QF50-200-CTR-SN   | 1.97   | 0.21   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| <b>Buna-N Seals</b> |                   |        |        |                     |                   |        |        |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000010             | QF16-075-CTR-BN   | 0.63   | 0.21   | 4500007             | LF63-250-CTR-SN   | 2.65   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000011             | QF25-100-CTR-BN   | 0.98   | 0.21   | 4500010             | LF80-300-CTR-SN   | 3.15   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000012             | QF40-150-CTR-BN   | 1.53   | 0.21   | 4500013             | LF100-400-CTR-SN  | 3.90   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4000013             | QF50-200-CTR-BN   | 1.97   | 0.21   | 4500016             | LF160-600-CTR-SN  | 5.91   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500006             | LF63-250-CTR-BN   | 2.65   | 0.15   | 4500019             | LF200-800-CTR-SN  | 8.27   | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
| 4500009             | LF80-300-CTR-BN   | 3.15   | 0.15   | 4500022             | LF250-1000-CTR-SN | 10.14  | 0.15   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
|                     |                   |        |        | 4500025             | LF320-1200-CTR-SN | 12.28  | 0.22   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
|                     |                   |        |        | 4500028             | LF400-1600-CTR-SN | 15.42  | 0.22   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |
|                     |                   |        |        | 4500031             | LF500-2000-CTR-SN | 19.41  | 0.22   |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |         |                   |       |      |         |                 |      |      |                     |  |  |  |  |  |  |  |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                  |      |      |         |                 |      |      |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |  |  |  |  |         |                   |       |      |

**ORDERING NOTE: CENTERING RINGS WITH SCREEN MESH ARE AVAILABLE ON PG. 1.24.**

## Centering Ring Assembly

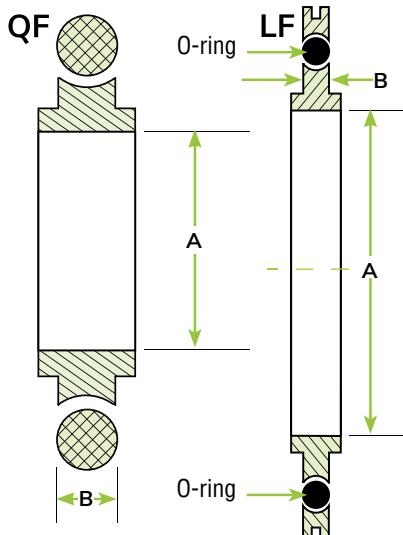
## Centering Ring Assembly - Aluminum

**Materials:**

- Centering ring: aluminum
- O-ring: Buna-N, Viton® or silicone
- Spacer ring (LF sizes only): aluminum

**Product Notes:**

- Metal centering ring aligns flanges during seal assembly and provides support for the elastomer sealing ring.



| TEMPERATURE LIMITS |       |                |                  |
|--------------------|-------|----------------|------------------|
| O-ring MATERIAL    | LOW   | SUSTAINED HIGH | INTERMITTENT USE |
| Viton®             | -26°C | 150°C          | 205°C            |
| Buna               | -20°C | 80°C           | 100°C            |
| Silicone           | -50°C | 150°C          | 200°C            |

Silicone is chemically resistant

## Aluminum Centering Ring

| PART #                | REFERENCE ID         | A (in) | B (in) | PART #                | REFERENCE ID         | A (in) | B (in) |
|-----------------------|----------------------|--------|--------|-----------------------|----------------------|--------|--------|
| <b>Viton® Seals</b>   |                      |        |        |                       |                      |        |        |
| 4000020               | QF16-075-CTR-AL-VT   | 0.63   | 0.21   | 4500039               | LF100-400-CTR-AL-BN  | 3.90   | 0.15   |
| 4000021               | QF25-100-CTR-AL-VT   | 0.98   | 0.21   | 4500042               | LF160-600-CTR-AL-BN  | 5.91   | 0.15   |
| 4000022               | QF40-150-CTR-AL-VT   | 1.53   | 0.21   | 4500045               | LF200-800-CTR-AL-BN  | 8.27   | 0.15   |
| 4000023               | QF50-200-CTR-AL-VT   | 1.97   | 0.21   | 4500048               | LF250-1000-CTR-AL-BN | 10.14  | 0.15   |
| 4500035               | LF63-250-CTR-AL-VT   | 2.64   | 0.15   | 4500051               | LF320-1200-CTR-AL-BN | 12.28  | 0.21   |
| 4500038               | LF80-300-CTR-AL-VT   | 3.15   | 0.15   | 4500054               | LF400-1600-CTR-AL-BN | 15.42  | 0.21   |
| 4500041               | LF100-400-CTR-AL-VT  | 3.90   | 0.15   | 4500057               | LF500-2000-CTR-AL-BN | 19.41  | 0.21   |
| 4500044               | LF160-600-CTR-AL-VT  | 5.91   | 0.15   | <b>Buna-N Seals</b>   |                      |        |        |
| 4500047               | LF200-800-CTR-AL-VT  | 8.27   | 0.15   | 4500039               | LF100-400-CTR-AL-BN  | 3.90   | 0.15   |
| 4500050               | LF250-1000-CTR-AL-VT | 10.14  | 0.15   | 4500042               | LF160-600-CTR-AL-BN  | 5.91   | 0.15   |
| 4500053               | LF320-1200-CTR-AL-VT | 12.28  | 0.21   | 4500045               | LF200-800-CTR-AL-BN  | 8.27   | 0.15   |
| 4500056               | LF400-1600-CTR-AL-VT | 15.42  | 0.21   | 4500048               | LF250-1000-CTR-AL-BN | 10.14  | 0.15   |
| 4500059               | LF500-2000-CTR-AL-VT | 19.41  | 0.21   | 4500051               | LF320-1200-CTR-AL-BN | 12.28  | 0.21   |
| <b>Buna-N Seals</b>   |                      |        |        |                       |                      |        |        |
| 4000025               | QF16-075-CTR-AL-BN   | 0.63   | 0.21   | 4500054               | LF400-1600-CTR-AL-BN | 15.42  | 0.21   |
| 4000026               | QF25-100-CTR-AL-BN   | 0.98   | 0.21   | 4500057               | LF500-2000-CTR-AL-BN | 19.41  | 0.21   |
| 4000027               | QF40-150-CTR-AL-BN   | 1.53   | 0.21   | <b>Silicone Seals</b> |                      |        |        |
| 4000028               | QF50-200-CTR-AL-BN   | 1.97   | 0.21   | 4000030               | QF16-075-CTR-AL-SN   | 0.63   | 0.21   |
| 4500033               | LF63-250-CTR-AL-BN   | 2.64   | 0.15   | 4000031               | QF25-100-CTR-AL-SN   | 0.98   | 0.21   |
| 4500036               | LF80-300-CTR-AL-BN   | 3.15   | 0.15   | 4000032               | QF40-150-CTR-AL-SN   | 1.53   | 0.21   |
| <b>Silicone Seals</b> |                      |        |        |                       |                      |        |        |
| 4500034               | LF63-250-CTR-AL-SN   | 2.65   | 0.15   | 4000033               | QF50-200-CTR-AL-SN   | 1.97   | 0.21   |
| 4500037               | LF80-300-CTR-AL-SN   | 3.15   | 0.15   | 4500034               | LF63-250-CTR-AL-SN   | 2.65   | 0.15   |
| 4500040               | LF100-400-CTR-AL-SN  | 3.90   | 0.15   | 4500037               | LF80-300-CTR-AL-SN   | 3.15   | 0.15   |
| 4500043               | LF160-600-CTR-AL-SN  | 5.91   | 0.15   | 4500040               | LF100-400-CTR-AL-SN  | 3.90   | 0.15   |
| 4500046               | LF200-800-CTR-AL-SN  | 8.27   | 0.15   | 4500043               | LF160-600-CTR-AL-SN  | 5.91   | 0.15   |
| 4500049               | LF250-1000-CTR-AL-SN | 10.14  | 0.15   | 4500046               | LF200-800-CTR-AL-SN  | 8.27   | 0.15   |
| 4500052               | LF320-1200-CTR-AL-SN | 12.28  | 0.21   | 4500049               | LF250-1000-CTR-AL-SN | 10.14  | 0.15   |
| 4500055               | LF400-1600-CTR-AL-SN | 15.42  | 0.21   | 4500052               | LF320-1200-CTR-AL-SN | 12.28  | 0.21   |
| 4500058               | LF500-2000-CTR-AL-SN | 19.41  | 0.21   | 4500055               | LF400-1600-CTR-AL-SN | 15.42  | 0.21   |
| <b>Silicone Seals</b> |                      |        |        |                       |                      |        |        |

ORDERING NOTE: CENTERING RINGS WITH SCREEN MESH ARE AVAILABLE ON PG. 1.24.

## Adaptive Centering Ring Assembly

Three of the ISO-QF flange sizes illustrated on the table on pg. 1.9 are rarely used by modern vacuum component manufacturers within the United States. These are the ISO-QF10, QF20 and QF32. These flanges are identical to the ISO-QF16, QF25 and QF40 respectively except for the seal groove machined into the I.D. of the flange.



With our adaptive centering ring you can adapt directly from a QF10 to a QF16, QF20 to QF25 and QF32 to QF40. The connections can then be fastened with a standard clamp that corresponds with the larger of the two sizes. Adaptation to these standard sizes will greatly expand the number of components that have standard dimensions compatible with your vacuum system. This will ease your system assembly, decrease product delivery time and reduce cost.

### Materials:

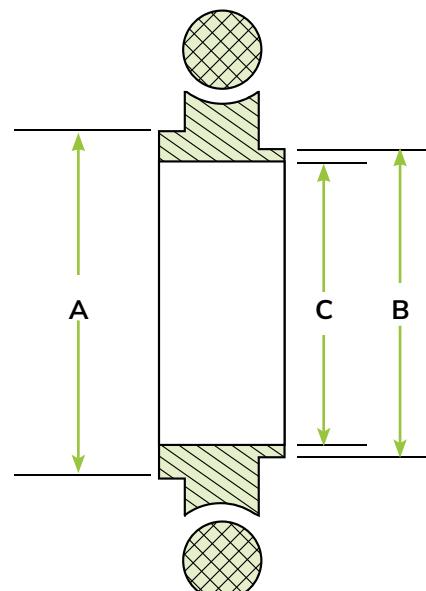
- Centering ring: Standard: 316 stainless steel
- O-ring:
  - Standard: Viton®
  - Alternative: Buna-N or silicone (Call for price and delivery)

### Product Notes:

- Metal centering ring aligns flanges during seal assembly and provides support for the elastomer, sealing ring.
- Replaceable O-ring

| TEMPERATURE LIMITS |       |                |                  |
|--------------------|-------|----------------|------------------|
| O-ring MATERIAL    | LOW   | SUSTAINED HIGH | INTERMITTENT USE |
| Viton®             | -26°C | 150°C          | 205°C            |
| Buna               | -20°C | 80°C           | 100°C            |
| Silicone           | -50°C | 150°C          | 200°C            |

Silicone is chemically resistant



### Stainless Steel

| PART #  | REFERENCE ID   | A (in) | B (in) | C (in) |
|---------|----------------|--------|--------|--------|
| 4000054 | QF10/16-ACR-VT | 0.70   | 0.47   | 0.39   |
| 4000055 | QF20/25-ACR-VT | 1.02   | 0.87   | 0.81   |
| 4000056 | QF32/40-ACR-VT | 1.61   | 1.34   | 1.26   |

## Centering Ring Assembly with Screen

# Centering Ring Assembly with Screen

**Screen Mesh Centering Ring Assemblies:** These sealing assemblies are useful in many situations in which a vacuum system or instrument needs to be protected from contamination by particulate generated from outside the system or from within. The supportive metallic ring for these seals has a screen mesh insert covering the inner aperture.



### Materials:

- Centering ring:
  - Standard: 304 stainless steel
- O-ring:
  - Standard: Viton®
  - Alternative: Buna-N or silicone  
(Call for price and delivery)

### Options: Call for price and delivery

- Larger sizes
- Mesh sizes

### Product Notes:

- Metal centering ring aligns flanges during seal assembly and provides support for the elastomer, sealing ring.
- Replaceable O-ring

| TEMPERATURE LIMITS |       |                |                  |
|--------------------|-------|----------------|------------------|
| O-ring MATERIAL    | LOW   | SUSTAINED HIGH | INTERMITTENT USE |
| Viton®             | -26°C | 150°C          | 205°C            |
| Buna               | -20°C | 80°C           | 100°C            |
| Silicone           | -50°C | 150°C          | 200°C            |

**Silicone is chemically resistant**

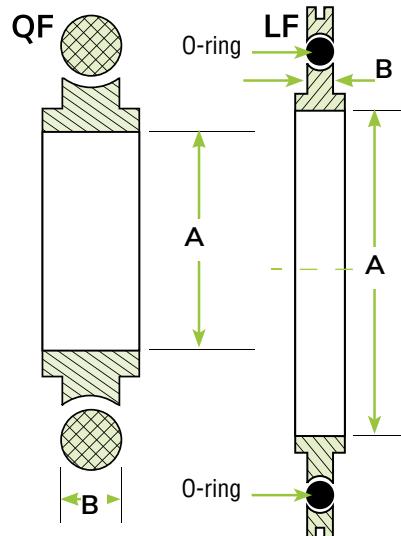


Fig. 1

Fig. 2

| PART #  | REFERENCE ID    | FIGURE | A (in) | B (in) |
|---------|-----------------|--------|--------|--------|
| 4000050 | QF16-CTR-SM-VT  | 1      | 0.51   | 0.21   |
| 4000051 | QF25-CTR-SM-VT  | 1      | 0.86   | 0.21   |
| 4000052 | QF40-CTR-SM-VT  | 1      | 1.45   | 0.21   |
| 4000053 | QF50-CTR-SM-VT  | 1      | 1.88   | 0.21   |
| 4500341 | LF63-CTR-SM-VT  | 2      | 2.48   | 0.154  |
| 4500342 | LF80-CTR-SM-VT  | 2      | 3.03   | 0.154  |
| 4500343 | LF100-CTR-SM-VT | 2      | 3.80   | 0.154  |
| 4500344 | LF160-CTR-SM-VT | 2      | 5.67   | 0.154  |

## Over Pressure Ring

This centering ring accessory creates a barrier on the outer diameter of the elastomer sealing ring to prevent "blow out" due to the presence of pressures greater than 1 standard atmosphere within a vacuum system. A centering ring assembly with an over-pressure ring can withstand up to 100psi of pressure depending on the size of the flange you are using.

**ANCORP** CNC machined clamps have a built-in over-pressure ring design.

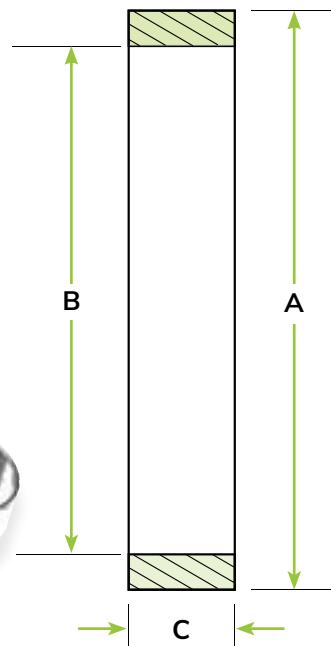
With the use of these clamps there is no need for the added expense of an over-pressure ring addition to the centering ring assembly.

### Materials:

- 304 stainless steel

### Product Notes:

- Retains O-ring if your system is exposed to a burst of pressure



Over Pressure Ring

| PART #  | REFERENCE ID | MAX PSIG | MAX PSIG W/ CNC CLAMP | A (in) | B (in) | C (in) |
|---------|--------------|----------|-----------------------|--------|--------|--------|
| 4000073 | QF16-075-OPR | 100      | 300                   | 1.25   | 1.19   | 0.35   |
| 4000074 | QF25-100-OPR | 100      | 250                   | 1.66   | 1.58   | 0.35   |
| 4000075 | QF40-150-OPR | 75       | 200                   | 2.25   | 2.17   | 0.35   |
| 4000076 | QF50-200-OPR | 50       | -                     | 2.75   | 2.62   | 0.15   |

## Replacement Viton® O-ring

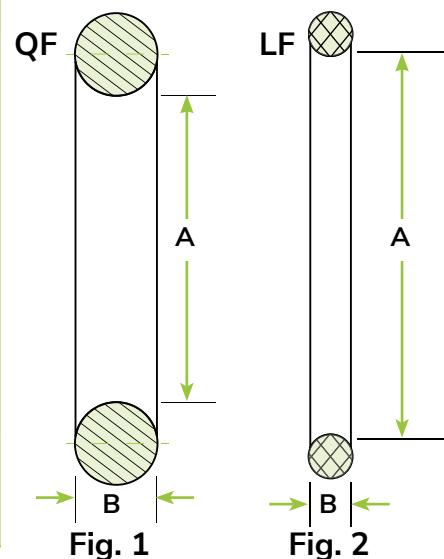
### Product Notes:

- Replacement seal for ISO centering rings

- Temperature limits:  
Low: -26°C  
Sustained High: 150°C  
Intermittent Use: 205°C



| PART #  | REFERENCE ID | USE WITH FLANGE | FIG. | O-RING STD# | A (in) | B (in) |
|---------|--------------|-----------------|------|-------------|--------|--------|
| 0600312 | 2-312-OV     | QF10            | 1    | 2-312       | 0.60   | 0.21   |
| 0600314 | 2-314-OV     | QF16            | 1    | 2-314       | 0.73   | 0.21   |
| 0600320 | 2-320-OV     | QF25            | 1    | 2-320       | 1.10   | 0.21   |
| 0600326 | 2-326-OV     | QF40            | 1    | 2-326       | 1.60   | 0.21   |
| 0600330 | 2-330-OV     | QF50            | 1    | 2-330       | 2.10   | 0.21   |
| 0600336 | 2-336-OV     | LF63            | 2    | 2-336       | 2.85   | 0.21   |
| 0600340 | 2-340-OV     | LF80            | 2    | 2-340       | 3.35   | 0.21   |
| 0600346 | 2-346-OV     | LF100           | 2    | 2-346       | 4.10   | 0.21   |
| 0600361 | 2-361-OV     | LF160           | 2    | 2-361       | 5.98   | 0.21   |
| 0600371 | 2-371-OV     | LF200           | 2    | 2-371       | 8.48   | 0.21   |
| 0600378 | 2-378-OV     | LF250           | 2    | 2-378       | 10.48  | 0.21   |
| 0600454 | 2-454-OV     | LF320           | 2    | 2-454       | 12.48  | 0.28   |
| 0600460 | 2-460-OV     | LF400           | 2    | 2-460       | 15.48  | 0.28   |
| 0600468 | 2-468-OV     | LF500           | 2    | 2-468       | 19.46  | 0.28   |



## Replacement O-rings

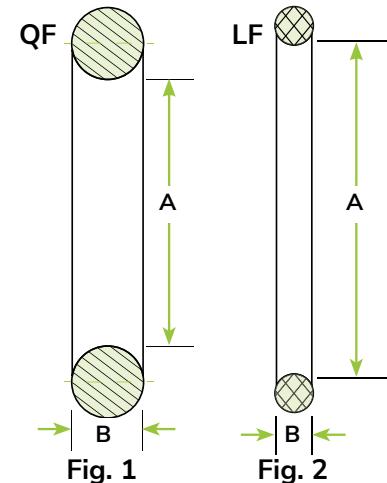
## Replacement Silicone O-rings

**Product Notes:**

- Replacement seal for ISO centering rings
- Used in chemical processes
- Temperature limits:  
Low: -50°C  
Sustained High: 150°C  
Intermittent Use: 200°C



| PART #         | REFERENCE ID | USE WITH FLANGE | FIG. | O-RING STD# | A (in) | B (in) |
|----------------|--------------|-----------------|------|-------------|--------|--------|
| 0602312        | 2-312-OS     | QF10            | 1    | 2-312       | 0.60   | 0.21   |
| <b>0602314</b> | 2-314-OS     | QF16            | 1    | 2-314       | 0.73   | 0.21   |
| <b>0602320</b> | 2-320-OS     | QF25            | 1    | 2-320       | 1.10   | 0.21   |
| <b>0602326</b> | 2-326-OS     | QF40            | 1    | 2-326       | 1.60   | 0.21   |
| <b>0602330</b> | 2-330-OS     | QF50            | 1    | 2-330       | 2.10   | 0.21   |
| <b>0602336</b> | 2-336-OS     | LF63            | 2    | 2-336       | 2.85   | 0.21   |
| <b>0602340</b> | 2-340-OS     | LF80            | 2    | 2-340       | 3.35   | 0.21   |
| <b>0602346</b> | 2-346-OS     | LF100           | 2    | 2-346       | 4.10   | 0.21   |
| <b>0602361</b> | 2-361-OS     | LF160           | 2    | 2-361       | 5.98   | 0.21   |
| <b>0602371</b> | 2-371-OS     | LF200           | 2    | 2-371       | 8.48   | 0.21   |
| <b>0602378</b> | 2-378-OS     | LF250           | 2    | 2-378       | 10.48  | 0.21   |
| <b>0602454</b> | 2-454-OS     | LF320           | 2    | 2-454       | 12.48  | 0.28   |
| <b>0602460</b> | 2-460-OS     | LF400           | 2    | 2-460       | 15.48  | 0.28   |
| <b>0602468</b> | 2-468-OS     | LF500           | 2    | 2-468       | 19.46  | 0.28   |



## Replacement Buna-N O-rings

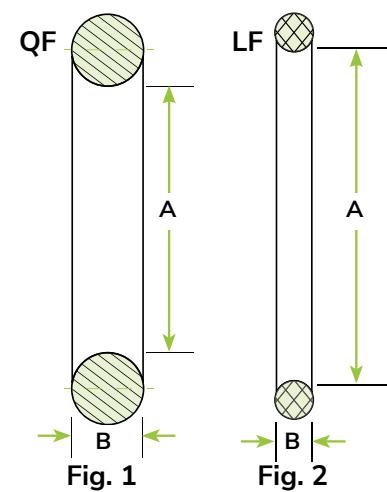
**Product Notes:**

- Replacement seal for ISO centering rings

• Temperature limits:  
Low: -20°C  
Sustained High: 80°C  
Intermittent Use: 100°C



| PART #         | REFERENCE ID | USE WITH FLANGE | FIG. | O-RING STD# | A (in) | B (in) |
|----------------|--------------|-----------------|------|-------------|--------|--------|
| 0601312        | 2-312-OB     | QF10            | 1    | 2-312       | 0.60   | 0.21   |
| <b>0601314</b> | 2-314-OB     | QF16            | 1    | 2-314       | 0.73   | 0.21   |
| <b>0601320</b> | 2-320-OB     | QF25            | 1    | 2-320       | 1.10   | 0.21   |
| <b>0601326</b> | 2-326-OB     | QF40            | 1    | 2-326       | 1.60   | 0.21   |
| <b>0601330</b> | 2-330-OB     | QF50            | 1    | 2-330       | 2.10   | 0.21   |
| <b>0601336</b> | 2-336-OB     | LF63            | 2    | 2-336       | 2.85   | 0.21   |
| <b>0601340</b> | 2-340-OB     | LF80            | 2    | 2-340       | 3.35   | 0.21   |
| <b>0601346</b> | 2-346-OB     | LF100           | 2    | 2-346       | 4.10   | 0.21   |
| <b>0601361</b> | 2-361-OB     | LF160           | 2    | 2-361       | 5.98   | 0.21   |
| <b>0601371</b> | 2-371-OB     | LF200           | 2    | 2-371       | 8.48   | 0.21   |
| <b>0601378</b> | 2-378-OB     | LF250           | 2    | 2-378       | 10.48  | 0.21   |
| <b>0601454</b> | 2-454-OB     | LF320           | 2    | 2-454       | 12.48  | 0.28   |
| <b>0601460</b> | 2-460-OB     | LF400           | 2    | 2-460       | 15.48  | 0.28   |
| <b>0601468</b> | 2-468-OB     | LF500           | 2    | 2-468       | 19.46  | 0.28   |



## Replacement Viton® O-rings (10-Pack)

**Product Notes:**

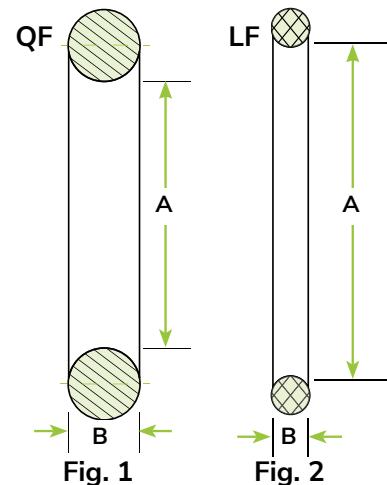
- Replacement seal for ISO centering rings

- Temperature limits:  
Low: -26°C  
Sustained High: 150°C  
Intermittent Use: 205°C

| PART #         | REFERENCE ID | USE WITH FLANGE | FIG. | O-RING STD# | A (in) | B (in) |
|----------------|--------------|-----------------|------|-------------|--------|--------|
| 0610312        | 2-312-OV-10  | QF10            | 1    | 2-312       | 0.60   | 0.21   |
| <b>0610314</b> | 2-314-OV-10  | QF16            | 1    | 2-314       | 0.73   | 0.21   |
| <b>0610320</b> | 2-320-OV-10  | QF25            | 1    | 2-320       | 1.10   | 0.21   |
| <b>0610326</b> | 2-326-OV-10  | QF40            | 1    | 2-326       | 1.60   | 0.21   |
| <b>0610330</b> | 2-330-OV-10  | QF50            | 1    | 2-330       | 2.10   | 0.21   |
| <b>0610336</b> | 2-336-OV-10  | LF63            | 2    | 2-336       | 2.85   | 0.21   |
| <b>0610340</b> | 2-340-OV-10  | LF80            | 2    | 2-340       | 3.35   | 0.21   |
| <b>0610346</b> | 2-346-OV-10  | LF100           | 2    | 2-346       | 4.10   | 0.21   |
| <b>0610361</b> | 2-361-OV-10  | LF160           | 2    | 2-361       | 5.98   | 0.21   |
| <b>0610371</b> | 2-371-OV-10  | LF200           | 2    | 2-371       | 8.48   | 0.21   |
| <b>0610378</b> | 2-378-OV-10  | LF250           | 2    | 2-378       | 10.48  | 0.21   |
| <b>0610454</b> | 2-454-OV-10  | LF320           | 2    | 2-454       | 12.48  | 0.28   |
| <b>0610460</b> | 2-460-OV-10  | LF400           | 2    | 2-460       | 15.48  | 0.28   |
| <b>0610468</b> | 2-468-OV-10  | LF500           | 2    | 2-468       | 19.46  | 0.28   |



## Replacement O-rings



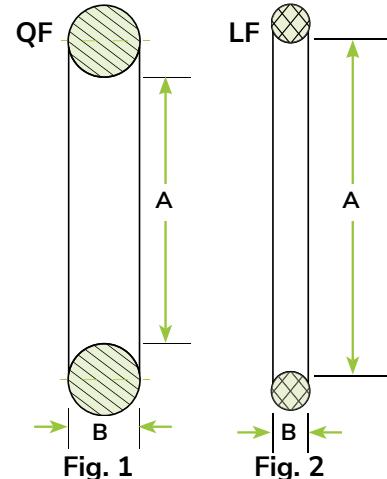
## Replacement Silicone O-rings (10-Pack)

**Product Notes:**

- Replacement seal for ISO centering rings
- Used in chemical processes
- Temperature limits:  
Low: -50°C  
Sustained High: 150°C  
Intermittent Use: 200°C



| PART #  | REFERENCE ID | USE WITH FLANGE | FIG. | O-RING STD# | A (in) | B (in) |
|---------|--------------|-----------------|------|-------------|--------|--------|
| 0612312 | 2-312-OS-10  | QF10            | 1    | 2-312       | 0.60   | 0.21   |
| 0612314 | 2-314-OS-10  | QF16            | 1    | 2-314       | 0.73   | 0.21   |
| 0622320 | 2-320-OS-10  | QF25            | 1    | 2-320       | 1.10   | 0.21   |
| 0622326 | 2-326-OS-10  | QF40            | 1    | 2-326       | 1.60   | 0.21   |
| 0612330 | 2-330-OS-10  | QF50            | 1    | 2-330       | 2.10   | 0.21   |
| 0612336 | 2-336-OS-10  | LF63            | 2    | 2-336       | 2.85   | 0.21   |
| 0612340 | 2-340-OS-10  | LF80            | 2    | 2-340       | 3.35   | 0.21   |
| 0612346 | 2-346-OS-10  | LF100           | 2    | 2-346       | 4.10   | 0.21   |
| 0612361 | 2-361-OS-10  | LF160           | 2    | 2-361       | 5.98   | 0.21   |
| 0612371 | 2-371-OS-10  | LF200           | 2    | 2-371       | 8.48   | 0.21   |



## Replacement O-rings

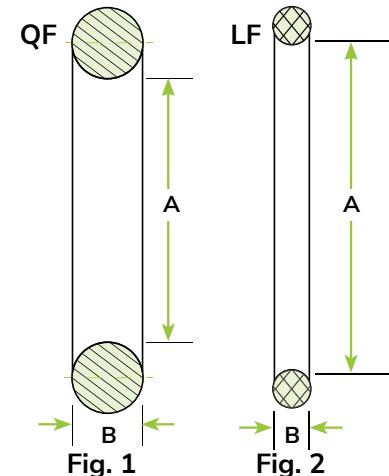
## Replacement Buna-N O-rings (10-Pack)

**Product Notes:**

- Replacement seal for ISO centering rings

- Temperature limits:  
Low: -20°C  
Sustained High: 80°C  
Intermittent Use: 100°C

| PART #         | REFERENCE ID | USE WITH FLANGE | FIG. | O-RING STD# | A (in) | B (in) |
|----------------|--------------|-----------------|------|-------------|--------|--------|
| 0611312        | 2-312-OB-10  | QF10            | 1    | 2-312       | 0.60   | 0.21   |
| <b>0611314</b> | 2-314-OB-10  | QF16            | 1    | 2-314       | 0.73   | 0.21   |
| <b>0611320</b> | 2-320-OB-10  | QF25            | 1    | 2-320       | 1.10   | 0.21   |
| <b>0621326</b> | 2-326-OB-10  | QF40            | 1    | 2-326       | 1.60   | 0.21   |
| <b>0621330</b> | 2-330-OB-10  | QF50            | 1    | 2-330       | 2.10   | 0.21   |
| <b>0611336</b> | 2-336-OB-10  | LF63            | 2    | 2-336       | 2.85   | 0.21   |
| <b>0611340</b> | 2-340-OB-10  | LF80            | 2    | 2-340       | 3.35   | 0.21   |
| <b>0611346</b> | 2-346-OB-10  | LF100           | 2    | 2-346       | 4.10   | 0.21   |
| <b>0611361</b> | 2-361-OB-10  | LF160           | 2    | 2-361       | 5.98   | 0.21   |
| <b>0611371</b> | 2-371-OB-10  | LF200           | 2    | 2-371       | 8.48   | 0.21   |
| <b>0611378</b> | 2-378-OB-10  | LF250           | 2    | 2-378       | 10.48  | 0.21   |
| <b>0611454</b> | 2-454-OB-10  | LF320           | 2    | 2-454       | 12.48  | 0.28   |
| <b>0611460</b> | 2-460-OB-10  | LF400           | 2    | 2-460       | 15.48  | 0.28   |
| <b>0611468</b> | 2-468-OB-10  | LF500           | 2    | 2-468       | 19.46  | 0.28   |



## ISO Weld Flanges

**ANCORP** manufactures ISO flanges for our own use as we manufacture modular fittings (tee's, elbows and nipples) valves, feedthroughs, chambers and other components. We offer these same flanges for those customers that have in-house welding capabilities and desire to customize their system or components themselves. These flanges are manufactured to ISO specifications to ensure 100% compatibility with other ISO manufacturer's flanges.

## ISO Weld Flanges

### Specifications:

- High vacuum rated to  $1 \times 10^{-8}$  Torr
- Bakeable to 200°C
- Materials: 304 or aluminum
- Compatible with all ISO standard vacuum flanges and fittings



### Features:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• Reusable seals</li> <li>• Sexless interface</li> <li>• Infinitely rotatable</li> <li>• Quick sealing and disassembly</li> </ul> | <ul style="list-style-type: none"> <li>• Ease installation</li> <li>• Variety of fastening options</li> <li>• Self-centering supportive ring</li> <li>• Imperial and metric sizes available</li> </ul> |
|--|--|

## Weld Flanges

These flanges are manufactured with a weld prep and tubing bore for immediate installation on your system with no additional alteration.

**ANCORP** offers weld flanges in 304 stainless steel or 6061 aluminum.

These flanges are also offered in four different designs to meet your specific requirements:

- Bored flanges
- Ring flanges
- Socket weld flanges
- Stub weld flanges

See Page 1.4-1.5 for sizes and specification details



## Blank Flanges

Blank flanges are manufactured with no weld prep and no tubing bore. They are commonly used to close unused ports or they are altered by customers with their own custom machining capability for a special use.

**ANCORP** offers blank flanges in 304 stainless steel or 6061 aluminum.



## Unbored Stub Flanges

Unbored stub flanges are manufactured with no weld prep and no tubing bore. They are commonly altered by customers with their own custom machining capability for a special use.

**ANCORP** offers weld flanges in 304 stainless steel or 6061 aluminum.



## Weld Ring Flange

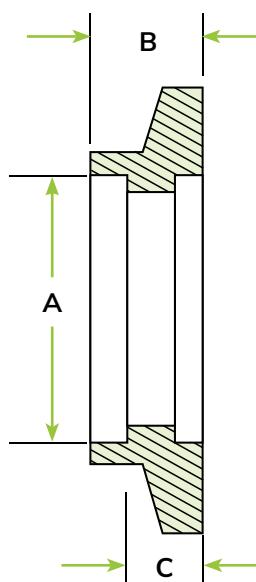
Weld ring flanges were created to offer a thin profile while still offering a weld preparation groove. This groove makes the flange self-aligning, offers greater weld joint strength and provides aesthetic coverage of the weld joint and heat discoloration that can appear after welding.

### Materials:

- Standard:  
304 stainless steel  
316 stainless steel

### Product Notes:

- Internal weld
- Self-aligning
- Designed to fit standard inch tubing O.D.'s
- Thinner design than standard socket weld flanges



| PART #  | REFERENCE ID | BORE SIZE (in) | A (in) | B (in) | C (in) |
|---------|--------------|----------------|--------|--------|--------|
| 4000077 | QF16-075-RF  | 0.75           | 0.76   | 0.25   | 0.17   |
| 4000078 | QF25-100-RF  | 1.00           | 1.01   | 0.25   | 0.17   |
| 4000079 | QF40-150-RF  | 1.50           | 1.51   | 0.25   | 0.17   |
| 4000080 | QF50-200-RF  | 2.00           | 2.01   | 0.25   | 0.17   |

## Bored Weld Flange

**Materials:**

- Standard:
  - 304 stainless steel
  - 316 stainless steel

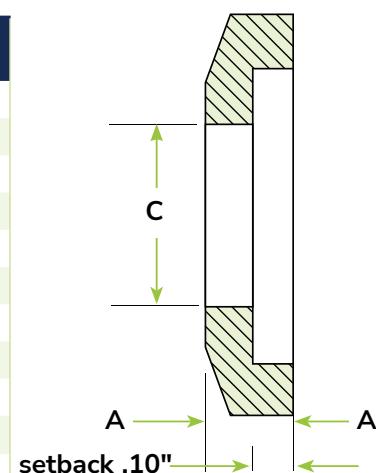
**Product Notes:**

- Designed to fit standard inch tubing O.D.'s

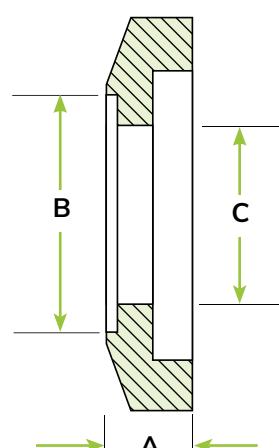

**304 Stainless Steel**

| PART #  | REFERENCE ID | BORE SIZE (in) | A (in) | B (in) | C (in) |
|---------|--------------|----------------|--------|--------|--------|
| 4000099 | QF16-025-BW  | 0.25           | 0.20   | -      | 0.26   |
| 4000100 | QF16-038-BW  | 0.38           | 0.20   | -      | 0.38   |
| 4000101 | QF16-050-BW  | 0.50           | 0.20   | 0.51   | 0.45   |
| 4000102 | QF16-075-BW  | 0.75           | 0.20   | 0.76   | 0.68   |
| 4000103 | QF25-025-BW  | 0.25           | 0.20   | -      | 0.26   |
| 4000104 | QF25-038-BW  | 0.38           | 0.20   | -      | 0.38   |
| 4000105 | QF25-050-BW  | 0.50           | 0.20   | 0.51   | 0.45   |
| 4000106 | QF25-075-BW  | 0.75           | 0.20   | 0.76   | 0.71   |
| 4000107 | QF25-100-BW  | 1.00           | 0.20   | 1.01   | 0.94   |
| 4000108 | QF40-025-BW  | 0.25           | 0.20   | -      | 0.26   |
| 4000109 | QF40-038-BW  | 0.38           | 0.20   | -      | 0.38   |
| 4000110 | QF40-050-BW  | 0.50           | 0.20   | 0.51   | 0.45   |
| 4000111 | QF40-075-BW  | 0.75           | 0.20   | 0.76   | 0.71   |
| 4000112 | QF40-100-BW  | 1.00           | 0.20   | 1.01   | 0.94   |
| 4000113 | QF40-150-BW  | 1.50           | 0.20   | 1.51   | 1.44   |
| 4000114 | QF50-025-BW  | 0.25           | 0.20   | -      | 0.26   |
| 4000115 | QF50-038-BW  | 0.38           | 0.20   | -      | 0.38   |
| 4000116 | QF50-050-BW  | 0.50           | 0.20   | 0.51   | 0.45   |
| 4000117 | QF50-075-BW  | 0.75           | 0.20   | 0.76   | 0.71   |
| 4000118 | QF50-100-BW  | 1.00           | 0.20   | 1.01   | 0.94   |
| 4000119 | QF50-150-BW  | 1.50           | 0.20   | 1.51   | 1.44   |
| 4000120 | QF50-200-BW  | 2.00           | 0.20   | 2.01   | 1.94   |

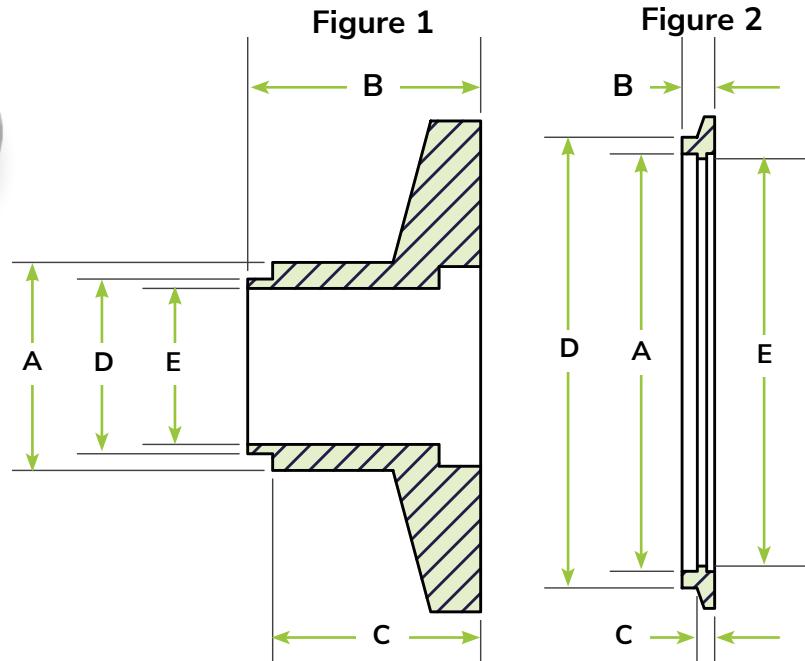
**BORED SIZE:**  
1/4 in. & 3/8 in.



**BORED SIZE:**  
1/2 in. THRU 2 in.



## ISO-QF Socket Weld Flanges

**Materials:**

- Standard:
  - 304 stainless steel
  - 316 stainless steel

**Product Notes:**

- Internal weld
- Self-aligning
- Designed to fit standard inch tubing O.D.'s
- QF63-QF200 uses LF Centering Rings

## 304 Stainless Steel

| PART #  | REFERENCE ID | FIGURE | TUBE SIZE (in) | A (in) | B (in) | C (in) | D (in) | E (in) |
|---------|--------------|--------|----------------|--------|--------|--------|--------|--------|
| 4000082 | QF16-050-SF  | 1      | 0.50           | 0.50   | 0.56   | 0.50   | 0.42   | 0.375  |
| 4000083 | QF16-075-SF  | 1      | 0.75           | 0.75   | 0.56   | 0.50   | 0.67   | 0.625  |
| 4000084 | QF25-100-SF  | 2      | 1.00           | 1.01   | 0.50   | 0.17   | 1.13   | 0.875  |
| 4000085 | QF40-150-SF  | 2      | 1.50           | 1.51   | 0.50   | 0.21   | 1.76   | 1.375  |
| 4000086 | QF50-200-SF  | 2      | 2.00           | 2.01   | 0.63   | 0.23   | 2.25   | 1.875  |
| 4001081 | QF63-250-SF  | 2      | 2.50           | 2.51   | 0.47   | 0.25   | 3.00   | 2.375  |
| 4001082 | QF80-300-SF  | 2      | 3.00           | 3.01   | 0.47   | 0.25   | 3.50   | 2.875  |
| 4001083 | QF100-400-SF | 2      | 4.00           | 4.02   | 0.47   | 0.25   | 4.50   | 3.875  |
| 4001084 | QF160-600-SF | 2      | 6.00           | 6.02   | 0.47   | 0.25   | 6.50   | 5.875  |
| 4001085 | QF200-800-SF | 2      | 8.00           | 8.02   | 0.47   | 0.25   | 8.50   | 7.760  |

## ISO-LF Socket Weld Flange

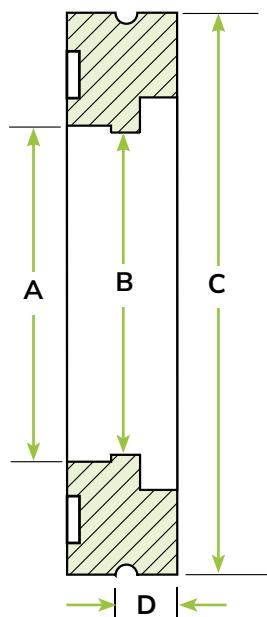
### ISO-LF Socket Weld Flanges

**Materials:**

- Standard:
  - 304 stainless steel
  - 316 stainless steel
  - 6061 Aluminum

**Product Notes:**

- Internal weld
- Self-aligning
- Designed to fit standard inch tubing O.D.'s


**ORDERING NOTE:**

See page 1.5 for bolt holes


**TECH TIP**


To simplify aluminum welding, ANCORP also offers an aluminum ISO-LF stub weld flange on page 1.35.

### 304 Stainless Steel

| PART #  | REFERENCE ID  | TUBE O.D. (in) | A (in) | THRU HOLE B (in) | C (in) | SET BACK D (in) |
|---------|---------------|----------------|--------|------------------|--------|-----------------|
| 4500069 | LF63-250-SF   | 2.50           | 2.51   | 2.37             | 3.74   | 0.25            |
| 4500070 | LF80-300-SF   | 3.00           | 3.01   | 2.87             | 4.33   | 0.25            |
| 4500071 | LF100-400-SF  | 4.00           | 4.01   | 3.87             | 5.12   | 0.25            |
| 4500072 | LF160-600-SF  | 6.00           | 6.02   | 5.83             | 7.09   | 0.25            |
| 4500073 | LF200-800-SF  | 8.00           | 8.02   | 7.76             | 9.45   | 0.25            |
| 4500074 | LF250-1000-SF | 10.00          | 10.02  | 9.75             | 11.42  | 0.25            |
| 4500181 | LF320-1200-SF | 12.00          | 12.03  | 12.42            | 14.57  | 0.38            |
| 4500075 | LF320-1275-SF | 12.75          | 12.77  | 12.42            | 14.57  | 0.38            |
| 4500076 | LF400-1600-SF | 16.00          | 16.03  | 15.62            | 17.72  | 0.38            |
| 4500077 | LF500-2000-SF | 20.00          | 20.04  | 19.62            | 21.65  | 0.38            |

### 6061 - T6 Aluminum

| PART #  | REFERENCE ID     | TUBE O.D. (in) | A (in) | THRU HOLE B (in) | C (in) | SET BACK D (in) |
|---------|------------------|----------------|--------|------------------|--------|-----------------|
| 4500078 | LF63-250-SF-AL   | 2.50           | 2.51   | 2.37             | 3.74   | 0.25            |
| 4500079 | LF80-300-SF-AL   | 3.00           | 3.01   | 2.87             | 4.33   | 0.25            |
| 4500080 | LF100-400-SF-AL  | 4.00           | 4.02   | 3.87             | 5.12   | 0.25            |
| 4500081 | LF160-600-SF-AL  | 6.00           | 6.02   | 5.83             | 7.09   | 0.25            |
| 4500082 | LF200-800-SF-AL  | 8.00           | 8.02   | 7.76             | 9.45   | 0.25            |
| 4500083 | LF250-1000-SF-AL | 10.00          | 10.03  | 9.76             | 11.42  | 0.25            |
| 4500084 | LF320-1275-SF-AL | 12.75          | 12.77  | 12.42            | 14.57  | 0.38            |
| 4500085 | LF400-1600-SF-AL | 16.00          | 16.03  | 15.62            | 17.72  | 0.38            |
| 4500086 | LF500-2000-SF-AL | 20.00          | 20.03  | 19.62            | 21.65  | 0.38            |
| 4500186 | LF320-1200-SF-AL | 12.00          | 12.03  | 11.88            | 14.57  | 0.38            |

## ISO-LFB Socket Weld Flange

**Materials:**

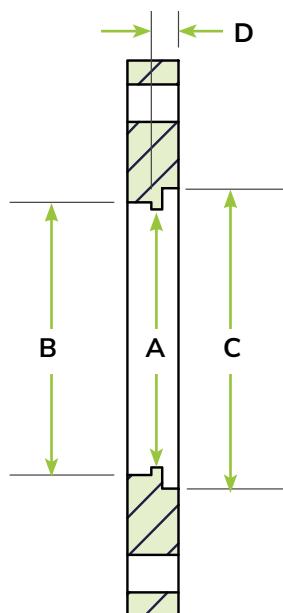
- Standard: 304 stainless steel
- Alternative: Aluminum
- Call for price and delivery

**Product Notes:**

- Internal weld
- Self-aligning
- Designed to fit standard inch tubing O.D.'s

**Options: Call for price and delivery**

- Tapped bolt holes



| PART #  | REFERENCE ID   | A (in) | B (in) | C (in) | SET BACK D (in) |
|---------|----------------|--------|--------|--------|-----------------|
| 4500135 | LFB63-250-SF   | 2.37   | 2.50   | 2.51   | 0.25            |
| 4500136 | LFB80-300-SF   | 2.87   | 3.00   | 3.01   | 0.25            |
| 4500137 | LFB100-400-SF  | 3.87   | 4.00   | 4.01   | 0.25            |
| 4500138 | LFB160-600-SF  | 5.83   | 6.00   | 6.02   | 0.25            |
| 4500139 | LFB200-800-SF  | 7.76   | 8.00   | 8.02   | 0.25            |
| 4500140 | LFB250-1000-SF | 9.75   | 10.00  | 10.02  | 0.25            |
| 4500183 | LFB320-1200-SF | 12.42  | 12.00  | 12.77  | 0.38            |
| 4500141 | LFB320-1275-SF | 12.42  | 12.75  | 12.77  | 0.38            |
| 4500142 | LFB400-1600-SF | 15.62  | 16.00  | 16.02  | 0.38            |
| 4500143 | LFB500-2000-SF | 19.62  | 20.00  | 20.02  | 0.38            |

## ISO-QF Stub Weld Flange

**Materials:**

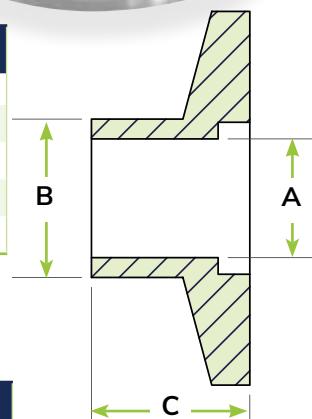
- Standard:  
304 stainless steel  
6061 aluminum

**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s


**304 Stainless Steel**

| PART #  | REFERENCE ID      | TUBE SIZE (in) | A (in) | B (in) | C (in) |
|---------|-------------------|----------------|--------|--------|--------|
| 4000122 | QF16-050-HNM-0.50 | 0.50           | 0.375  | 0.50   | 0.50   |
| 4000123 | QF16-075-HNM-0.50 | 0.75           | 0.625  | 0.75   | 0.50   |
| 4000124 | QF25-100-HNM-0.50 | 1.00           | 0.875  | 1.00   | 0.50   |
| 4000125 | QF40-150-HNM-0.75 | 1.50           | 1.375  | 1.50   | 0.75   |
| 4000126 | QF50-200-HNM-0.75 | 2.00           | 1.875  | 2.00   | 0.75   |


**6061 - T6 Aluminum**

| PART #  | REFERENCE ID         | TUBE SIZE (in) | A (in) | B (in) | C (in) |
|---------|----------------------|----------------|--------|--------|--------|
| 4000128 | QF16-050-HNM-0.50-AL | 0.50           | 0.50   | 0.375  | 0.50   |
| 4000129 | QF16-075-HNM-0.50-AL | 0.75           | 0.75   | 0.625  | 0.50   |
| 4000130 | QF25-100-HNM-0.50-AL | 1.00           | 1.00   | 0.875  | 0.50   |
| 4000131 | QF40-150-HNM-0.75-AL | 1.50           | 1.50   | 1.375  | 0.75   |
| 4000132 | QF50-200-HNM-0.75-AL | 2.00           | 2.00   | 1.875  | 0.75   |

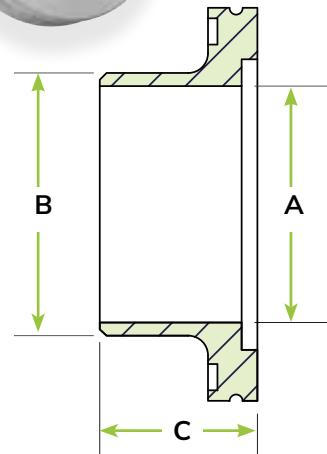
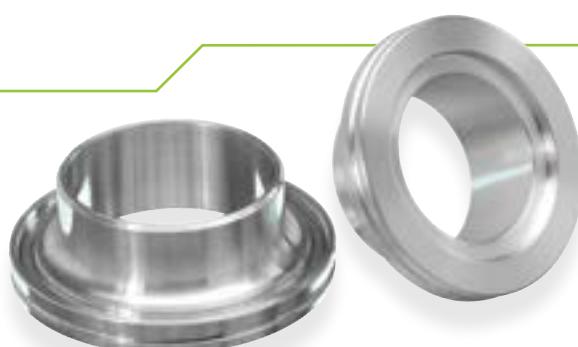
## ISO-LF Stub Weld Flange

**Materials:**

- Standard: 6061 aluminum
- Alternative: 304 stainless steel  
Call for price and delivery

**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Machined from solid bar - No welds



| PART #  | REFERENCE ID           | A (in) | B (in) | C (in) |
|---------|------------------------|--------|--------|--------|
| 4500128 | LF63-250-HNM-1.50-AL   | 2.25   | 2.50   | 1.50   |
| 4500129 | LF80-300-HNM-1.50-AL   | 2.75   | 3.00   | 1.50   |
| 4500130 | LF100-400-HNM-1.50-AL  | 3.75   | 4.00   | 1.50   |
| 4500131 | LF160-600-HNM-1.50-AL  | 5.75   | 6.00   | 1.50   |
| 4500132 | LF200-800-HNM-1.50-AL  | 7.76   | 8.00   | 1.50   |
| 4500133 | LF250-1000-HNM-1.50-AL | 9.75   | 10.00  | 1.50   |

## ISO-QF Blank Flange

**Materials:**

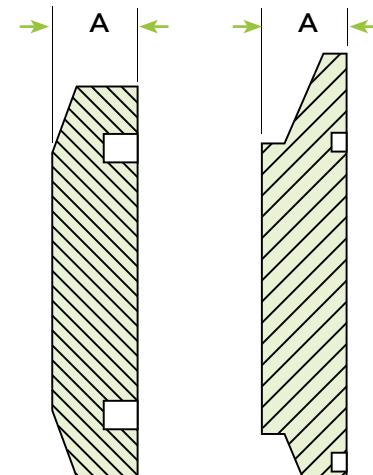
- Standard:  
304 stainless steel  
6061 aluminum
- Alternative:  
316 stainless steel

**Product Notes:**

- Close off unused ports
- Good choice for custom modification


**304 Stainless Steel**

| PART #  | REFERENCE ID | FIG. | A (in) |
|---------|--------------|------|--------|
| 4000160 | QF16-000     | 1    | 0.20   |
| 4000161 | QF25-000     | 1    | 0.20   |
| 4000162 | QF40-000     | 1    | 0.20   |
| 4000163 | QF50-000     | 1    | 0.20   |
| 4001091 | QF63-000     | 2    | 0.47   |
| 4001092 | QF80-000     | 2    | 0.47   |
| 4001093 | QF100-000    | 2    | 0.47   |
| 4001094 | QF160-000    | 2    | 0.47   |
| 4001095 | QF200-000    | 2    | 0.47   |

**FIGURE 1****FIGURE 2**
**6061 Aluminum**

| PART #  | REFERENCE ID | FIG. | A (in) |
|---------|--------------|------|--------|
| 4000165 | QF16-000-AL  | 1    | 0.20   |
| 4000166 | QF25-000-AL  | 1    | 0.20   |
| 4000167 | QF40-000-AL  | 1    | 0.20   |
| 4000168 | QF50-000-AL  | 1    | 0.20   |

## ISO-LF Blank Flange

304 Stainless Steel

| PART #  | REFERENCE ID | A (in) | B (in) |
|---------|--------------|--------|--------|
| 4500087 | LF63-000     | 0.47   | 3.74   |
| 4500088 | LF80-000     | 0.47   | 4.33   |
| 4500089 | LF100-000    | 0.47   | 5.12   |
| 4500090 | LF160-000    | 0.47   | 7.09   |
| 4500091 | LF200-000    | 0.47   | 9.45   |
| 4500092 | LF250-000    | 0.47   | 11.42  |
| 4500093 | LF320-000    | 0.67   | 14.57  |
| 4500094 | LF400-000    | 0.67   | 17.72  |
| 4500095 | LF500-000    | 0.67   | 21.65  |

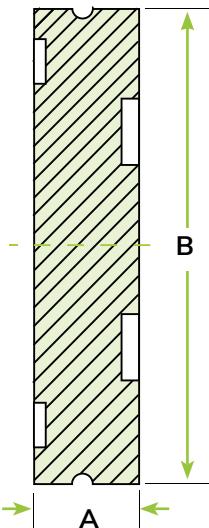


6061 Aluminum

| PART #  | REFERENCE ID | A (in) | B (in) |
|---------|--------------|--------|--------|
| 4500096 | LF63-000-AL  | 0.47   | 3.74   |
| 4500097 | LF80-000-AL  | 0.47   | 4.33   |
| 4500098 | LF100-000-AL | 0.47   | 5.12   |
| 4500099 | LF160-000-AL | 0.47   | 7.09   |
| 4500100 | LF200-000-AL | 0.47   | 9.45   |
| 4500101 | LF250-000-AL | 0.47   | 11.42  |
| 4500102 | LF320-000-AL | 0.67   | 14.57  |
| 4500103 | LF400-000-AL | 0.67   | 17.72  |
| 4500104 | LF500-000-AL | 0.67   | 21.65  |

**Materials:**  
• Standard:  
304 stainless steel  
6061 aluminum

**Product Notes:**  
• Close off unused ports  
• Good choice  
for custom  
modification



## ISO-QF Unbored Stub Flange

304 Stainless Steel

| PART #  | REFERENCE ID | A (in) | B (in) |
|---------|--------------|--------|--------|
| 4000175 | QF16-000-US  | 0.75   | 0.75   |
| 4000176 | QF25-000-US  | 0.75   | 1.00   |
| 4000177 | QF40-000-US  | 1.00   | 1.50   |
| 4000178 | QF50-000-US  | 1.00   | 2.00   |

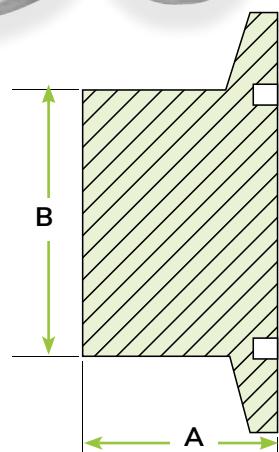


6061 - T6 Aluminum

| PART #  | REFERENCE ID   | A (in) | B (in) |
|---------|----------------|--------|--------|
| 4000180 | QF16-000-US-AL | 0.75   | 0.75   |
| 4000181 | QF25-000-US-AL | 0.75   | 1.00   |
| 4000182 | QF40-000-US-AL | 1.00   | 1.50   |
| 4000183 | QF50-000-US-AL | 1.00   | 2.00   |

**Materials:**  
• Standard:  
304 stainless steel  
6061 aluminum

**Product Notes:**  
• Good choice for cus-  
tom modification



## ISO-LFB Blank Flange

304 Stainless Steel

### ISO-LFB Blank Flanges

| PART #  | REFERENCE ID | A (in) | B (in) |
|---------|--------------|--------|--------|
| 4500144 | LFB63-000    | 5.12   | 0.47   |
| 4500145 | LFB80-000    | 5.71   | 0.47   |
| 4500146 | LFB100-000   | 6.50   | 0.47   |
| 4500147 | LFB160-000   | 8.86   | 0.63   |
| 4500148 | LFB200-000   | 11.22  | 0.63   |
| 4500149 | LFB250-000   | 13.19  | 0.63   |
| 4500150 | LFB320-000   | 16.73  | 0.79   |
| 4500151 | LFB400-000   | 20.08  | 0.79   |
| 4500152 | LFB500-000   | 24.02  | 0.79   |



6061 - T6 Aluminum

| PART #  | REFERENCE ID  | A (in) | B (in) |
|---------|---------------|--------|--------|
| 4500153 | LFB63-000-AL  | 5.12   | 0.47   |
| 4500154 | LFB80-000-AL  | 5.71   | 0.47   |
| 4500155 | LFB100-000-AL | 6.50   | 0.47   |
| 4500156 | LFB160-000-AL | 8.86   | 0.63   |
| 4500157 | LFB200-000-AL | 11.22  | 0.63   |
| 4500158 | LFB250-000-AL | 13.19  | 0.63   |
| 4500159 | LFB320-000-AL | 16.73  | 0.79   |
| 4500160 | LFB400-000-AL | 20.08  | 0.79   |
| 4500161 | LFB500-000-AL | 24.02  | 0.79   |

#### Materials:

- Standard:  
304 stainless steel  
6061 aluminum

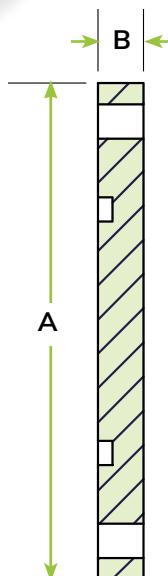
#### Product Note:

- Close off unused ports
- Good choice for custom modification

#### Options:

**Call for price and delivery**

- Tapped bolt holes



# ISO Fittings

**ANCORP's** ISO fittings make up a complete set of modular components that allow our customers to create a custom vacuum system without the trouble and expense of having in-house machining and welding capabilities.

All **ANCORP's** ISO QF and LF fittings are made with flanges manufactured to ISO specifications to ensure 100% compatibility with other manufacturer's flanges.



## Specifications:

- High vacuum rated to  $1 \times 10^{-8}$  Torr
- Bakeable to 200°C
- Materials: 304 stainless steel or aluminum
- Compatible with all ISO standard vacuum flanges and fittings

## Features:

- Reusable seals
- Sexless interface
- Infinitely rotatable
- Quick sealing and disassembly
- Easy installation
- Variety of fastening options
- Self-centering supportive ring
- Imperial and metric sizes available

## Half Nipple



These fittings are manufactured with a flange on one end and raw tubing on the other. Half nipples are often welded onto a custom vacuum system or instrument by a customer with in-house welding capabilities. However, these fittings can also be used with quick connect compression fittings to make a vacuum tight connection without welding. **ANCORP** manufactures vacuum half nipples in 304 stainless steel and aluminum.

## Nipples



These fittings are manufactured with an ISO flange on each end of a straight section of tubing.

Nipples are used to create a weld free straight connection within a vacuum system. Nipples are also used to as straight adapters between different tubing sizes or flange types. These fittings are available in all ISO sizes and flange types. **ANCORP** manufactures vacuum nipples in 304 stainless steel, aluminum, and flexible stainless steel.

## ISO Fittings

## Elbows



These fittings are manufactured with a flange on each end of a curved section of tubing. Elbows accommodate turns or alignment considerations for vacuum system design. Elbows are offered in five designs; 45° radius elbow, 90° radius elbow, 90° mitered elbow, 90° tangent radius elbow and 180° radius elbow to accommodate a wide variety of system configurations. **ANCORP** manufactures vacuum elbows in 304 stainless steel and aluminum.

## Tees



These fittings are manufactured with a flange on each end of a "T" shaped section of tubing. Tees accommodate junctions or alignment considerations for vacuum system design. Tees are also used as junction adapters between different tubing sizes or flange types. These fittings are available in all ISO sizes and flange types. **ANCORP** manufactures vacuum tees in 304 stainless steel and aluminum.

## Crosses



These fittings are manufactured with a flange on each end of an "X" shaped section of tubing. Crosses accommodate junctions or alignment considerations for vacuum system design. Crosses are also used as junction adapters between different tubing sizes or flange types. These fittings are available in all ISO sizes and flange types. **ANCORP** manufactures vacuum crosses in 304 stainless steel and aluminum.

## 5 or 6 Way Crosses



These fittings are manufactured with a flange on each end of a 5 or 6 sided tubing junction. Crosses accommodate complex junctions or alignment considerations for vacuum system design. Larger sizes are sometimes used as the starting point of a simple vacuum chamber design. **ANCORP** manufactures 5 and 6-way vacuum crosses in 304 stainless steel and aluminum.

## ISO-QF Half Nipple-Machined

**Materials:**

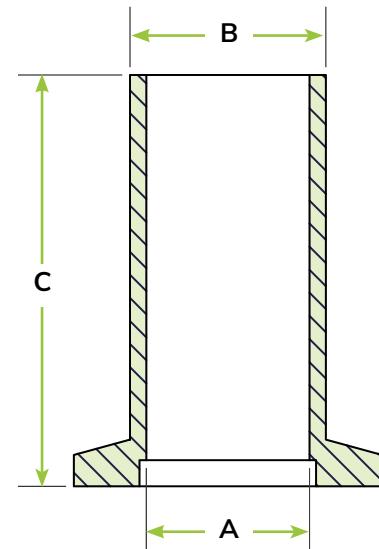
- Standard: 304 stainless steel
- Alternative:  
316 stainless steel  
6061 aluminum

**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Machined from solid bar – No welds


**304 Stainless Steel**

| PART #  | REFERENCE ID      | A (in) | B (in) | C (in) |
|---------|-------------------|--------|--------|--------|
| 4000134 | QF16-050-HNM-1.58 | 0.58   | 0.38   | 1.58   |
| 4000135 | QF16-075-HNM-1.58 | 0.75   | 0.63   | 1.58   |
| 4000136 | QF25-100-HNM-1.58 | 1.00   | 0.88   | 1.58   |
| 4000137 | QF40-150-HNM-1.58 | 1.50   | 1.38   | 1.58   |
| 4000138 | QF50-200-HNM-1.58 | 2.00   | 1.88   | 1.58   |


**6061 Aluminum**

| PART #  | REFERENCE ID         | A (in) | B (in) | C (in) |
|---------|----------------------|--------|--------|--------|
| 4000144 | QF16-050-HNM-1.58-AL | 0.38   | 0.50   | 1.58   |
| 4000145 | QF16-075-HNM-1.58-AL | 0.63   | 0.75   | 1.58   |
| 4000146 | QF25-100-HNM-1.58-AL | 0.88   | 1.00   | 1.58   |
| 4000147 | QF40-150-HNM-1.58-AL | 1.38   | 1.50   | 1.58   |
| 4000148 | QF50-200-HNM-1.58-AL | 1.875  | 2.00   | 1.58   |

## ISO Half Nipple

## ISO-QF Half Nipple-Welded

**Materials:**

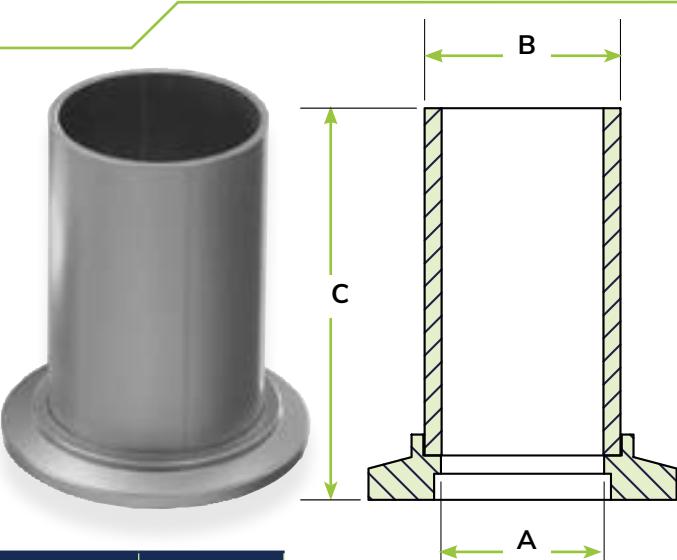
- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Highly customizable

**Options:****(Call for price and delivery)**

- Custom lengths
- ISO-QF large size flanges  
see pg. 1.05



| PART #  | REFERENCE ID     | A (in) | B (in) | C (in) |
|---------|------------------|--------|--------|--------|
| 4000139 | QF16-075-HN-1.50 | 0.63   | 0.75   | 1.50   |
| 4000140 | QF25-100-HN-2.04 | 0.88   | 1.00   | 2.04   |
| 4000141 | QF40-150-HN-2.46 | 1.38   | 1.50   | 2.46   |
| 4000142 | QF50-200-HN-3.21 | 1.88   | 2.00   | 3.21   |

## ISO-LF Half Nipple

**Materials:**

- Standard: 304 stainless steel

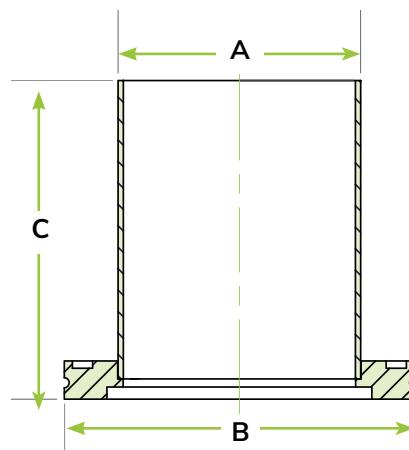
**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Highly Customizable

**Options: (Call for price and delivery)**

- Custom lengths
- ISO-QF large size flanges see pg. 1.05
- Alternative: 6061 aluminum

304 stainless steel



| PART #  | REFERENCE ID       | A (in) | B (in) | C (in) |
|---------|--------------------|--------|--------|--------|
| 4500110 | LF63-250-HN-3.94   | 2.50   | 3.74   | 3.94   |
| 4500111 | LF80-300-HN-3.94   | 3.00   | 4.33   | 3.94   |
| 4500112 | LF100-400-HN-3.94  | 4.00   | 5.12   | 3.94   |
| 4500113 | LF160-600-HN-3.94  | 6.00   | 7.09   | 3.94   |
| 4500114 | LF200-800-HN-3.94  | 8.00   | 9.45   | 3.94   |
| 4500115 | LF250-1000-HN-3.94 | 10.00  | 11.42  | 3.94   |
| 4500118 | LF320-1200-HN-3.94 | 12.00  | 14.57  | 3.94   |
| 4500116 | LF320-1275-HN-3.94 | 12.75  | 14.57  | 3.94   |
| 4500117 | LF400-1600-HN-3.94 | 16.00  | 17.72  | 3.94   |
| 4500118 | LF500-2000-HN-3.94 | 20.00  | 21.65  | 3.94   |

## ISO-LFB Half Nipple

## ISO-LFB Half Nipple

**Materials:**

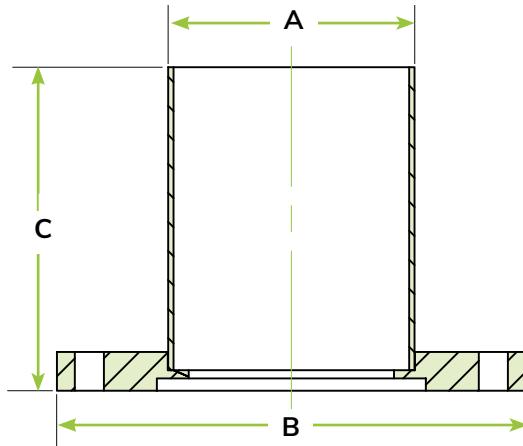
- Standard:
  - 304 stainless steel
  - 316 stainless steel
  - 6061 aluminum

**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Highly Customizable

**Options: (Call for price and delivery)**

- Custom lengths
- Tapped bolt holes
- ISO-QF large size flanges see pg. 1.05



| PART #  | REFERENCE ID        | A (in) | B (in) | C (in) |
|---------|---------------------|--------|--------|--------|
| 4500162 | LFB63-250-HN-3.94   | 2.50   | 5.12   | 3.94   |
| 4500163 | LFB80-300-HN-3.94   | 3.00   | 5.71   | 3.94   |
| 4500164 | LFB100-400-HN-3.94  | 4.00   | 6.50   | 3.94   |
| 4500165 | LFB160-600-HN-3.94  | 6.00   | 8.86   | 3.94   |
| 4500166 | LFB200-800-HN-3.94  | 8.00   | 11.22  | 3.94   |
| 4500167 | LFB250-1000-HN-3.94 | 10.00  | 13.19  | 3.94   |
| 4500188 | LFB320-1200-HN-3.94 | 12.00  | 16.73  | 3.94   |
| 4500168 | LFB320-1275-HN-3.94 | 12.75  | 16.73  | 3.94   |
| 4500169 | LFB400-1600-HN-3.94 | 16.00  | 20.08  | 3.94   |
| 4500170 | LFB500-2000-HN-3.94 | 20.00  | 24.02  | 3.94   |

## ISO-QF Nipples

## ISO-QF Nipple

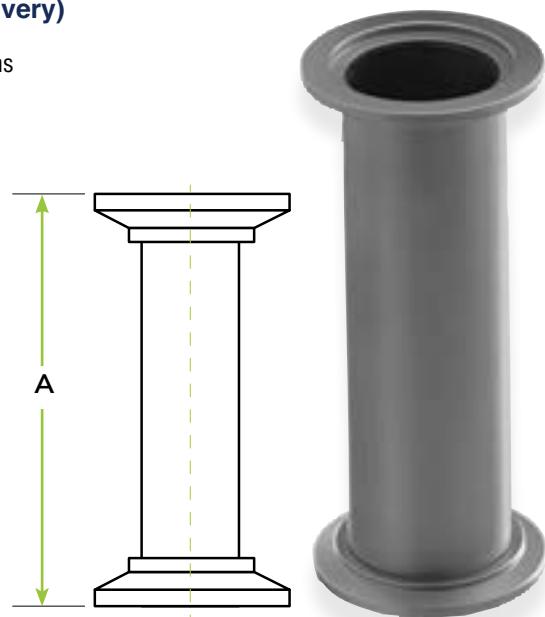
**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05

| PART #  | REFERENCE ID     | A (in) |
|---------|------------------|--------|
| 4000406 | QF16-075-N-3.15  | 3.15   |
| 4000408 | QF16-075-N-12.60 | 12.60  |
| 4000410 | QF25-100-N-3.94  | 3.94   |
| 4000412 | QF25-100-N-12.60 | 12.60  |
| 4000414 | QF40-150-N-5.12  | 5.12   |
| 4000416 | QF40-150-N-12.60 | 12.60  |
| 4000418 | QF50-200-N-5.51  | 5.51   |
| 4000420 | QF50-200-N-12.60 | 12.60  |



## ISO-QF Flexible Nipple

**Materials:**

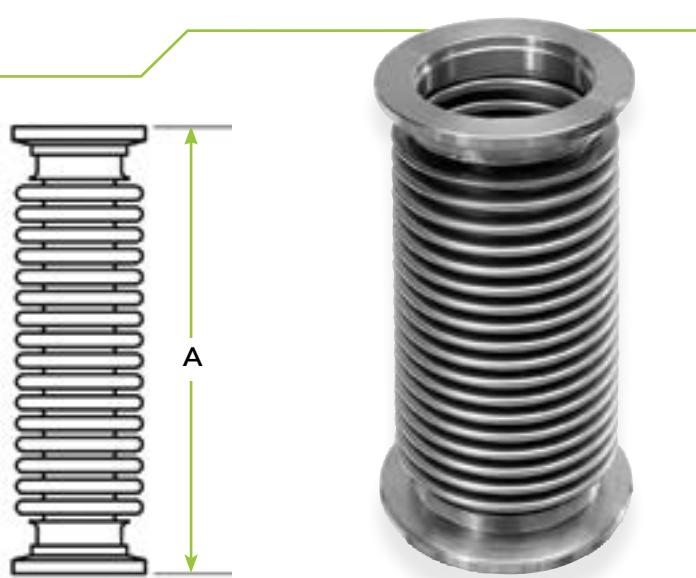
- Flanges
  - 304 stainless steel
- Flexible hose
  - 321 stainless steel

**Product Notes:**

- Corrects misaligned connections
- Vibration dampening

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combination
- ISO-QF large size flanges see pg. 1.05



| PART #  | REFERENCE ID   | HOSE I.D. (in) | WALL THICKNESS (in) | A (in) |
|---------|----------------|----------------|---------------------|--------|
| 0800000 | QF16-075-B-4.0 | 0.75           | 0.006               | 4.00   |
| 0800001 | QF25-100-B-4.0 | 1.00           | 0.006               | 4.00   |
| 0800002 | QF40-150-B-4.0 | 1.50           | 0.006               | 4.00   |
| 0800003 | QF50-200-B-4.0 | 2.00           | 0.006               | 4.00   |

## ISO-LF Nipple

**Materials:**

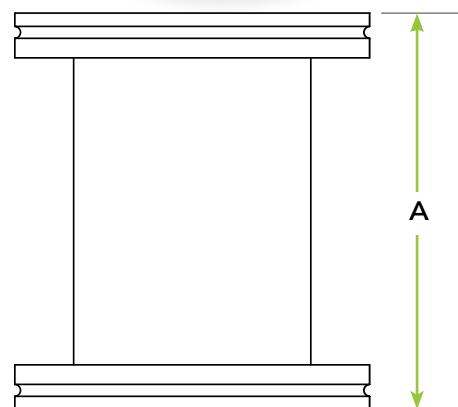
- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Options:**

**(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges  
see pg. 1.05
- ISO-LFB flanges
  - Tapped bolt holes

| PART #  | REFERENCE ID       | A (in) |
|---------|--------------------|--------|
| 4500207 | LF63-250-N-4.18    | 4.18   |
| 4500208 | LF63-250-N-6.92    | 6.92   |
| 4500209 | LF80-300-N-4.18    | 4.18   |
| 4500210 | LF80-300-N-7.72    | 7.72   |
| 4500211 | LF100-400-N-4.18   | 4.18   |
| 4500212 | LF100-400-N-8.50   | 8.50   |
| 4500213 | LF160-600-N-4.18   | 4.18   |
| 4500214 | LF160-600-N-10.86  | 10.86  |
| 4500215 | LF200-800-N-4.18   | 4.18   |
| 4500216 | LF200-800-N-13.22  | 13.22  |
| 4500217 | LF250-1000-N-4.18  | 4.18   |
| 4500218 | LF250-1000-N-16.38 | 16.38  |
| 4500219 | LF320-1200-N-19.76 | 19.76  |
| 4500220 | LF400-1600-N-20.76 | 20.76  |
| 4500221 | LF500-2000-N-21.76 | 21.76  |



## ISO-LF Flexible Nipple

**Materials**

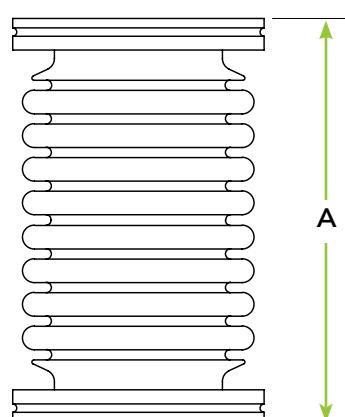
- Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel

**Product Notes**

- Corrects misaligned connections

**Options: (Call for price and delivery)**

- Larger sizes
- Custom lengths
- Custom flange combination
- ISO-QF large size flanges see pg. 1.05



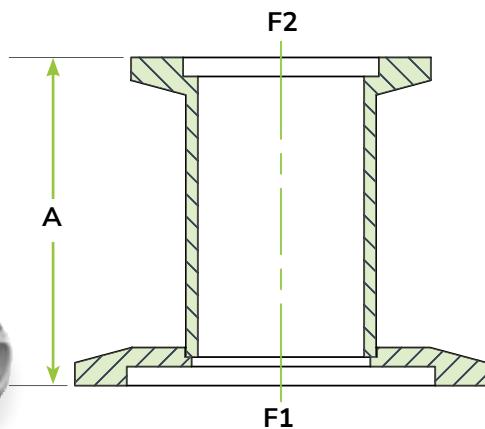
| PART #  | REFERENCE ID    | WALL THICKNESS (in) | HOSE I.D. (in) | A (in) |
|---------|-----------------|---------------------|----------------|--------|
| 0800069 | LF63-250-B-6.0  | 0.008               | 2.50           | 6.00   |
| 0800070 | LF80-300-B-6.0  | 0.008               | 3.00           | 6.00   |
| 0800071 | LF100-400-B-6.0 | 0.010               | 4.00           | 6.00   |
| 0800072 | LF160-600-B-8.0 | 0.012               | 6.00           | 8.00   |

## ISO Reducer Nipples

## ISO-QF to QF Straight Reducer Nipple

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Product Notes:**

- Connects different ISO-QF sizes

**Options:****(Call for price and delivery)**

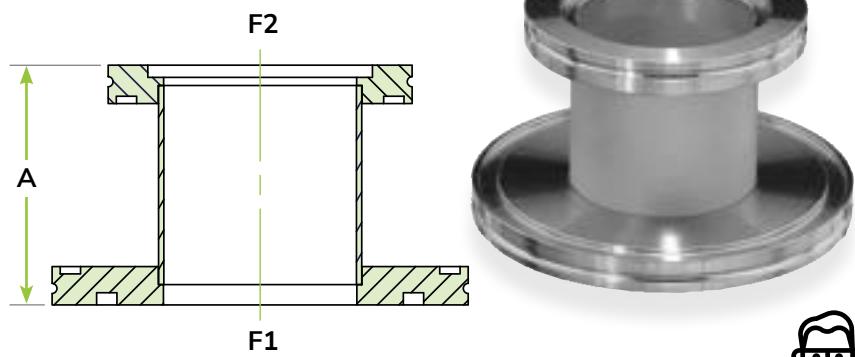
- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05

| PART #  | REFERENCE ID         | FLANGE 1 | FLANGE 2 | A (in) | TUBE O.D. (in) |
|---------|----------------------|----------|----------|--------|----------------|
| 4000422 | QF25XQF16-075-N-1.73 | QF25     | QF16     | 1.73   | 0.75           |
| 4000424 | QF40XQF16-075-N-1.73 | QF40     | QF16     | 1.73   | 0.75           |
| 4000426 | QF50XQF16-075-N-1.73 | QF50     | QF16     | 1.73   | 0.75           |
| 4000428 | QF40XQF25-100-N-1.73 | QF40     | QF25     | 1.73   | 1.00           |
| 4000430 | QF50XQF25-100-N-1.73 | QF50     | QF25     | 1.73   | 1.00           |
| 4000432 | QF50XQF40-150-N-1.73 | QF50     | QF40     | 1.73   | 1.50           |

## ISO-LF to LF Straight Reducer Nipple

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Product Notes:**

- Connects different ISO-LF sizes

**Options:****(Call for price and delivery)**

- Custom Lengths
- Larger Sizes
- Custom Flange Combinations
- ISO-QF large size flanges  
see pg. 1.05
- ISO-LFB flanges
  - Tapped Bolt Holes

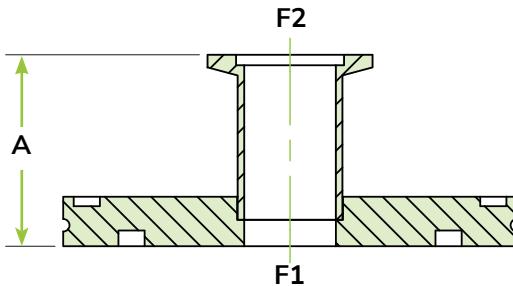
**TECH TIP**

Increase conductance with  
a conical reducer nipple. See pg. 1.47



| PART #  | REFERENCE ID           | FLANGE 1 | FLANGE 2 | A (in) | TUBE O.D. (in) |
|---------|------------------------|----------|----------|--------|----------------|
| 4500237 | LF80XLF63-250-N-2.95   | LF80     | LF63     | 2.95   | 2.50           |
| 4500238 | LF100XLF63-250-N-2.95  | LF100    | LF63     | 2.95   | 2.50           |
| 4500239 | LF160XLF63-250-N-2.95  | LF160    | LF63     | 2.95   | 2.50           |
| 4500240 | LF100XLF80-300-N-2.95  | LF100    | LF80     | 2.95   | 3.00           |
| 4500241 | LF160XLF100-400-N-2.95 | LF160    | LF100    | 2.95   | 4.00           |
| 4501241 | LF200XLF160-600-N-2.95 | LF200    | LF160    | 2.95   | 6.00           |

## ISO-LF to QF Straight Reducer Nipple


**Material:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Product Notes:**

- Connects to ISO-LF to ISO-QF sizes

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB Flanges
  - Tapped bolt holes

| PART #  | REFERENCE ID          | FLANGE 1 | FLANGE 2 | A (in) | TUBE O.D. (in) |
|---------|-----------------------|----------|----------|--------|----------------|
| 4500374 | LF63XQF16-075-N-1.83  | LF63     | QF16     | 1.83   | 0.75           |
| 4500375 | LF63XQF25-100-N-1.83  | LF63     | QF25     | 1.83   | 1.00           |
| 4500376 | LF80XQF25-100-N-1.83  | LF80     | QF25     | 1.83   | 1.00           |
| 4500377 | LF100XQF25-100-N-1.83 | LF100    | QF25     | 1.83   | 1.00           |
| 4500253 | LF63XQF40-150-N-1.83  | LF63     | QF40     | 1.83   | 1.50           |
| 4500255 | LF80XQF40-150-N-1.83  | LF80     | QF40     | 1.83   | 1.50           |
| 4500257 | LF100XQF40-150-N-1.83 | LF100    | QF40     | 1.83   | 1.50           |
| 4500378 | LF160XQF40-150-N-1.83 | LF160    | QF40     | 1.83   | 1.50           |
| 4500254 | LF63XQF50-200-N-1.83  | LF63     | QF50     | 1.83   | 1.50           |
| 4500256 | LF80XQF50-200-N-1.83  | LF80     | QF50     | 1.83   | 2.00           |
| 4500258 | LF100XQF50-200-N-1.83 | LF100    | QF50     | 1.83   | 2.00           |
| 4500379 | LF160XQF50-200-N-1.83 | LF160    | QF50     | 1.83   | 2.00           |

## ISO-LF to QF Conical Reducer Nipple

**Materials**

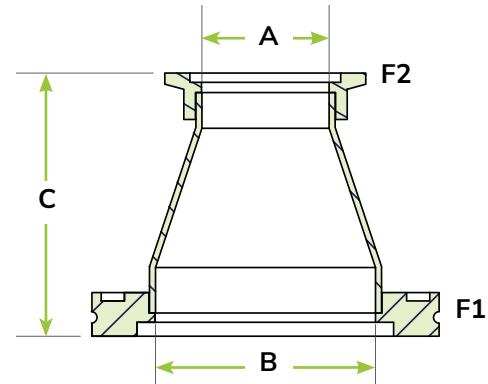
- Standard: 304 stainless steel
- Alternative: (Call for price and delivery)
  - 6061 aluminum

**Product Notes:**

- Connects ISO-LF to ISO-QF sizes

**Options: (Call for price and delivery)**

- Custom flange combinations
- Additional flange sizes
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges, Tapped bolt holes



| PART #  | REFERENCE ID               | FLANGE 1 | FLANGE 2 | A (in) | B (in) | C (in) |
|---------|----------------------------|----------|----------|--------|--------|--------|
| 4500265 | LF63XQF40-250X150-CR-2.84  | LF63     | QF40     | 1.37   | 2.37   | 2.84   |
| 4500266 | LF80XQF40-300X150-CR-4.08  | LF80     | QF40     | 1.37   | 2.87   | 4.08   |
| 4500267 | LF63XQF50-250X200-CR-2.85  | LF63     | QF50     | 1.87   | 2.37   | 2.85   |
| 4500268 | LF80XQF50-300X200-CR-4.10  | LF80     | QF50     | 1.87   | 2.87   | 4.10   |
| 4500269 | LF100XQF50-400X200-CR-4.12 | LF100    | QF50     | 1.87   | 3.87   | 4.12   |

## ISO-LF to LF Conical Reducer Nipple

**Materials:**

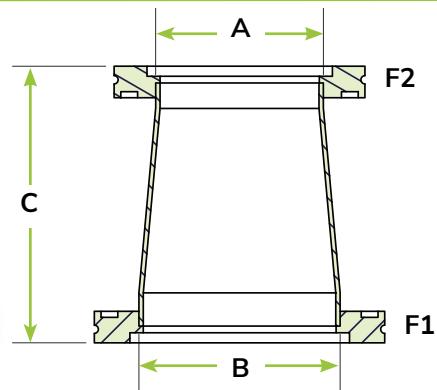
- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Product Notes:**

- Connects different ISO-LF sizes

**Options: (Call for price and delivery)**

- Custom flange combinations
- Additional flange sizes
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges: Tapped bolt holes



| PART #  | REFERENCE ID                | FLANGE 1 | FLANGE 2 | A (in) | B (in) | C (in) |
|---------|-----------------------------|----------|----------|--------|--------|--------|
| 4500247 | LF80XLF63-300X250-CR-4.13   | LF80     | LF63     | 2.37   | 2.87   | 4.13   |
| 4500248 | LF100XLF63-400X250-CR-4.12  | LF100    | LF63     | 2.37   | 3.83   | 4.12   |
| 4500250 | LF100XLF80-400X300-CR-4.13  | LF100    | LF80     | 2.87   | 3.83   | 4.13   |
| 4500251 | LF160XLF80-600X300-CR-6.00  | LF160    | LF80     | 2.87   | 5.78   | 6.00   |
| 4500252 | LF160XLF100-600X400-CR-6.92 | LF160    | LF100    | 3.83   | 5.78   | 6.92   |

## ISO-QF to QF Conical Reducer Nipple

**Materials**

- Standard:
  - 304 stainless steel
  - 6061 aluminum

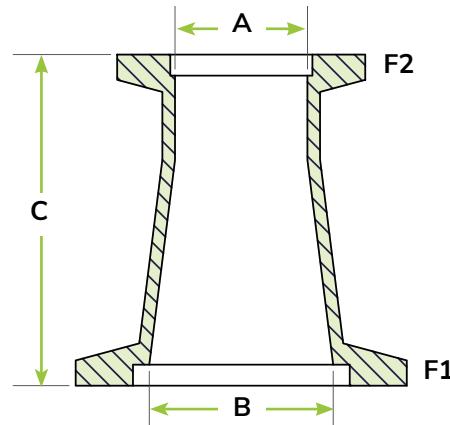
**Product Notes:**

- Machined from solid bar – No welds
- Connects different ISO-QF sizes

**Options:**

- (Call for price and delivery)
- Custom flange combinations

### 304 Stainless Steel



| PART #  | REFERENCE ID               | FLANGE 1 | FLANGE 2 | A (in) | B (in) | C (in) |
|---------|----------------------------|----------|----------|--------|--------|--------|
| 4000434 | QF25XQF16-100X075-CRM-1.57 | QF25     | QF16     | 0.62   | 0.87   | 1.57   |
| 4000435 | QF40XQF16-150X075-CRM-1.57 | QF40     | QF16     | 0.62   | 1.37   | 1.57   |
| 4000436 | QF40XQF25-150X100-CRM-1.57 | QF40     | QF25     | 0.87   | 1.37   | 1.57   |
| 4000437 | QF50XQF16-200X075-CRM-1.57 | QF50     | QF16     | 0.62   | 1.87   | 1.57   |
| 4000438 | QF50XQF25-200X100-CRM-1.57 | QF50     | QF25     | 0.87   | 1.87   | 1.57   |
| 4000439 | QF50XQF40-200X150-CRM-1.57 | QF50     | QF40     | 1.37   | 1.87   | 1.57   |

### 6061 Aluminum

| PART #  | REFERENCE ID                  | FLANGE 1 | FLANGE 2 | A (in) | B (in) | C (in) |
|---------|-------------------------------|----------|----------|--------|--------|--------|
| 4000440 | QF25XQF16-100X075-CRM-1.57-AL | QF25     | QF16     | 0.62   | 0.87   | 1.57   |
| 4000441 | QF40XQF16-150X075-CRM-1.57-AL | QF40     | QF16     | 0.62   | 1.37   | 1.57   |
| 4000442 | QF40XQF25-150X100-CRM-1.57-AL | QF40     | QF25     | 0.87   | 1.37   | 1.57   |
| 4000443 | QF50XQF16-200X075-CRM-1.57-AL | QF50     | QF16     | 0.62   | 1.87   | 1.57   |
| 4000444 | QF50XQF25-200X100-CRM-1.57-AL | QF50     | QF25     | 0.87   | 1.87   | 1.57   |
| 4000445 | QF50XQF40-200X150-CRM-1.57-AL | QF50     | QF40     | 1.37   | 1.87   | 1.57   |

## ISO-QF 45° Elbow

**Materials:**

- Standard: 304 stainless steel

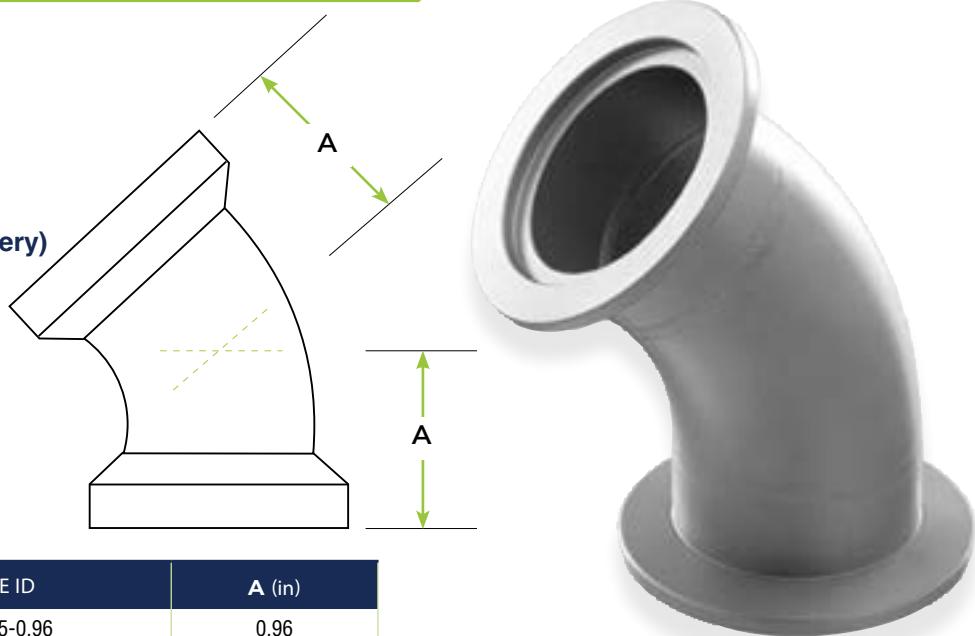
**Product Notes:**

- Radius elbow design

**Options:**

**(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05



| PART #  | REFERENCE ID      | A (in) |
|---------|-------------------|--------|
| 4000446 | QF16-075-E45-0.96 | 0.96   |
| 4000447 | QF25-100-E45-1.12 | 1.12   |
| 4000448 | QF40-150-E45-1.69 | 1.69   |
| 4000449 | QF50-200-E45-1.99 | 1.99   |

**ORDERING NOTE: FOR ALUMINUM ELBOW FITTINGS SEE 90° MITERED ELBOWS PG. 1.51**

## ISO-LF 45° Elbow

**Materials:**

- Standard: 304 stainless steel

**Product Notes:**

- Radius elbow design

**Options:**

**(Call for price and delivery)**

- Custom lengths
- Larger sizes
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges
  - Tapped bolt holes



| PART #  | REFERENCE ID       | A (in) |
|---------|--------------------|--------|
| 4500270 | LF63-250-E45-3.25  | 3.25   |
| 4500271 | LF80-300-E45-3.93  | 3.93   |
| 4500272 | LF100-400-E45-5.02 | 5.02   |
| 4500273 | LF160-600-E45-9.71 | 9.71   |

## ISO 90° Elbows

## ISO-QF 90° Elbow

**Materials:**

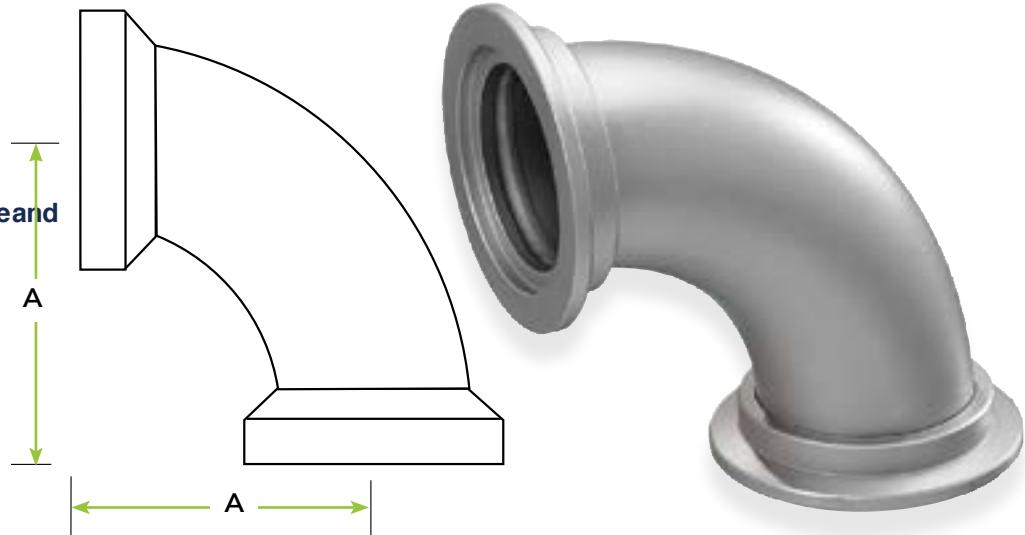
- Standard:  
304 stainless steel

**Product Notes:**

- Radius elbow design

**Options:(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05



| PART #  | REFERENCE ID      | A (in) |
|---------|-------------------|--------|
| 4000450 | QF16-075-E90-1.57 | 1.57   |
| 4000451 | QF25-100-E90-1.97 | 1.97   |
| 4000452 | QF40-150-E90-2.56 | 2.56   |
| 4000453 | QF50-200-E90-3.17 | 3.17   |

ORDERING NOTE: FOR ALUMINUM ELBOW FITTINGS SEE 90° MITERED ELBOWS PG. 1.51

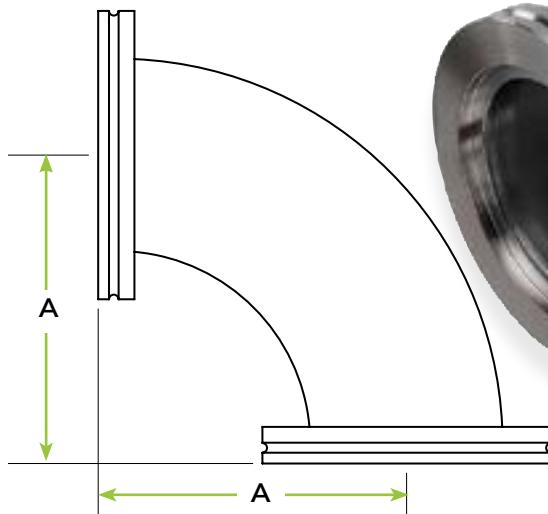
## ISO-LF 90° Elbow

**Materials:**

- Standard:  
304 stainless steel

**Product Notes:**

- Radius elbow design



| PART #  | REFERENCE ID         | A (in) |
|---------|----------------------|--------|
| 4500274 | LF63-250-E90-4.00    | 4.00   |
| 4500275 | LF80-300-E90-4.75    | 4.75   |
| 4500276 | LF100-400-E90-6.25   | 6.25   |
| 4500277 | LF160-600-E90-9.25   | 9.25   |
| 4500278 | LF200-800-E90-12.25  | 12.25  |
| 4500279 | LF250-1000-E90-15.25 | 15.25  |

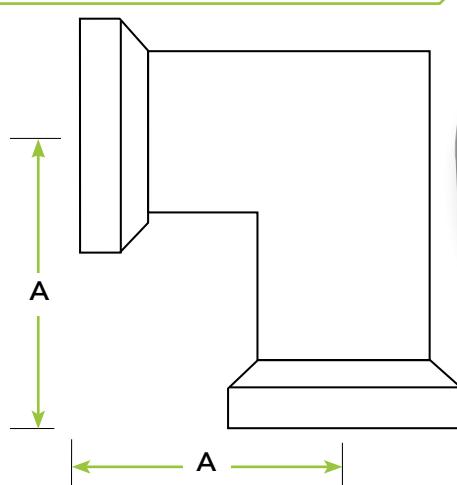
**Options: (Call for price and delivery)**

- Custom lengths
- Larger sizes
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges  
-Tapped bolt holes

## ISO-QF 90° Elbow-Mitered

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)



| PART #  | REFERENCE ID       | A (in) |
|---------|--------------------|--------|
| 4000454 | QF16-075-E90M-1.57 | 1.57   |
| 4000456 | QF25-100-E90M-2.03 | 2.03   |
| 4000458 | QF40-150-E90M-2.56 | 2.56   |
| 4000460 | QF50-200-E90M-2.76 | 2.76   |

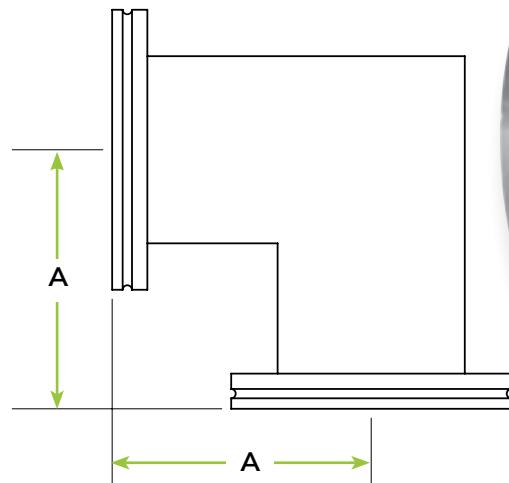
**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05

## ISO-LF 90° Elbow-Mitered

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)



| PART #  | REFERENCE ID         | A (in) |
|---------|----------------------|--------|
| 4500280 | LF63-250-E90M-3.46   | 3.46   |
| 4500281 | LF80-300-E90M-3.86   | 3.86   |
| 4500282 | LF100-400-E90M-4.13  | 4.13   |
| 4500283 | LF160-600-E90M-5.43  | 5.43   |
| 4500284 | LF200-800-E90M-7.25  | 7.25   |
| 4500285 | LF250-1000-E90M-8.19 | 8.19   |

**Options: (Call for price and delivery)**

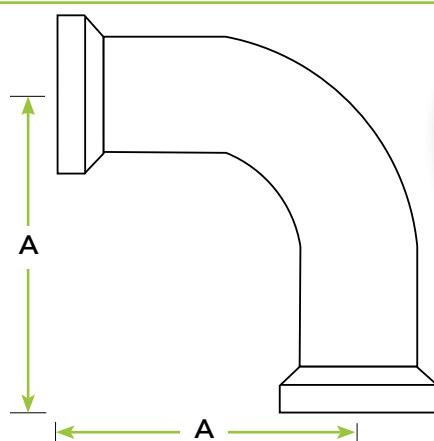
- Custom lengths
- Larger sizes
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges: Tapped bolt holes

## ISO 90° and 180° Elbows

## ISO-QF 90° Elbow - Long Radius

**Materials:**

- Standard:  
304 stainless steel



| PART #  | REFERENCE ID        | A (in) |
|---------|---------------------|--------|
| 4000462 | QF16-075-E90LR-2.70 | 2.70   |
| 4000463 | QF25-100-E90LR-3.64 | 3.64   |
| 4000464 | QF40-150-E90LR-5.12 | 5.12   |
| 4000465 | QF50-200-E90LR-5.52 | 5.52   |

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05

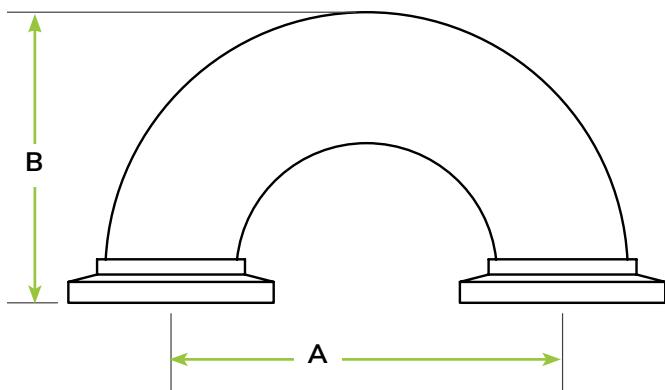
## ISO-QF 180° Return

**Materials:**

- Standard:  
304 stainless steel

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05



| PART #  | REFERENCE ID       | A (in) | B (in) |
|---------|--------------------|--------|--------|
| 4000466 | QF16-075-E180-2.25 | 2.25   | 1.67   |
| 4000467 | QF25-100-E180-3.00 | 3.00   | 2.17   |
| 4000468 | QF40-150-E180-4.50 | 4.50   | 3.17   |
| 4000469 | QF50-200-E180-6.00 | 6.00   | 4.17   |

## ISO-QF Tee

**Materials:**

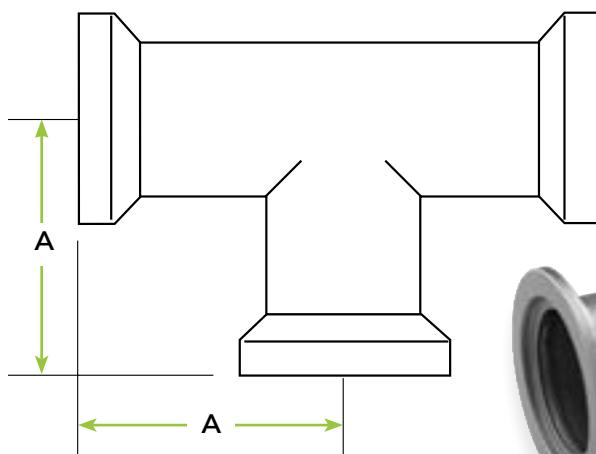
- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Product Notes:**

- Pulled ports for optimal vacuum performance

**Options:****(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges  
see pg. 1.05



| PART #  | REFERENCE ID      | A (in) |
|---------|-------------------|--------|
| 4000470 | QF16-075-TEE-1.57 | 1.57   |
| 4000472 | QF25-100-TEE-1.97 | 1.97   |
| 4000474 | QF40-150-TEE-2.56 | 2.56   |
| 4000476 | QF50-200-TEE-2.76 | 2.76   |

## ISO-LF Tee

**Materials:**

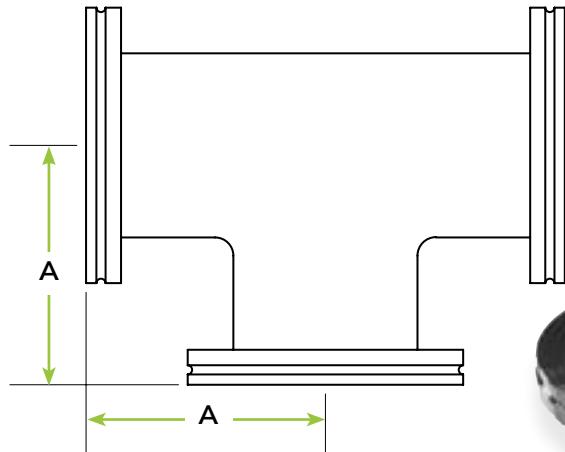
- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Product Notes:**

- Pulled ports for optimal vacuum performance

**Options:****(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges: Tapped bolt holes



| PART #  | REFERENCE ID         | A (in) |
|---------|----------------------|--------|
| 4500292 | LF63-250-TEE-3.25    | 3.25   |
| 4500293 | LF80-300-TEE-3.50    | 3.50   |
| 4500294 | LF100-400-TEE-4.13   | 4.13   |
| 4500295 | LF160-600-TEE-5.25   | 5.25   |
| 4500296 | LF200-800-TEE-7.25   | 7.25   |
| 4500297 | LF250-1000-TEE-9.75  | 9.75   |
| 4500298 | LF320-1200-TEE-10.38 | 10.38  |
| 4500299 | LF400-1600-TEE-12.38 | 12.38  |
| 4500300 | LF500-2000-TEE-15.87 | 15.87  |

## ISO Reducing Tees

## ISO-QF Reducing Tee

**Materials:**

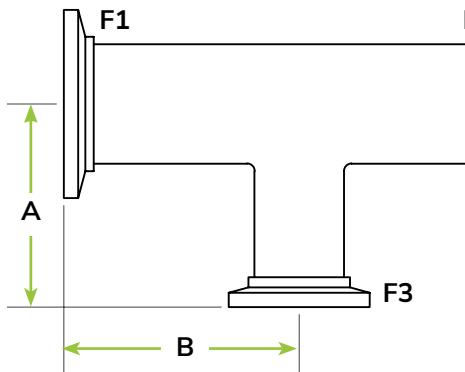
- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Product Notes:**

- Pulled ports for optimal vacuum performance
- Reducing intersection for different ISO-QF flange sizes

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05



| PART #  | REFERENCE ID                    | FLANGE 1 & 2 | FLANGE 3 | A (in) | B (in) |
|---------|---------------------------------|--------------|----------|--------|--------|
| 4000478 | QF25xQF16-100x075-RDT-1.97X1.70 | QF25         | QF16     | 1.70   | 1.97   |
| 4000480 | QF40XQF16-150X075-RDT-2.56X1.95 | QF40         | QF16     | 1.95   | 2.56   |
| 4000482 | QF40XQF25-150X100-RDT-2.56X2.22 | QF40         | QF25     | 2.22   | 2.56   |
| 4000484 | QF50XQF16-200X075-RDT-2.76X2.20 | QF50         | QF16     | 2.20   | 2.76   |
| 4000486 | QF50XQF25-200X100-RDT-2.76X2.47 | QF50         | QF25     | 2.47   | 2.76   |
| 4000488 | QF50XQF40-200X150-RDT-2.76X2.81 | QF50         | QF40     | 2.81   | 2.76   |

## ISO-LF to ISO-QF Reducing Tee

**Materials:**

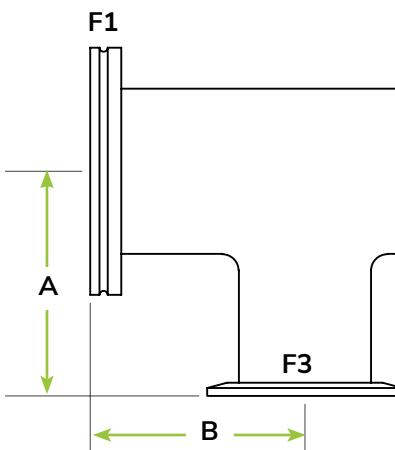
- Standard: 304 stainless steel

**Product Notes:**

- Pulled ports for optimal vacuum performance
- Reducing intersection for ISO-LF to ISO-QF flange sizes

**Options:****(Call for price and delivery)**

- Custom lengths
- Alternative: 6061 aluminum
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges: Tapped bolt holes



| PART #  | REFERENCE ID                     | FLANGE 1 & 2 | TUBE O.D. (in) | FLANGE 3 | TUBE O.D. (in) | A (in) | B (in) |
|---------|----------------------------------|--------------|----------------|----------|----------------|--------|--------|
| 4500423 | LF63xQF40-250x150-RDT-3.25X2.90  | LF63         | 2.50           | QF40     | 1.50           | 2.90   | 3.25   |
| 4500424 | LF63XQF50-250X200-RDT-3.40X3.25  | LF63         | 2.50           | QF50     | 2.00           | 3.40   | 3.25   |
| 4500425 | LF80XQF40-300X150-RDT-3.50X3.15  | LF80         | 3.00           | QF40     | 1.50           | 3.15   | 3.50   |
| 4500426 | LF80XQF50-300X200-RDT-3.67X3.50  | LF80         | 3.00           | QF50     | 2.00           | 3.67   | 3.50   |
| 4500427 | LF100XQF40-400X150-RDT-4.13X3.65 | LF100        | 4.00           | QF40     | 1.50           | 3.65   | 4.13   |
| 4500351 | LF100XQF50-400X200-RDT-4.15X4.13 | LF100        | 4.00           | QF50     | 2.00           | 4.125  | 4.170  |

## ISO-LF Reducing Tee

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

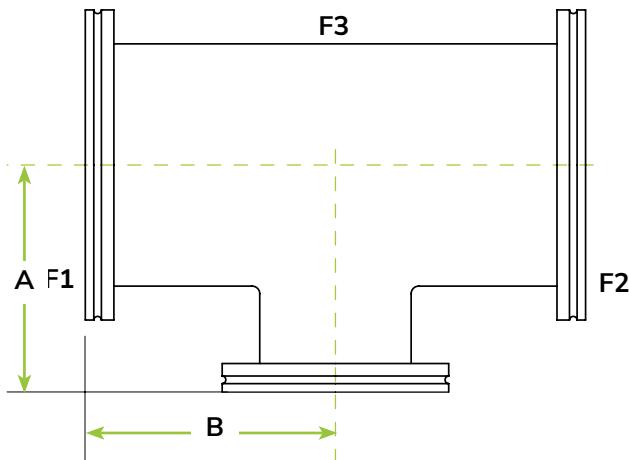
**Product Notes:**

- Pulled ports for optimal vacuum performance
- Reducing intersection for different ISO-LF flange sizes

**Options:**

**(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges  
see pg. 1.05
- ISO-LFB flanges:  
Tapped bolt holes



| PART #  | REFERENCE ID                      | FLANGE 1 & 2 | TUBE O.D. (in) | FLANGE 3 | TUBE O.D. (in) | A (in) | B (in) |
|---------|-----------------------------------|--------------|----------------|----------|----------------|--------|--------|
| 4500441 | LF80XLF63-300X250-RDT-3.50X3.50   | LF80         | 3.00           | LF63     | 2.50           | 3.50   | 3.50   |
| 4500442 | LF100XLF63-400X250-RDT-4.13X4.00  | LF100        | 4.00           | LF63     | 2.50           | 4.13   | 4.00   |
| 4500443 | LF100XLF80-400X300-RDT-4.13X4.00  | LF100        | 4.00           | LF80     | 3.00           | 4.13   | 4.00   |
| 4500444 | LF160XLF63-600X250-RDT-5.25X5.00  | LF160        | 6.00           | LF63     | 2.50           | 5.25   | 5.00   |
| 4500445 | LF160XLF80-600X300-RDT-5.25X5.00  | LF160        | 6.00           | LF80     | 3.00           | 5.25   | 5.00   |
| 4500446 | LF160XLF100-600X400-RDT-5.25X5.13 | LF160        | 6.00           | LF100    | 4.00           | 5.25   | 5.13   |
| 4500447 | LF200XLF160-800X600-RDT-7.25X7.25 | LF200        | 8.00           | LF160    | 6.00           | 7.25   | 7.25   |

## ISO Crosses

## ISO-QF Cross

**Materials:**

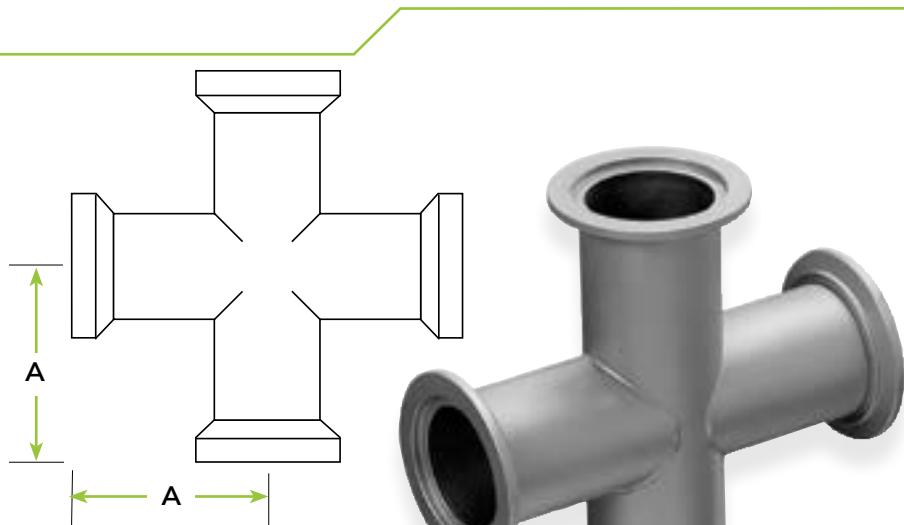
- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Product Notes:**

- Pulled ports for optimal vacuum performance

**Options:****(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05

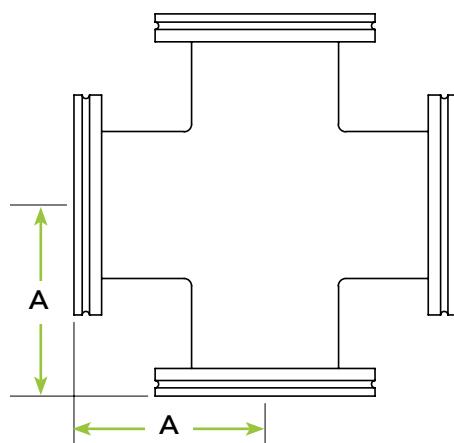


| PART #  | REFERENCE ID     | A (in) |
|---------|------------------|--------|
| 4000502 | QF16-075-4X-1.57 | 1.57   |
| 4000504 | QF25-100-4X-1.97 | 1.97   |
| 4000506 | QF40-150-4X-2.56 | 2.56   |
| 4000508 | QF50-200-4X-2.76 | 2.76   |

## ISO-LF Cross

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)



| PART #  | REFERENCE ID        | A (in) |
|---------|---------------------|--------|
| 4500310 | LF63-250-4X-3.25    | 3.25   |
| 4500311 | LF80-300-4X-3.50    | 3.50   |
| 4500312 | LF100-400-4X-4.13   | 4.13   |
| 4500313 | LF160-600-4X-5.25   | 5.25   |
| 4500314 | LF200-800-4X-7.25   | 7.25   |
| 4500315 | LF250-1000-4X-9.75  | 9.75   |
| 4500316 | LF320-1200-4X-10.38 | 10.38  |
| 4500317 | LF400-1600-4X-13.37 | 13.37  |
| 4500318 | LF500-2000-4X-15.87 | 15.87  |

**Product Notes:**

- Pulled ports for optimal vacuum performance

**Options: (Call for price and delivery)**

- Custom lengths
- Larger Sizes
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges Tapped bolt holes

## ISO-QF Reducing Cross

**Materials:**

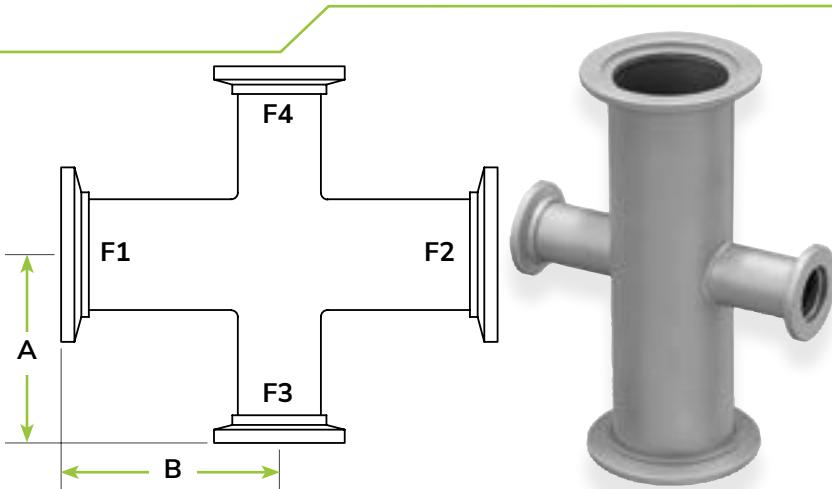
- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Product Notes:**

- Pulled ports for optimal vacuum performance
- Reducing intersection for different ISO-QF flange sizes

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05



| PART #  | REFERENCE ID                    | FLANGE 1 & 2 | FLANGE 3 & 4 | A (in) | B (in) |
|---------|---------------------------------|--------------|--------------|--------|--------|
| 4000490 | QF25xQF16-100x075-R4X-1.97X1.70 | QF25         | QF16         | 1.70   | 1.97   |
| 4000492 | QF40xQF16-150X075-R4X-2.56X1.95 | QF40         | QF16         | 1.95   | 2.56   |
| 4000494 | QF40xQF25-150X100-R4X-2.56X2.22 | QF40         | QF25         | 2.22   | 2.56   |
| 4000496 | QF50xQF16-200X075-R4X-2.76X2.20 | QF50         | QF16         | 2.20   | 2.76   |
| 4000498 | QF50xQF25-200X100-R4X-2.81X2.76 | QF50         | QF25         | 2.81   | 2.76   |
| 4000500 | QF50xQF40-200X150-R4X-2.81X2.75 | QF50         | QF40         | 2.81   | 2.75   |

## ISO-LF to ISO-QF Reducing Cross

**Materials:**

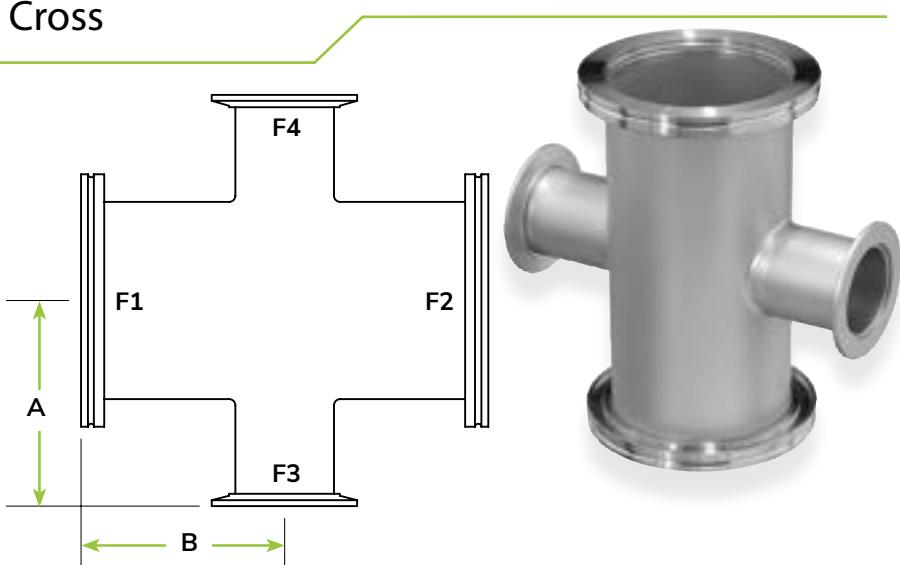
- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Product Notes:**

- Pulled ports for optimal vacuum performance
- Reducing intersection for ISO-LF to ISO-QF flange sizes

**Options:**
**(Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges: Tapped bolt holes



| PART #  | REFERENCE ID                     | FLANGE 1 & 2 | TUBE O.D. (in) | FLANGE 3 & 4 | TUBE O.D. (in) | A (in) | B (in) |
|---------|----------------------------------|--------------|----------------|--------------|----------------|--------|--------|
| 4500435 | LF63XQF40-250X150-R4X-3.25X2.79  | LF63         | 2.50           | QF40         | 1.50           | 2.79   | 3.25   |
| 4500436 | LF63XQF50-250X200-R4X-3.25X3.40  | LF63         | 2.50           | QF50         | 2.00           | 3.40   | 3.25   |
| 4500437 | LF80XQF40-300X150-R4X-3.50X3.17  | LF80         | 3.00           | QF40         | 1.50           | 3.17   | 3.50   |
| 4500438 | LF80XQF50-300X200-R4X-3.50X3.65  | LF80         | 3.00           | QF50         | 2.00           | 3.65   | 3.50   |
| 4500439 | LF100XQF40-400X150-R4X-4.13X3.65 | LF100        | 4.00           | QF40         | 1.50           | 3.65   | 4.13   |
| 4500369 | LF100XQF50-400X200-R4X-4.13X4.17 | LF100        | 4.00           | QF50         | 2.00           | 4.17   | 4.13   |

## ISO-LF Reducing Cross

### Materials:

- Standard: 304 stainless steel

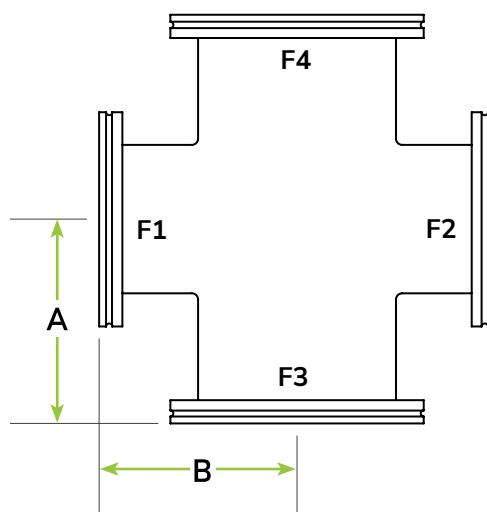
### Product Notes:

- Pulled ports for optimal vacuum performance
- Reducing intersection for different ISO-LF flange sizes

### Options:

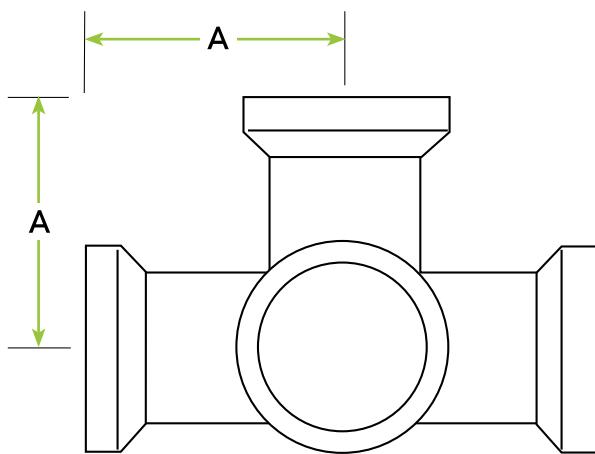
(Call for price and delivery)

- Custom lengths
- Custom flange combinations
- Alternative: 6061 aluminum
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges: Tapped Bolt Holes



| PART #  | REFERENCE ID                      | FLANGE 1 & 2 | TUBE O.D. (in) | FLANGE 3 & 4 | TUBE O.D. (in) | A (in) | B (in) |
|---------|-----------------------------------|--------------|----------------|--------------|----------------|--------|--------|
| 4500450 | LF80XLF63-300X250-R4X-3.50X3.50   | LF80         | 3.00           | LF63         | 2.50           | 3.50   | 3.50   |
| 4500451 | LF100XLF63-400X250-R4X-4.13X4.00  | LF100        | 4.00           | LF63         | 2.50           | 4.13   | 4.00   |
| 4500452 | LF100XLF80-400X300-R4X-4.13X4.00  | LF100        | 4.00           | LF80         | 3.00           | 4.13   | 4.00   |
| 4500453 | LF160XLF63-600X250-R4X-5.25X5.00  | LF160        | 6.00           | LF63         | 2.50           | 5.25   | 5.00   |
| 4500454 | LF160XLF80-600X300-R4X-5.25X5.00  | LF160        | 6.00           | LF80         | 3.00           | 5.25   | 5.00   |
| 4500455 | LF160XLF100-600X400-R4X-5.25X5.13 | LF160        | 6.00           | LF100        | 4.00           | 5.25   | 5.13   |
| 4500456 | LF200XLF160-800X600-R4X-7.25X6.25 | LF200        | 8.00           | LF160        | 6.00           | 7.25   | 6.25   |

## ISO-QF 5-Way Cross



## ISO 5-Way Crosses

| PART #  | REFERENCE ID     | A (in) |
|---------|------------------|--------|
| 4000510 | QF16-075-5X-1.50 | 1.50   |
| 4000511 | QF25-100-5X-2.05 | 2.05   |
| 4000512 | QF40-150-5X-2.42 | 2.42   |
| 4000513 | QF50-200-5X-3.17 | 3.17   |

**Materials:**

- Standard: 304 stainless steel

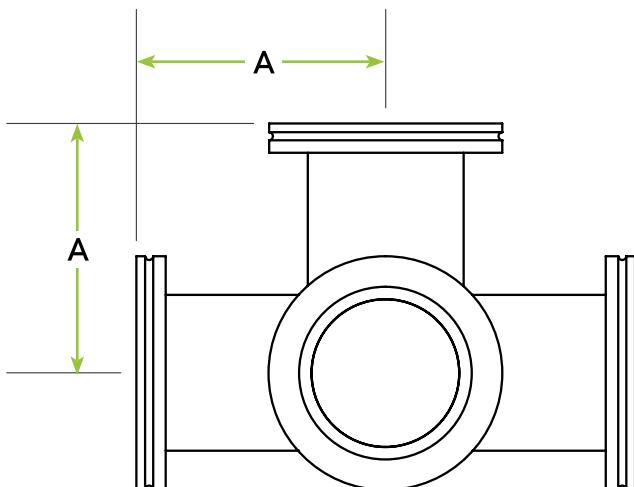
**Product Notes:**

- Pulled ports for optimal vacuum performance

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- Alternative: 6061 aluminum
- ISO-QF large size flanges see pg. 1.05

## ISO-LF 5-Way Cross



| PART #  | REFERENCE ID       | A (in) |
|---------|--------------------|--------|
| 4500328 | LF63-250-5X-4.00   | 4.00   |
| 4500329 | LF80-300-5X-3.50   | 3.50   |
| 4500330 | LF100-400-5X-5.12  | 5.12   |
| 4500331 | LF160-600-5X-6.31  | 6.31   |
| 4500332 | LF200-800-5X-7.25  | 7.25   |
| 4500333 | LF250-1000-5X-9.75 | 9.75   |

**Materials:**

- Standard: 304 stainless steel

**Product Notes:**

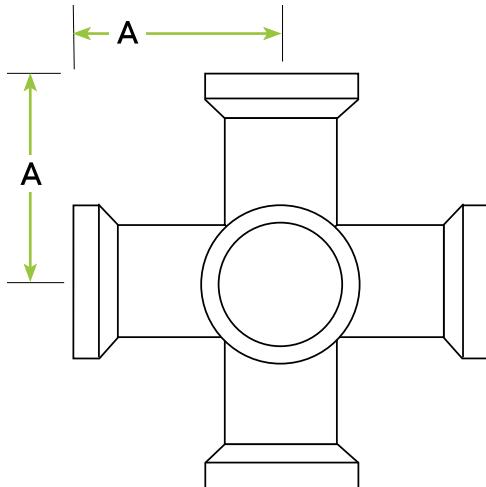
- Pulled ports for optimal vacuum performance

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- Alternative: 6061 aluminum
- ISO-QF large size flanges see pg. 1.05

## ISO 6-Way Crosses

## ISO-QF 6-Way Cross



| PART #  | REFERENCE ID     | A (in) |
|---------|------------------|--------|
| 4000514 | QF16-075-6X-1.50 | 1.50   |
| 4000515 | QF25-100-6X-2.05 | 2.05   |
| 4000516 | QF40-150-6X-2.42 | 2.42   |
| 4000517 | QF50-200-6X-3.17 | 3.17   |

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

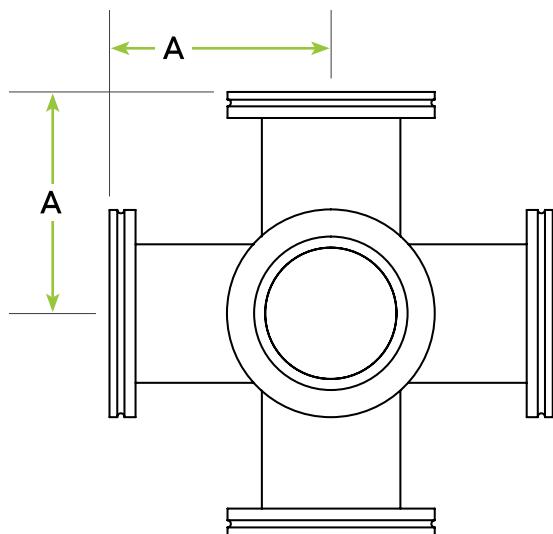
**Product Notes:**

- Pulled ports for optimal vacuum performance

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05

## ISO-LF 6-Way Cross



| PART #  | REFERENCE ID       | A (in) |
|---------|--------------------|--------|
| 4500334 | LF63-250-6X-4.00   | 4.00   |
| 4500335 | LF80-300-6X-3.50   | 3.50   |
| 4500336 | LF100-400-6X-5.12  | 5.12   |
| 4500337 | LF160-600-6X-6.31  | 6.31   |
| 4500338 | LF200-800-6X-7.25  | 7.25   |
| 4500339 | LF250-1000-6X-9.75 | 9.75   |

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum (Call for price and delivery)

**Product Notes:**

- Pulled ports for optimal vacuum performance

**Options: (Call for price and delivery)**

- Custom lengths
- Custom flange combinations
- ISO-QF large size flanges see pg. 1.05
- ISO-LFB flanges
  - Tapped bolt holes

## CF and Wire Seal Flanges & Fittings

2

CF and Wire Seal Flanges &amp; Fittings



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# CF and Wire Seal FLANGES &

CF and wire seal flanges are part of the same family of ultra high vacuum components that compress a copper or elastomer gasket between two stainless steel flanges to create a vacuum tight seal. The CF flange system is more commonly used within the vacuum industry and as such has a much larger standard product offering and faster delivery. Wire seal flanges are desirable for those applications that require flanges larger than those available with the CF flange system. **ANCORP** CF flanges are manufactured to industry standards and are interchangeable with all other ConFlat® style flanges and fittings. Wire seal flanges have no standard dimension specifications. Vacuum component manufacturers endeavor to create interchangeable flanges, however, it is our opinion that the only way to ensure compatibility is to purchase a mating set of wire seal flanges from one manufacturer.

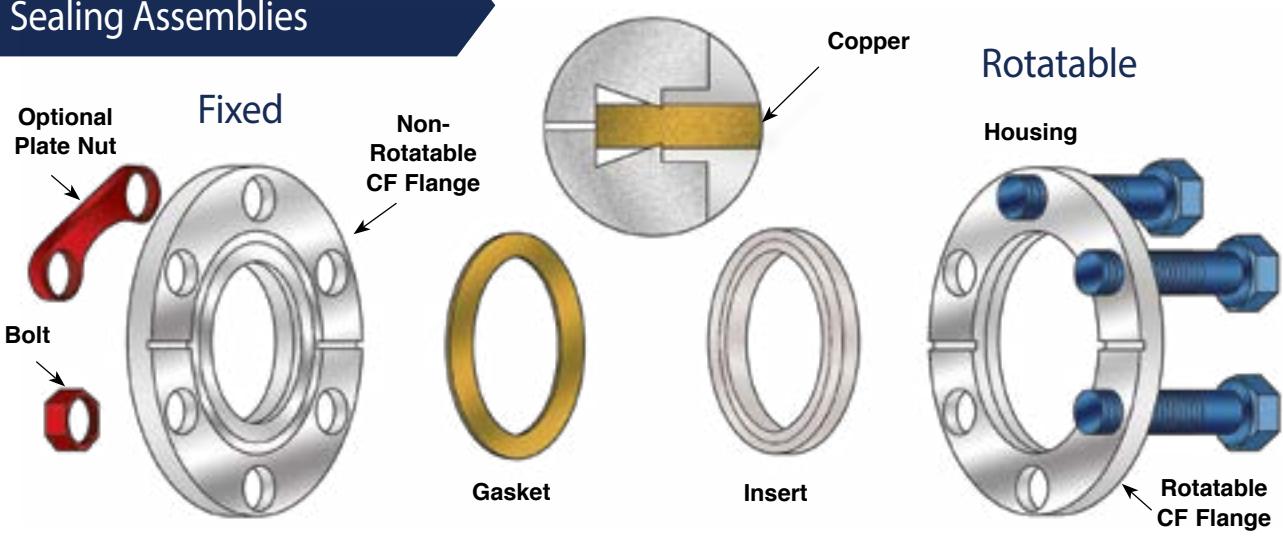
All flanges offered by **ANCORP** are manufactured on state-of-the-art CNC (computer numerical control) lathes to ensure consistency with dimensional tolerances, and extremely fine surface finishes. Water soluble, non-sulfur based coolants are used during the manufacturing process. The flanges are cleaned in an ultrasonic deionized water based cleaning system and vacuum packaged free from visible particulates and oils, ready for immediate use in any vacuum application.

- Vacuum rated to  $1 \times 10^{-13}$  Torr.
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -200°C to 450°C
- Standard materials:
  - Flanges and fittings: 304L stainless steel
  - Seals: OFHC copper for ultra high vacuum (UHV) or Viton® for high vacuum (HV)
- Standard sizes:
  - CF flanges outer diameter: 1 1/3 inches to 16 1/2 inches (for tubing diameter 1/4 inch up to 14 inches)
  - Wire seal flanges outer diameter: 12 3/8 inches up to 27 1/8 inches (for tubing diameter 10 inches up to

- Reusable flanges
- Elastomer Seals
- Sexless flanges – CF flange system
- Rotatable flanges for easier bolt hole alignment – CF flange system
- Tapped or clearance bolt holes available
- Adapters to other flange systems available
- Compatible with U.S. Standard (imperial) and metric measurements
- Interchangeable with other ConFlat® style flanges

## CF Flange System

## CF Standard Sealing Assemblies



The CF flange system provides a complete range of flanges to mount with tubing sized 3/4 inch up to 14 inches in diameter. The CF seal assembly consists of three types of sub-components; two flanges, a sealing gasket and a fastener to compress the seal between the two flanges.

CF Flanges are available in two general styles; fixed and rotatable. Fixed flanges have a set bolt hole orientation while rotatable flanges have a two piece design allowing for bolt hole rotation to ease bolt alignment when mating the two flanges.

The two pieces of the rotatable CF flange are called the insert (in which the knife-edge is machined) and the housing (in which the bolt holes are machined). When installing these components the housing is placed behind the insert on the tubing prior to welding the insert to the tubing.

Both fixed and rotatable flanges are available with clearance and tapped bolt holes. Clearance bolt holes allow for unrestricted passage of a bolt through the flanges. The bolt is then tightened with a nut on the back side of the flange assembly. Tapped bolt holes are threaded to receive and tighten the bolt directly and do not utilize a nut. This is an excellent space saving option and is particularly useful when fastening a flange to a chamber wall or gate valve.

CF gaskets are made of either OFHC electronic grade copper or Viton® elastomer. Copper gaskets are by far the most commonly used with the CF flange system and when compressed between the flange knife-edges provide a

vacuum tight seal capable of achieving ultra high vacuum pressures and temperatures as high as 450°C. **ANCORP** does not recommend using a CF copper gasket for more than one seal. Viton® gaskets are capable of high vacuum pressures and temperatures as high as 150°C (205°C intermittent use). Viton® gaskets are reusable and can be used many times to make new vacuum tight seals.

CF Fasteners such as; bolts, nuts and washers are made of high tensile strength stainless steel. Bolts are offered with standard hex-head or 12-point head and silver plated. **ANCORP** recommends either high temperature anti-seize lubricant or silver plated bolts for applications with high temperature to prevent galling of the bolt and nut or threaded bolt hole. Nuts are offered with standard or plate nut design. Plate nuts are the most convenient way of fastening CF flanges. Plate nuts allow adjacent bolts to be tightened into one nut and eliminate the need for a second wrench to hold the nut while tightening. This is particularly useful when access to the installation is limited or there is limited clearance for the flange in an area of your vacuum system.

**ANCORP** offers a complete line of flanges, fittings, valves, traps and accessories with CF connections that can be used to create a complete vacuum system or pumping line.

### CF Standard Sealing Assemblies

Each sealing pair of CF flanges contains an identical flange face with a knife-edge machined into the surface. A copper or Viton® sealing gasket is placed into the gasket capture groove of one of the two flanges. The flanges compress the gasket as the fastening bolts are tightened. This pressure forces the knife-edges of the two flanges into the gasket, creating an annular groove. The gasket material cold flows under this pressure and fills microscopic surface imperfections. The sealing knife-edges create a vacuum tight seal capable of withstanding temperature extremes from -200°C up to 450°C and pressures as low as  $1 \times 10^{-13}$  Torr.

#### Assembly Instructions:

Always wear lint-free gloves when touching or handling any part of a vacuum component that will come into contact with the vacuum atmosphere.

- 1) Check both flanges for cleanliness and that no sealing surfaces have dents or scratches.
- 2) Apply anti-seize lubricant on the threaded portion of your bolts. If you have silver-plated bolts then the anti-seize lubricant is unnecessary.

**ANCORP** recommends either anti-seize lubricant or silver plated bolts for almost all CF assemblies.

Especially for those assemblies that will be subjected to higher temperatures or have tapped bolt holes.

Bolt galling in a tapped flange can ruin the machined thread pattern in the bolt hole and render the entire flange unusable.

- 3) Place a sealing gasket against the knife-edge of a non-rotatable flange.
- 4) Align the bolt holes.
- 5) Insert the bolts, add the washer to the nut side of the assembly and hand tighten. After hand tightening all the bolts in the assembly, apply a wrench to both the bolt head and the nut.

Tighten by turning the nuts in small increments (1/2 turn or less) using an alternating pattern choosing a bolt across the flange from the last. Continue the incremental tightening of the nuts in the pattern (shown in Fig. 2) until the desired torque pressures have been achieved. This tightening procedure ensures even gasket compression and a reliable seal.

### CF Metal Seal Flange

FIG. 1

Hex-head bolts

CF275 flange

Copper gasket

Leak check grooves

FIG. 2

Hex-head bolts

CF275 flange

Use a wrench in 2 places

| FLANGE SIZE | COPPER GASKET | VITON® GASKET |
|-------------|---------------|---------------|
| CF133       | 7 ft./lbs.    | 7-10 ft./lbs. |
| CF212       | 12 ft./lbs.   | 7-10 ft./lbs. |
| CF275       | 12 ft./lbs.   | 7-10 ft./lbs. |
| CF338       | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF450       | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF462       | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF600       | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF675       | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF800       | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF1000      | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF1200      | 15 ft./lbs.   | 7-10 ft./lbs. |
| CF1325      | 26 ft./lbs.   | 7-10 ft./lbs. |
| CF1400      | 26 ft./lbs.   | 7-10 ft./lbs. |
| CF1650      | 26 ft./lbs.   | 7-10 ft./lbs. |

Maximum Torque

## U.S. vs. Metric CF Flanges

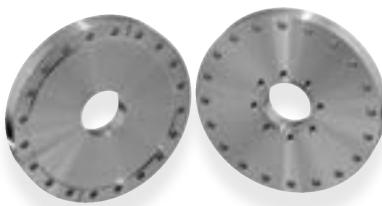
U.S. manufacturers of CF flanges name them according to their outer diameter. Flanges measured in inches i.e. a CF600 flange has an outer diameter of approximately 6 inches.

European identification for these flanges is expressed in a variety of ways; the flange outer diameter is measured in millimeters or the flange inner diameter counterbore (the area machined to accept tubing for welding) is measured in millimeters or the inner diameter of the largest through bore is measured in millimeters. Measurements are rounded to the nearest millimeter for naming purposes.

U.S. and Metric CF flanges are compatible. The only difference in design is that metric flanges have a metric bolt thread machined into tapped bolt holes. **ANCORP** can provide metric tapped flanges upon request.

| FLANGE SIZE | DIN STANDARD | EUROPEAN SIZES   |
|-------------|--------------|------------------|
| CF133       | DN16 CF      | CF16             |
| CF212       | DN25 CF      | CF25             |
| CF275       | DN35 CF      | CF35, CF38, CF40 |
| CF338       | DN50 CF      | CF50             |
| CF450       | DN63 CF      | CF63, CF64       |
| CF462       | DN75 CF      | CF75             |
| CF600       | DN100 CF     | CF100            |
| CF675       | DN125 CF     | CF125            |
| CF800       | DN150 CF     | CF150, CF160     |
| CF1000      | DN200 CF     | CF200            |
| CF1200      | DN250 CF     | CF250            |

## Special Purpose CF Flanges

| Double-Sided CF Flanges  | Zero-Length Reducer CF Flanges  | Adaptive CF Flanges   |
|--|---|---|
|  <p>These flanges are manufactured with the same size CF flange on both sides. They are installed between two flanges also of the same size. This is a convenient and efficient way to add a variety of vacuum accessories to your system such as measurement devices, shutters and valves.</p> |  <p>These flanges are manufactured with different size CF flange on either side of the flange. They allow direct assembly of two different sizes of CF flanges with minimal impact on the length added to your system to accomplish the transition. Zero-length reducers are the width of one standard flange.</p> |  <p>These flanges are manufactured in a variety of useful designs. Adapt from a single or double-sided CF to one or two female NPT side ports, or a double-sided CF with a CF133 side port. These flanges are ideal for adding vacuum accessories to your system such as measurement devices, shutters and valves.</p> |

## Wire Seal Flange System

The wire seal flange system provides a complete range of flanges to mount with tubing sized 10 inches up to 24 inches outer diameter. The wire seal assembly consists of three types of sub-components: two flanges, a sealing gasket and a fastener to compress the seal between the two flanges.

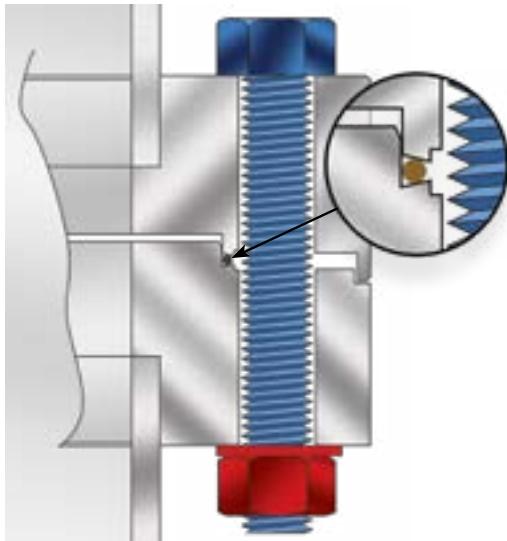
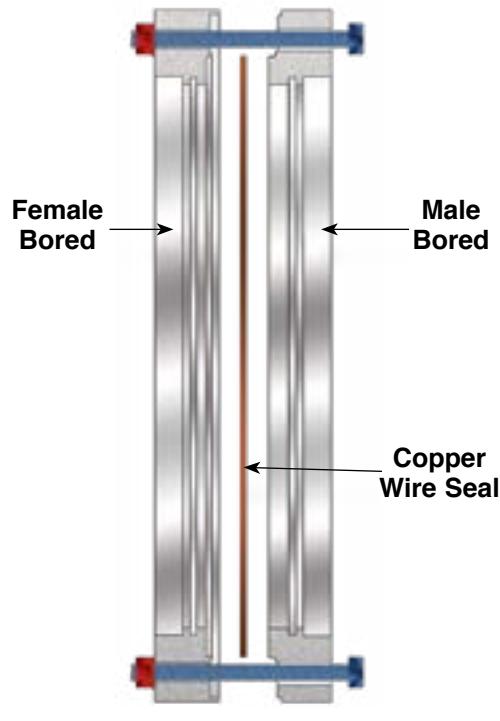
Wire seal flanges are available in two general designs: male and female. Female flanges accept the sealing gasket while the male flange has a protruding circular ridge that fits into the gasket groove on the receiving female flange. Upon compression the gasket material cold flows under this pressure and fills microscopic surface imperfections on the sealing surfaces creating a vacuum tight seal capable of withstanding temperature extremes from -200°C up to 450°C and pressures as low as  $1 \times 10^{-13}$  Torr. There are no standard rotatable wire seal flanges so great care must be taken to specify bolt hole orientation on chambers and fittings that are assembled with these flanges.

Wire seal gaskets are made of either OFHC electronic grade copper wire or Viton® elastomer. Copper gaskets are by far the most commonly used with the wire seal flange system and when compressed between the flanges provide a vacuum tight seal capable of achieving ultra high vacuum pressures and temperatures as high as 450°C.

**ANCORP** does not recommend using a wire seal copper gasket for more than one seal. Viton® gaskets are capable of high vacuum pressures and temperatures as high as 150°C (205°C intermittent use). Viton® gaskets are reusable and can be used many times to make new vacuum tight seals.

Wire seal fasteners are hex-head bolts, nuts and washers made of high tensile strength stainless steel. Wire seal assembly follows the same guidelines as the CF flange system except for the maximum torque ratings which are included on this page.

Wire seal flanges are ideal for those applications that require large diameter ports and extremely low vacuum pressure. Common examples are bell jar systems, vacuum furnaces, deposition systems and environmental chambers.



Maximum Torque

| FLANGE SIZE | COPPER GASKET | VITON® GASKET |
|-------------|---------------|---------------|
| WF1200      | 26 ft./lbs.   | 7-10 ft./lbs. |
| WF1400      | 26 ft./lbs.   | 7-10 ft./lbs. |
| WF1700      | 33 ft./lbs.   | 7-10 ft./lbs. |
| WF1900      | 33 ft./lbs.   | 7-10 ft./lbs. |
| WF2200      | 33 ft./lbs.   | 7-10 ft./lbs. |
| WF2700      | 33 ft./lbs.   | 7-10 ft./lbs. |

## CF and Wire Seal Gaskets

**ANCORP** provides CF and wire seal gaskets for all standard sizes. We offer either high vacuum or ultra high vacuum sealing gaskets to meet the needs of your specific application.

- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range:  
OFE Copper: -200°C to 450°C  
Viton® -26°C up to 150°C  
(Intermittent use to 205°C)
- Standard materials:  
- OFHC copper for ultra high vacuum (UHV) or Viton® for high vacuum (HV)

- Reusable flanges
- All-metal seals
- Sexless flanges - CF flange system
- Rotatable flanges for easier bolt hole alignment
- Tapped or clearance bolt holes available
- Adapters to other flange systems available
- Compatible with U.S. Standard and metric measurements
- Interchangeable with other ConFlat® style flanges

### CF Copper Gaskets



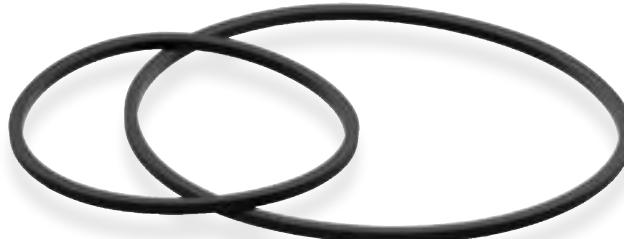
The basic seal for the CF flange system is an oxygen free electronic grade (OFE) copper gasket that is compressed between the knife-edges (flat version) or between a male and female edge (round single strand version) of two CF flanges to create a seal capable of achieving ultra high vacuum pressures. Copper gaskets have a temperature range of -200°C up to 450°C.

### Wire Seal Copper Gaskets



The Wire Seal Copper Gaskets are precisely punched, de-burred, chemically treated and packaged to eliminate and prevent surface imperfections. CF wire seal copper gaskets provide one reliable seal per use. Use a new copper gasket each time you install a CF sealing assembly. They are the best gasket to use for ultra-high vacuum processes with a UHV rating of approximately  $1 \times 10^{-13}$

### CF & Wire Seal Viton® Gaskets



This alternative seal for the CF flange system is a vacuum grade fluorocarbon elastomer gasket that is compressed between either the knife-edges or the male and female wire seal flanges of two CF flanges to create a seal capable of achieving high vacuum pressure. Viton® gaskets have a temperature range of -26°C up to 150°C (205°C intermittent use). These gaskets are precisely lathe cut, de-burred, cleaned and packaged to eliminate and prevent shedding or rips. CF Viton® gaskets may be reused many times for reinstallation of CF sealing assemblies. They are the best gasket to use for high vacuum processes with a UHV rating of approximately  $1 \times 10^{-8}$  Torr.

## CF Copper Gaskets

**Materials:**

- OFE Copper

**Product Notes:**

- Single use seal
- Temperature range: -200°C up to 450°C
- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr.)



## CF and Wire Seal Gaskets

| PART #  | REFERENCE ID    | USE WITH FLANGE | INNER DIAMETER (in) | OUTER DIAMETER (in) | DESCRIPTION                |
|---------|-----------------|-----------------|---------------------|---------------------|----------------------------|
| 0604020 | CF133-GA-CO     | CF133           | 0.64                | 0.835               | (10) Copper Gaskets        |
| 0604022 | CF212-GA-CO     | CF212           | 1.01                | 1.29                | (10) Copper Gaskets        |
| 0604024 | CF275-GA-CO     | CF275           | 1.45                | 1.895               | (10) Copper Gaskets        |
| 0604025 | CF275-GA-CO-SD  | CF275           | SOLID               | 1.895               | (10) Copper Gaskets, SOLID |
| 0604026 | CF275-175-GA-CO | CF275           | 1.53                | 1.895               | (10) Copper Gaskets        |
| 0604027 | CF338-GA-CO     | CF338           | 2.01                | 2.42                | (10) Copper Gaskets        |
| 0604029 | CF450-GA-CO     | CF450           | 2.505               | 3.24                | (10) Copper Gaskets        |
| 0604031 | CF462-GA-CO     | CF462           | 3.01                | 3.60                | (10) Copper Gaskets        |
| 0604033 | CF600-GA-CO     | CF600           | 4.01                | 4.74                | (10) Copper Gaskets        |
| 0604035 | CF675-GA-CO     | CF675           | 5.00                | 5.56                | (10) Copper Gaskets        |
| 0604037 | CF800-GA-CO     | CF800           | 6.01                | 6.74                | (10) Copper Gaskets        |
| 0604039 | CF1000-GA-CO    | CF1000          | 8.01                | 8.74                | (10) Copper Gaskets        |
| 0604041 | CF1200-GA-CO    | CF1200          | 10.00               | 10.74               | (1) Copper Gaskets         |
| 0604043 | CF1325-GA-CO    | CF1325          | 10.89               | 11.575              | (1) Copper Gaskets         |
| 0604045 | CF1400-GA-CO    | CF1400          | 11.80               | 12.31               | (1) Copper Gaskets         |
| 0604047 | CF1450-GA-CO    | CF1450          | 12.11               | 12.81               | (1) Copper Gaskets         |
| 0604049 | CF1650-GA-CO    | CF1650          | 14.135              | 14.81               | (1) Copper Gaskets         |

## Wire Seal Copper Gaskets

**Materials:**

- OFE Copper

- Temperature range: -200°C up to 450°C
- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr.)

**Product Notes:**

- Single use seal



| PART #  | REFERENCE ID | USE WITH FLANGE | DESCRIPTION       |
|---------|--------------|-----------------|-------------------|
| 0606511 | WF1200-GA-CO | WF1200          | (1) Copper Gasket |
| 0606512 | WF1400-GA-CO | WF1400          | (1) Copper Gasket |
| 0606513 | WF1700-GA-CO | WF1700          | (1) Copper Gasket |
| 0606514 | WF1900-GA-CO | WF1900          | (1) Copper Gasket |
| 0606515 | WF2200-GA-CO | WF2200          | (1) Copper Gasket |
| 0606516 | WF2700-GA-CO | WF2700          | (1) Copper Gasket |

## CF and Wire Seal Gaskets

**CF Viton® Gaskets****Materials:**

- Fluorocarbon elastomer

**Product Notes:**

- Multi-use seal
- Temperature range: -26°C up to 150°C (intermittent use to 205°C)
- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)



| PART #         | REFERENCE ID | USE WITH FLANGE | DESCRIPTION        |
|----------------|--------------|-----------------|--------------------|
| <b>0604000</b> | CF133-GA-VT  | CF133           | (5) Viton® Gaskets |
| <b>0604001</b> | CF212-GA-VT  | CF212           | (5) Viton® Gaskets |
| <b>0604002</b> | CF275-GA-VT  | CF275           | (5) Viton® Gaskets |
| <b>0604003</b> | CF338-GA-VT  | CF338           | (1) Viton® Gasket  |
| <b>0604004</b> | CF450-GA-VT  | CF450           | (1) Viton® Gasket  |
| <b>0604005</b> | CF462-GA-VT  | CF462           | (1) Viton® Gasket  |
| <b>0604006</b> | CF600-GA-VT  | CF600           | (1) Viton® Gasket  |
| <b>0604007</b> | CF675-GA-VT  | CF675           | (1) Viton® Gasket  |
| <b>0604008</b> | CF800-GA-VT  | CF800           | (1) Viton® Gasket  |
| <b>0604009</b> | CF1000-GA-VT | CF1000          | (1) Viton® Gasket  |
| <b>0604010</b> | CF1200-GA-VT | CF1200          | (1) Viton® Gasket  |
| <b>0604011</b> | CF1325-GA-VT | CF1325          | (1) Viton® Gasket  |
| <b>0604012</b> | CF1400-GA-VT | CF1400          | (1) Viton® Gasket  |
| <b>0604013</b> | CF1450-GA-VT | CF1450          | (1) Viton® Gasket  |
| <b>0604014</b> | CF1650-GA-VT | CF1650          | (1) Viton® Gasket  |

**Wire Seal Viton® Gaskets****Materials:**

- Fluorocarbon elastomer

**Product Notes:**

- Multi-use seal
- Temperature range: -26°C up to 150°C (intermittent use to 205°C)
- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)



| PART #         | REFERENCE ID | USE WITH FLANGE | DESCRIPTION       |
|----------------|--------------|-----------------|-------------------|
| <b>0606521</b> | WF1200-GA-VT | WF1200          | (1) Viton® Gasket |
| <b>0606522</b> | WF1400-GA-VT | WF1400          | (1) Viton® Gasket |
| <b>0606523</b> | WF1700-GA-VT | WF1700          | (1) Viton® Gasket |
| <b>0606524</b> | WF1900-GA-VT | WF1900          | (1) Viton® Gasket |
| <b>0606525</b> | WF2200-GA-VT | WF2200          | (1) Viton® Gasket |
| <b>0606526</b> | WF2700-GA-VT | WF2700          | (1) Viton® Gasket |

ANCORP manufactures flanges for our own use as we manufacture modular fittings (tee's, elbows and nipples) valves, feedthroughs, chambers and other components. We offer these same flanges for those customers that have in-house welding capabilities and desire to customize their system or components themselves.

All ANCOP CF flanges are manufactured to industry specifications to ensure compatibility with other manufacturer's flanges.

- Reusable flanges
- All-metal or elastomer seals
- Sexless flanges - CF flange system
- Rotatable flanges for easier bolt hole alignment
  - CF flange system
- Tapped or clearance bolt holes available
- Adapters to other flange systems available
- Compatible with U.S. Standard (imperial) and metric measurements
- Interchangeable with other ConFlat® style flanges



- Vacuum rated to  $1 \times 10^{-13}$  Torr. with Copper Seals
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -200°C to 450°C with Copper Seals
- Standard materials:
  - Flanges and fittings: 304L stainless steel
  - Seals: OFHC copper for ultra high vacuum (UHV) or Viton® for high vacuum (HV)
- Standard sizes:
  - CF flanges outer diameter: 1 1/3 inches to 16 1/2 inches (for tubing diameter 1/4 inches up to 14 inches)
  - Wire seal flanges outer diameter: 12 3/8 inches up to 27 1/8 inches (for tubing diameter 10 inches up to 24 inches)

## CF Weld Flanges

These flanges are manufactured with a weld prep and tubing bore for immediate installation on your system with no additional alteration. ANCOP offers CF weld flanges in two designs; fixed and rotatable. Fixed flanges have a set bolt hole orientation while rotatable flanges have a two piece design allowing for bolt hole rotation to ease bolt alignment when mating the two flanges. Fixed and rotatable flanges have two bolt hole options; clearance or tapped bolt holes. Clearance bolt holes allow for unrestricted passage of a bolt through the flanges. The bolt is then tightened with a nut on the back side of the flange assembly. Tapped bolt holes are threaded to receive and tighten the bolt directly and do not utilize a nut. Standard CF weld flanges are manufactured of 304L stainless steel. Other materials are available on request.



## CF Blank Flanges

CF Blank flanges are manufactured with no weld prep and no tubing bore. Blank flanges are commonly used to close unused ports or they are altered by customers with their own custom machining capability for a special use. ANCOPR offers CF blank flanges in two designs; fixed and rotatable. Fixed flanges have a set bolt hole orientation while rotatable flanges have a two piece design allowing for bolt hole rotation to ease bolt alignment when mating the two flanges.



Fixed and rotatable flanges have two bolt hole options: clearance or tapped bolt holes. Clearance bolt holes allow for unrestricted passage of a bolt through the flanges. The bolt is then tightened with a nut on the back side of the flange assembly. Tapped bolt holes are threaded to receive and tighten the bolt directly and do not utilize a nut. Standard CF blank flanges are manufactured of 304L stainless steel. Other materials are available on request.

## Wire Seal Weld Flanges

Wire Seal Weld flanges are manufactured with a weld prep and tubing bore for immediate installation on your system with no additional alteration. Wire seal flanges are available in two general designs: male and female. Female flanges accept the sealing gasket while the male flange has a protruding circular ridge that fits into the gasket groove on the receiving female flange. Standard wire seal bored flanges are manufactured of 304L stainless steel. Other materials are available on request.



## Wire Seal Blank Flanges

Wire Seal Blank flanges are manufactured with no weld prep and no tubing bore. Blank flanges are commonly used to close unused ports or they are altered by customers with their own custom machining capability for a special use. Wire seal flanges are available in two general designs: male and female.



Female flanges accept the sealing gasket while the male flange has a protruding circular ridge that fits into the gasket groove on the receiving female flange. Standard wire seal blank flanges are manufactured of 304L stainless steel. Other materials are available on request.

## CF Special Purpose Flanges

CF Special Purpose flanges can serve a variety of useful functions in your vacuum system. Adapt directly from a larger CF to a smaller flange, from a single or double-sided CF to one or two female NPT side ports, or a double-sided CF with a CF133 machined side port. These flanges are ideal for adding vacuum accessories to your system such as measurement devices, shutters and valves.



## CF 133 – 1.33 inches O.D. UHV Flanges

CF133 Flanges



### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

### Product Specifications:

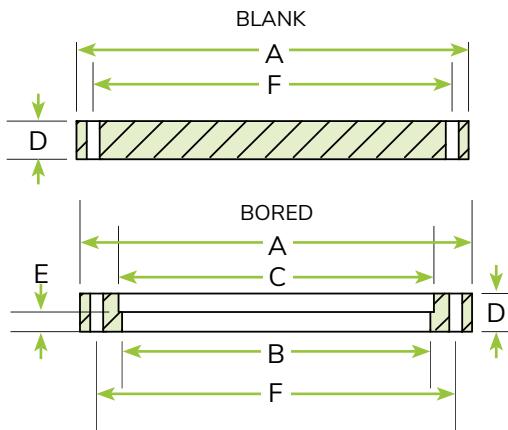
- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L grade stainless steel

### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials:  
316L stainless steel, aluminum, etc.

## CF 133 - Fixed Flanges

### CF133 Flanges



**ORDERING NOTE:** CF133 flanges are also available with a weld neck to ease welding to small diameter tubing.  
See pg. 2.16 - 2.18

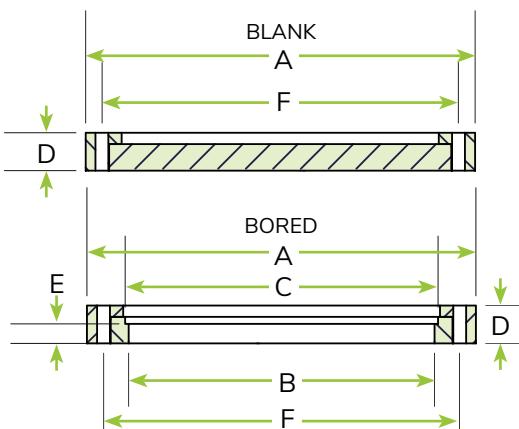
### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |          |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
|         |              |        |        |        |        |        |        | #          | DIAMETER |
| 5000000 | CF133-000    | 1.33   | Blank  | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000003 | CF133-025    | 1.33   | 0.26   | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000004 | CF133-038    | 1.33   | 0.38   | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000005 | CF133-050    | 1.33   | 0.51   | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000006 | CF133-075    | 1.33   | 0.63   | 0.76   | 0.30   | 0.18   | 1.06   | 6          | 0.17     |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |        |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
|         |              |        |        |        |        |        |        | #          | THREAD |
| 5000009 | CF133T-000   | 1.33   | Blank  | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000012 | CF133T-025   | 1.33   | 0.26   | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000013 | CF133T-038   | 1.33   | 0.38   | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000014 | CF133T-050   | 1.33   | 0.51   | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000015 | CF133T-075   | 1.33   | 0.63   | 0.76   | 0.30   | 0.18   | 1.06   | 6          | 8-32   |

## CF 133 - Rotatable Flanges



CF133 Flanges

## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |          |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
|         |              |        |        |        |        |        |        | #          | DIAMETER |
| 5000018 | CF133R-000   | 1.33   | Blank  | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000021 | CF133R-025   | 1.33   | 0.26   | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000022 | CF133R-038   | 1.33   | 0.38   | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000023 | CF133R-050   | 1.33   | 0.51   | -      | 0.30   | -      | 1.06   | 6          | 0.17     |
| 5000024 | CF133R-075   | 1.33   | 0.63   | 0.76   | 0.30   | 0.18   | 1.06   | 6          | 0.17     |

## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |        |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
|         |              |        |        |        |        |        |        | #          | THREAD |
| 5000027 | CF133RT-000  | 1.33   | Blank  | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000030 | CF133RT-025  | 1.33   | 0.26   | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000031 | CF133RT-038  | 1.33   | 0.38   | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000032 | CF133RT-050  | 1.33   | 0.51   | -      | 0.30   | -      | 1.06   | 6          | 8-32   |
| 5000033 | CF133RT-075  | 1.33   | 0.63   | 0.76   | 0.30   | 0.18   | 1.06   | 6          | 8-32   |

## CF 133 Flange Hardware

| PART #  | REFERENCE ID  | DESCRIPTION  |
|---------|---------------|--|
| 0604020 | CF133-GA-CO   | (10) Copper Gaskets  |
| 0604000 | CF133-GA-VT   | (5) Viton® Gaskets   |
| 0605105 | CF133-HBK     | (25) Bolt, Nut & Washer Kit 8-32x3/4 in.   |
| 0605181 | CF133-HBK-SP  | (25) Silver Plated Bolt, Nut & Washer Kit; 8-32x3/4 in.                            |
| 0605106 | CF133-HTBK    | (25) Bolt & Washer Kit; 8-32x1/2 in.   |
| 0605182 | CF133-HTBK-SP | (25) Silver Plated Bolt & Washer Kit; 8-32x1/2 in.                                 |
| 0605107 | CF133-HPBK    | (12) Plate Nuts, (24) Bolts & Washers; 8-32x3/4 in.                                |
| 0605248 | CF133-HPBK-SP | (12) Plate Nuts, (24) 8-32x3/4 in. Silver Plated Hex Socket Head Bolt & Washer Kit |
| 0605108 | CF133-PN      | (24) Plate Nuts; 8-32  |
| 0605208 | ASTL          | Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole       |

## CF 133 – 1.33 inches O.D. UHV Flanges with Weld Neck

CF 133 Flanges



### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- External weld
- Available with and without 0.060 weld prep
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges

### TECH TIP

CF133 flanges with weld neck ease welding diameter tubing and lessen the possibility that the heat from welding will warp the flange.



### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L grade stainless steel

### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials:  
316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 133 - Fixed Flanges Weld Neck

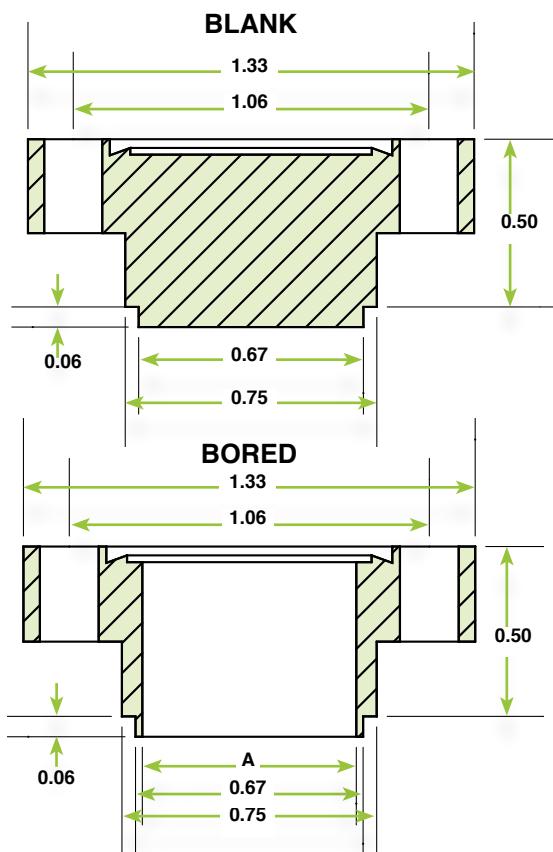


Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | BOLT HOLES |          |
|---------|--------------|--------|------------|----------|
|         |              |        | #          | DIAMETER |
| 5000001 | CF133-000-WN | Blank  | 6          | 0.17     |
| 5000007 | CF133-075-WN | 0.63   | 6          | 0.17     |

Tapped Bolt Holes

| PART #  | REFERENCE ID  | A (in) | BOLT HOLES |        |
|---------|---------------|--------|------------|--------|
|         |               |        | #          | THREAD |
| 5000010 | CF133T-000-WN | Blank  | 6          | 8-32   |
| 5000016 | CF133T-075-WN | 0.63   | 6          | 8-32   |

CF 133 - Fixed Flanges  
Weld Neck with Butt Weld

Clearance Bolt Holes

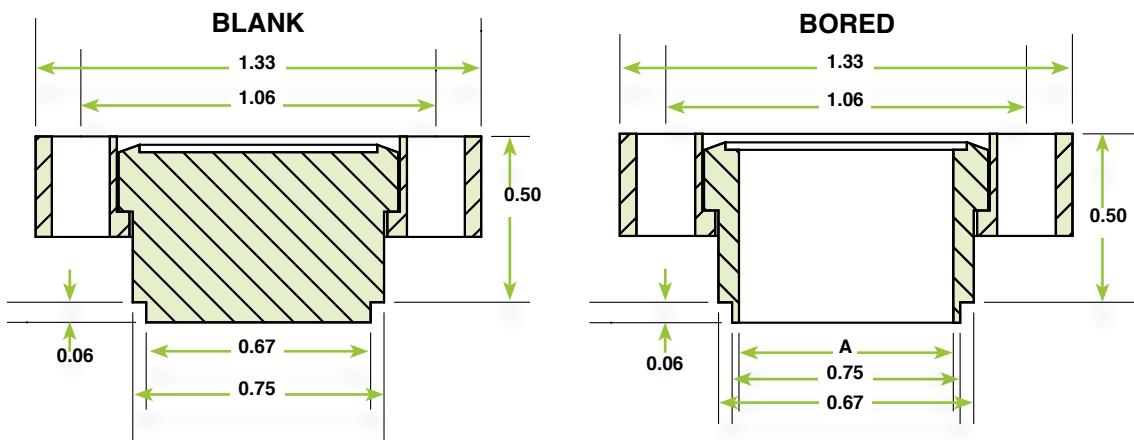
| PART #  | REFERENCE ID  | A (in) | BOLT HOLES |          |
|---------|---------------|--------|------------|----------|
|         |               |        | #          | DIAMETER |
| 5000002 | CF133-000-WNB | Blank  | 6          | 0.17     |
| 5000008 | CF133-075-WNB | 0.63   | 6          | 0.17     |

Tapped Bolt Holes

| PART #  | REFERENCE ID   | A (in) | BOLT HOLES |        |
|---------|----------------|--------|------------|--------|
|         |                |        | #          | THREAD |
| 5000011 | CF133T-000-WNB | Blank  | 6          | 8-32   |
| 5000017 | CF133T-075-WNB | 0.63   | 6          | 8-32   |

## CF 133 Flanges

## CF 133 - Rotatable Flanges Weld Neck



## Clearance Bolt Holes

| PART #  | REFERENCE ID  | A (in) | BOLT HOLES |          |
|---------|---------------|--------|------------|----------|
|         |               |        | #          | DIAMETER |
| 5000019 | CF133R-000-WN | Blank  | 6          | 0.17     |
| 5000025 | CF133R-075-WN | 0.63   | 6          | 0.17     |

## Tapped Bolt Holes

| PART #  | REFERENCE ID   | A (in) | BOLT HOLES |        |
|---------|----------------|--------|------------|--------|
|         |                |        | #          | THREAD |
| 5000028 | CF133RT-000-WN | Blank  | 6          | 8-32   |
| 5000034 | CF133RT-075-WN | 0.63   | 6          | 8-32   |



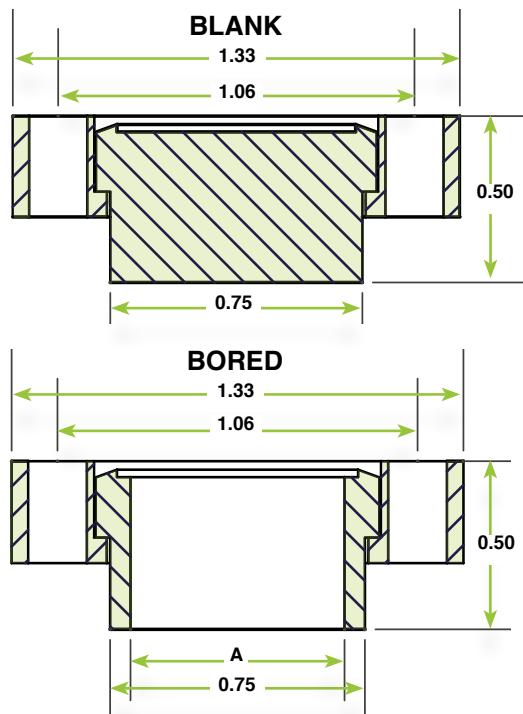
## CF 133 - Rotatable Flanges Weld Neck with Butt Weld

## Clearance Bolt Holes

| PART #  | REFERENCE ID   | A (in) | BOLT HOLES |          |
|---------|----------------|--------|------------|----------|
|         |                |        | #          | DIAMETER |
| 5000020 | CF133R-000-WNB | Blank  | 6          | 0.17     |
| 5000026 | CF133R-075-WNB | 0.63   | 6          | 0.17     |

## Tapped Bolt Holes

| PART #  | REFERENCE ID    | A (in) | BOLT HOLES |        |
|---------|-----------------|--------|------------|--------|
|         |                 |        | #          | THREAD |
| 5000029 | CF133RT-000-WNB | Blank  | 6          | 8-32   |
| 5000035 | CF133RT-075-WNB | 0.63   | 6          | 8-32   |



## CF 212 - 2.125 inches O.D. UHV Flanges

CF 212 Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

**Product Specifications:**

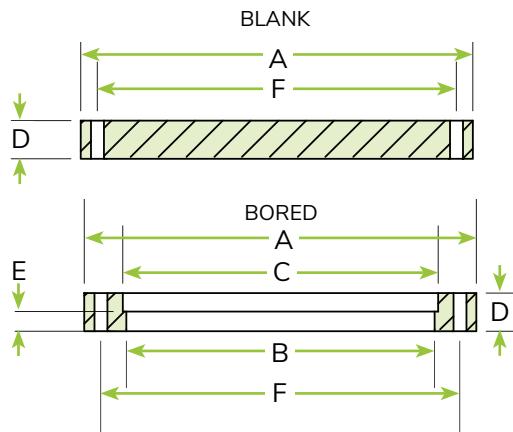
- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

**Options: Call for price and availability**

- Metric tapped bolt holes
- Alternative materials:
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 212 - Fixed Flanges

### CF 212 Flanges



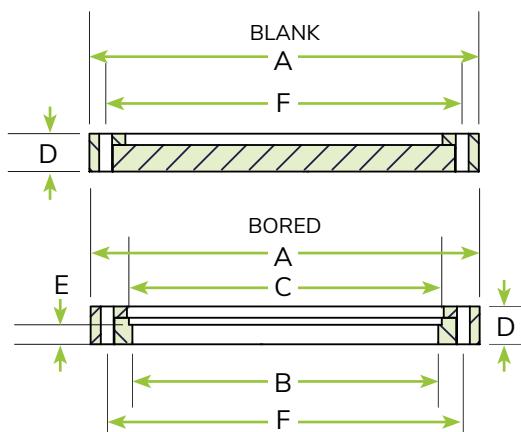
### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |          |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
|         |              |        |        |        |        |        |        | #          | DIAMETER |
| 5000036 | CF212-000    | 2.12   | Blank  | -      | 0.47   | -      | 1.63   | 4          | 0.27     |
| 5000037 | CF212-025    | 2.12   | 0.26   | -      | 0.47   | -      | 1.63   | 4          | 0.27     |
| 5000038 | CF212-050    | 2.12   | 0.51   | -      | 0.47   | -      | 1.63   | 4          | 0.27     |
| 5000039 | CF212-075    | 2.12   | 0.63   | 0.76   | 0.47   | 0.17   | 1.63   | 4          | 0.27     |
| 5000040 | CF212-100    | 2.12   | 0.94   | 1.01   | 0.47   | 0.17   | 1.63   | 4          | 0.27     |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |        |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
|         |              |        |        |        |        |        |        | #          | THREAD |
| 5000041 | CF212T-000   | 2.12   | Blank  | -      | 0.47   | -      | 1.63   | 4          | 1/4-28 |
| 5000042 | CF212T-025   | 2.12   | 0.26   | -      | 0.47   | -      | 1.63   | 4          | 1/4-28 |
| 5000043 | CF212T-050   | 2.12   | 0.51   | -      | 0.47   | -      | 1.63   | 4          | 1/4-28 |
| 5000044 | CF212T-075   | 2.12   | 0.63   | 0.76   | 0.47   | 0.17   | 1.63   | 4          | 1/4-28 |
| 5000045 | CF212T-100   | 2.12   | 0.94   | 1.01   | 0.47   | 0.17   | 1.63   | 4          | 1/4-28 |

## CF 212 - Rotatable Flanges



CF 212 Flanges

## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |          |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
|         |              |        |        |        |        |        |        | #          | DIAMETER |
| 5000046 | CF212R-000   | 2.12   | Blank  | -      | 0.47   | -      | 1.63   | 4          | 0.27     |
| 5000047 | CF212R-025   | 2.12   | 0.26   | -      | 0.47   | -      | 1.63   | 4          | 0.27     |
| 5000048 | CF212R-050   | 2.12   | 0.51   | -      | 0.47   | -      | 1.63   | 4          | 0.27     |
| 5000049 | CF212R-075   | 2.12   | 0.63   | 0.76   | 0.47   | 0.17   | 1.63   | 4          | 0.27     |
| 5000911 | CF212R-100   | 2.12   | 0.94   | 1.01   | 0.47   | 0.17   | 1.63   | 4          | 0.27     |

## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |        |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
|         |              |        |        |        |        |        |        | #          | THREAD |
| 5000050 | CF212RT-000  | 2.12   | Blank  | -      | 0.47   | -      | 1.63   | 4          | 1/4-28 |
| 5000052 | CF212RT-025  | 2.12   | 0.26   | -      | 0.47   | -      | 1.63   | 4          | 1/4-28 |
| 5000053 | CF212RT-050  | 2.12   | 0.51   | -      | 0.47   | -      | 1.63   | 4          | 1/4-28 |
| 5000054 | CF212RT-075  | 2.12   | 0.63   | 0.76   | 0.47   | 0.17   | 1.63   | 4          | 1/4-28 |
| 5000055 | CF212RT-100  | 2.12   | 0.94   | 1.01   | 0.47   | 0.17   | 1.63   | 4          | 1/4-28 |

## CF 212 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604022 | CF212-GA-C0     | (10) Copper Gaskets  |
| 0604001 | CF212-GA-VT     | (5) Viton® Gaskets   |
| 0605109 | CF212-HBK       | (25) Bolt, Nut & Washer Kit 1/4 - 28 x 1 1/4 in.                                 |
| 0605110 | CF212-HTBK      | (25) Bolt & Washer Kit; 1/4-28 x 1 1/4 in.                                       |
| 0605111 | CF212-12BK      | (25) 12-Point Bolt, Nut & Washer Kit 1/4 - 28 x 1 1/4 in.                        |
| 0605183 | CF212-12BK-SP   | (25) Silver Plated 12-Point Bolt, Nut & Washer Kit; 1/4 - 28 x 1 1/4 in          |
| 0605112 | CF212-12TBK     | (25) 12-Point Bolt & Washer Kit 1/4 - 28 x 7/8 in.                               |
| 0605184 | CF212-12TBK-SP  | (25) Silver Plated 12-Point Bolt & Washer Kit 1/4 - 28 x 7/8 in.                 |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-Point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 275 - 2.75 inches O.D. UHV Flanges

CF 275 Flanges



### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

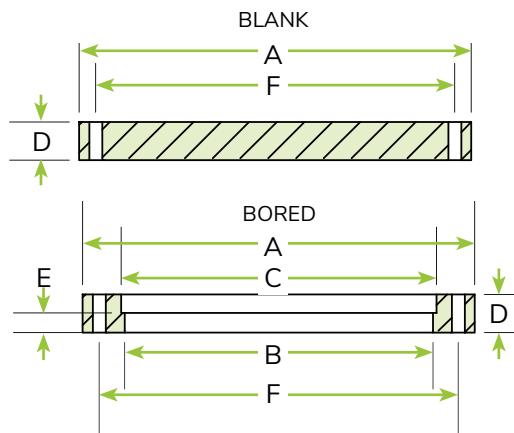
### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L grade stainless steel

### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials:
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 275 - Fixed Flanges



CF 275 Flanges

## Clearance Bolt Holes

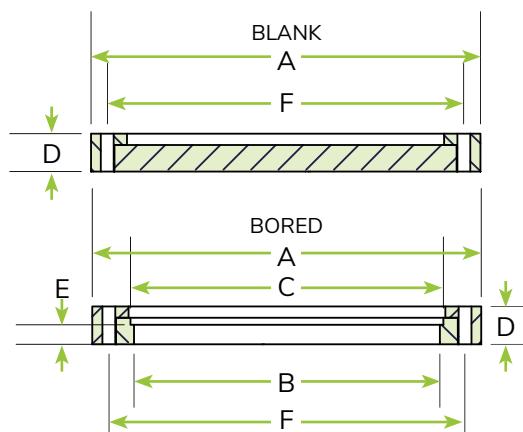
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000056 | CF275-000    | 2.72   | Blank  | -      | 0.50   | -      | 2.31   | 6          | 0.27     |
| 5000057 | CF275-025    | 2.72   | 0.26   | -      | 0.50   | -      | 2.31   | 6          | 0.27     |
| 5000058 | CF275-050    | 2.72   | 0.51   | -      | 0.50   | -      | 2.31   | 6          | 0.27     |
| 5000059 | CF275-075    | 2.72   | 0.63   | 0.76   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000060 | CF275-100    | 2.72   | 0.88   | 1.01   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000061 | CF275-125    | 2.72   | 1.13   | 1.26   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000062 | CF275-150    | 2.72   | 1.44   | 1.51   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000063 | CF275-162    | 2.72   | 1.50   | 1.63   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |

## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000064 | CF275T-000   | 2.72   | -      | -      | 0.50   | -      | 2.31   | 6          | 1/4-28 |
| 5000065 | CF275T-025   | 2.72   | 0.26   | -      | 0.50   | -      | 2.31   | 6          | 1/4-28 |
| 5000066 | CF275T-050   | 2.72   | 0.51   | -      | 0.50   | -      | 2.31   | 6          | 1/4-28 |
| 5000067 | CF275T-075   | 2.72   | 0.63   | 0.76   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000068 | CF275T-100   | 2.72   | 0.88   | 1.01   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000069 | CF275T-125   | 2.72   | 1.13   | 1.26   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000070 | CF275T-150   | 2.72   | 1.44   | 1.51   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000071 | CF275T-162   | 2.72   | 1.50   | 1.63   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |

## CF 275 - Rotatable Flanges

CF 275 Flanges



### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000072 | CF275R-000   | 2.72   | Blank  | -      | 0.50   | -      | 2.31   | 6          | 0.27     |
| 5000073 | CF275R-025   | 2.72   | 0.26   | -      | 0.50   | -      | 2.31   | 6          | 0.27     |
| 5000074 | CF275R-050   | 2.72   | 0.51   | -      | 0.50   | -      | 2.31   | 6          | 0.27     |
| 5000075 | CF275R-075   | 2.72   | 0.63   | 0.76   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000076 | CF275R-100   | 2.72   | 0.88   | 1.01   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000077 | CF275R-125   | 2.72   | 1.13   | 1.26   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000078 | CF275R-150   | 2.72   | 1.44   | 1.51   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |
| 5000079 | CF275R-162   | 2.72   | 1.50   | 1.63   | 0.50   | 0.21   | 2.31   | 6          | 0.27     |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000080 | CF275RT-000  | 2.72   | Blank  | -      | 0.50   | -      | 2.31   | 6          | 1/4-28 |
| 5000081 | CF275RT-025  | 2.72   | 0.26   | -      | 0.50   | -      | 2.31   | 6          | 1/4-28 |
| 5000082 | CF275RT-050  | 2.72   | 0.51   | -      | 0.50   | -      | 2.31   | 6          | 1/4-28 |
| 5000083 | CF275RT-075  | 2.72   | 0.63   | 0.76   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000084 | CF275RT-100  | 2.72   | 0.88   | 1.01   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000085 | CF275RT-125  | 2.72   | 1.13   | 1.26   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000086 | CF275RT-150  | 2.72   | 1.44   | 1.51   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |
| 5000087 | CF275RT-162  | 2.72   | 1.50   | 1.63   | 0.50   | 0.21   | 2.31   | 6          | 1/4-28 |

## CF 275 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604024 | CF275-GA-C0     | (10) Copper Gaskets  |
| 0604025 | CF275-GA-C0-SD  | (10) Copper Gaskets; Solid   |
| 0604002 | CF275-GA-VT     | (5) Viton® Gaskets   |
| 0605114 | CF275-HBK       | (25) Bolt, Nut & Washer Kit; 1/4-28x1 1/4 in.                                    |
| 0605115 | CF275-HTBK      | (25) Bolt & Washer Kit, 1/4-28x1 in.   |
| 0605116 | CF275-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 1/4-28x1 1/4 in.                           |
| 0605186 | CF275-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 1/4-28x1 1/4 in.             |
| 0605117 | CF275-12TBK     | (25) 12-point Bolt & Washer Kit; 1/4-28x7/8 in.                                  |
| 0605185 | CF275-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 1/4-28x7/8 in.                    |
| 0605118 | CF275-HPBK      | (12) Plate Nuts, (24) Bolts & Washers; 1/4-28x1 1/4 in.                          |
| 0605119 | CF275-PN        | (24) Plate Nuts; 1/4-28  |
| 0605120 | CF275-12PBK     | (12) Plate Nuts, (24) 12-point Bolts & Washers; 1/4-28x1 1/4 in.                 |
| 0605249 | CF275-12PBK-SP  | (12) Plate Nuts, (24) Silver Plated 12-point Bolts & Washers; 1/4-28x1 1/4 in.   |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 338 - 3.375 inches O.D. UHV Flanges

### CF 338 Flanges

#### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available



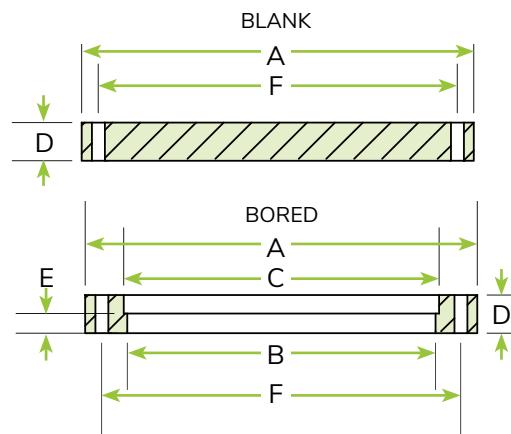
#### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

#### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 338 - Fixed Flanges



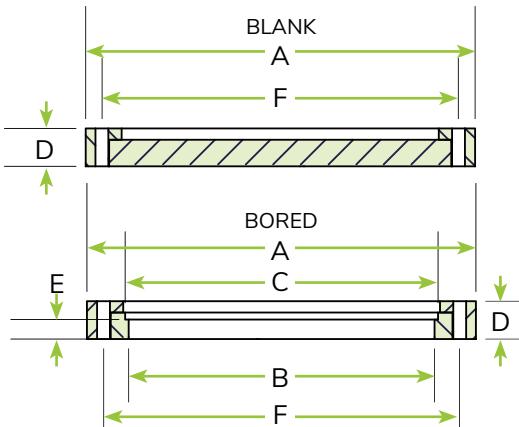
#### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000088 | CF338-000    | 3.37   | Blank  | -      | 0.625  | -      | 2.850  | 8          | 0.332    |
| 5000089 | CF338-150    | 3.37   | 1.375  | 1.510  | 0.625  | 0.225  | 2.850  | 8          | 0.332    |
| 5000090 | CF338-200    | 3.37   | 1.875  | 2.010  | 0.625  | 0.225  | 2.850  | 8          | 0.332    |

#### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000091 | CF338T-000   | 3.37   | Blank  | -      | 0.625  | -      | 2.850  | 8          | 5/16-24 |
| 5000092 | CF338T-150   | 3.37   | 1.375  | 1.510  | 0.625  | 0.225  | 2.850  | 8          | 5/16-24 |
| 5000093 | CF338T-200   | 3.37   | 1.875  | 2.010  | 0.625  | 0.225  | 2.850  | 8          | 5/16-24 |

## CF 338 - Rotatable Flanges



CF 338 Flanges

## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000094 | CF338R-000   | 3.37   | Blank  | -      | 0.680  | -      | 2.850  | 8          | 0.332    |
| 5000095 | CF338R-150   | 3.37   | 1.375  | 1.510  | 0.680  | 0.225  | 2.850  | 8          | 0.332    |
| 5000096 | CF338R-200   | 3.37   | 1.875  | 2.010  | 0.680  | 0.225  | 2.850  | 8          | 0.332    |

## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000097 | CF338RT-000  | 3.37   | Blank  | -      | 0.680  | -      | 2.850  | 8          | 5/16-24 |
| 5000098 | CF338RT-150  | 3.37   | 1.375  | 1.510  | 0.680  | 0.225  | 2.850  | 8          | 5/16-24 |
| 5000099 | CF338RT-200  | 3.37   | 1.875  | 2.010  | 0.680  | 0.225  | 2.850  | 8          | 5/16-24 |

## CF 338 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604027 | CF338-GA-CO     | (10) Copper Gaskets  |
| 0604003 | CF338-GA-VT     | (1) Viton® Gasket  |
| 0605121 | CF338-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x1 3/4 in.                                   |
| 0605122 | CF338-HBTK      | (25) Bolt & Washer Kit; 5/16-24x1 1/4 in.  |
| 0605123 | CF338-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x1 3/4 in.                          |
| 0605187 | CF338-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x1 3/4 in.            |
| 0605124 | CF338-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                               |
| 0605188 | CF338-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                 |
| 0605125 | CF338-HBPK      | (16) Plate Nuts, (32) Bolts & Washers; 5/16-24x1 3/4 in.                         |
| 0605126 | CF338-PN        | (24) Plate Nuts; 5/16-24   |
| 0605127 | CF338-12PBK     | (16) Plate Nuts, (32) 12-point Bolts & Washers; 5/16-24x1 3/4 in.                |
| 0605307 | CF338-12PBK-SP  | (16) Plate Nuts, (32) Silver Plated 12-point Bolts & Washers; 5/16-24x1 3/4 in.  |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 450 - 4.5 inches O.D. UHV Flanges

### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available



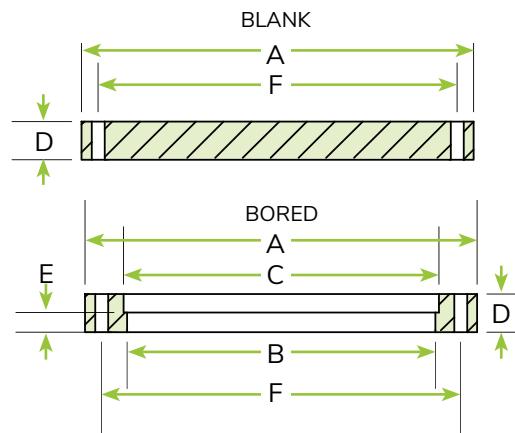
### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 450 - Fixed Flanges



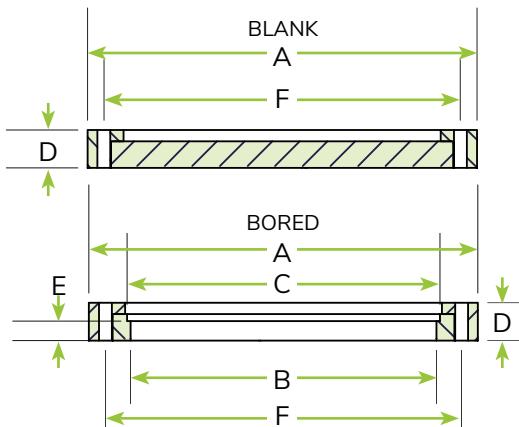
### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000100 | CF450-000    | 4.47   | Blank  | -      | 0.68   | -      | 3.63   | 8          | 0.332    |
| 5000101 | CF450-150    | 4.47   | 1.38   | 1.51   | 0.68   | 0.38   | 3.63   | 8          | 0.332    |
| 5000102 | CF450-200    | 4.47   | 1.94   | 2.01   | 0.68   | 0.38   | 3.63   | 8          | 0.332    |
| 5000103 | CF450-250    | 4.47   | 2.44   | 2.51   | 0.68   | 0.38   | 3.63   | 8          | 0.332    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000104 | CF450T-000   | 4.47   | Blank  | -      | 0.68   | -      | 3.63   | 8          | 5/16-24 |
| 5000105 | CF450T-150   | 4.47   | 1.38   | 1.51   | 0.68   | 0.38   | 3.63   | 8          | 5/16-24 |
| 5000106 | CF450T-200   | 4.47   | 1.94   | 2.01   | 0.68   | 0.38   | 3.63   | 8          | 5/16-24 |
| 5000107 | CF450T-250   | 4.47   | 2.44   | 2.51   | 0.68   | 0.38   | 3.63   | 8          | 5/16-24 |

## CF 450 - Rotatable Flanges



### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000108 | CF450R-000   | 4.47   | Blank  | -      | 0.75   | -      | 3.63   | 8          | 0.332    |
| 5000109 | CF450R-150   | 4.47   | 1.38   | 1.51   | 0.75   | 0.38   | 3.63   | 8          | 0.332    |
| 5000110 | CF450R-200   | 4.47   | 1.94   | 2.01   | 0.75   | 0.38   | 3.63   | 8          | 0.332    |
| 5000111 | CF450R-250   | 4.47   | 2.44   | 2.51   | 0.75   | 0.38   | 3.63   | 8          | 0.332    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000112 | CF450RT-000  | 4.47   | Blank  | -      | 0.75   | -      | 3.63   | 8          | 5/16-24 |
| 5000113 | CF450RT-150  | 4.47   | 1.38   | 1.51   | 0.75   | 0.38   | 3.63   | 8          | 5/16-24 |
| 5000114 | CF450RT-200  | 4.47   | 1.94   | 2.01   | 0.75   | 0.38   | 3.63   | 8          | 5/16-24 |
| 5000115 | CF450RT-250  | 4.47   | 2.44   | 2.51   | 0.75   | 0.38   | 3.63   | 8          | 5/16-24 |

## CF 450 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604029 | CF450-GA-CO     | (10) Copper Gaskets  |
| 0604004 | CF450-GA-VT     | (1) Viton® Gasket  |
| 0605128 | CF450-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 in.                                       |
| 0605129 | CF450-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 1/4 in.  |
| 0605130 | CF450-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 in.                              |
| 0605190 | CF450-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 in.                |
| 0605131 | CF450-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                               |
| 0605189 | CF450-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                 |
| 0605132 | CF450-HPBK      | (16) Plate Nuts, (32) Bolts & Washers; 5/16-24x2 in.                             |
| 0605133 | CF450-PN        | (24) Plate Nuts; 5/16-24   |
| 0605134 | CF450-12PBK     | (16) Plate Nuts, (32) 12-point Bolts & Washers; 5/16-24x2 in.                    |
| 0605308 | CF450-12PBK-SP  | (16) Plate Nuts, (32) Silver Plated 12-point Bolts & Washers; 5/16-24x2 in.      |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 462 - 4.625 inches O.D. UHV Flanges

### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available



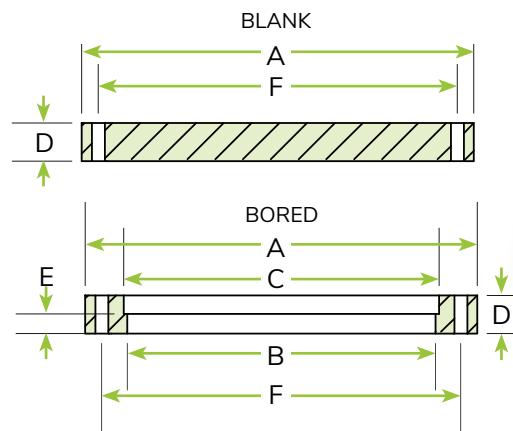
### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L grade stainless steel

### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 462 - Fixed Flanges



### Clearance Bolt Holes

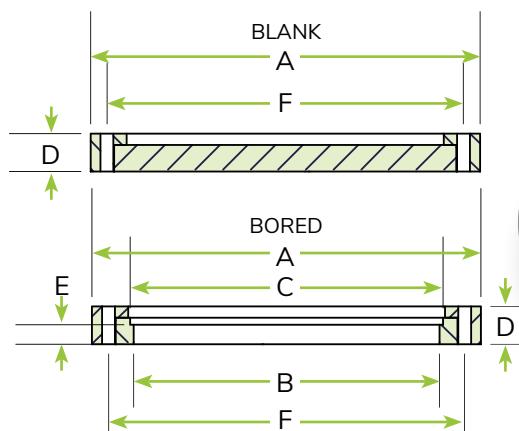
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000116 | CF462-000    | 4.62   | Blank  | -      | 0.75   | -      | 4.03   | 10         | 0.332    |
| 5000117 | CF462-250    | 4.62   | 2.38   | 2.51   | 0.75   | 0.38   | 4.03   | 10         | 0.332    |
| 5000118 | CF462-300    | 4.62   | 2.88   | 3.01   | 0.75   | 0.38   | 4.03   | 10         | 0.332    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000119 | CF462T-000-T | 4.62   | Blank  | -      | 0.75   | -      | 4.03   | 10         | 5/16-24 |
| 5000120 | CF462T-250   | 4.62   | 2.38   | 2.51   | 0.75   | 0.38   | 4.03   | 10         | 5/16-24 |
| 5000121 | CF462T-300   | 4.62   | 2.88   | 3.01   | 0.75   | 0.38   | 4.03   | 10         | 5/16-24 |

## CF 462 - Rotatable Flanges

CF 462 Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000122 | CF462R-000   | 4.62   | Blank  | -      | 0.810  | -      | 4.030  | 10         | 0.332    |
| 5000123 | CF462R-250   | 4.62   | 2.44   | 2.510  | 0.810  | 0.375  | 4.030  | 10         | 0.332    |
| 5000124 | CF462R-300   | 4.62   | 2.94   | 3.010  | 0.810  | 0.375  | 4.030  | 10         | 0.332    |

## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000125 | CF462RT-000  | 4.62   | Blank  | -      | 0.81   | -      | 4.03   | 10         | 5/16-24 |
| 5000126 | CF462RT-250  | 4.62   | 2.44   | 2.51   | 0.81   | 0.38   | 4.03   | 10         | 5/16-24 |
| 5000127 | CF462RT-300  | 4.62   | 2.94   | 3.01   | 0.81   | 0.38   | 4.03   | 10         | 5/16-24 |

## CF 462 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604031 | CF462-GA-CO     | (10) Copper Gaskets  |
| 0604005 | CF462-GA-VT     | (1) Viton® Gasket  |
| 0605135 | CF462-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                                   |
| 0605136 | CF462-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 1/4 in.  |
| 0605137 | CF462-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                          |
| 0605192 | CF462-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.            |
| 0605138 | CF462-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                               |
| 0605191 | CF462-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                 |
| 0605139 | CF462-HPBK      | (20) Plate Nuts, (40) Bolts & Washers; 5/16-24x2 1/4 in.                         |
| 0605140 | CF462-PN        | (24) Plate Nuts; 5/16-24   |
| 0605141 | CF462-12PBK     | (20) Plate Nuts, (40) 12-point Bolts & Washers; 5/16-24x2 1/4 in.                |
| 0605309 | CF462-12PBK-SP  | (20) Plate Nuts, (40) Silver Plated 12-point Bolts & Washers; 5/16-24x2 1/4 in.  |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 600 - 6 inches O.D. UHV Flanges

### CF 600 Flanges



#### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

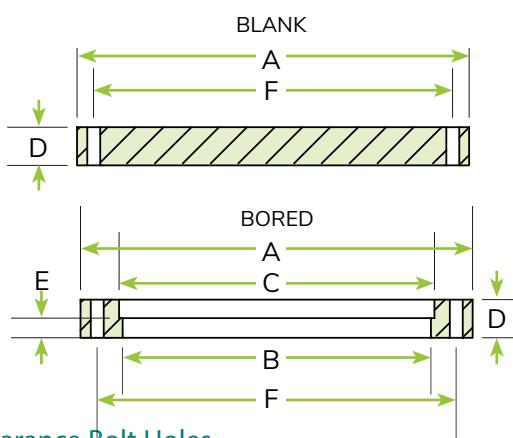
#### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

#### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 600 - Fixed Flanges



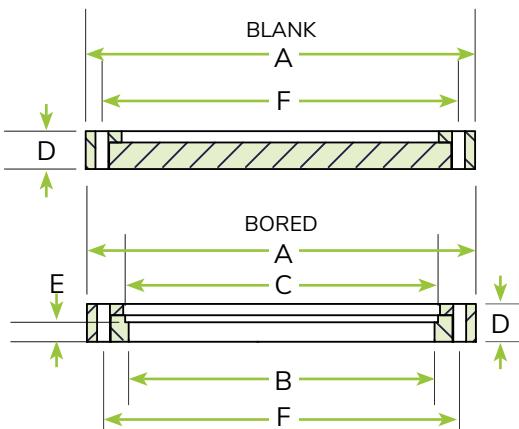
#### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000128 | CF600-000    | 5.97   | Blank  | -      | 0.78   | -      | 5.13   | 16         | 0.332    |
| 5000129 | CF600-400    | 5.97   | 3.92   | 4.02   | 0.78   | 0.44   | 5.13   | 16         | 0.332    |

#### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000130 | CF600T-000   | 5.97   | Blank  | -      | 0.78   | -      | 5.13   | 16         | 5/16-24 |
| 5000131 | CF600T-400   | 5.97   | 3.92   | 4.02   | 0.78   | 0.44   | 5.13   | 16         | 5/16-24 |

## CF 600 - Rotatable Flanges



CF 600 Flanges

### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000132 | CF600R-000   | 5.97   | Blank  | -      | 0.84   | -      | 5.13   | 16         | 0.332    |
| 5000133 | CF600R-400   | 5.97   | 3.81   | 4.01   | 0.84   | 0.44   | 5.13   | 16         | 0.332    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000134 | CF600RT-000  | 5.97   | Blank  | -      | 0.84   | -      | 5.13   | 16         | 5/16-24 |
| 5000135 | CF600RT-400  | 5.97   | 3.81   | 4.01   | 0.84   | 0.44   | 5.13   | 16         | 5/16-24 |

## CF 600 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604033 | CF600-GA-CO     | (10) Copper Gaskets  |
| 0604006 | CF600-GA-VT     | (1) Viton® Gasket  |
| 0605142 | CF600-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                                   |
| 0605144 | CF600-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 1/4 in.  |
| 0605145 | CF600-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                          |
| 0605194 | CF600-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.            |
| 0605147 | CF600-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                               |
| 0605193 | CF600-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                 |
| 0605148 | CF600-HPBK      | (16) Plate Nuts, (32) Bolts & Washers; 5/16-24x2 1/4 in.                         |
| 0605152 | CF600-PN        | (24) Plate Nuts; 5/16-24   |
| 0605150 | CF600-12PBK     | (16) Plate Nuts, (32) 12-point Bolts & Washers; 5/16-24x2 1/4 in.                |
| 0605265 | CF600-12PBK-SP  | (16) Plate Nuts, (32) Silver Plated 12-point Bolts & Washers; 5/16-24x2 1/4 in.  |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 675 - 6.75 inches O.D. UHV Flanges

### CF 675 Flanges



#### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

#### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

#### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 675 - Fixed Flanges

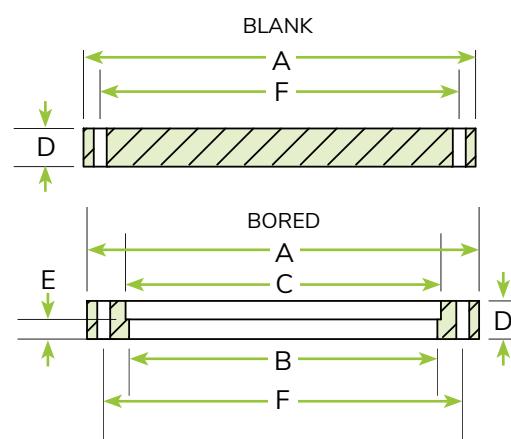


#### Clearance Bolt Holes

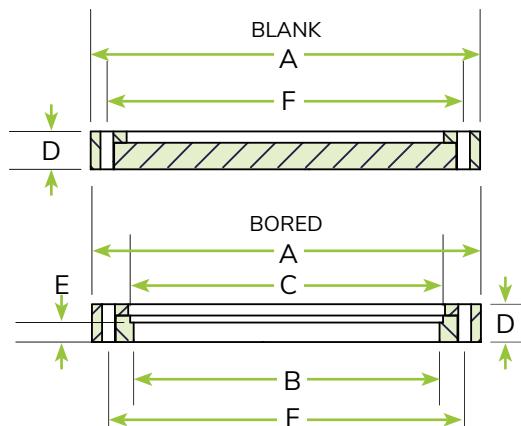
| PART #         | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|----------------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| <b>5000136</b> | CF675-000    | 6.75   | Blank  | -      | 0.84   | -      | 5.97   | 18         | 0.332    |
| <b>5000137</b> | CF675-400    | 6.75   | 3.88   | 4.01   | 0.84   | 0.46   | 5.97   | 18         | 0.332    |
| <b>5000138</b> | CF675-500    | 6.75   | 4.88   | 5.02   | 0.84   | 0.46   | 5.97   | 18         | 0.332    |

#### Tapped Bolt Holes

| PART #         | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|----------------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| <b>5000139</b> | CF675T-000   | 6.75   | Blank  | -      | 0.84   | -      | 5.97   | 18         | 5/16-24 |
| <b>5000140</b> | CF675T-400   | 6.75   | 3.88   | 4.01   | 0.84   | 0.46   | 5.97   | 18         | 5/16-24 |
| <b>5000141</b> | CF675T-500   | 6.75   | 4.88   | 5.02   | 0.84   | 0.46   | 5.97   | 18         | 5/16-24 |



## CF 675 - Rotatable Flanges



## Clearance Bolt Holes

| PART #         | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|----------------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000142        | CF675R-000   | 6.75   | Blank  | -      | 0.84   | -      | 5.97   | 18         | 0.332    |
| <b>5000143</b> | CF675R-400   | 6.75   | 3.81   | 4.01   | 0.84   | 0.46   | 5.97   | 18         | 0.332    |
| 5000144        | CF675R-500   | 6.75   | 4.88   | 5.01   | 0.84   | 0.46   | 5.97   | 18         | 0.332    |

## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000145 | CF675RT-000  | 6.75   | -      | -      | 0.84   | -      | 5.97   | 18         | 5/16-24 |
| 5000146 | CF675RT-400  | 6.75   | 3.81   | 4.01   | 0.84   | 0.46   | 5.97   | 18         | 5/16-24 |
| 5000147 | CF675RT-500  | 6.75   | 4.88   | 5.01   | 0.84   | 0.46   | 5.97   | 18         | 5/16-24 |

## CF 675 Flange Hardware

| PART #         | REFERENCE ID    | DESCRIPTION  |
|----------------|-----------------|--|
| <b>0604035</b> | CF675-GA-CO     | (10) Copper Gaskets  |
| <b>0604007</b> | CF675-GA-VT     | (1) Viton® Gasket  |
| <b>0605153</b> | CF675-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                                   |
| <b>0605155</b> | CF675-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                          |
| <b>0605154</b> | CF675-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 1/2  |
| <b>0605196</b> | CF675-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.            |
| <b>0605156</b> | CF675-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                               |
| <b>0605195</b> | CF675-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                 |
| <b>0605113</b> | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| <b>0605208</b> | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 800 Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

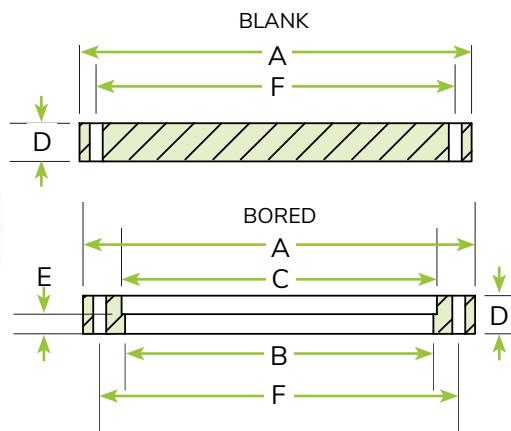
**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

**Options: Call for price and availability**

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 800 - Fixed Flanges

**Clearance Bolt Holes**

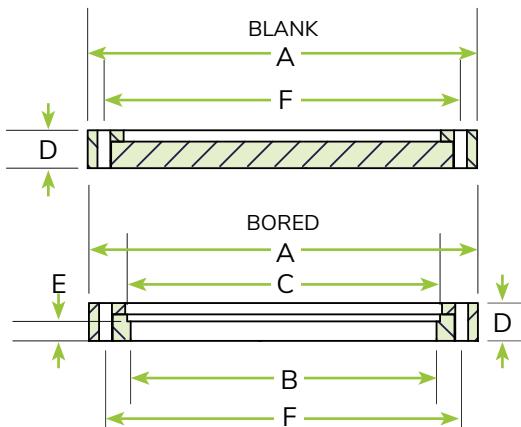
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000148 | CF800-000    | 7.97   | Blank  | -      | 0.88   | -      | 7.13   | 20         | 0.332    |
| 5000149 | CF800-600    | 7.97   | 5.84   | 6.02   | 0.88   | 0.50   | 7.13   | 20         | 0.332    |

**Tapped Bolt Holes**

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000150 | CF800T-000   | 7.97   | Blank  | -      | 0.88   | -      | 7.13   | 20         | 5/16-24 |
| 5000151 | CF800T-600   | 7.97   | 5.84   | 6.02   | 0.88   | 0.50   | 7.13   | 20         | 5/16-24 |

## CF 800 - Rotatable Flanges

CF 800 Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000152 | CF800R-000   | 7.97   | Blank  | -      | 0.94   | -      | 7.13   | 20         | 0.332    |
| 5000153 | CF800R-600   | 7.97   | 6.13   | 6.75   | 0.94   | 0.50   | 7.13   | 20         | 0.332    |

## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000154 | CF800RT-000  | 7.97   | Blank  | -      | 0.94   | -      | 7.13   | 20         | 5/16-24 |
| 5000155 | CF800RT-600  | 7.97   | 6.13   | 6.75   | 0.94   | 0.50   | 7.13   | 20         | 5/16-24 |

## CF 800 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604037 | CF800-GA-CO     | (10) Copper Gaskets  |
| 0604008 | CF800-GA-VT     | (1) Viton® Gasket  |
| 0605157 | CF800-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                                   |
| 0605158 | CF800-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 3/4 in.  |
| 0605159 | CF800-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                          |
| 0605198 | CF800-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.            |
| 0605160 | CF800-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                               |
| 0605197 | CF800-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                 |
| 0605161 | CF800-HPBK      | (20) Plate Nuts, (40) Bolts & Washers; 5/16-24x2 1/4 in.                         |
| 0605162 | CF800-PN        | (24) Plate Nuts; 5/16-24   |
| 0605163 | CF800-12PBK     | (20) Plate Nuts, (40) 12-point Bolts & Washers; 5/16-24x2 1/4 in.                |
| 0605270 | CF800-12PBK-SP  | (20) Plate Nuts, (40) Silver Plated 12-point Bolts & Washers; 5/16-24x2 1/4 in.  |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 1000 - 10 inches O.D. UHV Flanges



### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

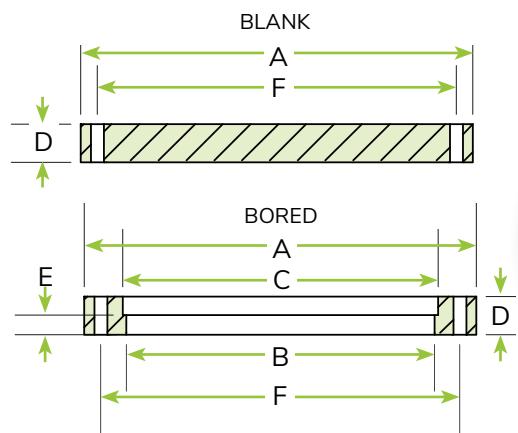
### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 1000 - Fixed Flanges



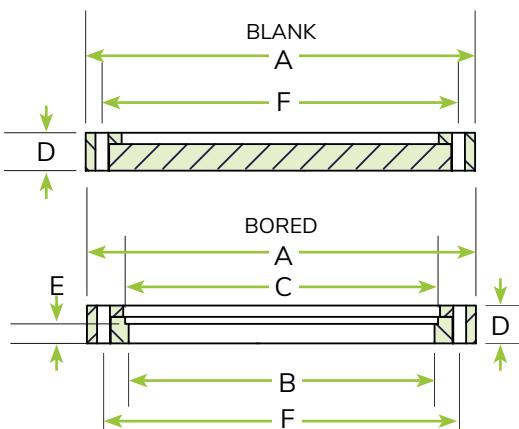
### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000156 | CF1000-000   | 9.97   | Blank  | -      | 0.97   | -      | 9.13   | 24         | 0.332    |
| 5000157 | CF1000-800   | 9.97   | 7.83   | 8.02   | 0.97   | 0.50   | 9.13   | 24         | 0.332    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000158 | CF1000T-000  | 9.97   | Blank  | -      | 0.97   | -      | 9.13   | 24         | 5/16-24 |
| 5000159 | CF1000T-800  | 9.97   | 7.83   | 8.02   | 0.97   | 0.50   | 9.13   | 24         | 5/16-24 |

## CF 1000 - Rotatable Flanges



CF 1000 Flanges

## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000160 | CF1000R-000  | 9.97   | Blank  | -      | 0.97   | -      | 9.13   | 24         | 0.332    |
| 5000161 | CF1000R-800  | 9.97   | 7.83   | 8.02   | 0.97   | 0.50   | 9.13   | 24         | 0.332    |

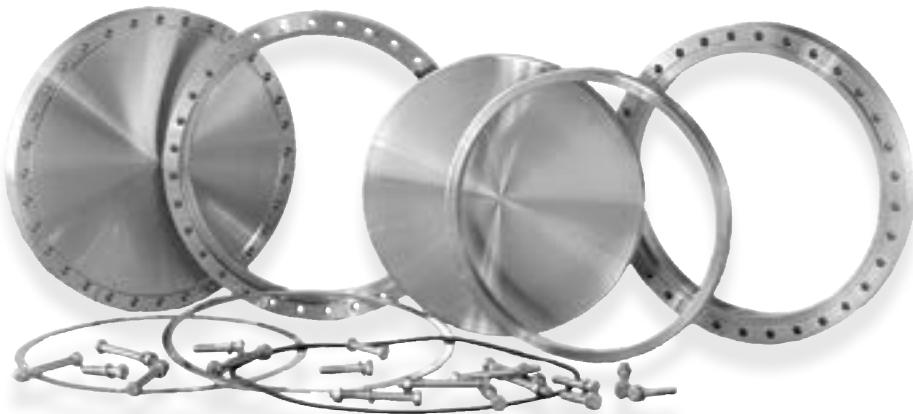
## Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000162 | CF1000RT-000 | 9.97   | Blank  | -      | 0.97   | -      | 9.13   | 24         | 5/16-24 |
| 5000163 | CF1000RT-800 | 9.97   | 7.83   | 8.02   | 0.97   | 0.50   | 9.13   | 24         | 5/16-24 |

## CF 1000 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604039 | CF1000-GA-CO    | (10) Copper Gaskets  |
| 0604009 | CF1000-GA-VT    | (1) Viton® Gasket  |
| 0605164 | CF1000-HBK      | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/2 in.                                   |
| 0605165 | CF1000-HTBK     | (25) Bolt & Washer Kit; 5/16-24x1 3/4 in.  |
| 0605166 | CF1000-12BK     | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/2 in.                          |
| 0605200 | CF1000-12BK-SP  | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/2 in.            |
| 0605167 | CF1000-12TBK    | (25) 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                               |
| 0605199 | CF1000-12TBK-SP | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                 |
| 0605168 | CF1000-HPBK     | (24) Plate Nuts, (48) Bolts & Washers; 5/16-24x2 1/2 in.                         |
| 0605169 | CF1000-PN       | (24) Plate Nuts; 5/16-24   |
| 0605170 | CF1000-12PBK    | (24) Plate Nuts, (48) 12-point Bolts & Washers; 5/16-24x2 1/2 in.                |
| 0605310 | CF1000-12PBK-SP | (24) Plate Nuts, (48) Silver Plated 12-point Bolts & Washers; 5/16-24x2 1/2 in.  |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 1200 Flanges

**Product Features:**

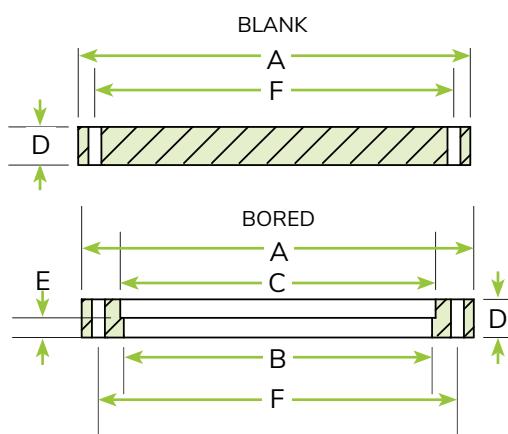
- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

**Options: Call for price and availability**

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

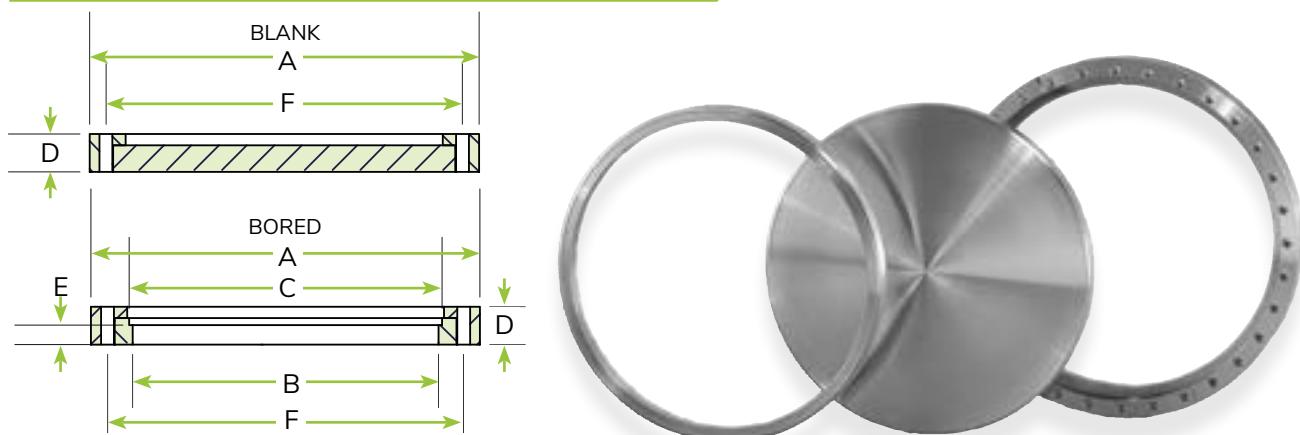
**CF 1200 - Fixed Flanges****Clearance Bolt Holes**

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000164 | CF1200-000   | 11.97  | Blank  | -      | 1.02   | -      | 11.18  | 32         | 0.332    |
| 5000165 | CF1200-1000  | 11.97  | 9.88   | 10.03  | 1.02   | 0.50   | 11.18  | 32         | 0.332    |

**Tapped Bolt Holes**

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000166 | CF1200T-000  | 11.97  | Blank  | -      | 1.02   | -      | 11.18  | 32         | 5/16-24 |
| 5000167 | CF1200T-1000 | 11.97  | 9.88   | 10.03  | 1.02   | 0.500  | 11.18  | 32         | 5/16-24 |

## CF 1200 - Rotatable Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000168 | CF1200R-000  | 11.97  | Blank  | -      | 1.02   | -      | 11.18  | 32         | 0.332    |
| 5000169 | CF1200R-1000 | 11.97  | 9.88   | 10.03  | 1.02   | 0.50   | 11.18  | 32         | 0.332    |

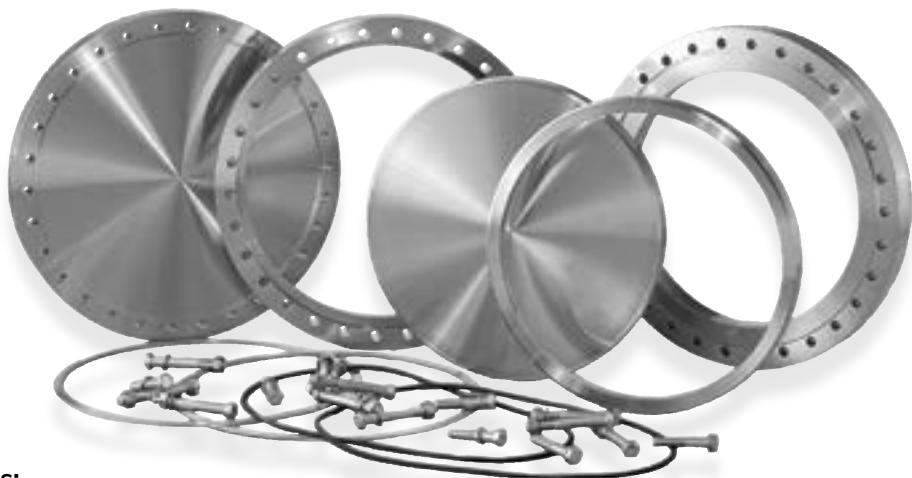
## Tapped Bolt Holes

| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000170 | CF1200RT-000  | 11.97  | Blank  | -      | 1.02   | -      | 11.18  | 32         | 5/16-24 |
| 5000171 | CF1200RT-1000 | 11.97  | 9.88   | 10.03  | 1.02   | 0.50   | 11.18  | 32         | 5/16-24 |

## CF 1200 Flange Hardware

| PART #  | REFERENCE ID   | DESCRIPTION  |
|---------|----------------|--|
| 0604041 | CF1200-GA-CO   | (1) Copper Gaskets   |
| 0604010 | CF1200-GA-VT   | (1) Viton® Gasket  |
| 0605171 | CF1200-HBK     | (32) Bolt, Nut & Washer Kit; 5/16-24x3 in.                                       |
| 0605172 | CF1200-HTBK    | (32) Bolt & Washer Kit; 5/16-24x1 3/4 in.  |
| 0605312 | CF1200-12BK    | (32) 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                               |
| 0605202 | CF1200-12BK-SP | (32) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                 |
| 0605208 | ASTL           | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 1325 Flanges

**Product Features:**

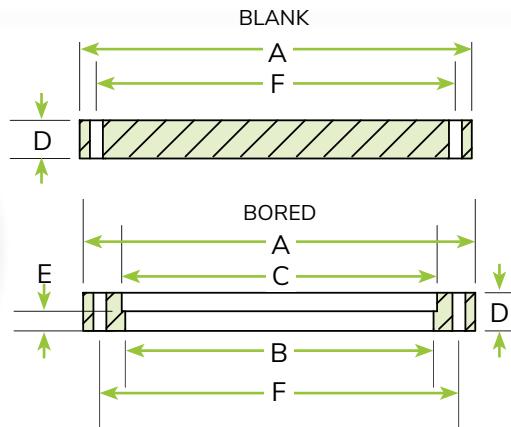
- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

**Options: Call for price and availability**

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

**CF 1325 - Fixed Flanges****Clearance Bolt Holes**

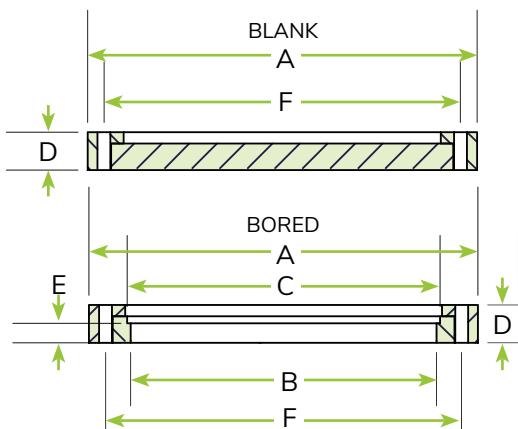
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000172 | CF1325-000   | 13.25  | Blank  | -      | 1.12   | -      | 12.06  | 30         | 0.390    |
| 5000173 | CF1325-1000  | 13.25  | 9.75   | 10.02  | 1.12   | 0.50   | 12.06  | 30         | 0.390    |
| 5000174 | CF1325-1075  | 13.25  | 10.50  | 10.78  | 1.12   | 0.50   | 12.06  | 30         | 0.390    |

**Tapped Bolt Holes**

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000175 | CF1325T-000  | 13.25  | Blank  | -      | 1.12   | -      | 12.06  | 30         | 3/8-24 |
| 5000176 | CF1325T-1000 | 13.25  | 9.75   | 10.02  | 1.12   | 0.50   | 12.06  | 30         | 3/8-24 |
| 5000177 | CF1325T-1075 | 13.25  | 10.50  | 10.78  | 1.12   | 0.50   | 12.06  | 30         | 3/8-24 |

## CF 1325 - Rotatable Flanges

CF 1325 Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000178 | CF1325R-000  | 13.25  | Blank  | -      | 1.12   | -      | 12.06  | 30         | 0.390    |
| 5000179 | CF1325R-1000 | 13.25  | 9.75   | 10.03  | 1.12   | 0.50   | 12.06  | 30         | 0.390    |
| 5000180 | CF1325R-1075 | 13.25  | 10.50  | 10.77  | 1.12   | 0.50   | 12.06  | 30         | 0.390    |

## Tapped Bolt Holes

| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000181 | CF1325RT-000  | 13.25  | Blank  | -      | 1.12   | -      | 12.06  | 30         | 3/8-24 |
| 5000182 | CF1325RT-1000 | 13.25  | 9.75   | 10.03  | 1.12   | 0.50   | 12.06  | 30         | 3/8-24 |
| 5000183 | CF1325RT-1075 | 13.25  | 10.50  | 10.77  | 1.12   | 0.50   | 12.06  | 30         | 3/8-24 |

## CF 1325 Flange Hardware

| PART #  | REFERENCE ID   | DESCRIPTION  |
|---------|----------------|--|
| 0604043 | CF1325-GA-C0   | (1) Copper Gaskets   |
| 0604011 | CF1325-GA-VT   | (1) Viton® Gasket  |
| 0605173 | CF1325-HBK     | (30) Bolt, Nut & Washer Kit; 3/8-24x3 in.  |
| 0605174 | CF1325-HTBK    | (30) Bolt & Washer Kit; 3/8-24x2 in.   |
| 0605204 | CF1325-HBK-SP  | (30) Silver Plated Bolt, Nut & Washer Kit; 3/8-24x3 in.                          |
| 0605203 | CF1325-HTBK-SP | (30) Silver Plated Bolt & Washer Kit; 3/8-24x2 in.                               |
| 0605208 | ASTL           | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 1400 - 14 inches O.D. UHV Flanges

### CF 1400 Flanges



#### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

#### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

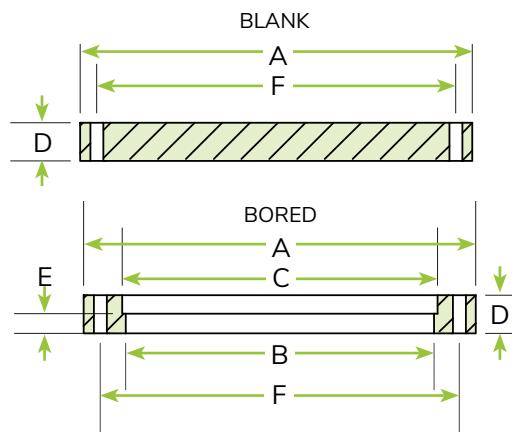
#### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 1400 - Fixed Flanges



Clearance Bolt Holes



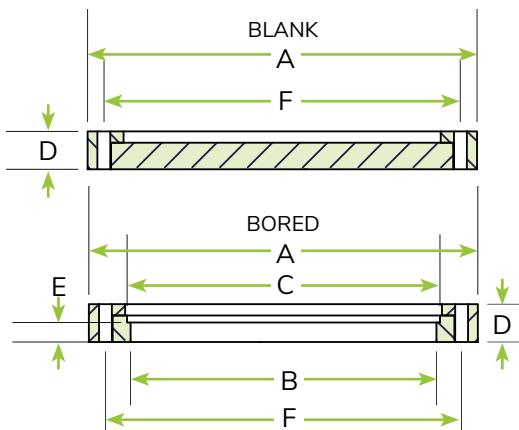
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000184 | CF1400-000   | 14.00  | Blank  | -      | 1.12   | -      | 12.81  | 30         | 0.390    |
| 5000185 | CF1400-1200  | 14.00  | 11.75  | 12.03  | 1.12   | 0.50   | 12.81  | 30         | 0.390    |

#### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000186 | CF1400T-000  | 14.00  | Blank  | -      | 1.120  | -      | 12.81  | 30         | 3/8-24 |
| 5000187 | CF1400T-1200 | 14.00  | 11.75  | 12.03  | 1.120  | 0.50   | 12.81  | 30         | 3/8-24 |

## CF 1400 - Rotatable Flanges

CF 1400 Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000188 | CF1400R-000  | 14.00  | Blank  | -      | 1.12   | -      | 12.81  | 30         | 0.390    |
| 5000189 | CF1400R-1200 | 14.00  | 11.75  | 12.03  | 1.12   | 0.50   | 12.81  | 30         | 0.390    |

## Tapped Bolt Holes

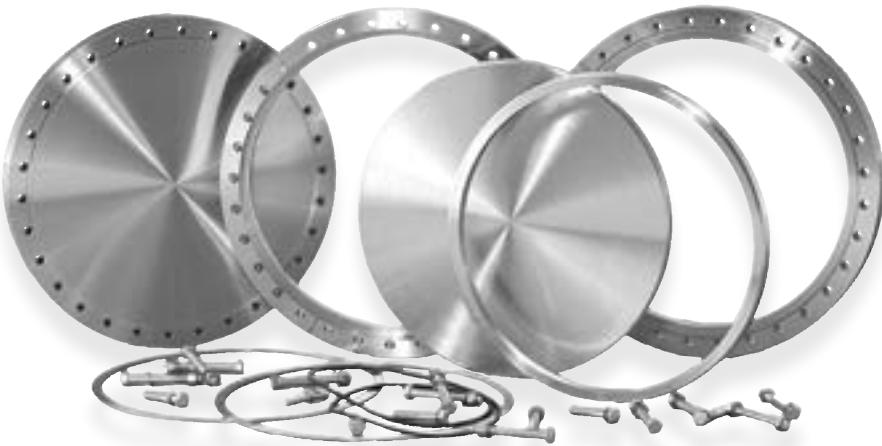
| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000190 | CF1400RT-000  | 14.00  | Blank  | -      | 1.12   | -      | 12.81  | 30         | 3/8-24 |
| 5000191 | CF1400RT-1200 | 14.00  | 11.75  | 12.03  | 1.12   | 0.50   | 12.81  | 30         | 3/8-24 |

## CF 1400 Flange Hardware

| PART #  | REFERENCE ID   | DESCRIPTION  |
|---------|----------------|--|
| 0604045 | CF1400-GA-C0   | (1) Copper Gaskets   |
| 0604012 | CF1400-GA-VT   | (1) Viton® Gasket  |
| 0605175 | CF1400-HBK     | (30) Bolt, Nut & Washer Kit; 3/8-24x3 in.  |
| 0605176 | CF1400-HTBK    | (30) Bolt & Washer Kit; 3/8-24x2 in.   |
| 0605206 | CF1400-HBK-SP  | (30) Silver Plated Bolt, Nut & Washer Kit; 3/8-24x3 in.                          |
| 0605205 | CF1400-HTBK-SP | (30) Silver Plated Bolt & Washer Kit; 3/8-24x2 in.                               |
| 0605208 | ASTL           | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 1450 - 14.5 inches O.D. UHV Flanges

### CF 1450 Flanges



#### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

#### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

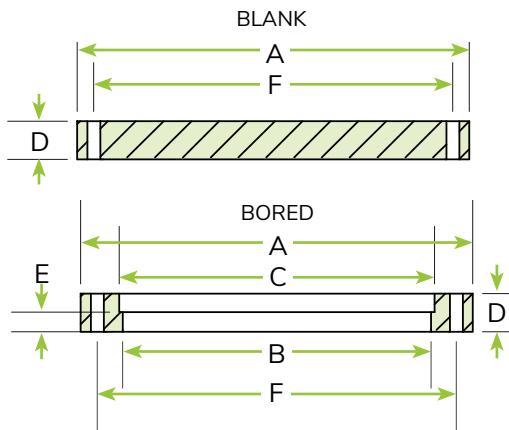
#### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 1450 - Fixed Flanges



#### Clearance Bolt Holes

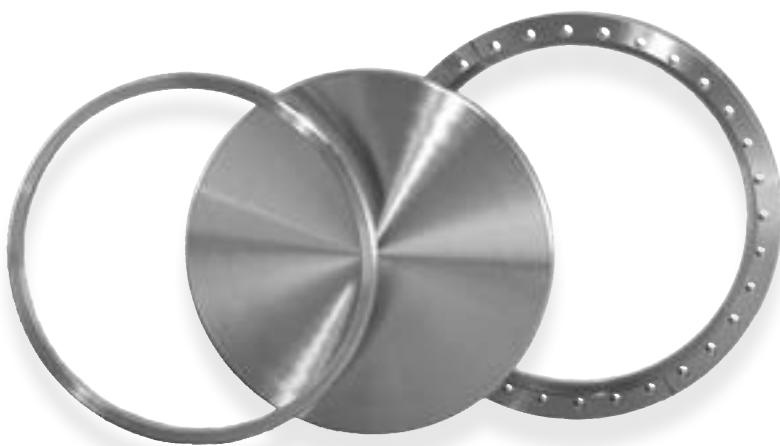
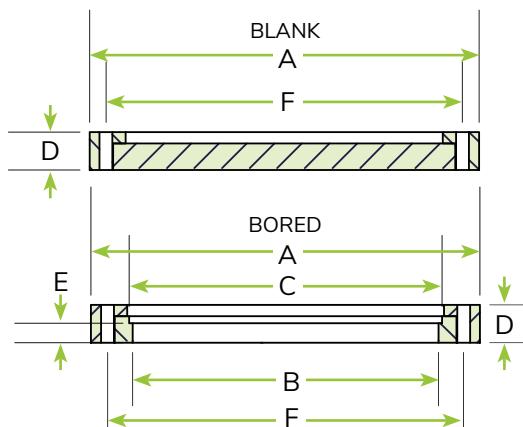


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000192 | CF1450-000   | 14.50  | Blank  | -      | 1.12   | -      | 13.31  | 32         | 0.390    |
| 5000193 | CF1450-1200  | 14.50  | 11.75  | 12.03  | 1.12   | 0.50   | 13.31  | 32         | 0.390    |

#### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000194 | CF1450T-000  | 14.50  | Blank  | -      | 1.12   | -      | 13.31  | 32         | 3/8-24 |
| 5000195 | CF1450T-1200 | 14.50  | 11.75  | 12.03  | 1.12   | 0.50   | 13.31  | 32         | 3/8-24 |

## CF 1450 - Rotatable Flanges



### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000196 | CF1450R-000  | 14.50  | Blank  | -      | 1.12   | -      | 13.31  | 32         | 0.390    |
| 5000197 | CF1450R-1200 | 14.50  | 11.75  | 12.03  | 1.12   | 0.50   | 13.31  | 32         | 0.390    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5000198 | 1450-000-R-T  | 14.50  | Blank  | -      | 1.12   | -      | 13.31  | 32         | 3/8-24 |
| 5000199 | 1450-1200-R-T | 14.50  | 11.75  | 12.03  | 1.12   | 0.50   | 13.31  | 32         | 3/8-24 |

## CF 1450 Flange Hardware

| PART #  | REFERENCE ID   | DESCRIPTION  |
|---------|----------------|--|
| 0604047 | CF1450-GA-C0   | (1) Copper Gaskets   |
| 0604013 | CF1450-GA-VT   | (1) Viton® Gasket  |
| 0605177 | CF1450-HBK     | (32) Bolt, Nut & Washer Kit; 3/8-24x3 in.  |
| 0605178 | CF1450-HTBK    | (32) Bolt & Washer Kit; 3/8-24x2 in.   |
| 0605303 | 1450-BK-S      | (32) Silver Plated Bolt, Nut & Washer Kit; 3/8-24x3 in.                          |
| 0605311 | CF1450-HTBK-SP | (32) Silver Plated Bolt & Washer Kit; 3/8-24x2 in.                               |
| 0605208 | ASTL           | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 1650 - 16.5 inches O.D. UHV Flanges

### CF 1650 Flanges



#### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

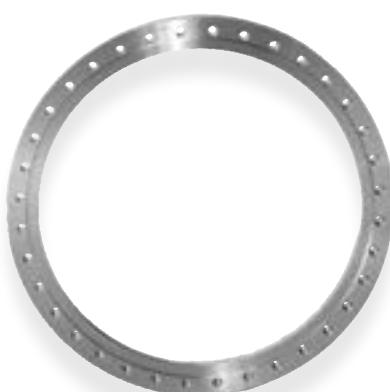
#### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

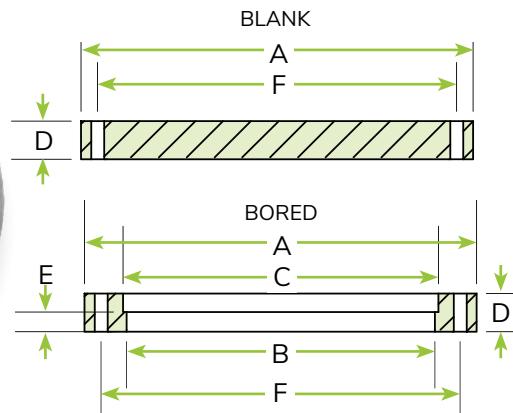
#### Options: Call for price and availability

- Metric tapped bolt holes
- Alternative materials: 316L, 316LN stainless steel, aluminum, titanium, bimetal etc.

## CF 1650 - Fixed Flanges



#### Clearance Bolt Holes

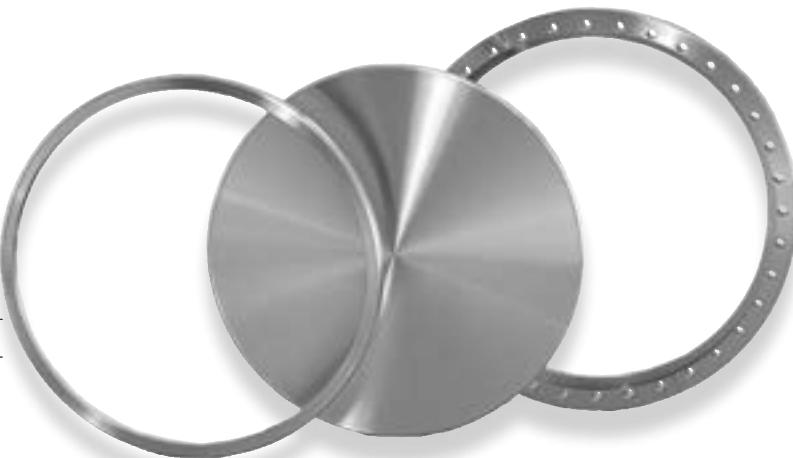
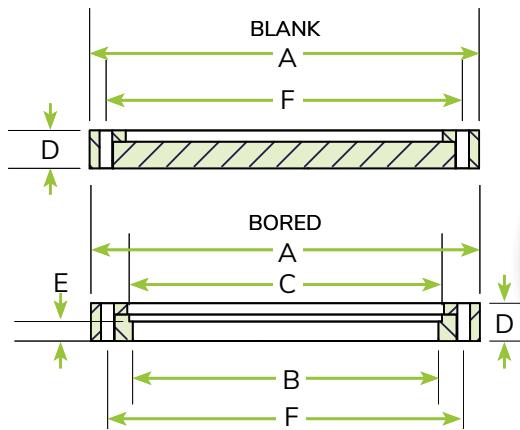


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000200 | CF1650-000   | 16.50  | Blank  | -      | 1.12   | -      | 15.31  | 36         | 0.390    |
| 5000201 | CF1650-1400  | 16.50  | 13.75  | 14.03  | 1.12   | 0.50   | 15.31  | 36         | 0.390    |

#### Tapped Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000202 | CF1650T-000  | 16.50  | Blank  | -      | 1.12   | -      | 15.31  | 36         | 0.38-24 |
| 5000203 | CF1650T-1400 | 16.50  | 13.75  | 14.03  | 1.12   | 0.50   | 15.31  | 36         | 0.38-24 |

## CF 1650 - Rotatable Flanges



### Clearance Bolt Holes

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5000204 | CF1650R-000  | 16.50  | -      | -      | 1.12   | -      | 15.31  | 36         | 0.390    |
| 5000205 | CF1650R-1400 | 16.50  | 13.75  | 14.03  | 1.12   | 0.50   | 15.31  | 36         | 0.390    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD  |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|---------|
| 5000206 | CF1650RT-000  | 16.50  | -      | -      | 1.12   | -      | 15.31  | 36         | 0.38-24 |
| 5000207 | CF1650RT-1400 | 16.50  | 13.75  | 14.03  | 1.12   | 0.50   | 15.31  | 36         | 0.38-24 |

## CF 1650 Flange Hardware

| PART #  | REFERENCE ID   | DESCRIPTION  |
|---------|----------------|--|
| 0604049 | CF1650-GA-C0   | (1) Copper Gaskets   |
| 0604014 | CF1650-GA-VT   | (1) Viton® Gasket  |
| 0605179 | CF1650-HBK     | (36) Bolt, Nut & Washer Kit; 3/8-24x3 in.  |
| 0605180 | CF1650-HTBK    | (36) Bolt & Washer Kit; 3/8-24x2 in.   |
| 0605304 | CF1650-HBK-SP  | (36) Silver Plated Bolt, Nut & Washer Kit; 3/8-24x3 in.                          |
| 0605207 | CF1650-HTBK-SP | (36) Silver Plated Bolt & Washer Kit; 3/8-24x2 in.                               |
| 0605208 | ASTL           | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## FEATURES & BENEFITS OF 316LN:

- Low magnetic permeability of  $1.005 \mu_{\max}$
- Temperature Range: -200°C to 450°C
- Vacuum Rating:  $1 \times 10^{-13}$  Torr
- Excellent for Beamlines, XHV, X-Ray, and Laser applications
- Increased resistance to irradiation damage
- Resistant to crevice corrosion
- High level of weldability
- Resistant to pitting



ANCORP's 316LN AUSTENITIC STAINLESS STEEL CF FLANGES ARE PRODUCED FOR CRITICAL UHV AND XHV APPLICATIONS WHERE LOW MAGNETIC PERMEABILITY IS REQUIRED.

316LN CF FLANGES ARE MACHINED FROM LOW CARBON, NITROGEN-ENRICHED MATERIAL AND UNDERGO ELECTRO SLAG REMELTING (ESR) DURING SECONDARY REFINEMENT. THE SECONDARY REFINING PROCESS FURTHER ELIMINATES IMPURITIES IN THE 316LN STAINLESS STEEL, INCREASING FINAL QUALITY AND GRANTING MATERIAL BENEFITS SUCH AS INCREASED RESISTANCE TO HEAT HARDENING.

### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Metric tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available  
(UHV) or Viton® for high vacuum (HV)

- Vacuum rated to  $1 \times 10^{-13}$  Torr. with Copper Seals
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -200°C to 450°C with Copper Seals
- Standard materials: 316LN
  - Flanges and fittings: 316LN stainless steel
  - Seals: OFHC copper for ultra high vacuum (UHV)
- or
- Viton® for high vacuum (HV)

## CF 133 - 1.33 inches O.D. UHV Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Metric tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

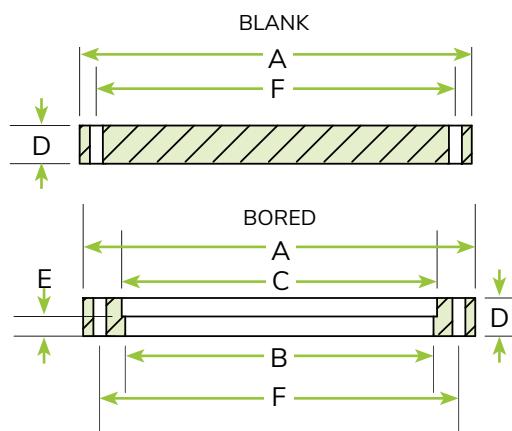
**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 316LN stainless steel

**Options: Call for price and availability**

- Alternative materials: 304L, 316L stainless steel, aluminum, titanium, bimetal etc.

## CF 133 - Fixed Flanges

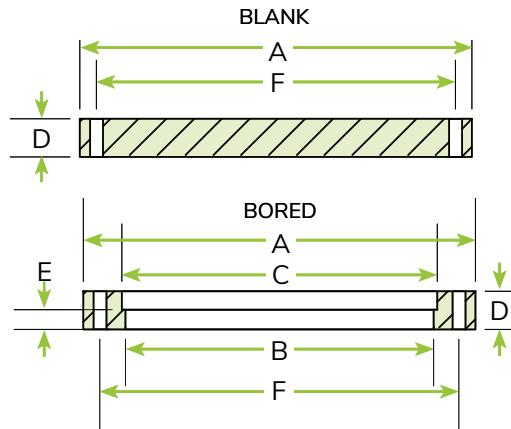
**Clearance Bolt Holes**

| PART #  | REFERENCE ID    | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|-----------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004000 | CF133-000-316LN | 1.33   | -      | -      | 0.3    | -      | 1.06   | 6          | 0.17     |
| 5004007 | CF133-075-316LN | 1.33   | 0.63   | 0.76   | 0.3    | 0.18   | 1.06   | 6          | 0.17     |

**Tapped Bolt Holes**

| PART #  | REFERENCE ID      | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|-------------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5004009 | CF133TM-000-316LN | 1.33   | -      | -      | 0.3    | -      | 1.06   | 6          | M4     |
| 5004015 | CF133TM-075-316LN | 1.33   | 0.63   | 0.76   | 0.3    | 0.18   | 1.06   | 6          | M4     |

## CF 133 - Rotatable Flanges



### Clearance Bolt Holes

| PART #  | REFERENCE ID     | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|------------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004018 | CF133R-000-316LN | 1.33   | -      | -      | 0.3    | -      | 1.06   | 6          | 0.17     |
| 5004024 | CF133R-075-316LN | 1.33   | 0.63   | 1.06   | 0.3    | -      | 1.06   | 6          | 0.27     |

## CF 133 Flange Hardware

| PART #  | REFERENCE ID  | DESCRIPTION  |
|---------|---------------|--|
| 0604020 | CF133-GA-CO   | (10) Copper Gaskets  |
| 0604000 | CF133-GA-VT   | (5) Viton® Gaskets   |
| 0605105 | CF133-HBK     | (25) Bolt, Nut & Washer Kit 8-32x3/4 in.   |
| 0605181 | CF133-HBK-SP  | (25) Silver Plated Bolt, Nut & Washer Kit; 8-32x3/4 in.                            |
| 0605106 | CF133-HTBK    | (25) Bolt & Washer Kit; 8-32x1/2 in.   |
| 0605182 | CF133-HTBK-SP | (25) Silver Plated Bolt & Washer Kit; 8-32x1/2 in.                                 |
| 0605107 | CF133-HPBK    | (12) Plate Nuts, (24) Bolts & Washers; 8-32x3/4 in.                                |
| 0605248 | CF133-HPBK-SP | (12) Plate Nuts, (24) 8-32x3/4 in. Silver Plated Hex Socket Head Bolt & Washer Kit |
| 0605108 | CF133-PN      | (24) Plate Nuts; 8-32  |
| 0605208 | ASTL          | Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole       |

## CF 275 - 2.75 inches O.D. UHV Flanges



316LN CF 275 Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Metric tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

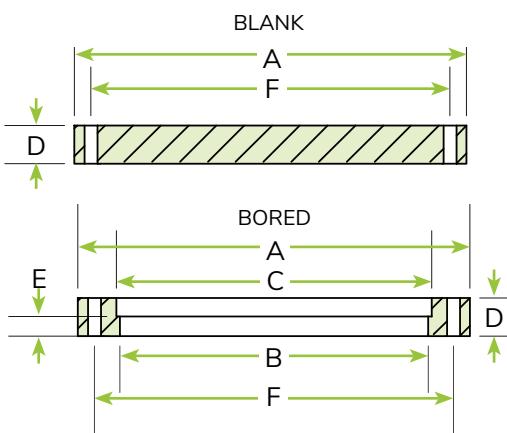
**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 316LN stainless steel

**Options: Call for price and availability**

- Alternative materials: 304L, 316L stainless steel, aluminum, titanium, bimetal etc.

## CF 275 - Fixed Flanges



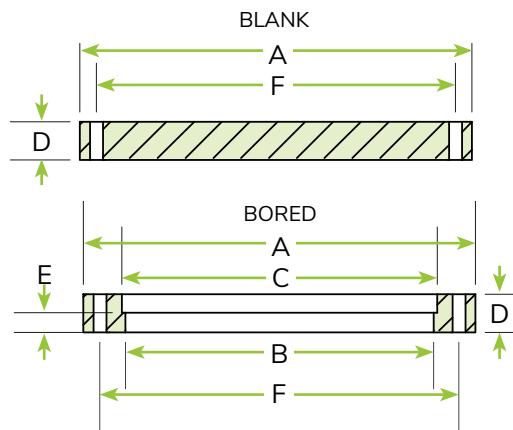
## Clearance Bolt Holes

| PART #  | REFERENCE ID    | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|-----------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004056 | CF275-000-316LN | 2.72   | -      | -      | 0.5    | -      | 2.31   | 6          | 0.27     |
| 5004063 | CF275-150-316LN | 2.72   | 1.5    | 1.635  | 0.5    | 2.1    | 2.31   | 6          | 0.27     |

## Tapped Bolt Holes

| PART #  | REFERENCE ID      | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|-------------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5004064 | CF275TM-000-316LN | 2.72   | -      | -      | 0.5    | -      | 2.31   | 6          | M6     |
| 5004071 | CF275TM-162-316LN | 2.72   | 1.5    | 1.635  | 0.5    | 0.21   | 2.31   | 6          | M6     |

## CF 275 - Rotatable Flanges



## Clearance Bolt Holes

| PART #         | REFERENCE ID     | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|----------------|------------------|--------|--------|--------|--------|--------|--------|------------|----------|
| <b>5004056</b> | CF275R-000-316LN | 2.72   | -      | -      | 0.5    | -      | 2.31   | 6          | 0.27     |
| <b>5004063</b> | CF275R-162-316LN | 2.72   | 1.5    | 1.635  | 0.5    | 2.1    | 2.31   | 6          | 0.27     |

## CF 275 Flange Hardware

| PART #         | REFERENCE ID    | DESCRIPTION  |
|----------------|-----------------|--|
| <b>0604024</b> | CF275-GA-CO     | (10) Copper Gaskets  |
| <b>0604025</b> | CF275-GA-CO-SD  | (10) Copper Gaskets; Solid   |
| <b>0604002</b> | CF275-GA-VT     | (5) Viton® Gaskets   |
| <b>0605114</b> | CF275-HBK       | (25) Bolt, Nut & Washer Kit; 1/4-28x1 1/4 in.                                    |
| <b>0605115</b> | CF275-HTBK      | (25) Bolt & Washer Kit, 1/4-28x1 in.   |
| <b>0605116</b> | CF275-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 1/4-28x1 1/4 in.                           |
| <b>0605186</b> | CF275-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 1/4-28x1 1/4 in.             |
| <b>0605117</b> | CF275-12TBK     | (25) 12-point Bolt & Washer Kit; 1/4-28x7/8 in.                                  |
| <b>0605185</b> | CF275-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 1/4-28x7/8 in.                    |
| <b>0605118</b> | CF275-HPBK      | (12) Plate Nuts, (24) Bolts & Washers; 1/4-28x1 1/4 in.                          |
| <b>0605119</b> | CF275-PN        | (24) Plate Nuts; 1/4-28  |
| <b>0605120</b> | CF275-12PBK     | (12) Plate Nuts, (24) 12-point Bolts & Washers; 1/4-28x1 1/4 in.                 |
| <b>0605249</b> | CF275-12PBK-SP  | (12) Plate Nuts, (24) Silver Plated 12-point Bolts & Washers; 1/4-28x1 1/4 in.   |
| <b>0605113</b> | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| <b>0605208</b> | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 450 - 4.50 inches O.D. UHV Flanges



### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Metric tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

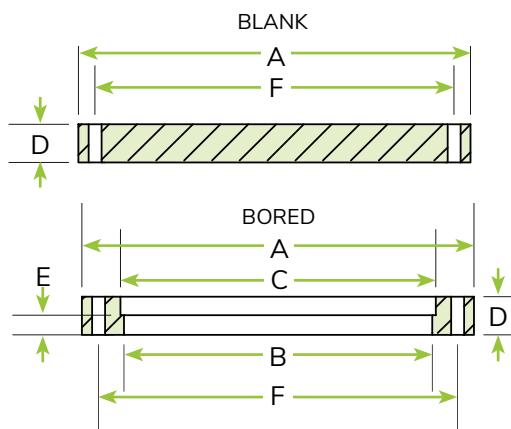
### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 316LN stainless steel

### Options: Call for price and availability

- Alternative materials: 304L, 316L stainless steel, aluminum, titanium, bimetal etc.

## CF 450 - Fixed Flanges



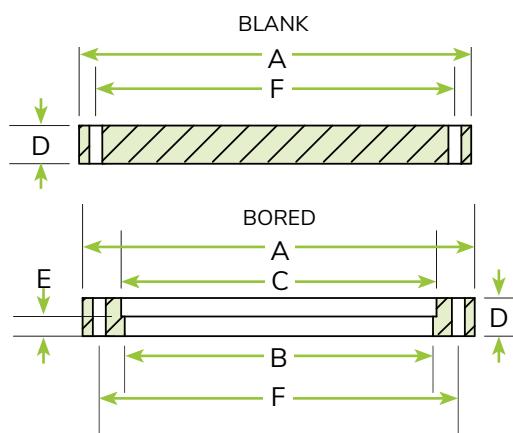
### Clearance Bolt Holes

| PART #  | REFERENCE ID    | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|-----------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004100 | CF450-000-316LN | 4.47   | -      | -      | 0.68   | -      | 3.63   | 8          | 0.33     |
| 5004103 | CF450-250-316LN | 4.47   | 2.44   | 2.51   | 0.68   | 0.38   | 3.63   | 8          | 0.33     |

### Tapped Bolt Holes

| PART #  | REFERENCE ID      | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|-------------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5004104 | CF450TM-000-316LN | 4.47   | -      | -      | 0.68   | -      | 3.63   | 8          | M8     |
| 5004107 | CF450TM-250-316LN | 4.47   | 2.44   | 2.51   | 0.68   | 0.38   | 3.63   | 8          | M8     |

## 316LN CF 450 Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID     | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|------------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004108 | CF450R-000-316LN | 4.47   | -      | -      | 0.75   | -      | 3.63   | 8          | 0.332    |
| 5004111 | CF450R-250-316LN | 4.47   | 2.44   | 2.51   | 0.75   | 0.38   | 3.63   | 8          | 0.332    |

## CF 450 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604029 | CF450-GA-CO     | (10) Copper Gaskets  |
| 0604004 | CF450-GA-VT     | (1) Viton® Gasket  |
| 0605128 | CF450-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 in.                                       |
| 0605129 | CF450-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 1/4 in.  |
| 0605130 | CF450-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 in.                              |
| 0605190 | CF450-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 in.                |
| 0605131 | CF450-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                               |
| 0605189 | CF450-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                 |
| 0605132 | CF450-HPBK      | (16) Plate Nuts, (32) Bolts & Washers; 5/16-24x2 in.                             |
| 0605133 | CF450-PN        | (24) Plate Nuts; 5/16-24   |
| 0605134 | CF450-12PBK     | (16) Plate Nuts, (32) 12-point Bolts & Washers; 5/16-24x2 in.                    |
| 0605308 | CF450-12PBK-SP  | (16) Plate Nuts, (32) Silver Plated 12-point Bolts & Washers; 5/16-24x2 in.      |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 600 - 6.00 inches O.D. UHV Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Metric tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

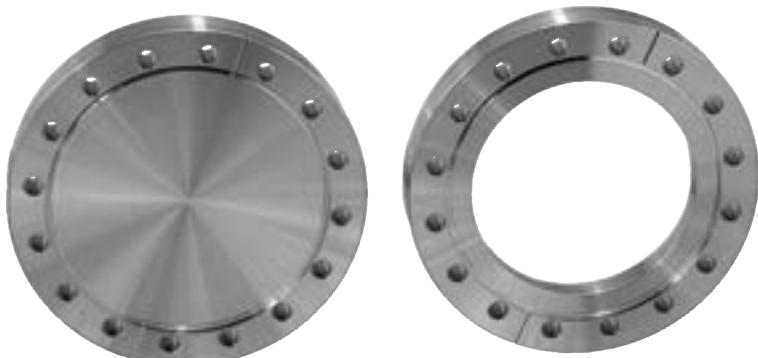
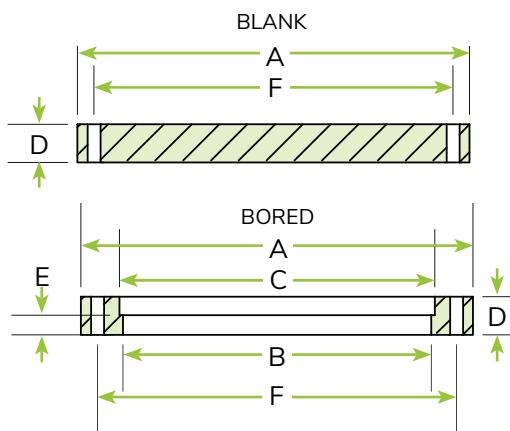
**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 316LN stainless steel

**Options: Call for price and availability**

- Alternative materials: 304L, 316L stainless steel, aluminum, titanium, bimetal etc.

## CF 600 - Fixed Flanges

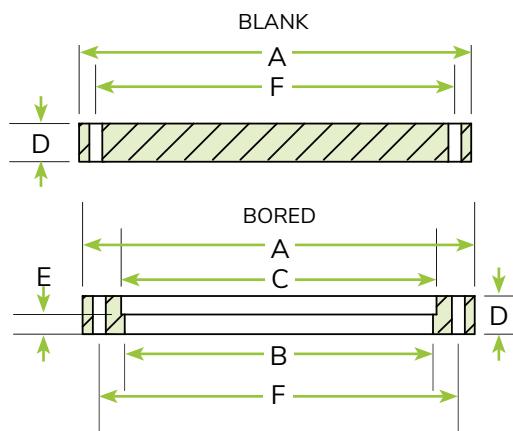
**Clearance Bolt Holes**

| PART #  | REFERENCE ID    | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|-----------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004128 | CF600-000-316LN | 5.97   | -      | -      | 0.78   | -      | 5.13   | 16         | 0.332    |
| 5004129 | CF600-400-316LN | 5.97   | 3.92   | 4.02   | 0.78   | 0.44   | 5.13   | 16         | 0.332    |

**Tapped Bolt Holes**

| PART #  | REFERENCE ID       | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|--------------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5004130 | CF600-TM-000-316LN | 5.97   | -      | -      | 0.78   | -      | 5.13   | 16         | M8     |
| 5004131 | CF600TM-400-316LN  | 5.97   | 3.92   | 4.02   | 0.78   | 0.44   | 5.13   | 16         | M8     |

## 316LN CF 600 Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID     | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|------------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004132 | CF600R-000-316LN | 5.97   | -      | -      | 0.84   | -      | 5.128  | 16         | 0.332    |
| 5004063 | CF600R-400-316LN | 5.97   | 3.81   | 4.01   | 0.84   | 0.437  | 5.128  | 16         | 0.332    |

## CF 450 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604029 | CF450-GA-CO     | (10) Copper Gaskets  |
| 0604004 | CF450-GA-VT     | (1) Viton® Gasket  |
| 0605128 | CF450-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 in.                                       |
| 0605129 | CF450-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 1/4 in.  |
| 0605130 | CF450-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 in.                              |
| 0605190 | CF450-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 in.                |
| 0605131 | CF450-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                               |
| 0605189 | CF450-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.                 |
| 0605132 | CF450-HPBK      | (16) Plate Nuts, (32) Bolts & Washers; 5/16-24x2 in.                             |
| 0605133 | CF450-PN        | (24) Plate Nuts; 5/16-24   |
| 0605134 | CF450-12PBK     | (16) Plate Nuts, (32) 12-point Bolts & Washers; 5/16-24x2 in.                    |
| 0605308 | CF450-12PBK-SP  | (16) Plate Nuts, (32) Silver Plated 12-point Bolts & Washers; 5/16-24x2 in.      |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 800 - 8.00 inches O.D. UHV Flanges



316LN CF 800 Flanges

### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Metric tapped and clearance bolt holes available
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

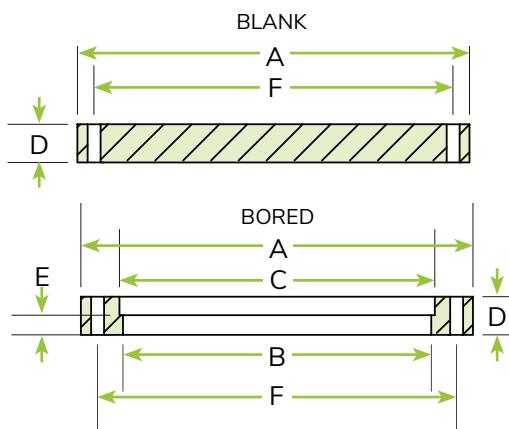
### CF 800 - Fixed Flanges

### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 316LN stainless steel

### Options: Call for price and availability

- Alternative materials: 304L, 316L stainless steel, aluminum, titanium, bimetal etc.



### Clearance Bolt Holes

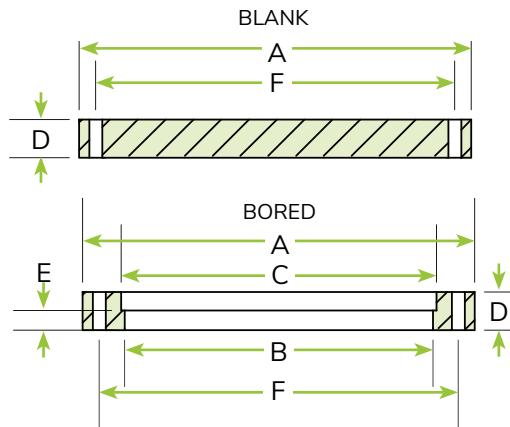
| PART #  | REFERENCE ID    | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|-----------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004148 | CF800-000-316LN | 7.97   | -      | -      | 0.88   | -      | 7.13   | 20         | 0.332    |
| 5004149 | CF800-600-316LN | 7.97   | 5.84   | 6.02   | 0.88   | 0.5    | 7.13   | 20         | 0.332    |

### Tapped Bolt Holes

| PART #  | REFERENCE ID      | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|-------------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5004150 | CF800TM-000-316LN | 7.97   | -      | -      | 0.88   | -      | 7.13   | 20         | M8     |
| 5004151 | CF800TM-600-316LN | 7.97   | 5.84   | 6.02   | 0.88   | 0.5    | 7.13   | 20         | M8     |

## 316LN CF 800 Flanges

## CF 800 - Rotatable Flanges



## Clearance Bolt Holes

| PART #  | REFERENCE ID     | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|------------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004108 | CF450R-000-316LN | 4.47   | -      | -      | 0.75   | -      | 3.63   | 8          | 0.332    |
| 5004111 | CF450R-250-316LN | 4.47   | 2.44   | 2.51   | 0.75   | 0.38   | 3.63   | 8          | 0.332    |

## CF 800 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604037 | CF800-GA-C0     | (10) Copper Gaskets  |
| 0604008 | CF800-GA-VT     | (1) Viton® Gasket  |
| 0605157 | CF800-HBK       | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                                   |
| 0605158 | CF800-HTBK      | (25) Bolt & Washer Kit; 5/16-24x1 3/4 in.  |
| 0605159 | CF800-12BK      | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.                          |
| 0605198 | CF800-12BK-SP   | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.            |
| 0605160 | CF800-12TBK     | (25) 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                               |
| 0605197 | CF800-12TBK-SP  | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                 |
| 0605161 | CF800-HPBK      | (20) Plate Nuts, (40) Bolts & Washers; 5/16-24x2 1/4 in.                         |
| 0605162 | CF800-PN        | (24) Plate Nuts; 5/16-24   |
| 0605163 | CF800-12PBK     | (20) Plate Nuts, (40) 12-point Bolts & Washers; 5/16-24x2 1/4 in.                |
| 0605270 | CF800-12PBK-SP  | (20) Plate Nuts, (40) Silver Plated 12-point Bolts & Washers; 5/16-24x2 1/4 in.  |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

## CF 1000 - 10.00 inches O.D. UHV Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Metric tapped and clearance bolt holes available  
Blank flanges to close unused ports or custom modify
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

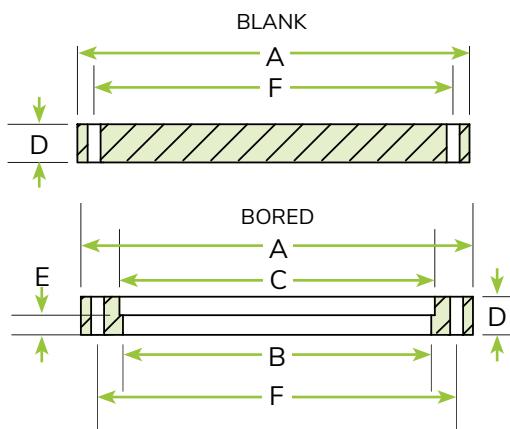
**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 316LN stainless steel

**Options: Call for price and availability**

- Alternative materials: 304L, 316L stainless steel, aluminum, titanium, bimetal etc.

## CF 1000 - Fixed Flanges

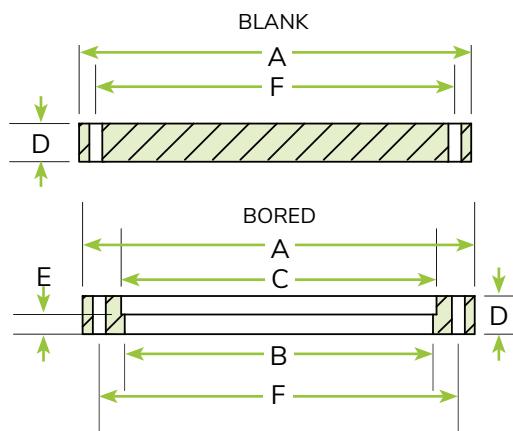
**Clearance Bolt Holes**

| PART #  | REFERENCE ID     | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|---------|------------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 5004156 | CF1000-000-316LN | 9.97   | -      | -      | 0.97   | -      | 9.13   | 24         | 0.332    |
| 5004157 | CF1000-800-316LN | 9.97   | 7.83   | 8.02   | 0.97   | 0.5    | 9.13   | 24         | 0.332    |

**Tapped Bolt Holes**

| PART #  | REFERENCE ID       | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | THREAD |
|---------|--------------------|--------|--------|--------|--------|--------|--------|------------|--------|
| 5004158 | CF1000TM-000-316LN | 9.97   | -      | 0.97   | 0.5    | -      | 9.13   | 24         | M8     |
| 5004159 | CF1000TM-800-316LN | 9.97   | 7.83   | 8.02   | 0.97   | 0.5    | 9.13   | 24         | M8     |

## CF 1000 - Rotatable Flanges



## Clearance Bolt Holes

| PART #   | REFERENCE ID      | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES | DIAMETER |
|----------|-------------------|--------|--------|--------|--------|--------|--------|------------|----------|
| 50041460 | CF1000R-000-316LN | 9.97   | -      | -      | 0.97   | -      | 9.13   | 24         | 0.332    |
| 5004149  | CF1000R-800-316LN | 9.97   | 7.83   | 8.02   | 0.97   | 0.5    | 9.13   | 24         | 0.332    |

## CF 1000 Flange Hardware

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0604039 | CF1000-GA-CO    | (10) Copper Gaskets  |
| 0604009 | CF1000-GA-VT    | (1) Viton® Gasket  |
| 0605164 | CF1000-HBK      | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/2 in.                                   |
| 0605165 | CF1000-HTBK     | (25) Bolt & Washer Kit; 5/16-24x1 3/4 in.  |
| 0605166 | CF1000-12BK     | (25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/2 in.                          |
| 0605200 | CF1000-12BK-SP  | (25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/2 in.            |
| 0605167 | CF1000-12TBK    | (25) 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                               |
| 0605199 | CF1000-12TBK-SP | (25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 3/4 in.                 |
| 0605168 | CF1000-HPBK     | (24) Plate Nuts, (48) Bolts & Washers; 5/16-24x2 1/2 in.                         |
| 0605169 | CF1000-PN       | (24) Plate Nuts; 5/16-24   |
| 0605170 | CF1000-12PBK    | (24) Plate Nuts, (48) 12-point Bolts & Washers; 5/16-24x2 1/2 in.                |
| 0605310 | CF1000-12PBK-SP | (24) Plate Nuts, (48) Silver Plated 12-point Bolts & Washers; 5/16-24x2 1/2 in.  |
| 0605113 | 12-POINT WRENCH | (1) Fits CF 12-point bolts   |
| 0605208 | ASTL            | (1) Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |

# ANCORP Becomes Exclusive Global Distributor of LOS Bimetal Products

**ANCORP**



ANCORP is pleased to announce our partnership with **LOS Low Outgassing Solutions** as the exclusive seller and distributor of all LOS Vacuum Products.

We now offer LOS' full line of UHV/XHV-compatible bimetal flanges and fittings, bimetal face-seal fittings, and aluminum and titanium fabrication of custom items including vacuum chambers.

MADE IN USA  
10212019-001

## About LOS

LOS Vacuum Products provides vacuum technology innovators with the lowest outgassing solutions ideal for an array of applications including spectroscopy, atomic physics research, particle acceleration, and microscopy.

LOS vacuum components and vacuum flanges are an alternative to the standard. Superior titanium, stainless steel, and aluminum alloys allow for quick evacuation of vacuum chambers. Advanced LOS technology makes it easy for end users to obtain UHV and XHV. All LOS flanges are cleaned in an ultrasonic tank and packaged with dry nitrogen for cleanliness.

## Products

### Bimetal CF Flanges

- o 304SS/Al Bonded Bimetal CF Flanges
- o 316SS/Al Bonded Bimetal CF Flanges
- o Ti/Al Bonded Bimetal CF Flanges

### Titanium CF Flanges

### Bimetal Face Seal Fittings, VCR-Style

- o 304SS/Al Bimetal Face Seal Fittings
- o 316SS/Al Bimetal Face Seal Fittings
- o Ti/Al Bimetal Face Seal Fittings

### ISO-QF Quick Release Aluminum Fittings

### Aluminum and Titanium Vacuum Chambers and Custom Fab

Coming soon to [ancorp.com](http://ancorp.com).

For immediate inquiries, please contact us at [sales@ancorp.com](mailto:sales@ancorp.com) or 1-800-FLANGE!

## Wire Seal Flanges

## Wire Seal Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self aligning
- Internal weld
- Blank flanges to close unused ports or custom modify
- Standard blank flanges are machined from solid stainless steel plate for highest sealing reliability
- Dish head blank flanges have a stainless steel disk welded onto the back of a bored flange. This option weighs less and costs less.
- Dish head blank flanges have a “-D” suffix on the REFERENCE ID

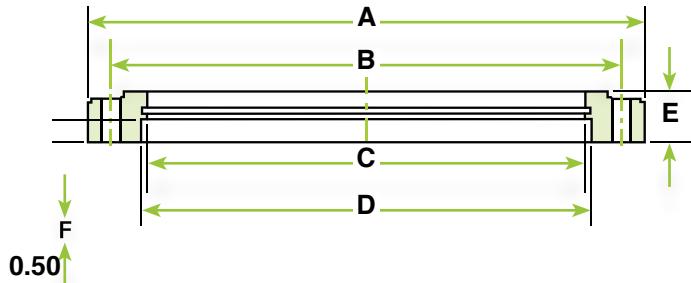
**Product Specifications:**

- Sizes: outer diameter 12 3/8 inches up to 27 1/8 inches (for tubing diameter 10 inches up to 24 inches)
- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel. Others available on request

**ORDERING NOTE:**

Wire seal gaskets can be found on pages 2.09 - 2.10.  
Wire seal flange bolt fasteners can be found on page 2.53.

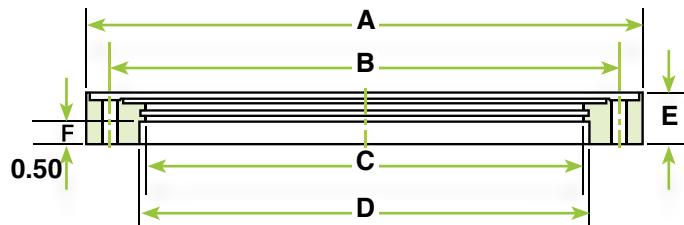
## Wire Seal, Bored, Male Flanges



| PART #  | REFERENCE ID | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |
|---------|--------------|------------------|----------------|--------|--------|--------|--------|--------|--------|------------|
| 5500004 | WF1200M-1000 | 12.38            | 10.00          | 12.38  | 11.34  | 9.75   | 10.00  | 1.13   | 0.50   | 24         |
| 5500010 | WF1400M-1200 | 14.63            | 12.00          | 14.63  | 13.59  | 11.75  | 12.00  | 1.13   | 0.50   | 32         |
| 5500016 | WF1700M-1400 | 17.25            | 14.00          | 17.25  | 15.72  | 13.75  | 14.00  | 1.13   | 0.50   | 36         |
| 5500036 | WF1900M-1600 | 19.56            | 16.00          | 19.56  | 17.88  | 15.75  | 16.00  | 1.31   | 0.50   | 36         |
| 5500028 | WF2200M-1800 | 22.13            | 18.00          | 22.13  | 20.19  | 17.75  | 18.00  | 1.50   | 0.50   | 36         |
| 5500034 | WF2700M-2400 | 27.13            | 24.00          | 27.13  | 25.84  | 23.75  | 24.00  | 1.75   | 0.63   | 40         |

## Wire Seal, Bored, Female Flanges

## Wire Seal Flanges



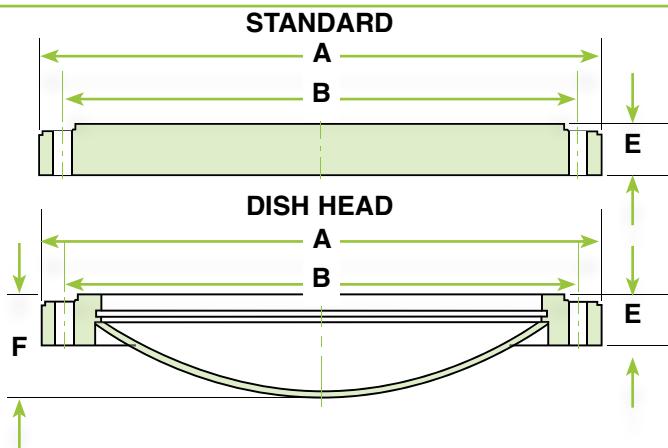
| PART #  | REFERENCE ID | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | BOLT HOLES |
|---------|--------------|------------------|----------------|--------|--------|--------|--------|--------|--------|------------|
| 5500005 | WF1200F-1000 | 12.38            | 10.00          | 12.38  | 11.34  | 9.75   | 10.00  | 1.13   | 0.50   | 24         |
| 5500011 | WF1400F-1200 | 14.63            | 12.00          | 14.63  | 13.59  | 11.75  | 12.00  | 1.13   | 0.50   | 32         |
| 5500017 | WF1700F-1400 | 17.25            | 14.00          | 17.25  | 15.72  | 13.75  | 14.00  | 1.13   | 0.50   | 36         |
| 5500023 | WF1900F-1600 | 19.56            | 16.00          | 19.56  | 17.88  | 15.75  | 16.00  | 1.31   | 0.50   | 36         |
| 5500029 | WF2200F-1800 | 22.13            | 18.00          | 22.13  | 20.19  | 17.75  | 18.00  | 1.50   | 0.50   | 36         |
| 5500035 | WF2700F-2400 | 27.13            | 24.00          | 27.13  | 25.84  | 23.75  | 24.00  | 1.75   | 0.63   | 40         |

## Wire Seal Flange Hardware

| PART # | REFERENCE ID | USE WITH FLANGE | DESCRIPTION                                     |
|--------|--------------|-----------------|---|
| 607000 | WF1200-HBK   | WF1200-BK       | (24) Bolt, Nut and Washer Kit, 3/8-24x2 1/2 in. |
| 607001 | WF1400-HBK   | WF1400-BK       | (32) Bolt, Nut and Washer Kit, 3/8-24x2 3/4 in. |
| 607002 | WF1700-HBK   | WF1700-BK       | (36) Bolt, Nut and Washer Kit, 1/2-20x2 3/4 in. |
| 607003 | WF1900-HBK   | WF1900-BK       | (36) Bolt, Nut and Washer Kit, 1/2-20x3 in.     |
| 607004 | WF2200-HBK   | WF2200-BK       | (36) Bolt, Nut and Washer Kit, 5/8-18x3 1/2 in. |
| 607005 | WF2700-HBK   | WF2700-BK       | (40) Bolt, Nut and Washer Kit, 5/8-18x4 in.     |

## Wire Seal Flanges

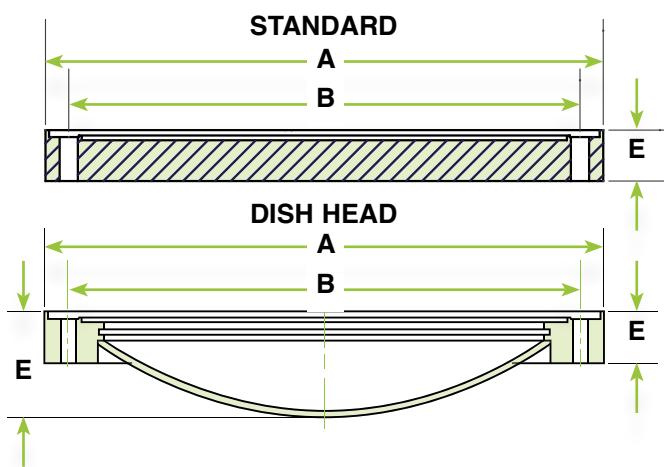
## Wire Seal, Blank Male Flanges



**ORDERING NOTE:** Dish head blank flanges have a metal disk welded onto the back of bored flange. They are designated with a "-D" suffix on the

| PART #  | REFERENCE ID | TYPE     | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) | B (in) | E (in) | F (in) | BOLT HOLES |
|---------|--------------|----------|------------------|----------------|--------|--------|--------|--------|------------|
| 5500000 | WF1200M-000  | Standard | 12.38            | 10.00          | 12.38  | 11.34  | 1.13   | -      | 24         |
| 5500001 | WF1200MD-000 | Dishhead | 12.38            | 10.00          | 12.38  | 11.34  | 1.13   | 2.70   | 24         |
| 5500006 | WF1400M-000  | Standard | 14.63            | 12.00          | 14.63  | 13.59  | 1.13   | -      | 32         |
| 5500007 | WF1400MD-000 | Dishhead | 14.63            | 12.00          | 14.63  | 13.59  | 1.13   | 2.70   | 32         |
| 5500012 | WF1700M-000  | Standard | 17.25            | 14.00          | 17.25  | 15.72  | 1.13   | -      | 36         |
| 5500013 | WF1700MD-000 | Dishhead | 17.25            | 14.00          | 17.25  | 15.72  | 1.13   | 3.10   | 36         |
| 5500018 | WF1900M-000  | Standard | 19.56            | 16.00          | 19.56  | 17.88  | 1.31   | -      | 36         |
| 5500019 | WF1900MD-000 | Dishhead | 19.56            | 16.00          | 19.56  | 17.88  | 1.31   | 3.04   | 36         |
| 5500024 | WF2200M-000  | Standard | 22.13            | 18.00          | 22.13  | 20.19  | 1.50   | -      | 36         |
| 5500025 | WF2200MD-000 | Dishhead | 22.13            | 18.00          | 22.13  | 20.19  | 1.50   | 3.50   | 36         |
| 5500030 | WF2700M-000  | Standard | 27.13            | 24.00          | 27.13  | 25.84  | 1.75   | -      | 40         |
| 5500031 | WF2700MD-000 | Dishhead | 27.13            | 24.00          | 27.13  | 25.84  | 1.75   | 5.10   | 40         |

## Wire Seal, Blank Female Flanges



**ORDERING NOTE** Dish head blank flanges have a metal disk welded onto the back of bored flange. They are designated with a “-D” suffix on the

## Wire Seal Flanges

| PART #  | REFERENCE ID | TYPE     | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) | B (in) | E (in) | F (in) | BOLT HOLES |
|---------|--------------|----------|------------------|----------------|--------|--------|--------|--------|------------|
| 5500002 | WF1200F-000  | Standard | 12.38            | 10.00          | 12.38  | 11.34  | 1.13   | -      | 24         |
| 5500003 | WF1200FD-000 | Dishhead | 12.38            | 10.00          | 12.38  | 11.34  | 1.13   | 2.70   | 24         |
| 5500008 | WF1400F-000  | Standard | 14.63            | 12.00          | 14.63  | 13.59  | 1.13   | -      | 32         |
| 5500009 | WF1400FD-000 | Dishhead | 14.63            | 12.00          | 14.63  | 13.59  | 1.13   | 2.70   | 32         |
| 5500014 | WF1700F-000  | Standard | 17.25            | 14.00          | 17.25  | 15.72  | 1.13   | -      | 36         |
| 5500015 | WF1700FD-000 | Dishhead | 17.25            | 14.00          | 17.25  | 15.72  | 1.13   | 3.10   | 36         |
| 5500020 | WF1900F-000  | Standard | 19.56            | 16.00          | 19.56  | 17.88  | 1.31   | -      | 36         |
| 5500021 | WF1900FD-000 | Dishhead | 19.56            | 16.00          | 19.56  | 17.88  | 1.31   | 3.04   | 36         |
| 5500026 | WF2200F-000  | Standard | 22.13            | 18.00          | 22.13  | 20.19  | 1.50   | -      | 36         |
| 5500027 | WF2200FD-000 | Dishhead | 22.13            | 18.00          | 22.13  | 20.19  | 1.50   | 3.50   | 36         |
| 5500032 | WF2700F-000  | Standard | 27.13            | 24.00          | 27.13  | 25.84  | 1.75   | -      | 40         |
| 5500033 | WF2700FD-000 | Dishhead | 27.13            | 24.00          | 27.13  | 25.84  | 1.75   | 5.10   | 40         |

## CF Special Purpose Flanges

These flanges can serve a variety of useful functions in your vacuum system. Adapt directly from a larger CF to a smaller flange, from a single or double-sided CF to one or two female NPT side ports, or a double-sided CF with a CF133 machined side port. These flanges are ideal for adding vacuum accessories to your system such as measurement devices, shutters and valves.



### Product Specifications:

- Vacuum rated to  $1 \times 10^{-13}$  Torr.
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -200°C to 450°C
- Standard materials:
  - Flanges and fittings: 304L stainless steel
  - Seals: OFHC copper for ultra high vacuum (UHV) or Viton® for high vacuum (HV)
- Standard sizes:
  - CF flanges outer diameter: 1 1/3 inches to 16 1/2 inches (for tubing diameter 1/4 inches up to 14 inches)

### Product Features:

- Reusable flanges
- All-metal seals
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped or clearance bolt holes available
- Adapters to other flange systems available
- Compatible with U.S. Standard (imperial) and metric measurements
- Interchangeable with other ConFlat® style flanges made to industry standards, others available on request

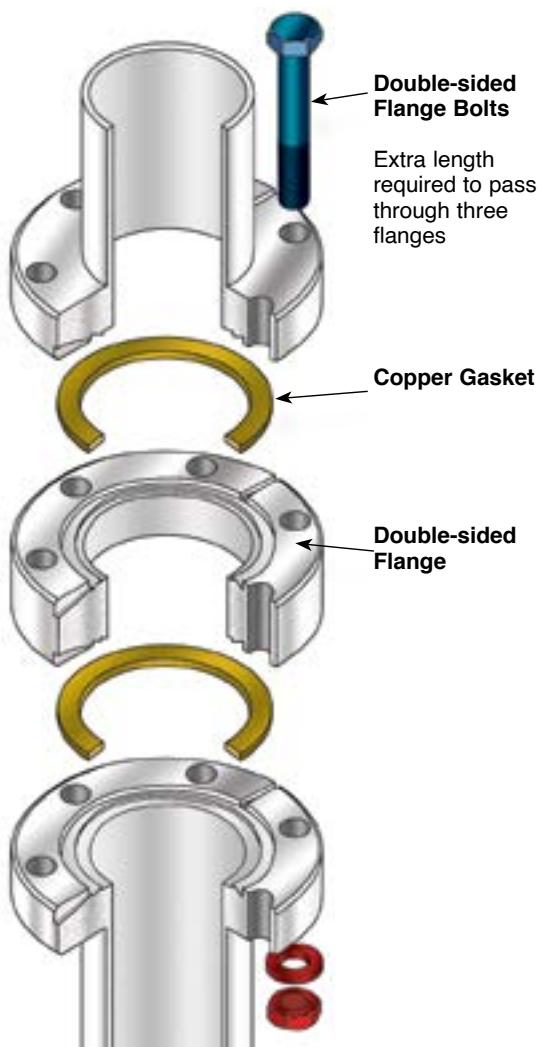
## Double-sided CF Flanges

These flanges are manufactured with the same size CF flange on both sides. They are installed between two flanges also of the same size. This is a convenient and efficient way to add a spacer or customize with a radial port to add a variety of vacuum accessories to your system such as measurement devices, shutters and valves.

Double-sided CF flanges have special hardware to accommodate the width of three CF flanges for this seal assembly.



## Double-sided CF Diagram



## Zero-Length Reducer CF Flanges


**Smaller CF Flange Face  
Blind Tapped Bolt Holes**


These flanges are manufactured with different size CF flange on either side of the flange. They allow direct assembly of two different sizes of CF flanges with minimal impact on the length added to your system to accomplish the transition. Zero-length reducers are the width of one standard flange.

## Adaptive CF Flanges

These flanges are manufactured in a variety of useful designs. Adapt from a single or double-sided CF to one or two female NPT side ports, or a double-sided CF with a CF133 machined side port.

These flanges are ideal for adding vacuum accessories to your system such as measurement devices, shutters and valves.



## CF Double-Sided Flanges

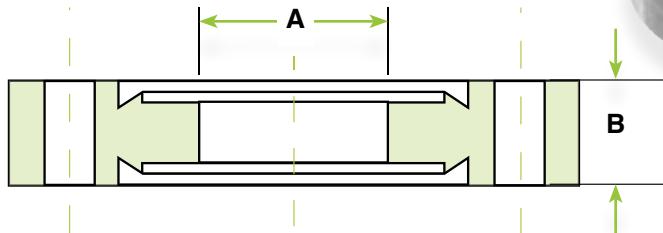
## CF Double-Sided Flanges

**Product Features:**

- Same size CF flange on both sides
- Ideal to add a spacer to your system or customize with a radial port
- Requires special CF double-sided flange bolt kit for fastening
- Use standard CF gaskets to seal
- Self-aligning
- Sexless flanges
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

**Options: Call for price and availability**

- Tapped bolt holes
- Alternative materials: 316L stainless steel, aluminum, etc.

| PART #  | REFERENCE ID       | FLANGE O.D. (in) | A (in) | B (in) | BOLT HOLES |           |
|---------|--------------------|------------------|--------|--------|------------|-----------|
|         |                    |                  |        |        | #          | DIA/THR'D |
| 5000245 | CF133-000-DS-0.300 | 1.33             | blank  | 0.30   | 6          | 0.17      |
| 5000246 | CF133-025-DS-0.300 | 1.33             | 0.26   | 0.30   | 6          | 0.17      |
| 5000247 | CF133-038-DS-0.300 | 1.33             | 0.38   | 0.30   | 6          | 0.17      |
| 5000248 | CF133-050-DS-0.300 | 1.33             | 0.51   | 0.30   | 6          | 0.17      |
| 5000249 | CF133-075-DS-0.300 | 1.33             | 0.63   | 0.30   | 6          | 0.17      |
| 5000250 | CF133-000-DS-0.500 | 1.33             | blank  | 0.50   | 6          | 0.17      |
| 5000251 | CF133-075-DS-0.500 | 1.33             | 0.63   | 0.50   | 6          | 0.17      |
| 5000252 | CF212-000-DS-0.470 | 2.12             | blank  | 0.47   | 4          | 0.27      |
| 5000253 | CF212-100-DS-0.470 | 2.12             | 1.01   | 0.47   | 4          | 0.27      |
| 5000254 | CF275-000-DS-0.500 | 2.72             | blank  | 0.50   | 6          | 0.27      |
| 5000255 | CF275-025-DS-0.500 | 2.72             | 0.26   | 0.50   | 6          | 0.27      |
| 5000256 | CF275-050-DS-0.500 | 2.72             | 0.51   | 0.50   | 6          | 0.27      |
| 5000257 | CF275-075-DS-0.500 | 2.72             | 0.76   | 0.50   | 6          | 0.27      |
| 5000258 | CF275-100-DS-0.500 | 2.72             | 1.01   | 0.50   | 6          | 0.27      |
| 5000259 | CF275-125-DS-0.500 | 2.72             | 1.26   | 0.50   | 6          | 0.27      |
| 5000260 | CF275-150-DS-0.500 | 2.72             | 1.51   | 0.50   | 6          | 0.27      |
| 5000261 | CF275-000-DS-0.750 | 2.72             | blank  | 0.75   | 6          | 0.27      |
| 5000262 | CF275-150-DS-0.750 | 2.72             | 1.51   | 0.75   | 6          | 0.27      |
| 5008261 | CF275-000-DS-1.000 | 2.72             | blank  | 1.00   | 6          | 0.27      |
| 5008262 | CF275-150-DS-1.000 | 2.72             | 1.51   | 1.00   | 6          | 0.27      |
| 5000263 | CF338-000-DS-0.625 | 3.38             | blank  | 0.62   | 8          | 0.33      |
| 5000264 | CF338-150-DS-0.625 | 3.38             | 1.51   | 0.62   | 8          | 0.33      |
| 5000265 | CF338-200-DS-0.625 | 3.38             | 2.01   | 0.62   | 8          | 0.33      |
| 5000266 | CF450-000-DS-0.680 | 4.47             | blank  | 0.68   | 8          | 0.33      |
| 5000267 | CF450-150-DS-0.680 | 4.47             | 1.51   | 0.68   | 8          | 0.33      |
| 5000268 | CF450-200-DS-0.680 | 4.47             | 2.01   | 0.68   | 8          | 0.33      |

## CF Double-Sided Flanges continued

## CF Double-Sided Flanges

| PART #  | REFERENCE ID         | FLANGE O.D. (in) | A (in) | B (in) | BOLT HOLES |           |
|---------|----------------------|------------------|--------|--------|------------|-----------|
|         |                      |                  |        |        | #          | DIA/THR'D |
| 5000269 | CF450-250-DS-0.680   | 4.47             | 2.51   | 0.68   | 8          | 0.33      |
| 5000270 | CF462-000-DS-0.750   | 4.62             | blank  | 0.75   | 10         | 0.33      |
| 5000271 | CF462-300-DS-0.750   | 4.62             | 3.01   | 0.75   | 10         | 0.33      |
| 5000272 | CF600-000-DS-0.780   | 5.97             | blank  | 0.78   | 16         | 0.33      |
| 5000273 | CF600-400-DS-0.780   | 5.97             | 4.01   | 0.78   | 16         | 0.33      |
| 5000274 | CF675-000-DS-0.840   | 6.75             | blank  | 0.84   | 18         | 0.33      |
| 5000275 | CF675-500-DS-0.840   | 6.75             | 5.01   | 0.84   | 18         | 0.33      |
| 5000276 | CF800-000-DS-0.880   | 7.97             | blank  | 0.87   | 20         | 0.33      |
| 5000277 | CF800-600-DS-0.880   | 7.97             | 6.02   | 0.87   | 20         | 0.33      |
| 5000278 | CF1000-000-DS-0.970  | 9.97             | blank  | 0.97   | 24         | 0.33      |
| 5000279 | CF1000-800-DS-0.970  | 9.97             | 8.02   | 0.97   | 24         | 0.33      |
| 5000280 | CF1325-000-DS-1.120  | 13.25            | blank  | 1.12   | 30         | 0.39      |
| 5000281 | CF1325-1000-DS-1.120 | 13.25            | 10.03  | 1.12   | 30         | 0.39      |
| 5000282 | CF1400-000-DS-1.120  | 14.00            | blank  | 1.12   | 30         | 0.39      |
| 5000283 | CF1400-1200-DS-1.120 | 14.00            | 12.03  | 1.12   | 30         | 0.39      |
| 5000284 | CF1650-000-DS-1.120  | 16.50            | blank  | 1.12   | 36         | 0.39      |
| 5000285 | CF1650-1400-DS-1.120 | 16.50            | 14.03  | 1.12   | 36         | 0.39      |

CF Double-Sided Flange Fasteners  
– Hex-Head Bolt Kit**Materials:**

- Hex-head bolt: stainless steel or silver plated stainless steel
- Hardware (nut and washer): stainless steel

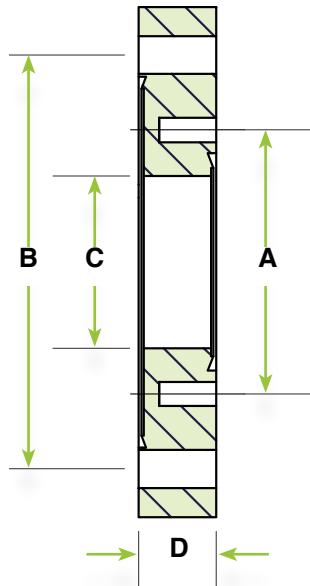
**Product Notes:**

- Extended length bolts to fasten three CF flanges in one assembly

| PART #  | REFERENCE ID     | USE WITH FLANGE | DESCRIPTION                                    |
|---------|------------------|-----------------|--|
| 0605087 | CF133-DSHBK      | CF133           | (25) Bolt, Nut & Washer Kit; 8-32x1 1/4 in.    |
| 0605088 | CF212-DSHBK      | CF212           | (25) Bolt, Nut & Washer Kit; 1/4-28x1 3/4 in.  |
| 0605089 | CF275-DSHBK      | CF275           | (25) Bolt, Nut & Washer Kit; 1/4-28x1 3/4 in.  |
| 0605090 | CF275-DSHBK-.750 | CF275           | (25) Bolt, Nut & Washer Kit; 1/4-28x2 in.      |
| 0605092 | CF338-DSHBK      | CF338           | (25) Bolt, Nut & Washer Kit; 5/16-24x2 1/2 in. |
| 0605093 | CF450-DSHBK      | CF450           | (25) Bolt, Nut & Washer Kit; 5/16-24x2 3/4 in. |
| 0605094 | CF462-DSHBK      | CF462           | (25) Bolt, Nut & Washer Kit; 5/16-24x3 in.     |
| 0605095 | CF600-DSHBK      | CF600           | (25) Bolt, Nut & Washer Kit; 5/16-24x3 in.     |
| 0605096 | CF675-DSHBK      | CF675           | (25) Bolt, Nut & Washer Kit; 5/16-24x3 in.     |
| 0605097 | CF800-DSHBK      | CF800           | (25) Bolt, Nut & Washer Kit; 5/16-24x3 in.     |
| 0605098 | CF1000-DSHBK     | CF1000          | (25) Bolt, Nut & Washer Kit; 5/16-24x3 1/2 in. |
| 0605099 | CF1325-DSHBK     | CF1325          | (30) Bolt, Nut and Washer Kit; 3/8-24x4 in.    |
| 0605100 | CF1400-DSHBK     | CF1400          | (30) Bolt, Nut and Washer Kit; 3/8-24x4 in.    |
| 0605101 | CF1650-DSHBK     | CF1650          | (36) Bolt, Nut and Washer Kit; 3/8-24x4 in.    |

## CF Zero Length Reducer Flanges

### CF Zero Length Reducer Flanges



**ORDERING NOTE:** When ordering hardware for your Zero Length Reducer take note of the flange bolt holes to order clearance bolts kits and tapped bolt kits appropriate to the design of your flange. "T1" and "T2" designate one or both sets of bolt holes are tapped. The smaller flange is always tapped. Zero Length Reducers are only the width of 1 standard CF flange.

#### Product Features:

- Different size CF flange on both sides
- Enable direct assembly of two different size CF flanges with minimal impact to space needed within your vacuum system.
- At least one and when necessary both flanges have tapped bolt holes – see line item descriptions for details
- Use standard CF gaskets to seal
- Self-aligning
- Sexless flanges
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

#### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

#### Options: Call for price and availability

- Tapped bolt holes
- Alternative materials: 316L stainless steel, aluminum, etc.

| PART #  | REFERENCE ID                 | SIDE A     | SIDE B      | C (in) | D (in) |
|---------|------------------------------|------------|-------------|--------|--------|
| 5000286 | CF212XCF133BT-075-ZLR-0.470  | CF212T-075 | CF133BT-075 | 0.62   | 0.47   |
| 5000287 | CF275XCF133BT-075-ZLR-0.500  | CF275-075  | CF133BT-075 | 0.62   | 0.50   |
| 5000288 | CF275TXCF212BT-100-ZLR-0.500 | CF275T-100 | CF212BT-100 | 1.00   | 0.50   |
| 5000289 | CF338XCF133BT-075-ZLR-0.625  | CF338-075  | CF133BT-075 | 0.62   | 0.62   |
| 5000290 | CF338TXCF212BT-100-ZLR-0.625 | CF338T-100 | CF212BT-100 | 1.00   | 0.62   |
| 5000291 | CF338TXCF275BT-150-ZLR-0.625 | CF338T-150 | CF275BT-150 | 1.50   | 0.62   |
| 5000292 | CF450XCF133BT-075-ZLR-0.680  | CF450-075  | CF133BT-075 | 0.62   | 0.68   |
| 5000293 | CF450XCF212BT-100-ZLR-0.680  | CF450-100  | CF212BT-100 | 1.00   | 0.68   |
| 5000294 | CF450XCF275BT-150-ZLR-0.680  | CF450-150  | CF275BT-150 | 1.50   | 0.68   |
| 5000295 | CF450TXCF338BT-200-ZLR-0.680 | CF450T-200 | CF338BT-200 | 2.00   | 0.68   |
| 5000296 | CF462XCF133BT-075-ZLR-0.750  | CF462-075  | CF133BT-075 | 0.62   | 0.75   |
| 5000297 | CF462XCF212BT-100-ZLR-0.750  | CF462-100  | CF212BT-100 | 1.00   | 0.75   |
| 5000298 | CF462XCF275BT-150-ZLR-0.750  | CF462-150  | CF275BT-150 | 1.50   | 0.75   |
| 5000299 | CF462XCF338BT-200-ZLR-0.750  | CF462-200  | CF338BT-200 | 2.00   | 0.75   |

## CF Zero Length Reducer Flanges continued

CF Flange to Female NPT

| PART #  | REFERENCE ID                  | SIDE A     | SIDE B       | C (in) | D (in) |
|---------|-------------------------------|------------|--------------|--------|--------|
| 5000300 | CF600XCF133BT-075-ZLR-0.780   | CF600-075  | CF133BT-075  | 0.62   | 0.78   |
| 5000301 | CF600XCF212BT-100-ZLR-0.780   | CF600-100  | CF212BT-100  | 1.00   | 0.78   |
| 5000302 | CF600XCF275BT-150-ZLR-0.780   | CF600-150  | CF275BT-150  | 1.50   | 0.78   |
| 5000303 | CF600XCF338BT-200-ZLR-0.780   | CF600-200  | CF338BT-200  | 2.00   | 0.78   |
| 5000304 | CF600XCF450BT-250-ZLR-0.780   | CF600-250  | CF450BT-250  | 2.50   | 0.78   |
| 5000305 | CF600Txcf462BT-300-ZLR-0.780  | CF600-300T | CF462BT-300  | 3.00   | 0.78   |
| 5000306 | CF675XCF133BT-075-ZLR-0.840   | CF675-075  | CF133BT-075  | 0.62   | 0.84   |
| 5000307 | CF675XCF212BT-100-ZLR-0.840   | CF675-100  | CF212BT-100  | 1.00   | 0.84   |
| 5000308 | CF675XCF275BT-150-ZLR-0.840   | CF675-150  | CF275BT-150  | 1.50   | 0.84   |
| 5000309 | CF675XCF338BT-200-ZLR-0.840   | CF675-200  | CF338BT-200  | 2.00   | 0.84   |
| 5000310 | CF675XCF450BT-250-ZLR-0.840   | CF675-250  | CF450BT-250  | 2.50   | 0.84   |
| 5000311 | CF675XCF462BT-300-ZLR-0.840   | CF675-300  | CF462BT-300  | 3.00   | 0.84   |
| 5000312 | CF675Txcf600BT-400-ZLR-0.840  | CF675T-400 | CF600BT-400  | 4.00   | 0.84   |
| 5000313 | CF800XCF133BT-075-ZLR-0.880   | CF800-075  | CF133BT-075  | 0.62   | 0.88   |
| 5000314 | CF800XCF212BT-100-ZLR-0.880   | CF800-100  | CF212BT-100  | 1.00   | 0.88   |
| 5000315 | CF800XCF275BT-150-ZLR-0.880   | CF800-150  | CF275BT-150  | 1.50   | 0.88   |
| 5000316 | CF800XCF338BT-200-ZLR-0.880   | CF800-200  | CF338BT-200  | 2.00   | 0.88   |
| 5000317 | CF800XCF450BT-250-ZLR-0.880   | CF800-250  | CF450BT-250  | 2.50   | 0.88   |
| 5000318 | CF800XCF462BT-300-ZLR-0.880   | CF800-300  | CF462BT-300  | 3.00   | 0.88   |
| 5000319 | CF800XCF600BT-400-ZLR-0.880   | CF800-400  | CF600BT-400  | 4.00   | 0.88   |
| 5000320 | CF800Txcf675BT-500-ZLR-0.880  | CF800T-500 | CF675BT-500  | 5.00   | 0.88   |
| 5000321 | CF1000XCF133BT-075-ZLR-0.970  | CF1000-075 | CF133BT-075  | 0.62   | 0.97   |
| 5000322 | CF1000XCF212BT-100-ZLR-0.970  | CF1000-100 | CF212BT-100  | 1.00   | 0.97   |
| 5000323 | CF1000XCF275BT-150-ZLR-0.970  | CF1000-150 | CF275BT-150  | 1.50   | 0.97   |
| 5000324 | CF1000XCF338BT-200-ZLR-0.970  | CF1000-200 | CF338BT-200  | 2.00   | 0.97   |
| 5000325 | CF1000XCF450BT-250-ZLR-0.970  | CF1000-250 | CF450BT-250  | 2.50   | 0.97   |
| 5000326 | CF1000XCF462BT-300-ZLR-0.970  | CF1000-300 | CF462BT-300  | 3.00   | 0.97   |
| 5000327 | CF1000XCF600BT-400-ZLR-0.970  | CF1000-400 | CF600BT-400  | 4.00   | 0.97   |
| 5000328 | CF1000XCF675BT-500-ZLR-0.970  | CF1000-500 | CF675BT-500  | 5.00   | 0.97   |
| 5000329 | CF1000XCF800BT-600-ZLR-0.970  | CF1000-600 | CF800BT-600  | 6.00   | 0.97   |
| 5000330 | CF1325XCF133BT-075-ZLR-1.120  | CF1325-075 | CF133BT-075  | 0.62   | 1.12   |
| 5000331 | CF1325XCF212BT-100-ZLR-1.120  | CF1325-100 | CF212BT-100  | 1.00   | 1.12   |
| 5000332 | CF1325XCF275BT-150-ZLR-1.120  | CF1325-150 | CF275BT-150  | 1.50   | 1.12   |
| 5000333 | CF1325XCF338BT-200-ZLR-1.120  | CF1325-200 | CF338BT-200  | 2.00   | 1.12   |
| 5000334 | CF1325XCF450BT-250-ZLR-1.120  | CF1325-250 | CF450BT-250  | 2.50   | 1.12   |
| 5000335 | CF1325XCF462BT-300-ZLR-1.120  | CF1325-300 | CF462BT-300  | 3.00   | 1.12   |
| 5000336 | CF1325XCF600BT-400-ZLR-1.120  | CF1325-400 | CF600BT-400  | 4.00   | 1.12   |
| 5000337 | CF1325XCF675BT-500-ZLR-1.120  | CF1325-500 | CF675BT-500  | 5.00   | 1.12   |
| 5000338 | CF1325XCF800BT-600-ZLR-1.120  | CF1325-600 | CF800BT-600  | 6.00   | 1.12   |
| 5000339 | CF1325XCF1000BT-800-ZLR-1.120 | CF1325-800 | CF1000BT-800 | 8.00   | 1.12   |

## CF Flange to Female NPT

## CF Flange to Female NPT – Front Port

**Product Features:**

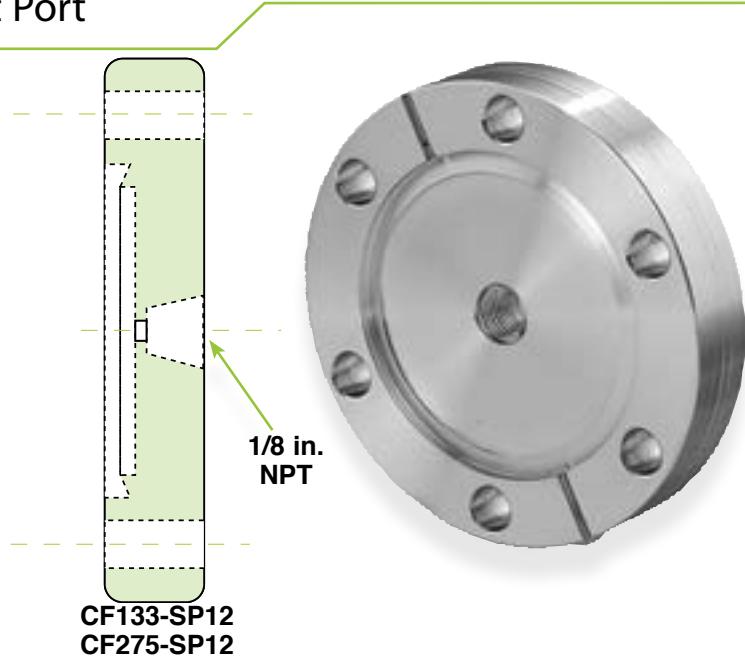
- Ideal for adding vacuum accessories (vacuum measurement, valves, etc.) or gas lines to your system.
- Use standard CF gaskets to seal
- Self-aligning
- Sexless flanges
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

**Options: Call for price and availability**

- Tapped bolt holes
- Alternative materials:  
316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID | DESCRIPTION                        |
|---------|--------------|------------------------------------|
| 5000208 | CF133XFNPT12 | 1.33 Flange - (1) 1/8 in. NPT Hole |
| 5000209 | CF275XFNPT12 | 2.75 Flange - (1) 1/8 in. NPT Hole |

## CF Double-Sided Flange to Female NPT – Side Port(s)

**Product Features:**

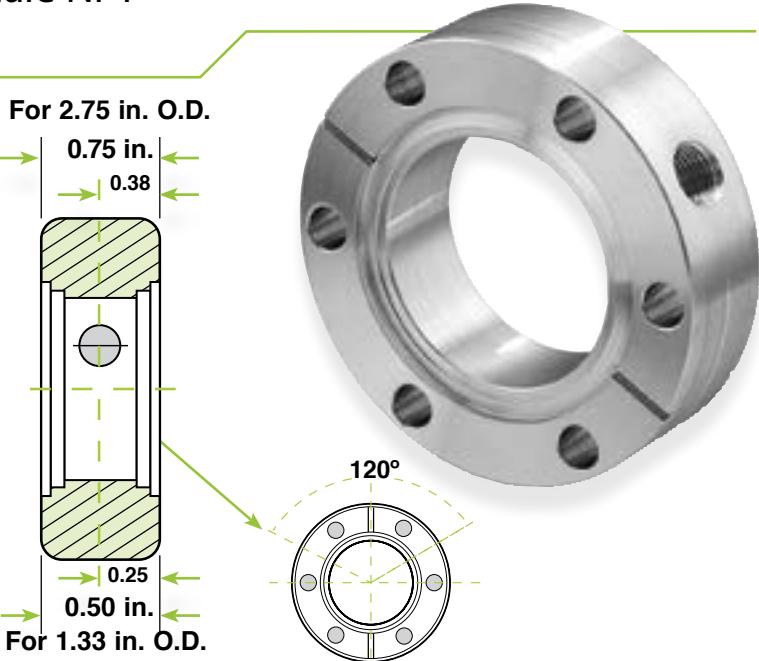
- Ideal for adding vacuum accessories (vacuum measurement, valves, etc.) or gas lines to your system.
- Requires special CF double-sided flange bolt kit for fastening
- Use standard CF gaskets to seal
- Self-aligning
- Sexless flanges
- Interchangeable with other ConFlat flanges
- Adapters to other flange systems available

**Product Specifications:**

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

**Options: Call for price and availability**

- Tapped bolt holes
- Alternative materials – 316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID         | DESCRIPTION                          |
|---------|----------------------|--------------------------------------|
| 5000220 | CF133DXFNPT06-SPC    | 1.33 Flange - (1) 1/16 in. NPT Hole  |
| 5000221 | CF275DXFNPT12-SPC    | 2.75 Flange - (1) 1/8 in. NPT Hole   |
| 5000222 | CF133DXFNPT06-2X-SPC | 1.33 Flange - (2) 1/16 in. NPT Holes |
| 5000223 | CF275DXFNPT12-2X-SPC | 2.75 Flange - (2) 1/8 in. NPT Holes  |

## CF Double-Sided Flange to CF133 flange – Side Port

### Product Features:

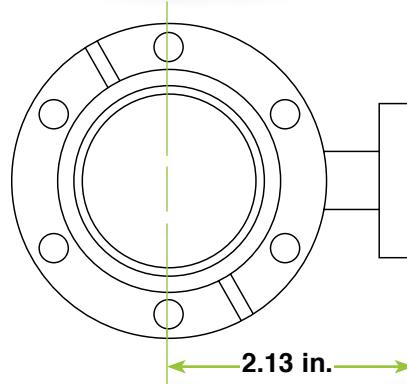
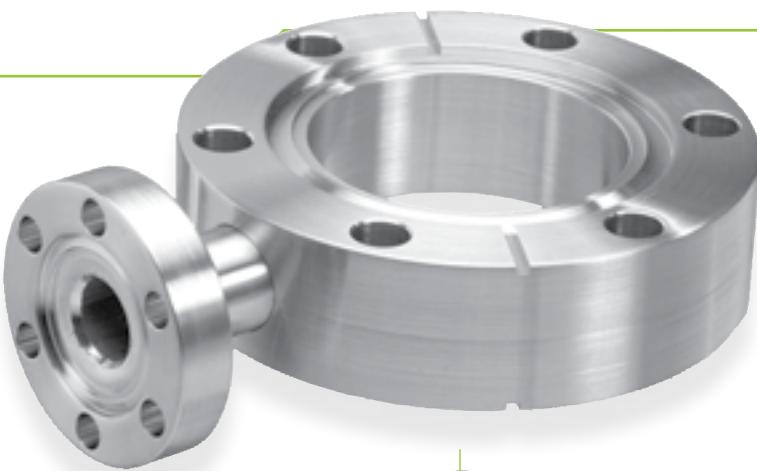
- Ideal for adding vacuum accessories (vacuum measurement, valves, etc.) to your system.
- Requires special CF double-sided flange bolt kit for fastening
- Use standard CF gaskets to seal
- Self-aligning
- Sexless flanges
- Interchangeable with other ConFlat® style flanges
- Adapters to other flange systems available

### Product Specifications:

- Pressure range: UHV (approx.  $1 \times 10^{-13}$  Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304 grade stainless steel

### Options: Call for price and availability

- Tapped bolt holes
- Alternative materials:  
316 stainless steel, aluminum, etc.

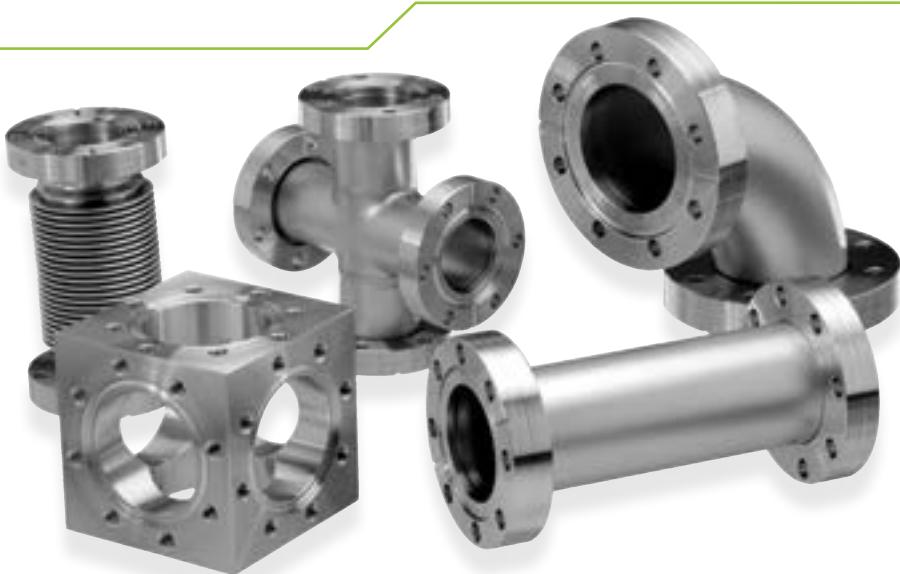


| PART #  | REFERENCE ID      | DESCRIPTION                           |
|---------|-------------------|---------------------------------------|
| 5000244 | CF275DSXCF133-SPC | CF275 SS Double with 1.33 Flange Port |

## CF Fittings

ANCORP's CF fittings make up a complete set of modular components that allow our customers to create a custom vacuum system without the trouble and expense of having in-house machining and welding capabilities.

All ANCOP CF fittings are made with flanges manufactured to industry specifications to ensure compatibility with other manufacturers' flanges.

**Product Specifications:**

- Vacuum rated to  $1 \times 10^{-13}$  Torr.
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -200°C to 450°C
- Standard materials:
  - Flanges and fittings: 304L stainless steel
  - Seals: OFHC copper for ultra high vacuum (UHV) or Viton® for high vacuum (HV)
- Standard sizes:
  - CF flanges outer diameter: 1 1/3 inches to 16 1/2 inches (for tubing diameter 1/4 inch up to 14 inches)
  - Wire seal flanges outer diameter: 12 3/8 inches up to 27 1/8 inches (for tubing diameter 10 inches up to 24 inches)

**Product Features:**

- Reusable flanges
- All-metal seals
- Sexless flanges
- Rotatable flanges for easier bolt hole alignment
- Tapped or clearance bolt holes available
- Adapters to other flange systems available
- Compatible with U.S. Standard (imperial) and metric measurements
- Interchangeable with other ConFlat® style flanges made to industry standards

**Nipples**

Nipples are manufactured with a flange on each end of a straight section of tubing. Nipples are used to create a weld free straight connection within a vacuum system. Nipples are also used as straight adapters between different tubing sizes or flange types. These fittings are available in all CF sizes and flange types. ANCOP manufactures standard nipples in 304L stainless steel, other materials are available on request.

**Half Nipples**

Half Nipples are manufactured with a flange on one end and raw tubing on the other. Half nipples are often welded onto a custom vacuum system or instrument by a customer with in-house welding capabilities. However, these fittings can also be used with quick disconnect compression fittings to make a vacuum tight connection without welding. ANCOP manufactures standard half nipples in 304L stainless steel, other materials are available on request.

## Elbows



Elbows are manufactured with a flange on each end of a curved section of tubing. Elbows accommodate turns or alignment considerations for vacuum system design. Elbows are offered in four designs; 45° radius elbow, 90° radius elbow, 90° mitered elbow and 90° mitered high conductance elbow to accommodate a wide variety of system configurations. **ANCORP** manufactures standard Elbows in 304L stainless steel, other materials are available on request.

## Tees



Tees are manufactured with a flange on each end of a "T" shaped section of tubing. Tees accommodate junctions or alignment considerations for vacuum system design. Tees are also used as junction adapters between different tubing sizes or flange types. **ANCORP** manufactures standard tees in 304L stainless steel, other materials are available on request.

## Crosses



Crosses are manufactured with a flange on each end of an "X" shaped section of tubing. Crosses accommodate junctions or alignment considerations for vacuum system design. Crosses are also used as junction adapters between different tubing sizes or flange types. **ANCORP** manufactures standard crosses in 304L stainless steel, other materials are available on request.

## 5-Way &amp; 6-Way Crosses and cubes



These fittings are manufactured with a flange on each end of a 5 or 6 sided tubing junction. These crosses accommodate complex junctions or alignment considerations for vacuum system design. Larger sizes are sometimes used as the starting point of a simple vacuum chamber design. **ANCORP** manufactures standard 5 and 6-way crosses and cubes in 304L stainless steel, other materials are available on request. Cubes are machined from a

## CF Half Nipple - Fixed Flange

**Materials:**

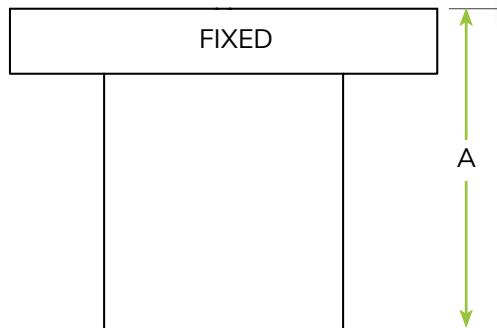
- 304L stainless steel

**Product Notes:**

- Clearance and tapped bolt holes
- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Highly customizable

**Options: Call for price and availability**

- Custom lengths
- Alternative materials:  
316L stainless steel  
aluminum



### Clearance Bolt Holes

| PART #  | REFERENCE ID         | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|----------------------|-------------|----------------|--------|
| 5000340 | CF133-075-HN-1.50    | CF133       | 0.75           | 1.50   |
| 5000341 | CF212-100-HN-2.05    | CF212       | 1.00           | 2.05   |
| 5000342 | CF275-150-HN-2.46    | CF275       | 1.50           | 2.46   |
| 5000343 | CF338-200-HN-3.21    | CF338       | 2.00           | 3.21   |
| 5000344 | CF450-250-HN-3.38    | CF450       | 2.50           | 3.38   |
| 5000346 | CF462-300-HN-3.53    | CF462       | 3.00           | 3.53   |
| 5000347 | CF600-400-HN-4.32    | CF600       | 4.00           | 4.32   |
| 5000349 | CF675-500-HN-4.32    | CF675       | 5.00           | 4.32   |
| 5000350 | CF800-600-HN-5.50    | CF800       | 6.00           | 5.50   |
| 5000352 | CF1000-800-HN-8.00   | CF1000      | 8.00           | 8.00   |
| 5000353 | CF1325-1000-HN-10.00 | CF1325      | 10.00          | 10.00  |
| 5000354 | CF1400-1200-HN-10.00 | CF1400      | 12.00          | 10.00  |

### Tapped Bolt Holes

| PART #  | REFERENCE ID       | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|--------------------|-------------|----------------|--------|
| 5000372 | CF133T-075-HN-1.50 | CF133       | 0.75           | 1.50   |
| 5000375 | CF212T-100-HN-2.05 | CF212       | 1.00           | 2.05   |
| 5000378 | CF275T-150-HN-2.46 | CF275       | 1.50           | 2.46   |
| 5000381 | CF338T-200-HN-3.21 | CF338       | 2.00           | 3.21   |
| 5000384 | CF450T-250-HN-3.38 | CF450       | 2.50           | 3.38   |
| 5000389 | CF462T-300-HN-3.53 | CF462       | 3.00           | 3.53   |
| 5000392 | CF600T-400-HN-4.32 | CF600       | 4.00           | 4.32   |
| 5000397 | CF675T-500-HN-4.32 | CF675       | 5.00           | 4.32   |
| 5000400 | CF800T-600-HN-5.50 | CF800       | 6.00           | 5.50   |

**Product Note:**

There are two terms used within this catalog that require definition.

**Reducer Fittings** are used to reduce the size of flanges and tubing used within the same flange family. For example, CF600 to CF275 or ISO-LF63

to ISO-QF40. These products are listed with the fittings components for that flange family.

**Adapter Fittings** are used to change from one family of flanges to another. For example, ISO-QF25 to CF275.

## CF Half Nipple – Rotatable Flange

**Materials:**

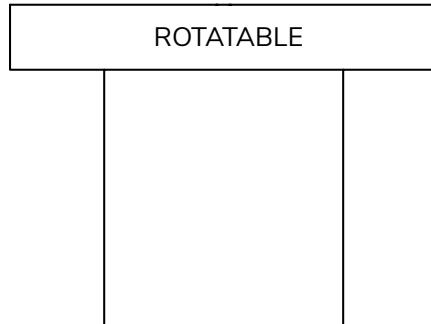
- 304L stainless steel

**Product Notes:**

- Clearance and tapped bolt holes
- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Highly customizable

**Options: Call for price and availability**

- Custom lengths
- Alternative materials:  
316L stainless steel  
Aluminum



**CF Half Nipple**

### Clearance Bolt Holes

| PART #  | REFERENCE ID       | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|--------------------|-------------|----------------|--------|
| 5000371 | CF133R-075-HN-1.50 | CF133       | 0.75           | 1.50   |
| 5000374 | CF212R-100-HN-2.05 | CF212       | 1.00           | 2.05   |
| 5000377 | CF275R-150-HN-2.46 | CF275       | 1.50           | 2.46   |
| 5000380 | CF338R-200-HN-3.21 | CF338       | 2.00           | 3.21   |
| 5000383 | CF450R-250-HN-3.38 | CF450       | 2.50           | 3.38   |
| 5000388 | CF462R-300-HN-3.53 | CF462       | 3.00           | 3.53   |
| 5000391 | CF600R-400-HN-4.32 | CF600       | 4.00           | 4.32   |
| 5000396 | CF675R-500-HN-4.32 | CF675       | 5.00           | 4.32   |
| 5000399 | CF800R-600-HN-5.50 | CF800       | 6.00           | 5.50   |

### Tapped Bolt Holes

| PART #  | REFERENCE ID        | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|---------------------|-------------|----------------|--------|
| 5000373 | CF133RT-075-HN-1.50 | CF133       | 0.75           | 1.50   |
| 5000376 | CF212RT-100-HN-2.05 | CF212       | 1.00           | 2.05   |
| 5000379 | CF275RT-150-HN-2.46 | CF275       | 1.50           | 2.46   |
| 5000382 | CF338RT-200-HN-3.21 | CF338       | 2.00           | 3.21   |
| 5000385 | CF450RT-250-HN-3.38 | CF450       | 2.50           | 3.38   |
| 5000390 | CF462RT-300-HN-3.53 | CF462       | 3.00           | 3.53   |
| 5000393 | CF600RT-400-HN-4.32 | CF600       | 4.00           | 4.32   |
| 5000398 | CF675RT-500-HN-4.32 | CF675       | 5.00           | 4.32   |
| 5000401 | CF800RT-600-HN-5.50 | CF800       | 6.00           | 5.50   |

## CF Nipple

## CF Nipple

**Materials:**

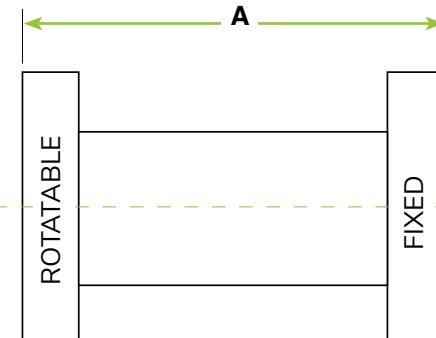
- 304L stainless steel

**Product Notes:**

- Same size flange on both ends
- Clearance bolt holes standard
- One fixed and one rotatable flange per fitting
- Highly customizable

**Options: Call for price and availability**

- For tapped flanges add "T" to the end of the flange number. Example: CF133T-075
- Custom lengths and flange combinations
- Alternative materials: 316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID        | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|---------------------|-------------|----------------|--------|
| 5000355 | CF133-075-N-3.00    | CF133       | 0.75           | 3.00   |
| 5000356 | CF212-100-N-4.10    | CF212       | 1.00           | 4.10   |
| 5000357 | CF275-150-N-4.93    | CF275       | 1.50           | 4.93   |
| 5000358 | CF338-200-N-6.43    | CF338       | 2.00           | 6.43   |
| 5000359 | CF450-250-N-6.76    | CF450       | 2.50           | 6.76   |
| 5000360 | CF450-250-N-8.25    | CF450       | 2.50           | 8.25   |
| 5000361 | CF462-300-N-7.06    | CF462       | 3.00           | 7.06   |
| 5000362 | CF600-400-N-8.64    | CF600       | 4.00           | 8.64   |
| 5000363 | CF600-400-N-10.62   | CF600       | 4.00           | 10.62  |
| 5000364 | CF675-500-N-8.46    | CF675       | 5.00           | 8.46   |
| 5000365 | CF675-500-N-9.87    | CF675       | 5.00           | 9.87   |
| 5000366 | CF800-600-N-11.00   | CF800       | 6.00           | 11.00  |
| 5000367 | CF800-600-N-13.12   | CF800       | 6.00           | 13.12  |
| 5000368 | CF1000-800-N-16.00  | CF1000      | 8.00           | 16.00  |
| 5000369 | CF1325-1000-N-20.00 | CF1325      | 10.00          | 20.00  |
| 5000370 | CF1400-1200-N-20.00 | CF1400      | 12.00          | 20.00  |

## CF Flexible Nipple

**Materials:**

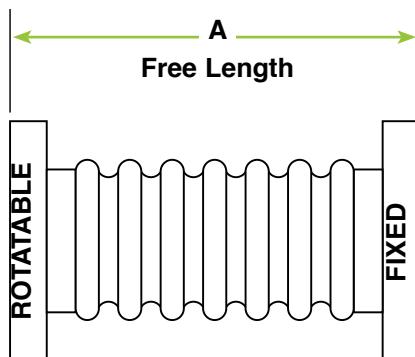
- Flanges: 304 stainless steel
- Flexible hose: 321 Stainless steel formed bellows

**Product Notes:**

- Corrects misaligned connections
- Compress up to 20% or extend up to 15% of free length

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combination
- Alternative materials: 316L stainless steel



**CF Flexible Nipple**

| PART #  | REFERENCE ID    | FLANGE TYPE | HOSE I.D. (in) | WALL THICKNESS (in) | A (in) |
|---------|-----------------|-------------|----------------|---------------------|--------|
| 0800089 | CF133-075-B-4.0 | CF133       | 0.75           | 0.006               | 4.00   |
| 0800092 | CF212-100-B-4.0 | CF212       | 1.00           | 0.006               | 4.00   |
| 0800095 | CF275-150-B-4.0 | CF275       | 1.50           | 0.006               | 4.00   |
| 0800098 | CF338-150-B-4.0 | CF338       | 2.00           | 0.006               | 4.00   |
| 0800099 | CF450-250-B-6.0 | CF450       | 2.50           | 0.008               | 6.00   |
| 0800100 | CF462-300-B-6.0 | CF462       | 3.00           | 0.008               | 6.00   |
| 0800101 | CF600-400-B-6.4 | CF600       | 4.00           | 0.010               | 6.40   |
| 0800103 | CF800-600-B-8.5 | CF800       | 6.00           | 0.012               | 8.50   |

## CF Reducer Nipples

## CF Straight Reducer Nipple

**Materials:**

- 304L stainless steel

**Product Notes:**

- Connects different size CF Flanges

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials: 316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID               | FLANGE 1 O.D. (in) | FLANGE 2 O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|----------------------------|--------------------|--------------------|----------------|--------|
| 5000429 | CF275XCF133R-075-N-2.50    | 2.72               | 1.33               | 0.75           | 2.50   |
| 5000925 | CF338XCF275R-150-N-2.50    | 3.38               | 2.72               | 1.50           | 2.50   |
| 5000926 | CF450XCF275R-150-N-2.50    | 4.47               | 2.72               | 1.50           | 2.50   |
| 5000430 | CF600XCF275R-150-N-5.00    | 5.97               | 2.72               | 1.50           | 5.00   |
| 5000927 | CF600XCF450R-250-N-5.00    | 5.97               | 4.47               | 2.50           | 5.00   |
| 5000431 | CF800XCF275R-150-N-5.00    | 7.97               | 2.72               | 1.50           | 5.00   |
| 5000432 | CF800XCF450R-250-N-5.00    | 7.97               | 4.47               | 2.50           | 5.00   |
| 5000433 | CF800XCF600R-400-N-5.00    | 7.97               | 5.97               | 4.00           | 5.00   |
| 5000434 | CF1000XCF275R-150-N-5.00   | 9.97               | 2.72               | 1.50           | 5.00   |
| 5000435 | CF1000XCF450R-250-N-5.00   | 9.97               | 4.47               | 2.50           | 5.00   |
| 5000436 | CF1000XCF600R-400-N-5.00   | 9.97               | 5.97               | 4.00           | 5.00   |
| 5000437 | CF1000XCF800R-600-N-5.00   | 9.97               | 7.97               | 6.00           | 5.00   |
| 5000438 | CF1325XCF1000R-800-N-5.00  | 13.25              | 9.97               | 8.00           | 5.00   |
| 5000439 | CF1400XCF1200R-1000-N-5.00 | 14.00              | 11.97              | 10.00          | 5.00   |

## CF Conical Reducer Nipple

**Materials:**

- 304L stainless steel

**Product Notes:**

- Connects different size CF flanges
- Maximizes conductance during transition to smaller size tubing

**Options: Call for price and availability**

- Tapped flanges
- Custom flange combinations
- Alternative materials: 316L stainless steel



| PART #  | REFERENCE ID                 | FLANGE 1 |           | FLANGE 2 O.D. (in) |           | A (in) |
|---------|------------------------------|----------|-----------|--------------------|-----------|--------|
|         |                              | TYPE     | TUBE O.D. | TYPE               | TUBE O.D. |        |
| 5000440 | CF212XCF133R-100X075-CR-2.04 | CF212    | 1.00      | CF133              | 0.75      | 2.04   |
| 5000441 | CF275XCF133R-150X075-CR-3.08 | CF275    | 1.50      | CF133              | 0.75      | 3.08   |
| 5000442 | CF275XCF212R-150X100-CR-2.75 | CF275    | 1.50      | CF212              | 1.00      | 2.75   |
| 5000443 | CF338XCF212R-200X100-CR-2.77 | CF338    | 2.00      | CF212              | 1.00      | 2.77   |
| 5000444 | CF338XCF275R-200X150-CR-2.81 | CF338    | 2.00      | CF275              | 1.50      | 2.81   |
| 5000445 | CF450XCF275R-250X150-CR-2.96 | CF450    | 2.50      | CF275              | 1.50      | 2.96   |
| 5000446 | CF450XCF338R-250X200-CR-2.98 | CF450    | 2.50      | CF338              | 2.00      | 2.98   |
| 5000447 | CF462XCF275R-300X150-CR-4.21 | CF462    | 3.00      | CF275              | 1.50      | 4.21   |
| 5000448 | CF462XCF338R-300X200-CR-4.23 | CF462    | 3.00      | CF338              | 2.00      | 4.23   |
| 5000449 | CF462XCF450R-300X250-CR-4.38 | CF462    | 3.00      | CF450              | 2.50      | 4.38   |
| 5000451 | CF600XCF338R-400X200-CR-4.29 | CF600    | 4.00      | CF338              | 2.00      | 4.29   |
| 5000452 | CF600XCF450R-400X250-CR-4.44 | CF600    | 4.00      | CF450              | 2.50      | 4.44   |

## CF 45° Elbow

**Materials:**

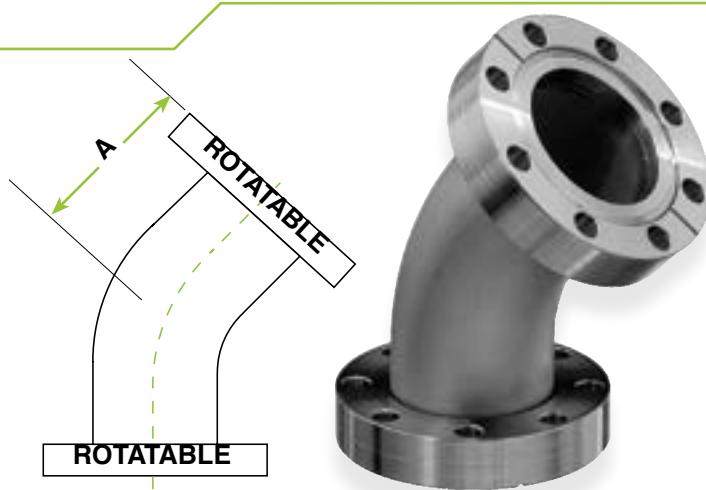
- 304L stainless steel

**Product Notes:**

- Radius elbow design

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials: 316L stainless steel



## CF 45° &amp; 90° Elbows

| PART #  | REFERENCE ID       | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|--------------------|-------------|----------------|--------|
| 5000454 | CF133-075-E45-1.26 | CF133       | 0.75           | 1.26   |
| 5000455 | CF212-100-E45-1.14 | CF212       | 1.00           | 1.14   |
| 5000456 | CF275-150-E45-1.74 | CF275       | 1.50           | 1.74   |
| 5000457 | CF338-200-E45-2.07 | CF338       | 2.00           | 2.07   |
| 5000458 | CF450-250-E45-3.38 | CF450       | 2.50           | 3.38   |
| 5000459 | CF462-300-E45-4.06 | CF462       | 3.00           | 4.06   |
| 5000460 | CF600-400-E45-5.21 | CF600       | 4.00           | 5.21   |

## CF 90° Elbow

**Materials:**

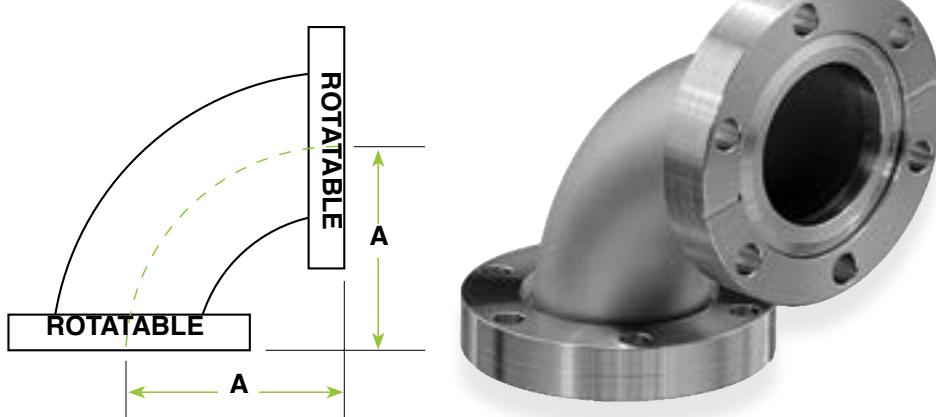
- 304L stainless steel

**Product Notes:**

- Radius elbow design

**Options:****Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials: 316L stainless steel



| PART #  | REFERENCE ID       | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|--------------------|-------------|----------------|--------|
| 5000461 | CF133-075-E90-1.50 | CF133       | 0.75           | 1.50   |
| 5000462 | CF212-100-E90-2.00 | CF212       | 1.00           | 2.00   |
| 5000463 | CF275-150-E90-2.46 | CF275       | 1.50           | 2.46   |
| 5000464 | CF338-200-E90-3.22 | CF338       | 2.00           | 3.22   |
| 5000465 | CF450-250-E90-4.12 | CF450       | 2.50           | 4.12   |
| 5000466 | CF462-300-E90-4.88 | CF462       | 3.00           | 4.88   |
| 5000467 | CF600-400-E90-6.44 | CF600       | 4.00           | 6.44   |
| 5000468 | CF800-600-E90-9.50 | CF800       | 6.00           | 9.50   |

## CF 90° Mitered Elbows

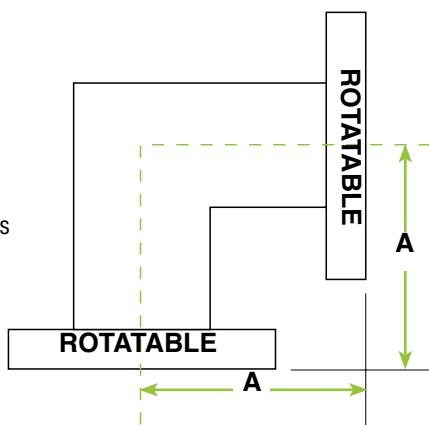
## CF 90° Elbow - Mitered

**Materials:**

- 304L stainless steel

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials:  
316L stainless steel,  
aluminum, etc.



| PART #  | REFERENCE ID           | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|------------------------|-------------|----------------|--------|
| 5000469 | CF133-075-E90M-1.50    | CF133       | 0.75           | 1.50   |
| 5000470 | CF212-100-E90M-2.05    | CF212       | 1.00           | 2.05   |
| 5000471 | CF212-150-E90M-2.46    | CF275       | 1.50           | 2.46   |
| 5000472 | CF338-200-E90M-3.21    | CF338       | 2.00           | 3.21   |
| 5000473 | CF450-250-E90M-3.38    | CF450       | 2.50           | 3.38   |
| 5000474 | CF450-250-E90M-4.12    | CF450       | 2.50           | 4.13   |
| 5000475 | CF462-300-E90M-3.35    | CF462       | 3.00           | 3.35   |
| 5000476 | CF600-400-E90M-4.32    | CF600       | 4.00           | 4.32   |
| 5000477 | CF600-400-E90M-5.31    | CF600       | 4.00           | 5.31   |
| 5000478 | CF675-500-E90M-4.71    | CF675       | 5.00           | 4.71   |
| 5000479 | CF800-600-E90M-5.50    | CF800       | 6.00           | 5.50   |
| 5000480 | CF800-600-E90M-6.56    | CF800       | 6.00           | 6.56   |
| 5000481 | CF1000-800-E90M-7.50   | CF1000      | 8.00           | 7.50   |
| 5000482 | CF1325-1000-E90M-10.00 | CF1325      | 10.00          | 10.00  |

## CF 90° Elbow – Mitered, High Conductance

**Materials:**

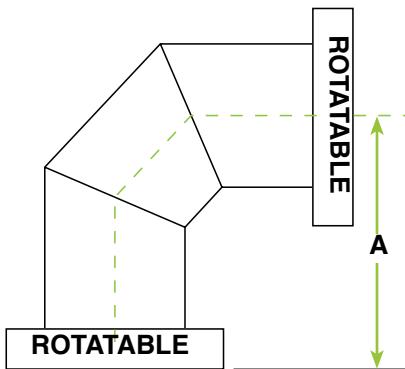
- 304L stainless steel

**Product Notes:**

- High conductance design

**Options:****Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials:  
316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID             | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|--------------------------|-------------|----------------|--------|
| 5000483 | CF800-600-E90MHC-9.50    | CF800       | 6.00           | 9.50   |
| 5000484 | CF1000-800-E90MHC-12.50  | CF1000      | 8.00           | 12.50  |
| 5000485 | CF1325-1000-E90MHC-15.50 | CF1325      | 10.00          | 15.50  |

## CF - Tee

**Materials:**

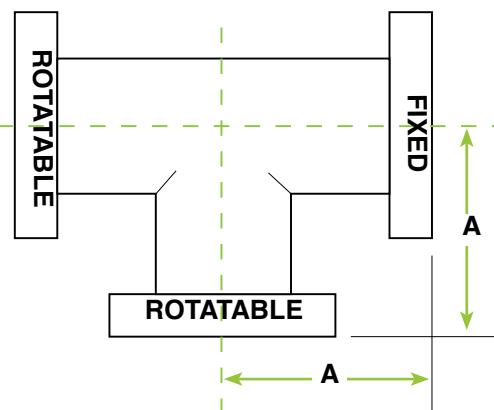
- 304L stainless steel

**Product Notes**

- Pulled ports for optimum vacuum performance

**Options:****Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials:  
316L stainless steel, aluminum, etc.



CF Tee

| PART #  | REFERENCE ID          | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|-----------------------|-------------|----------------|--------|
| 5000486 | CF133-075-TEE-1.50    | CF133       | 0.75           | 1.50   |
| 5000487 | CF212-100-TEE-2.05    | CF212       | 1.00           | 2.05   |
| 5000488 | CF275-150-TEE-2.46    | CF275       | 1.50           | 2.46   |
| 5000489 | CF275-150-TEE-2.62    | CF275       | 1.50           | 2.62   |
| 5000490 | CF338-200-TEE-3.22    | CF338       | 2.00           | 3.22   |
| 5000491 | CF450-250-TEE-3.38    | CF450       | 2.50           | 3.38   |
| 5000492 | CF450-250-TEE-4.12    | CF450       | 2.50           | 4.12   |
| 5000493 | CF462-300-TEE-3.63    | CF462       | 3.00           | 3.63   |
| 5000494 | CF600-400-TEE-4.32    | CF600       | 4.00           | 4.32   |
| 5000495 | CF600-400-TEE-5.31    | CF600       | 4.00           | 5.31   |
| 5000496 | CF675-500-TEE-4.71    | CF675       | 5.00           | 4.71   |
| 5000497 | CF800-600-TEE-5.50    | CF800       | 6.00           | 5.50   |
| 5000498 | CF800-600-TEE-6.56    | CF800       | 6.00           | 6.56   |
| 5000499 | CF1000-800-TEE-7.50   | CF1000      | 8.00           | 7.50   |
| 5000500 | CF1325-1000-TEE-10.00 | CF1325      | 10.00          | 10.00  |

## CF Reducing Tee

## CF Reducing Tee

**Materials:**

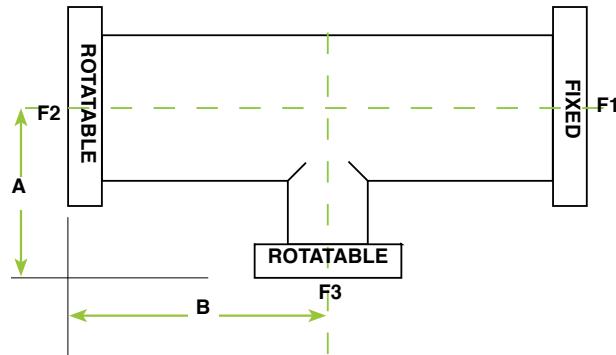
- 304L stainless steel

**Product Notes**

- Pulled ports for optimum vacuum performance
- Reducing intersection for different CF flange sizes

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials:  
316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID                       | FLANGE 1 & 2 |           | FLANGE 3 |           | A (in) | B (in) |
|---------|------------------------------------|--------------|-----------|----------|-----------|--------|--------|
|         |                                    | O.D.         | TUBE O.D. | O.D.     | TUBE O.D. |        |        |
| 5000501 | CF275XCF133-150X075-RDT-1.87X2.46  | 2.72         | 1.50      | 1.33     | 0.75      | 1.87   | 2.46   |
| 5000502 | CF275XCF212-150X100-RDT-2.30X2.46  | 2.72         | 1.50      | 2.12     | 1.00      | 2.29   | 2.46   |
| 5000503 | CF338XCF133-200X075-RDT-2.12X3.22  | 3.38         | 2.00      | 1.33     | 0.75      | 2.13   | 3.22   |
| 5000504 | CF338XCF275-200X150-RDT-2.71X3.22  | 3.38         | 2.00      | 2.72     | 1.50      | 2.71   | 3.22   |
| 5000505 | CF450XCF338-250X200-RDT-3.38X3.48  | 4.47         | 2.50      | 2.72     | 1.50      | 2.96   | 3.38   |
| 5000506 | CF462XCF338-300X200-RDT-3.63X3.73  | 4.47         | 2.50      | 3.38     | 2.00      | 3.48   | 3.38   |
| 5000507 | CF462XCF338-300X200-RDT-3.63X3.73  | 4.62         | 3.00      | 3.38     | 2.00      | 3.73   | 3.63   |
| 5000508 | CF462XCF450-300X250-RDT-3.63X3.63  | 4.62         | 3.00      | 4.47     | 2.50      | 3.63   | 3.63   |
| 5000509 | CF600XCF275-400X150-RDT-4.32X3.71  | 5.97         | 4.00      | 2.72     | 1.50      | 3.71   | 4.32   |
| 5000510 | CF600XCF338-400X200-RDT-4.23X4.32  | 5.97         | 4.00      | 3.38     | 2.00      | 4.23   | 4.32   |
| 5000511 | CF600XCF450-400X250-RDT-4.13X4.32  | 5.97         | 4.00      | 4.47     | 2.50      | 4.13   | 4.32   |
| 5000512 | CF600XCF462-400X300-RDT-4.13X4.32  | 5.97         | 4.00      | 4.62     | 3.00      | 4.13   | 4.32   |
| 5000513 | CF675XCF600-500X400-RDT-4.82X4.71  | 6.75         | 5.00      | 5.97     | 4.00      | 4.82   | 4.71   |
| 5000514 | CF800XCF275-600X150-RDT-4.71X5.50  | 7.97         | 6.00      | 2.72     | 1.50      | 4.71   | 5.50   |
| 5000515 | CF800XCF338-600X200-RDT-5.23X5.50  | 7.97         | 6.00      | 3.38     | 2.00      | 5.23   | 5.50   |
| 5000516 | CF800XCF450-600X250-RDT-5.13X5.50  | 7.97         | 6.00      | 4.47     | 2.50      | 5.13   | 5.50   |
| 5000517 | CF800XCF600-600X400-RDT-5.32X5.50  | 7.97         | 6.00      | 5.97     | 4.00      | 5.32   | 5.50   |
| 5000518 | CF1000XCF800-800X600-RDT-7.50X7.50 | 9.97         | 8.00      | 7.97     | 6.00      | 7.50   | 7.50   |

## CF Cross

**Materials:**

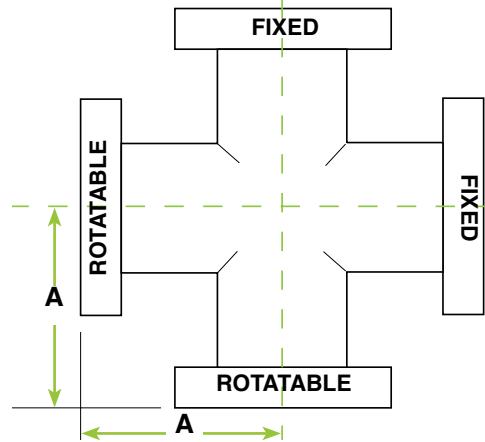
- 304L stainless steel

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials:  
316L stainless steel,  
aluminum, etc.

**Product Notes**

- Pulled ports for optimum vacuum performance



| PART #  | REFERENCE ID         | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|----------------------|-------------|----------------|--------|
| 5000519 | CF133-075-4X-1.50    | CF133       | 0.75           | 1.50   |
| 5000520 | CF212-100-4X-2.05    | CF212       | 1.00           | 2.05   |
| 5000521 | CF275-150-4X-2.46    | CF275       | 1.50           | 2.46   |
| 5000522 | CF338-200-4X-3.22    | CF338       | 2.00           | 3.23   |
| 5000523 | CF450-250-4X-3.38    | CF450       | 2.50           | 3.38   |
| 5000524 | CF450-250-4X-4.12    | CF450       | 2.50           | 4.12   |
| 5000525 | CF462-300-4X-3.63    | CF462       | 3.00           | 3.63   |
| 5000526 | CF600-400-4X-4.32    | CF600       | 4.00           | 4.32   |
| 5000527 | CF600-400-4X-5.31    | CF600       | 4.00           | 5.31   |
| 5000528 | CF675-500-4X-4.71    | CF675       | 5.00           | 4.71   |
| 5000529 | CF800-600-4X-5.50    | CF800       | 6.00           | 5.50   |
| 5000530 | CF800-600-4X-6.56    | CF800       | 6.00           | 6.56   |
| 5000531 | CF1000-800-4X-7.50   | CF1000      | 8.00           | 7.50   |
| 5000532 | CF1325-1000-4X-10.00 | CF1325      | 10.00          | 10.00  |

## CF Reducing Cross

## CF Reducing Cross

**Materials:**

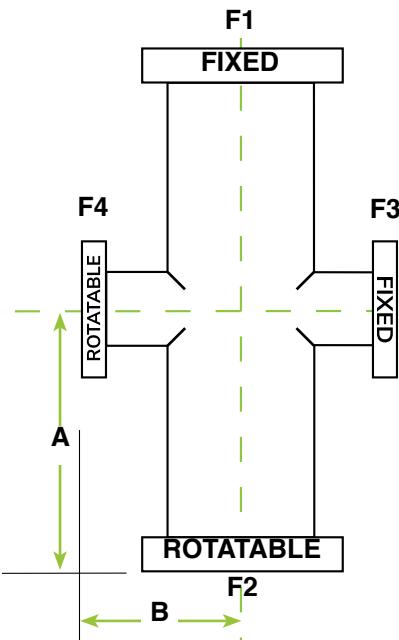
- 304L stainless steel

**Product Notes:**

- Pulled ports for optimum vacuum performance
- Reducing intersection for different CF flange sizes

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials: 316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID                       | FLANGE 1 & 2 |           | FLANGE 3 & 4 |           | A (in) | B (in) |
|---------|------------------------------------|--------------|-----------|--------------|-----------|--------|--------|
|         |                                    | O.D.         | TUBE O.D. | O.D.         | TUBE O.D. |        |        |
| 5000533 | CF275XCF133-150X075-R4X-2.46X1.88  | 2.72         | 1.50      | 1.33         | 0.75      | 2.46   | 1.88   |
| 5000534 | CF275XCF212-150X100-R4X-2.46X2.30  | 2.72         | 1.50      | 2.12         | 1.00      | 2.46   | 2.30   |
| 5000535 | CF338XCF133-200X075-R4X-3.23X2.13  | 3.37         | 2.00      | 1.33         | 0.75      | 3.23   | 2.13   |
| 5000536 | CF338XCF275-200X150-R4X-3.23X2.71  | 3.37         | 2.00      | 2.72         | 1.50      | 3.23   | 2.71   |
| 5000537 | CF450XCF275-250X150-R4X-3.38X2.83  | 4.47         | 2.50      | 2.72         | 1.50      | 3.38   | 2.83   |
| 5000538 | CF450XCF338-150X075-R4X-3.38X3.48  | 4.47         | 2.50      | 3.37         | 2.00      | 3.38   | 3.48   |
| 5000539 | CF462XCF338-150X075-R4X-3.63X3.73  | 4.62         | 3.00      | 3.37         | 2.00      | 3.63   | 3.73   |
| 5000540 | CF462XCF450-150X075-R4X-3.63X3.63  | 4.62         | 3.00      | 4.47         | 2.50      | 3.63   | 3.63   |
| 5000541 | CF600XCF275-150X075-R4X-4.32X3.71  | 5.97         | 4.00      | 2.72         | 1.50      | 4.32   | 3.71   |
| 5000542 | CF600XCF338-150X075-R4X-4.32X4.23  | 5.97         | 4.00      | 3.37         | 2.00      | 4.32   | 4.23   |
| 5000543 | CF600XCF450-150X075-R4X-4.32X4.13  | 5.97         | 4.00      | 4.47         | 2.50      | 4.32   | 4.13   |
| 5000544 | CF600XCF462-150X075-R4X-4.32X4.13  | 5.97         | 4.00      | 4.62         | 3.00      | 4.32   | 4.13   |
| 5000545 | CF675XCF600-150X075-R4X-4.71X4.82  | 6.75         | 5.00      | 5.97         | 4.00      | 4.71   | 4.82   |
| 5000546 | CF800XCF275-150X075-R4X-5.50X4.71  | 7.97         | 6.00      | 2.72         | 1.50      | 5.50   | 4.71   |
| 5000547 | CF800XCF338-150X075-R4X-5.50X5.23  | 7.97         | 6.00      | 3.37         | 2.00      | 5.50   | 5.23   |
| 5000548 | CF800XCF450-150X075-R4X-5.50X5.13  | 7.97         | 6.00      | 4.47         | 2.50      | 5.50   | 5.13   |
| 5000549 | CF800XCF600-150X075-R4X-5.50X5.32  | 7.97         | 6.00      | 5.97         | 4.00      | 5.50   | 5.32   |
| 5000550 | CF1000XCF800-150X075-R4X-7.50X6.50 | 9.97         | 8.00      | 7.97         | 6.00      | 7.50   | 6.50   |

## CF 5-Way Cross

**Materials:**

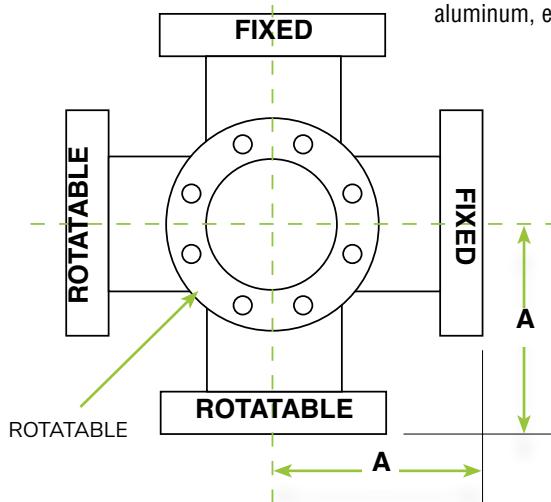
- 304L stainless steel

**Product Notes:**

- Pulled ports for optimum vacuum performance

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials:  
316L stainless steel,  
aluminum, etc.



CF 5-Way Cross

| PART #  | REFERENCE ID         | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|----------------------|-------------|----------------|--------|
| 5000551 | CF133-075-5X-1.50    | CF133       | 0.75           | 1.50   |
| 5000552 | CF212-100-5X-2.05    | CF212       | 1.00           | 2.05   |
| 5000553 | CF275-150-5X-2.46    | CF275       | 1.50           | 2.46   |
| 5000554 | CF338-200-5X-3.22    | CF338       | 2.00           | 3.23   |
| 5000555 | CF450-250-5X-3.38    | CF450       | 2.50           | 3.38   |
| 5000556 | CF450-250-5X-4.13    | CF450       | 2.50           | 4.13   |
| 5000557 | CF462-300-5X-3.63    | CF462       | 3.00           | 3.63   |
| 5000558 | CF600-400-5X-4.32    | CF600       | 4.00           | 4.32   |
| 5000559 | CF600-400-5X-5.31    | CF600       | 4.00           | 5.31   |
| 5000560 | CF675-500-5X-4.71    | CF675       | 5.00           | 4.71   |
| 5000561 | CF800-600-5X-5.50    | CF800       | 6.00           | 5.50   |
| 5000562 | CF800-600-5X-6.56    | CF800       | 6.00           | 6.56   |
| 5000563 | CF1000-800-5X-7.50   | CF1000      | 8.00           | 7.50   |
| 5000564 | CF1325-1000-5X-10.00 | CF1325      | 10.00          | 10.00  |

## CF 6-Way Cross

### CF 6-Way Cross

**Materials:**

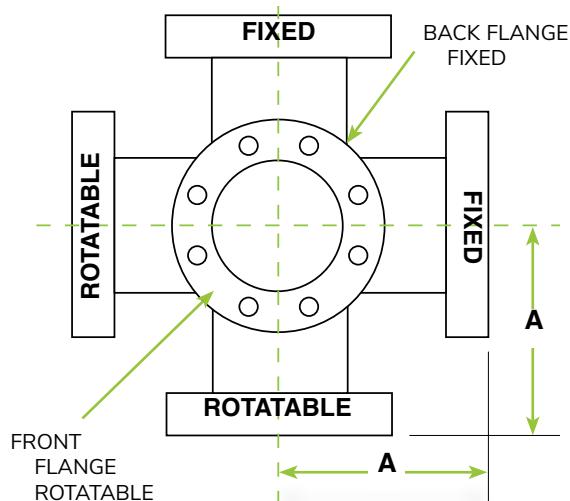
- 304L stainless steel

**Product Notes:**

- Pulled ports for optimum vacuum performance

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combinations
- Alternative materials: 316L stainless steel, aluminum, etc.



| PART #  | REFERENCE ID         | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|----------------------|-------------|----------------|--------|
| 5000565 | CF133-075-6X-1.50    | CF133       | 0.75           | 1.50   |
| 5000566 | CF212-100-6X-2.05    | CF212       | 1.00           | 2.05   |
| 5000567 | CF275-150-6X-2.46    | CF275       | 1.50           | 2.46   |
| 5000568 | CF338-200-6X-3.23    | CF338       | 2.00           | 3.23   |
| 5000569 | CF450-250-6X-3.38    | CF450       | 2.50           | 3.38   |
| 5000570 | CF450-250-6X-4.13    | CF450       | 2.50           | 4.13   |
| 5000571 | CF462-300-6X-3.63    | CF462       | 3.00           | 3.63   |
| 5000572 | CF600-400-6X-4.32    | CF600       | 4.00           | 4.32   |
| 5000573 | CF600-400-6X-5.31    | CF600       | 4.00           | 5.31   |
| 5000574 | CF675-500-6X-4.71    | CF675       | 5.00           | 4.71   |
| 5000575 | CF800-600-6X-5.50    | CF800       | 6.00           | 5.50   |
| 5000576 | CF800-600-6X-6.56    | CF800       | 6.00           | 6.56   |
| 5000577 | CF1000-800-6X-7.50   | CF1000      | 8.00           | 7.50   |
| 5000578 | CF1325-1000-6X-10.00 | CF1325      | 10.00          | 10.00  |

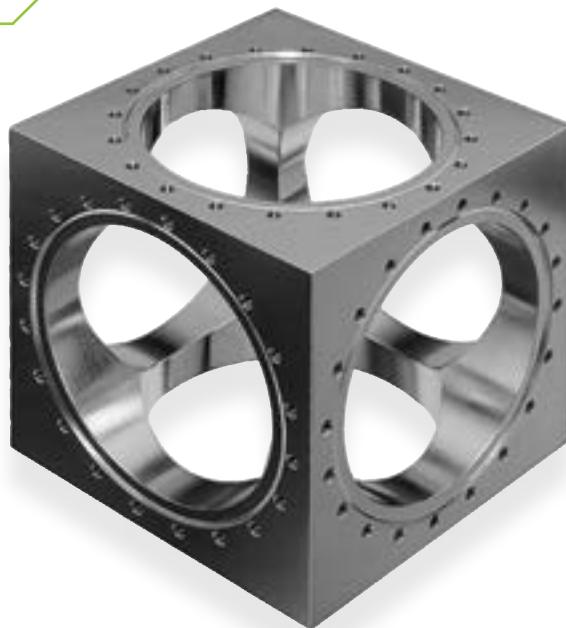
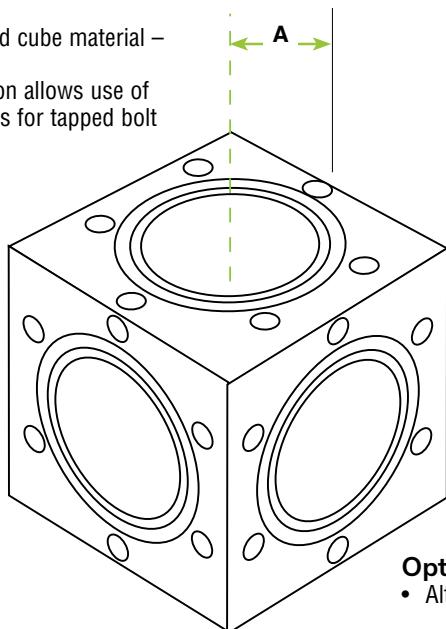
## CF 6-Way Cube

**Materials:**

- 304L stainless steel

**Product Notes:**

- Machined from solid cube material – no welds
- Bolt holes orientation allows use of standard CF bolt kits for tapped bolt hole flanges



**CF 6-Way Cube**

**Options: Call for price and availability**

- Alternative materials: 316L stainless steel, aluminum, etc.

| PART #  | REFERENCE ID    | FLANGE SIZE | A (in) |
|---------|-----------------|-------------|--------|
| 5000579 | CF133-CU-0.67   | 1.34        | 0.67   |
| 5000580 | CF275-CU-1.38   | 2.76        | 1.38   |
| 5000581 | CF338-CU-1.685  | 3.37        | 1.68   |
| 5000582 | CF450-CU-2.235  | 4.47        | 2.23   |
| 5000583 | CF600-CU-2.985  | 5.97        | 2.98   |
| 5000584 | CF800-CU-3.985  | 7.97        | 3.98   |
| 5000585 | CF1000-CU-4.985 | 9.97        | 4.98   |

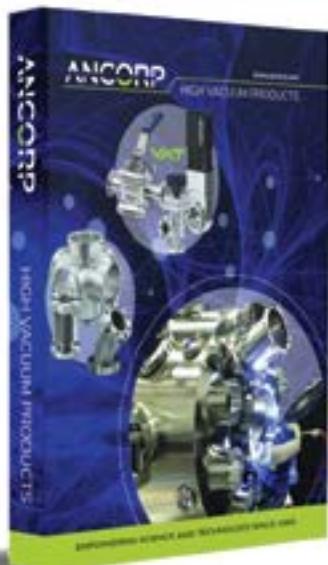


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## ASA/ANSI Flanges & Fittings



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# ASA/ANSI FLANGES & FITTINGS Introduction



## ASA/ANSI Flanges & Fittings

### Overview:

ASA/ANSI flanges provide a complete range of fittings to mount with tubing sized from 1 inch up to 12 inches in diameter. The flange system consists of two flanges, a sealing ring and bolt fasteners to compress the seal between the two flanges. A pair of ASA/ANSI flanges must have one grooved flange to accept the sealing ring and one smooth face flange onto which the seal will be made. To ease system assembly rotatable flanges are available for bolt hole alignment.

### Background:

**ANCORP's** ASA/ANSI flanges and fittings are manufactured for compatibility with 150 lbs. ASA flanges and 150 ANSI flanges. The ASA/ANSI flange specification was originally created for use with steam pipes. Now adapted for vacuum use the system utilizes an elastomer seal and is capable of achieving high vacuum pressure levels.

All flanges offered by **ANCORP** are manufactured on state-of-the-art CNC (computer controlled) lathes to ensure consistency with dimensional tolerances, and extremely fine surface finishes. Water soluble, non-sulfur based coolants are used during the manufacturing process. The flanges are cleaned in an ultrasonic de-ionized water based cleaning system and vacuum packaged free from visible particulates and oils, ready for immediate use in any vacuum application.

### Specifications:

- Vacuum rated to  $1 \times 10^{-8}$  Torr.
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -26°C to 200°C; Sustainable high: 150°C
- Standard sizes: 5 inches to 16 inches O.D. (for tubing diameter 1 inch up to 12 inches)
- Materials:
  - Flanges and fittings: 304 stainless steel
  - Elastomer seals: Viton®
- Custom works available upon request.

### Features:

- Reusable flanges and seals
- Rotatable flanges for easier bolt hole alignment
- Adapters to other flange systems available
- Interchangeable with all other flanges and assemblies made to 150 lbs.

## ASA/ANSI Standard Sealing Assemblies

The ASA/ANSI flange system provides a complete range of flanges to mount with tubing sized 1 inch up to 12 inches diameter. The ASA/ANSI seal assembly consists of three types of sub-components, two flanges, a sealing O-ring and a bolt fastener kit to compress the seal between the two flanges.

ASA/ANSI flanges are available in two general styles: fixed and rotatable. Fixed flanges have a set bolt hole orientation while rotatable flanges have a two piece design allowing for bolt hole rotation to ease bolt alignment when mating the two flanges. The two pieces of the rotatable ASA/ANSI flange are called the insert and the housing (in which the bolt holes are machined). When installing these components the housing is placed behind the insert on the tubing prior to welding the insert to the tubing.

Both fixed and rotatable flanges are available with an O-ring groove. All ASA/ANSI sealing assemblies must include one smooth face ASA/ANSI flange and one grooved face flange. The sealing O-ring is placed into the groove prior to compressing the flanges together with a bolt kit. Flanges in this system are sized according to the nominal internal diameter for the tubing onto which they will be welded. When adding new flanges to an existing vacuum line, valve or chamber carefully compare all dimensions to be sure you are ordering a compatible flange. The most important dimensions to consider are the bolt circle diameter and the internal diameter of the flanges.

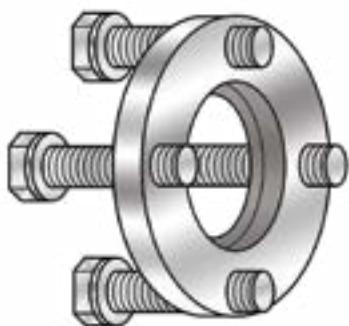
## ASA/ANSI Conversion Chart

| ANCORP PART # | ASA   | ANSI |
|---------------|-------|------|
| ASA100        | 4.25  | 1.0  |
| ASA150        | 5.00  | 1.5  |
| ASA200        | 6.00  | 2.0  |
| ASA300        | 7.50  | 3.0  |
| ASA400        | 9.00  | 4.0  |
| ASA600        | 11.00 | 6.0  |
| ASA800        | 13.50 | 8.0  |
| ASA1000       | 16.00 | 10.0 |

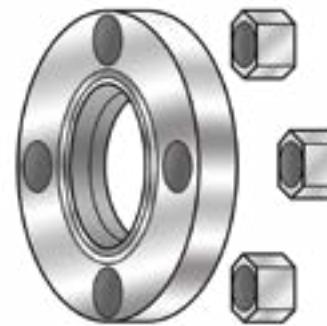
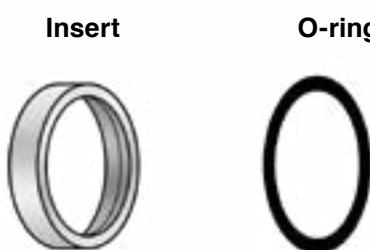
ASA/ANSI fluoroelastomer O-ring seals are capable of high vacuum pressures and temperatures as high as 205°C. The sealing ring is placed into the grooved flange and compressed against the smooth sealing face of the mating flange. Viton® gaskets are re-usable and can be used many times to make new vacuum tight seals.

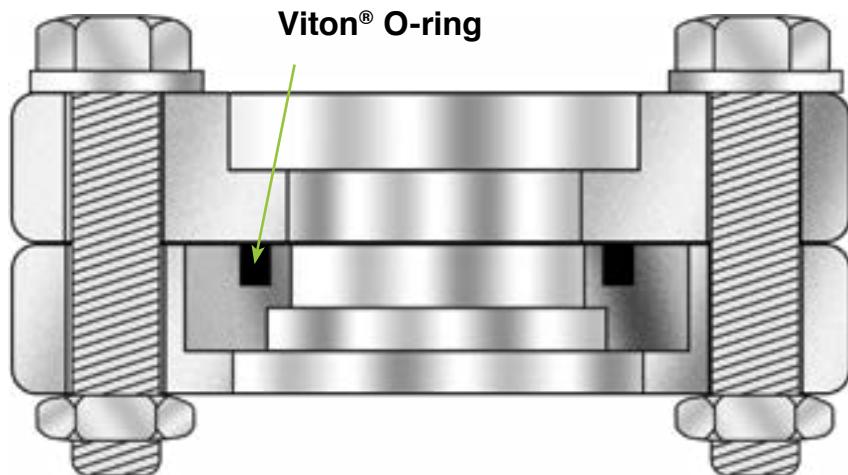
ASA/ANSI fasteners are bolts, nuts and washers made of high tensile strength stainless steel. Bolts and nuts are offered with standard hex-head design.

**Rotatable ASA Flange**



**Fixed ASA Flange with O-ring Groove**



**ASA/ANSI Standard Sealing Assemblies**

A sealing pair of ASA/ANSI flanges contains one flange with a smooth face and one flange with an O-ring groove machined into the surface. A Viton® sealing O-ring is placed into the groove of one of the flanges. The flanges compress the O-ring as the fastening bolts are tightened. The O-ring cold flows under this pressure and fills microscopic surface imperfections on the sealing flange face creating a vacuum tight seal capable of withstanding temperature extremes from -26°C up to 200°C and pressures as low as  $1 \times 10^{-8}$  Torr.

## ASA Flange System

This elastomer sealed flange system uses bolt kits to fasten together your flanges and Viton® elastomer O-rings to create a seal.

The bolt kits fasten two flanges together that both have clearance bolt holes. The bolts slide easily through smooth bored bolt holes and are fastened with a nut and washer on the far side of the flange assembly. These bolt kits are offered in hex-head bolt, nut and washer kits.

The Viton® seals are a vacuum grade fluorocarbon elastomer O-rings that are compressed between the two ASA/ANSI flanges to create a seal capable of achieving high vacuum pressure. Viton® seals have a



temperature range of -26°C up to 150°C (200°C intermittent use) and may be re-used many times for re-installation of ASA/ANSI sealing assemblies.

### **Materials:**

- Hex-head bolt: stainless steel
- Hardware (nut and washer): stainless steel

| PART #  | REFERENCE ID | # of Bolts | BOLT SIZE (in)    |
|---------|--------------|------------|-------------------|
| 0606500 | ASA100-HBK   | 4          | 9/16-12x1 1/2 in. |
| 0606501 | ASA150-HBK   | 4          | 9/16-12x1 1/2 in. |
| 0606502 | ASA200-HBK   | 4          | 5/8-11x1 1/2 in.  |
| 0606503 | ASA300-HBK   | 4          | 5/8-11x1 1/2 in.  |
| 0606504 | ASA400-HBK   | 8          | 5/8-11x1 1/2 in.  |
| 0606505 | ASA600-HBK   | 8          | 3/4-10x2 1/4 in.  |
| 0606506 | ASA800-HBK   | 8          | 3/4-10x2 1/4 in.  |
| 0606507 | ASA1000-HBK  | 12         | 3/4-10x2 1/4 in.  |



### **Product Notes:**

- For use with clearance bolt hole ASA/ANSI flanges

| PART #  | REFERENCE ID | USE WITH | STD # | A (in) | B (in) |
|---------|--------------|----------|-------|--------|--------|
| 0600225 | 2-225-OV     | ASA100   | 2-225 | 0.120  | 1.875  |
| 0600230 | 2-230-OV     | ASA150   | 2-230 | 0.120  | 2.500  |
| 0600238 | 2-238-OV     | ASA200   | 2-238 | 0.120  | 3.500  |
| 0600247 | 2-247-OV     | ASA300   | 2-247 | 0.120  | 4.625  |
| 0600258 | 2-258-OV     | ASA400   | 2-258 | 0.120  | 6.000  |
| 0600266 | 2-266-OV     | ASA600   | 2-266 | 0.120  | 8.000  |
| 0600274 | 2-274-OV     | ASA800   | 2-274 | 0.120  | 10.000 |
| 0600278 | 2-278-OV     | ASA1000  | 2-278 | 0.120  | 12.000 |

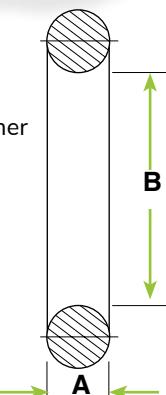


### **Materials:**

- Fluorocarbon elastomer

### **Product Notes:**

- Multi-use seal
- Temperature range: -26°C up to 150°C (intermittent use to 20°C)
- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)



## Specifications:

- Vacuum rated to  $1 \times 10^{-8}$  Torr.
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -26°C to 200°C
- Standard sizes: 5 inches to 16 inches O.D. (for tubing diameter 1 inch up to 12 inches)
- Materials:
  - Elastomer seals: Viton®
  - Flanges and fittings: 304 stainless steel

## Features:

- Reusable flanges and seals
- Rotatable flanges for easier bolt hole alignment
- Adapters to other flange systems available
- Interchangeable with other ASA/ANSI style flanges made to industry standards



**ANCORP** manufactures flanges for our own use as we manufacture modular fittings (tee's, elbows and nipples) valves, feedthroughs, chambers and other components. We offer these same flanges for those customers that have in-house welding capabilities and desire to customize their system or components themselves.

All **ANCORP** ASA/ANSI flanges are manufactured to industry specifications to ensure compatibility with other manufacturer's flanges.

All ASA/ANSI sealing assemblies must include 1 smooth face ASA/ANSI flange and 1 grooved face flange. Fixed and rotatable flanges have clearance bolt holes. Clearance bolt holes allow for unrestricted passage of a bolt through the flanges. The bolt is then tightened with a nut on the back side of the flange assembly.

Standard ASA/ANSI weld flanges are manufactured of 304 stainless steel. Other materials are available on request.

## ASA/ANSI Fixed Weld Flanges

These flanges are manufactured with a weld prep and tubing bore for immediate installation on your system with no additional alteration.

Fixed flanges have a set bolt hole orientation. Both fixed and rotatable flanges are available with an O-ring groove.



## ASA/ANSI Rotatable Weld Flanges

These flanges are manufactured with a weld prep and tubing bore for immediate installation on your system with no additional alteration.

Rotatable flanges have a two piece design allowing for bolt hole rotation to ease bolt alignment when mating the two flanges.

Both fixed and rotatable flanges are available with an O-ring groove.



## ASA/ANSI Fixed Blank Flanges

These flanges are manufactured with no weld prep and no tubing bore. Blank flanges are commonly used to close unused ports or they are altered by customers with their own custom machining capability for a special use.

Fixed flanges have a set bolt hole orientation.

Both fixed and rotatable flanges are available with an O-ring groove.



## ASA/ANSI Rotatable Blank Flanges

These flanges are manufactured with no weld prep and no tubing bore. Blank flanges are commonly used to close unused ports or they are altered by customers with their own custom machining capability for a special use.

Rotatable flanges have a two piece design allowing for bolt hole rotation to ease bolt alignment when mating the two flanges.

Both fixed and rotatable flanges are available with an O-ring groove.



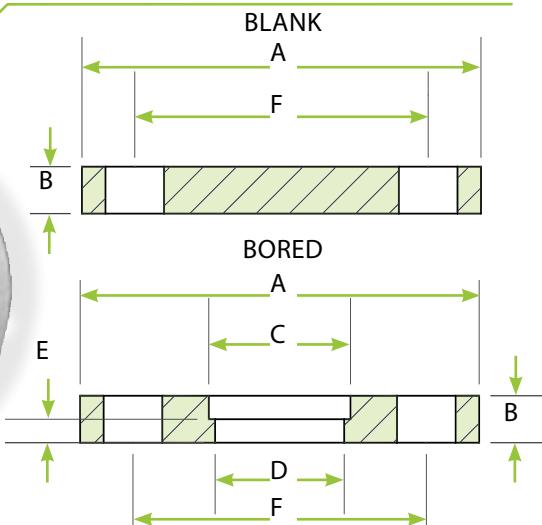
## 100 ASA Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

**Product Specifications:**

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -26°C up to 200°C
- Standard materials: 304 grade stainless steel

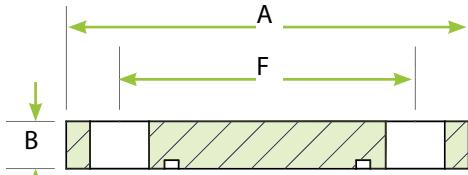
**Options: Call for price and availability**

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000000 | ASA100-000   | 4.25   | 0.500  | Blank  | -      | -      | 3.125  | 4          | 0.625          |
| 6000001 | ASA100-100   | 4.25   | 0.500  | 1.010  | 0.875  | 0.250  | 3.125  | 4          | 0.625          |
| 6000002 | ASA100-150   | 4.25   | 0.500  | 1.510  | 1.375  | 0.250  | 3.125  | 4          | 0.625          |

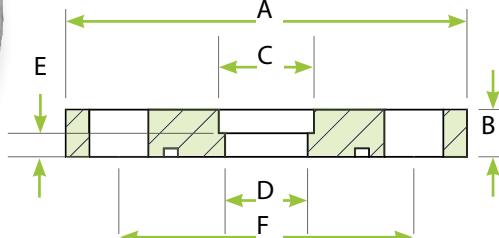
## 100 ASA Flanges



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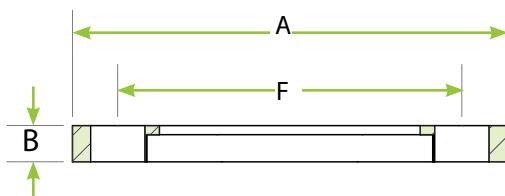


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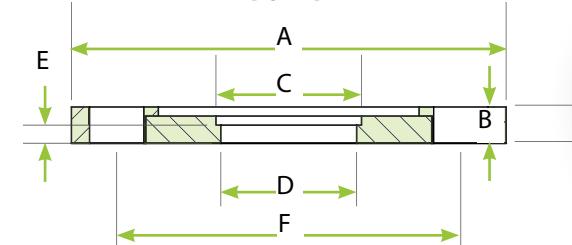


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000028 | ASA100G-000  | 4.25   | 0.500  | Blank  | -      | -      | 3.125  | 4          | 0.625          |
| 6000029 | ASA100G-100  | 4.25   | 0.500  | 1.010  | 0.875  | 0.250  | 3.125  | 4          | 0.625          |
| 6000030 | ASA100G-150  | 4.25   | 0.500  | 1.510  | 1.375  | 0.250  | 3.125  | 4          | 0.625          |

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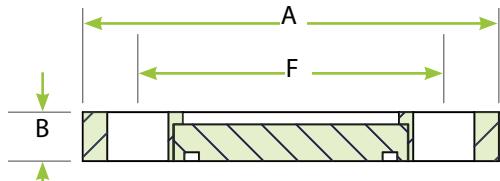


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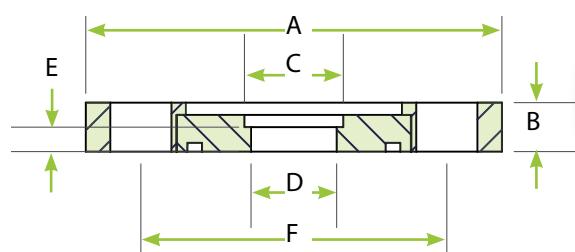


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000056 | ASA100R-000  | 4.25   | 0.500  | Blank  | -      | -      | 3.125  | 4          | 0.625          |
| 6000057 | ASA100R-100  | 4.25   | 0.500  | 1.010  | 0.875  | 0.250  | 3.125  | 4          | 0.625          |
| 6000058 | ASA100R-150  | 4.25   | 0.500  | 1.510  | 1.375  | 0.250  | 3.125  | 4          | 0.625          |

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| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000084 | ASA100RG-000 | 4.25   | 0.500  | Blank  | -      | -      | 3.125  | 4          | 0.625          |
| 6000085 | ASA100RG-100 | 4.25   | 0.500  | 1.010  | 0.875  | 0.250  | 3.125  | 4          | 0.625          |
| 6000086 | ASA100RG-150 | 4.25   | 0.500  | 1.510  | 1.375  | 0.250  | 3.125  | 4          | 0.625          |

| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 0600225 | 2-225-OV     | ASA100 (1) Viton® O-ring                             |
| 0606500 | ASA100-HBK   | ASA100 (4) Bolt, Nut & Washer Kit; 9/16-12x1 1/2 in. |



## 150 ASA Flanges



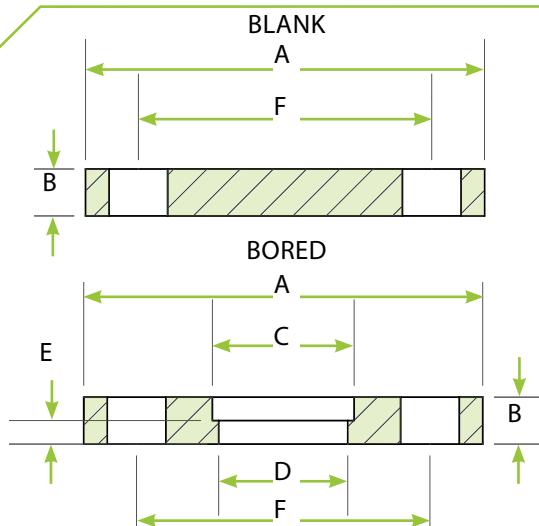
### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

### Product Specifications:

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -26°C up to 200°C
- Standard materials: 304 grade stainless steel

**Options: Call for price and availability**



| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000003 | ASA150-000   | 5.00   | 0.500  | Blank  | -      | -      | 3.880  | 4          | 0.625          |
| 6000004 | ASA150-150   | 5.00   | 0.500  | 1.510  | 1.375  | 0.250  | 3.880  | 4          | 0.625          |
| 6000005 | ASA150-200   | 5.00   | 0.500  | 2.010  | 1.875  | 0.250  | 3.880  | 4          | 0.625          |
| 6000006 | ASA150-250   | 5.00   | 0.500  | 2.510  | 2.375  | 0.250  | 3.880  | 4          | 0.625          |

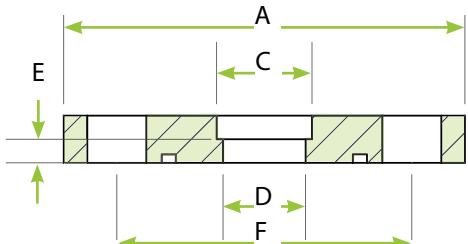
## 150 ASA Flanges



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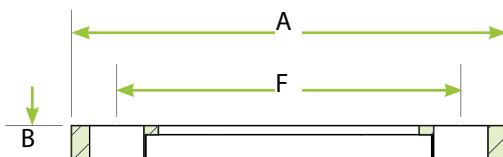


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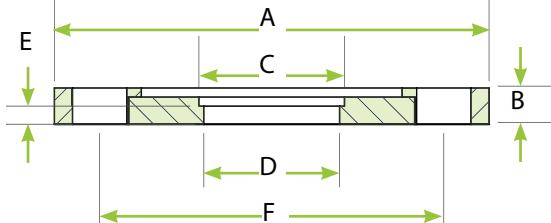


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000031 | ASA150G-000  | 5.00   | 0.500  | Blank  | -      | -      | 3.880  | 4          | 0.625          |
| 6000032 | ASA150G-150  | 5.00   | 0.500  | 1.510  | 1.375  | 0.250  | 3.880  | 4          | 0.625          |
| 6000033 | ASA150G-200  | 5.00   | 0.500  | 2.010  | 1.875  | 0.250  | 3.880  | 4          | 0.625          |
| 6000034 | ASA150G-250  | 5.00   | 0.500  | 2.510  | 2.375  | 0.250  | 3.880  | 4          | 0.625          |

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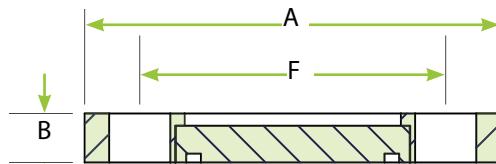
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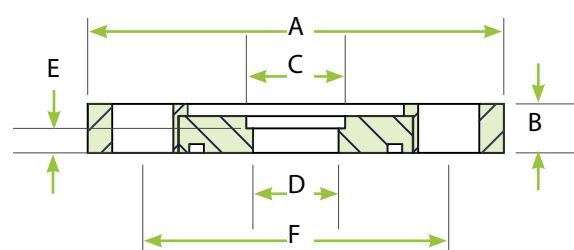
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000059 | ASA150R-000  | 5.00   | 0.500  | Blank  | -      | -      | 3.880  | 4          | 0.625          |
| 6000060 | ASA150R-150  | 5.00   | 0.500  | 1.510  | 1.375  | 0.250  | 3.880  | 4          | 0.625          |
| 6000061 | ASA150R-200  | 5.00   | 0.500  | 2.010  | 1.875  | 0.250  | 3.880  | 4          | 0.625          |
| 6000062 | ASA150R-250  | 5.00   | 0.500  | 2.510  | 2.375  | 0.250  | 3.880  | 4          | 0.625          |

## 150 ASA Flanges

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| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000087 | ASA150RG-000 | 5.00   | 0.500  | Blank  | -      | -      | 3.880  | 4          | 0.625          |
| 6000088 | ASA150RG-150 | 5.00   | 0.500  | 1.510  | 1.375  | 0.250  | 3.880  | 4          | 0.625          |
| 6000089 | ASA150RG-200 | 5.00   | 0.500  | 2.010  | 1.875  | 0.250  | 3.880  | 4          | 0.625          |
| 6000090 | ASA150RG-250 | 5.00   | 0.500  | 2.510  | 2.375  | 0.250  | 3.880  | 4          | 0.625          |

| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 0600230 | 2-230-OV     | ASA150 (1) Viton® O-ring                             |
| 0606501 | ASA150-HBK   | ASA150 (4) Bolt, Nut & Washer Kit; 9/16-12x1 1/2 in. |

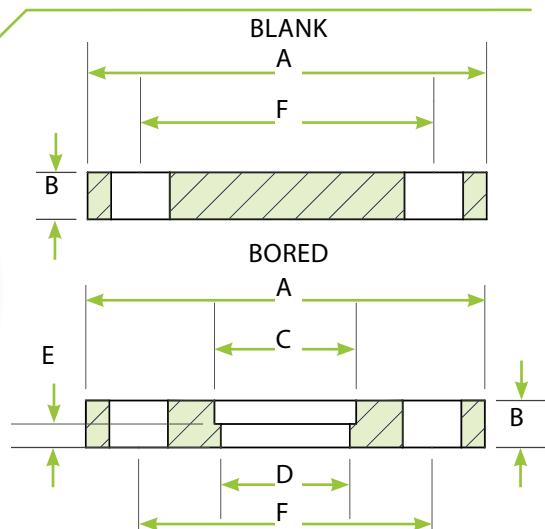


**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

**Product Specifications:**

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -20°C up to 200°C
- Standard materials: 304 grade stainless steel

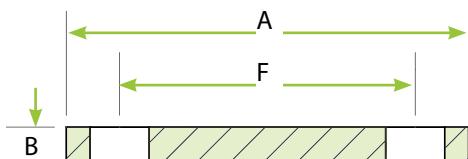
**Options: Call for price and availability**

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000007 | ASA200-000   | 6.00   | 0.500  | Blank  | -      | -      | 4.750  | 4          | 0.750          |
| 6000008 | ASA200-200   | 6.00   | 0.500  | 2.010  | 1.875  | 0.250  | 4.750  | 4          | 0.750          |
| 6000009 | ASA200-250   | 6.00   | 0.500  | 2.510  | 2.375  | 0.250  | 4.750  | 4          | 0.750          |
| 6000010 | ASA200-300   | 6.00   | 0.500  | 3.010  | 2.938  | 0.250  | 4.750  | 4          | 0.750          |
| 6000011 | ASA200-350   | 6.00   | 0.500  | 3.510  | 3.438  | 0.250  | 4.750  | 4          | 0.750          |

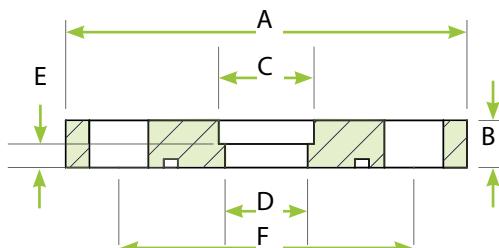
## 200 ASA Flanges



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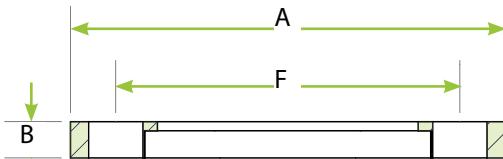


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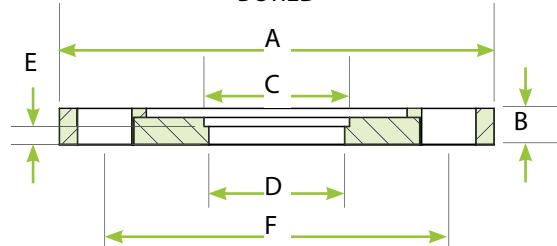


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000035 | ASA200G-000  | 6.00   | 0.500  | Blank  | -      | -      | 4.750  | 4          | 0.750          |
| 6000036 | ASA200G-200  | 6.00   | 0.500  | 2.010  | 1.875  | 0.250  | 4.750  | 4          | 0.750          |
| 6000037 | ASA200G-250  | 6.00   | 0.500  | 2.510  | 2.375  | 0.250  | 4.750  | 4          | 0.750          |
| 6000038 | ASA200G-300  | 6.00   | 0.500  | 3.010  | 2.938  | 0.250  | 4.750  | 4          | 0.750          |
| 6000039 | ASA200G-350  | 6.00   | 0.500  | 3.510  | 3.438  | 0.250  | 4.750  | 4          | 0.750          |

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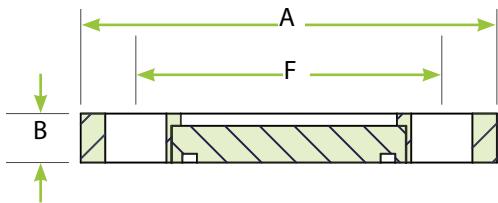


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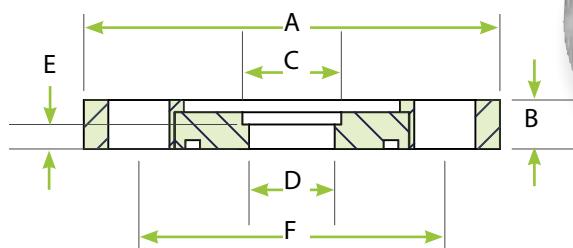


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000063 | ASA200R-000  | 6.00   | 0.500  | Blank  | -      | -      | 4.750  | 4          | 0.750          |
| 6000064 | ASA200R-200  | 6.00   | 0.500  | 2.010  | 1.875  | 0.250  | 4.750  | 4          | 0.750          |
| 6000065 | ASA200R-250  | 6.00   | 0.500  | 2.510  | 2.375  | 0.250  | 4.750  | 4          | 0.750          |
| 6000066 | ASA200R-300  | 6.00   | 0.500  | 3.010  | 2.938  | 0.250  | 4.750  | 4          | 0.750          |
| 6000067 | ASA200R-350  | 6.00   | 0.500  | 3.510  | 3.438  | 0.250  | 4.750  | 4          | 0.750          |

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| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000091 | ASA200RG-000 | 6.00   | 0.500  | Blank  | -      | -      | 4.750  | 4          | 0.750          |
| 6000092 | ASA200RG-200 | 6.00   | 0.500  | 2.010  | 1.875  | 0.250  | 4.750  | 4          | 0.750          |
| 6000093 | ASA200RG-250 | 6.00   | 0.500  | 2.510  | 2.375  | 0.250  | 4.750  | 4          | 0.750          |
| 6000094 | ASA200RG-300 | 6.00   | 0.500  | 3.010  | 2.938  | 0.250  | 4.750  | 4          | 0.750          |
| 6000095 | ASA200RG-350 | 6.00   | 0.500  | 3.510  | 3.438  | 0.250  | 4.750  | 4          | 0.750          |

| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 0600238 | 2-238-OV     | ASA200 (1) Viton® O-ring                             |
| 0606502 | ASA200-HBK   | ASA200 (4) Bolt, Nut & Washer Kit; 9/16-12x1 1/2 in. |



## 300 ASA Flanges



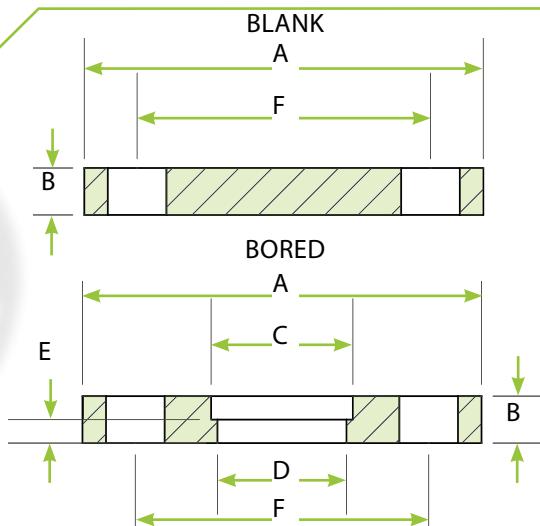
### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

### Product Specifications:

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -20°C up to 200°C
- Standard materials: 304 grade stainless steel

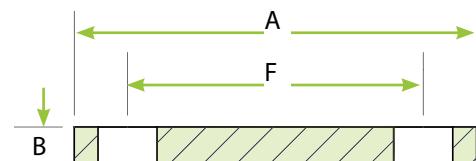
**Options: Call for price and availability**



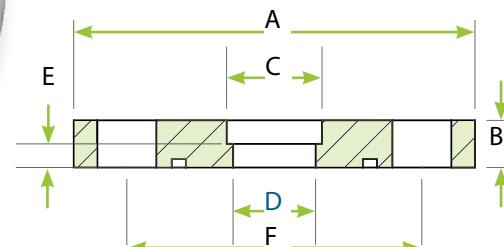
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000012 | ASA300-000   | 7.50   | 0.500  | Blank  | -      | -      | 6.000  | 4          | 0.750          |
| 6000013 | ASA300-300   | 7.50   | 0.500  | 3.010  | 2.938  | 0.250  | 6.000  | 4          | 0.750          |
| 6000014 | ASA300-350   | 7.50   | 0.500  | 3.510  | 3.438  | 0.250  | 6.000  | 4          | 0.750          |
| 6000015 | ASA300-400   | 7.50   | 0.500  | 4.010  | 3.910  | 0.250  | 6.000  | 4          | 0.750          |



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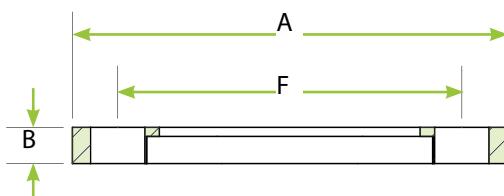


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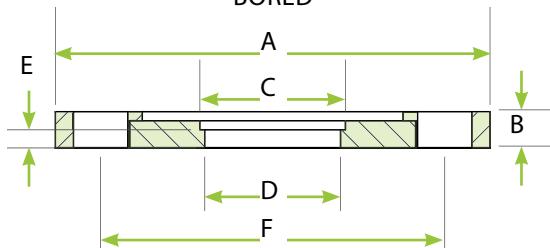


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000040 | ASA300G-000  | 7.50   | 0.500  | Blank  | -      | -      | 6.000  | 4          | 0.750          |
| 6000041 | ASA300G-300  | 7.50   | 0.500  | 3.010  | 2.938  | 0.250  | 6.000  | 4          | 0.750          |
| 6000042 | ASA300G-350  | 7.50   | 0.500  | 3.510  | 3.438  | 0.250  | 6.000  | 4          | 0.750          |
| 6000043 | ASA300G-400  | 7.50   | 0.500  | 4.010  | 3.910  | 0.250  | 6.000  | 4          | 0.750          |

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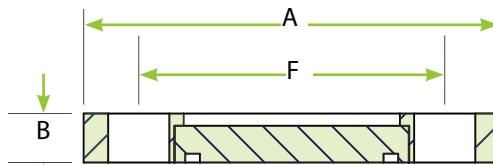
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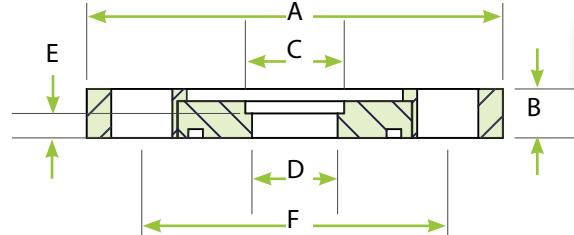
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000068 | ASA300R-000  | 7.50   | 0.500  | Blank  | -      | -      | 6.000  | 4          | 0.750          |
| 6000069 | ASA300R-300  | 7.50   | 0.500  | 3.010  | 2.938  | 0.250  | 6.000  | 4          | 0.750          |
| 6000070 | ASA300R-350  | 7.50   | 0.500  | 3.510  | 3.438  | 0.250  | 6.000  | 4          | 0.750          |
| 6000071 | ASA300R-400  | 7.50   | 0.500  | 4.010  | 3.910  | 0.250  | 6.000  | 4          | 0.750          |

## 300 ASA Flanges

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| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000096 | ASA300RG-000 | 7.50   | 0.500  | Blank  | -      | -      | 6.000  | 4          | 0.750          |
| 6000097 | ASA300RG-300 | 7.50   | 0.500  | 3.010  | 2.938  | 0.250  | 6.000  | 4          | 0.750          |
| 6000098 | ASA300RG-350 | 7.50   | 0.500  | 3.510  | 3.438  | 0.250  | 6.000  | 4          | 0.750          |
| 6000099 | ASA300RG-400 | 7.50   | 0.500  | 4.010  | 3.910  | 0.250  | 6.000  | 4          | 0.750          |

| PART #  | REFERENCE ID | DESCRIPTION   |
|---------|--------------|---|
| 0600247 | 2-247-OV     | ASA300 (1) Viton® O-ring                            |
| 0606503 | ASA300-HBK   | ASA300 (4) Bolt, Nut & Washer Kit; 5/8-11x1 1/2 in. |





## 400 ASA Flanges

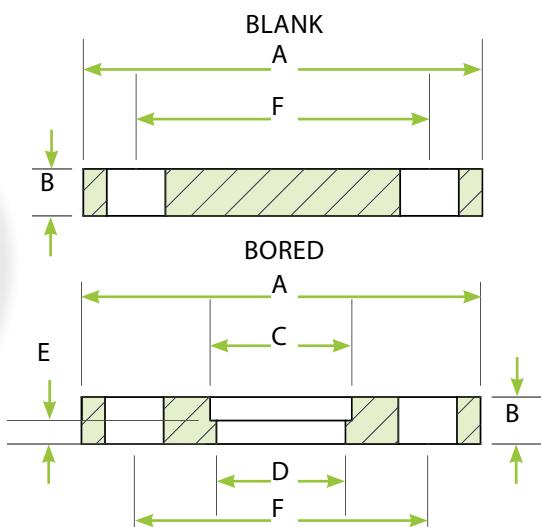
### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

### Product Specifications:

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -20°C up to 200°C
- Standard materials: 304 grade stainless steel

**Options: Call for price and availability**

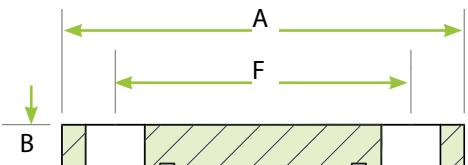


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000016 | ASA400-000   | 9.00   | 0.500  | Blank  | -      | -      | 7.500  | 8          | 0.750          |
| 6000017 | ASA400-400   | 9.00   | 0.500  | 4.010  | 3.910  | 0.250  | 7.500  | 8          | 0.750          |
| 6000018 | ASA400-600   | 9.00   | 0.500  | 6.020  | 5.875  | 0.250  | 7.500  | 8          | 0.750          |

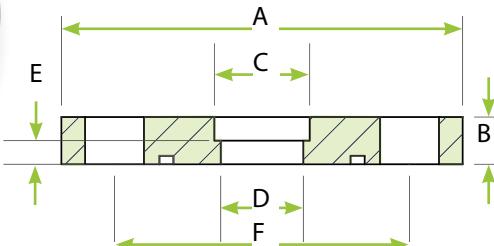
## 400 ASA Flanges



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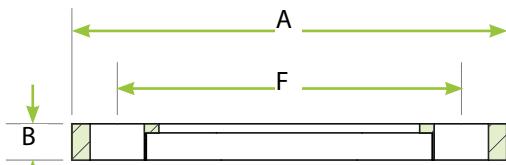


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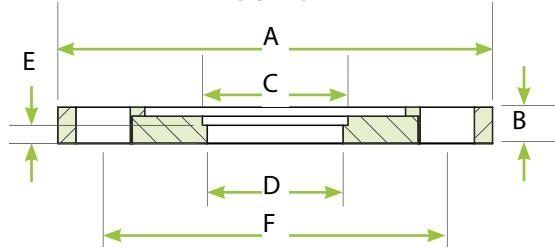


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000044 | ASA400G-000  | 9.00   | 0.500  | Blank  | -      | -      | 7.500  | 8          | 0.750          |
| 6000045 | ASA400G-400  | 9.00   | 0.500  | 4.010  | 3.910  | 0.250  | 7.500  | 8          | 0.750          |
| 6000046 | ASA400G-600  | 9.00   | 0.500  | 6.020  | 5.875  | 0.250  | 7.500  | 8          | 0.750          |

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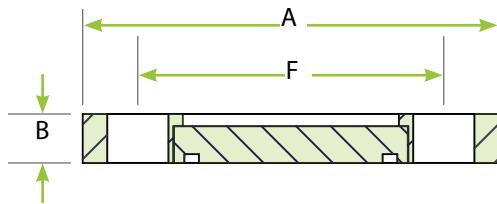


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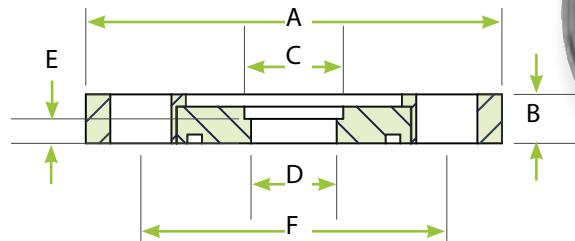


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000072 | ASA400R-000  | 9.00   | 0.500  | Blank  | -      | -      | 7.500  | 8          | 0.750          |
| 6000073 | ASA400R-400  | 9.00   | 0.500  | 4.010  | 3.910  | 0.250  | 7.500  | 8          | 0.750          |
| 6000074 | ASA400R-600  | 9.00   | 0.500  | 6.020  | 5.875  | 0.250  | 7.500  | 8          | 0.750          |

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| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000100 | ASA400RG-000 | 9.00   | 0.500  | Blank  | -      | -      | 7.500  | 8          | 0.750          |
| 6000101 | ASA400RG-400 | 9.00   | 0.500  | 4.020  | 3.910  | 0.250  | 7.500  | 8          | 0.750          |
| 6000102 | ASA400RG-600 | 9.00   | 0.500  | 6.020  | 5.875  | 0.250  | 7.500  | 8          | 0.750          |

| PART #  | REFERENCE ID | DESCRIPTION   |
|---------|--------------|---|
| 0600258 | 2-258-OV     | ASA400 (1) Viton® O-ring                            |
| 0606504 | ASA400-HBK   | ASA400 (8) Bolt, Nut & Washer Kit; 5/8-11x1 1/2 in. |



## 600 ASA Flanges



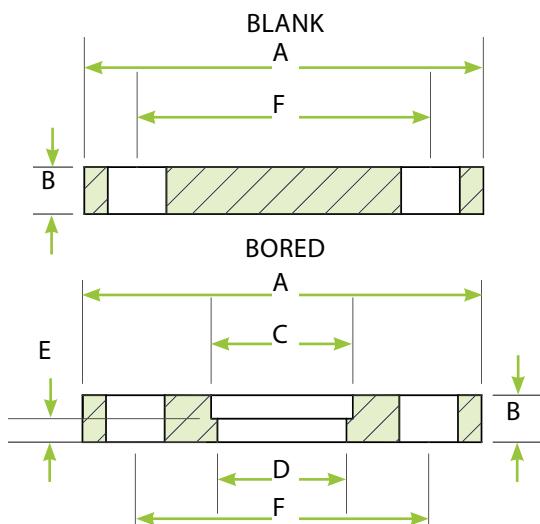
### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

### Product Specifications:

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -26°C up to 200°C
- Standard materials: 304 grade stainless steel

**Options:** Call for price and availability

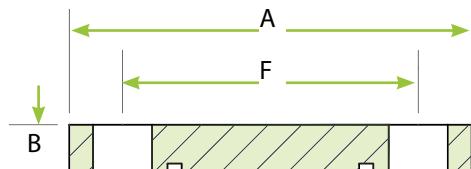


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000019 | ASA600-000   | 11.00  | 0.750  | Blank  | -      | -      | 9.500  | 8          | 0.813          |
| 6000020 | ASA600-600   | 11.00  | 0.750  | 6.020  | 5.875  | 0.375  | 9.500  | 8          | 0.813          |
| 6000021 | ASA600-800   | 11.00  | 0.750  | 8.020  | 7.875  | 0.375  | 9.500  | 8          | 0.813          |

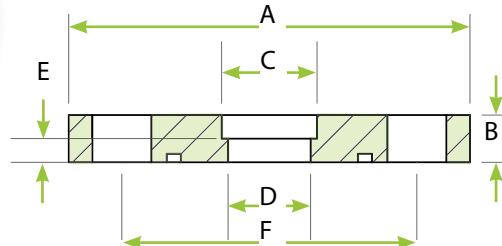
## 600 ASA Flanges



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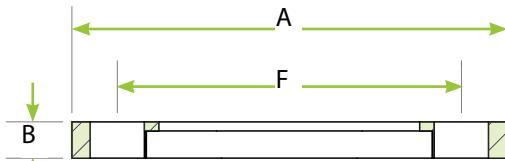


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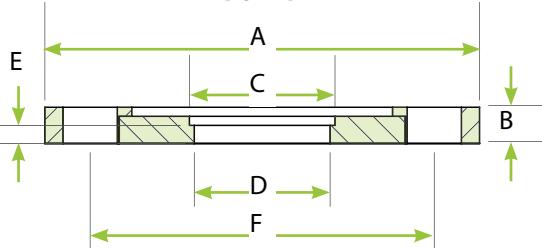


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000047 | ASA600G-000  | 11.00  | 0.750  | Blank  | -      | -      | 9.500  | 8          | 0.813          |
| 6000048 | ASA600G-600  | 11.00  | 0.750  | 6.020  | 5.875  | 0.375  | 9.500  | 8          | 0.813          |
| 6000049 | ASA600G-800  | 11.00  | 0.750  | 8.020  | 7.875  | 0.375  | 9.500  | 8          | 0.813          |

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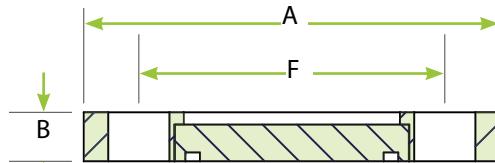
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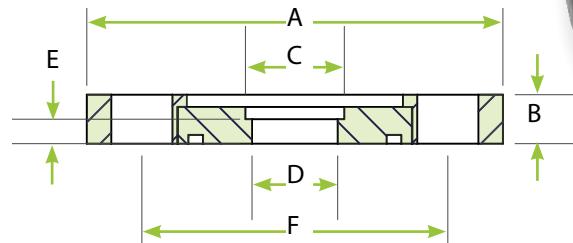
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000075 | ASA600R-000  | 11.00  | 0.750  | Blank  | -      | -      | 9.500  | 8          | 0.813          |
| 6000076 | ASA600R-600  | 11.00  | 0.750  | 6.020  | 5.875  | 0.375  | 9.500  | 8          | 0.813          |
| 6000077 | ASA600R-800  | 11.00  | 0.750  | 8.020  | 7.875  | 0.375  | 9.500  | 8          | 0.813          |

## 600 ASA Flanges

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| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000103 | ASA600RG-000 | 11.00  | 0.750  | Blank  | -      | -      | 9.5    | 8          | 0.813          |
| 6000104 | ASA600RG-600 | 11.00  | 0.750  | 6.020  | 5.875  | 0.375  | 9.5    | 8          | 0.813          |
| 6000105 | ASA600RG-800 | 11.00  | 0.750  | 8.020  | 7.875  | 0.375  | 9.5    | 8          | 0.813          |

| PART #  | REFERENCE ID | DESCRIPTION   |
|---------|--------------|---|
| 0600266 | 2-266-OV     | ASA600 (1) Viton® O-ring                            |
| 0606505 | ASA600-HBK   | ASA600 (8) Bolt, Nut & Washer Kit; 3/4-10x2 1/4 in. |



## 800 ASA Flanges

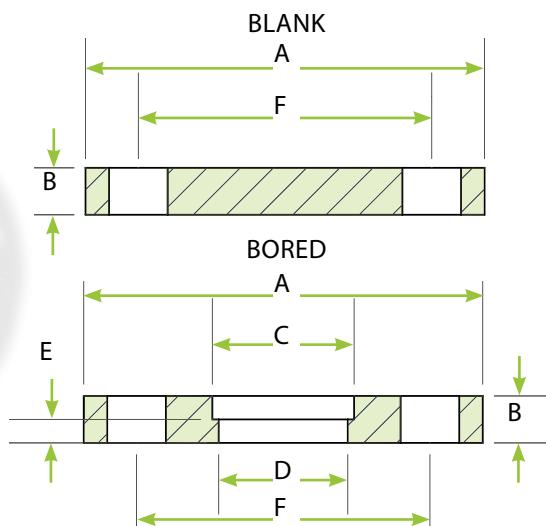

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

**Product Specifications:**

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -26°C up to 200°C
- Standard materials: 304 grade stainless steel

**Options:** Call for price and availability

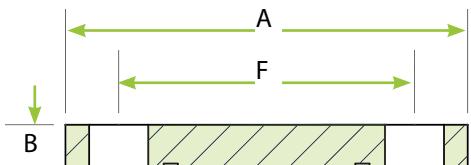


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000022 | ASA800-000   | 13.50  | 0.750  | Blank  | -      | -      | 11.750 | 8          | 0.813          |
| 6000023 | ASA800-800   | 13.50  | 0.750  | 8.020  | 7.875  | 0.375  | 11.750 | 8          | 0.813          |
| 6000024 | ASA800-1000  | 13.50  | 0.750  | 10.020 | 9.875  | 0.375  | 11.750 | 8          | 0.813          |

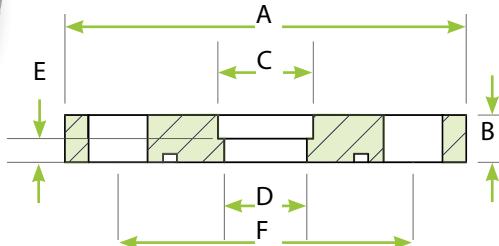
## 800 ASA Flanges



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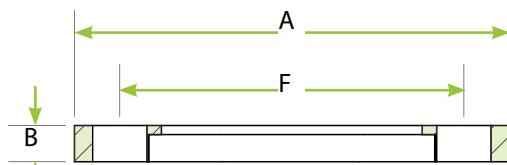


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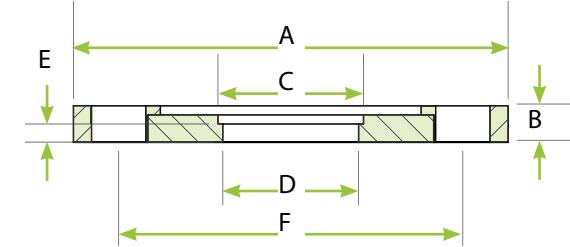


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000050 | ASA800G-000  | 13.50  | 0.750  | Blank  | -      | -      | 11.750 | 8          | 0.813          |
| 6000051 | ASA800G-800  | 13.50  | 0.750  | 8.020  | 7.875  | 0.375  | 11.750 | 8          | 0.813          |
| 6000052 | ASA800G-1000 | 13.50  | 0.750  | 10.030 | 9.875  | 0.375  | 11.750 | 8          | 0.813          |

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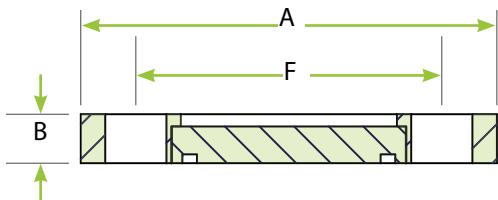


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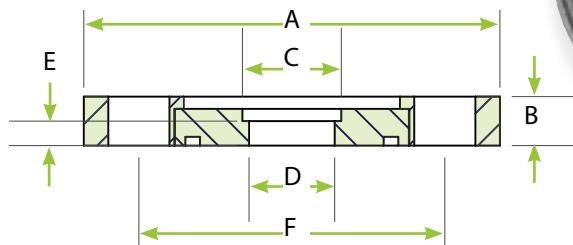


| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000078 | ASA800R-000  | 13.50  | 0.750  | Blank  | -      | -      | 11.750 | 8          | 0.813          |
| 6000079 | ASA800R-800  | 13.50  | 0.750  | 8.020  | 7.875  | 0.375  | 11.750 | 8          | 0.813          |
| 6000080 | ASA800R-1000 | 13.50  | 0.750  | 10.030 | 9.875  | 0.375  | 11.750 | 8          | 0.813          |

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| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000106 | ASA800RG-000  | 13.50  | 0.750  | Blank  | -      | -      | 11.750 | 8          | 0.813          |
| 6000107 | ASA800RG-800  | 13.50  | 0.750  | 8.020  | 7.875  | 0.375  | 11.750 | 8          | 0.813          |
| 6000108 | ASA800RG-1000 | 13.50  | 0.750  | 10.030 | 9.875  | 0.375  | 11.750 | 8          | 0.813          |

| PART #  | REFERENCE ID | DESCRIPTION   |
|---------|--------------|---|
| 0600274 | 2-274-OV     | ASA800 (1) Viton® O-ring                            |
| 0606506 | ASA800-HBK   | ASA800 (8) Bolt, Nut & Washer Kit; 3/4-10x2 1/4 in. |



## 1000 ASA Flanges



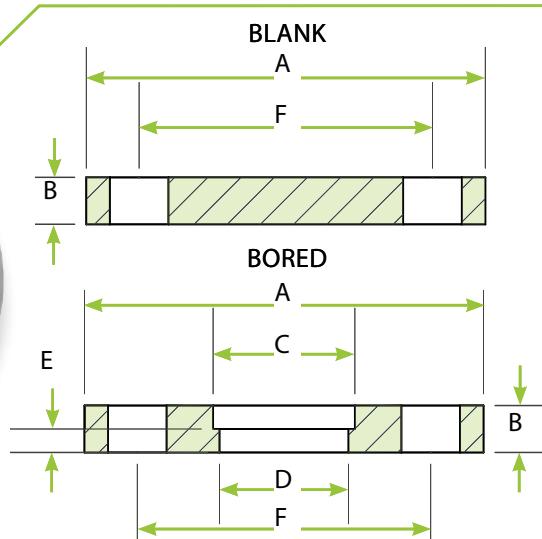
### Product Features:

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

### Product Specifications:

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -26°C up to 200°C
- Standard materials: 304 grade stainless steel

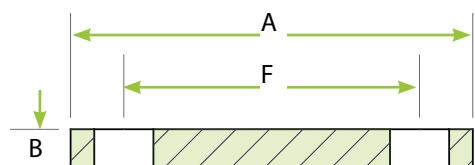
**Options: Call for price and availability**



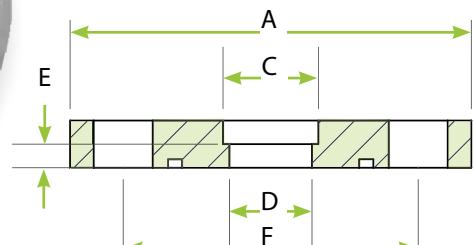
| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000025 | ASA1000-000  | 16.00  | 0.750  | Blank  | -      | -      | 14.250 | 12         | 0.813          |
| 6000026 | ASA1000-1000 | 16.00  | 0.750  | 10.030 | 9.875  | 0.375  | 14.250 | 12         | 0.813          |
| 6000027 | ASA1000-1200 | 16.00  | 0.750  | 12.030 | 11.875 | 0.375  | 14.250 | 12         | 0.813          |



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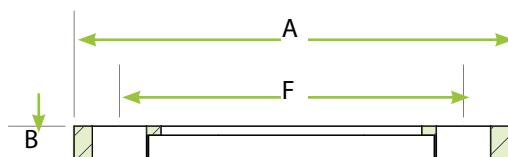


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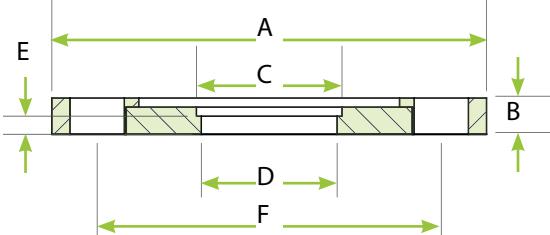


| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000053 | ASA1000G-000  | 16.00  | 0.750  | Blank  | -      | -      | 14.250 | 12         | 0.813          |
| 6000054 | ASA1000G-1000 | 16.00  | 0.750  | 10.030 | 9.875  | 0.375  | 14.250 | 12         | 0.813          |
| 6000055 | ASA1000G-1200 | 16.00  | 0.750  | 12.030 | 11.875 | 0.375  | 14.250 | 12         | 0.813          |

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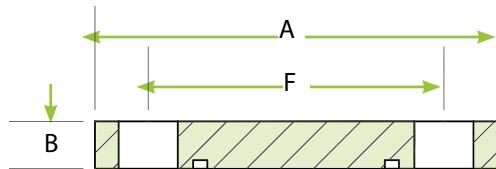
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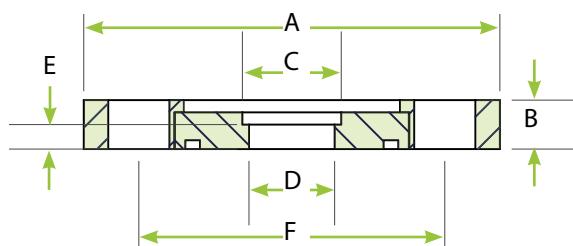
| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000081 | ASA1000R-000  | 16.00  | 0.750  | Blank  | -      | -      | 14.250 | 12         | 0.813          |
| 6000082 | ASA1000R-1000 | 16.00  | 0.750  | 10.030 | 9.875  | 0.375  | 14.250 | 12         | 0.813          |
| 6000083 | ASA1000R-1200 | 16.00  | 0.750  | 12.030 | 11.875 | 0.375  | 14.250 | 12         | 0.813          |

## 1000 ASA Flanges

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BORED WITH O-RING GROOVE



| PART #  | REFERENCE ID   | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|----------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6000109 | ASA1000RG-000  | 16.00  | 0.750  | Blank  | -      | -      | 14.250 | 12         | 0.813          |
| 6000110 | ASA1000RG-1000 | 16.00  | 0.750  | 10.020 | 9.875  | 0.375  | 14.250 | 12         | 0.813          |
| 6000111 | ASA1000RG-1200 | 16.00  | 0.750  | 12.020 | 11.875 | 0.375  | 14.250 | 12         | 0.813          |

| PART #  | REFERENCE ID | DESCRIPTION   |
|---------|--------------|---|
| 0600278 | 2-278-OV     | ASA1000 (1) Viton® O-ring                             |
| 0606507 | ASA1000-HBK  | ASA1000 (12) Bolt, Nut & Washer Kit; 3/4-10x2 1/4 in. |



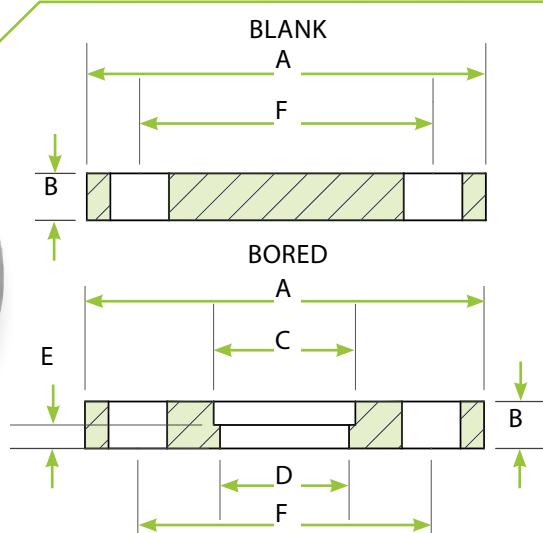
## 1200 ASA Flanges

**Product Features:**

- Designed to fit standard inch tubing O.D.'s
- Self-aligning
- Internal weld
- Rotatable flanges for easier bolt hole alignment
- Blank flanges to close unused ports or custom modify
- Interchangeable with other ASA/ANSI style flanges

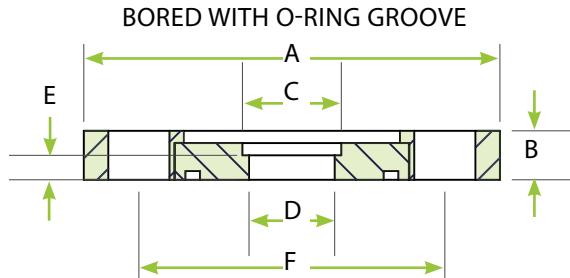
**Product Specifications:**

- Pressure range: HV (approx.  $1 \times 10^{-8}$  Torr)
- Temperature range: -26°C up to 200°C
- Standard materials: 304 grade stainless steel

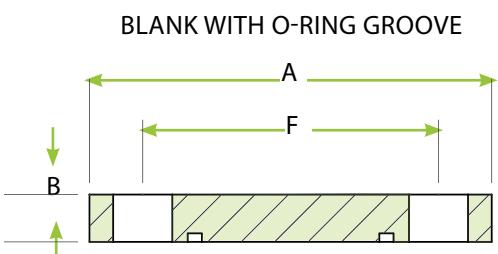
**Options: Call for price and availability**

| PART #  | REFERENCE ID | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|--------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6001054 | 1200ASA-1400 | 19.00  | 1.250  | 14.030 | 13.620 | 0.625  | 17.000 | 12         | 1.000          |

## 1200 ASA Flanges



| PART #  | REFERENCE ID   | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|----------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6001055 | 1200ASA-1400-G | 19.00  | 1.250  | 14.30  | 13.620 | 0.620  | 17.000 | 12         | 1.000          |



| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) | E (in) | F (in) | # of Bolts | HOLE SIZE (in) |
|---------|---------------|--------|--------|--------|--------|--------|--------|------------|----------------|
| 6001081 | 1200ASA-000-R | 19.00  | 1.250  | Blank  | -      | -      | 17.000 | 12         | 1.000          |

## Specifications:

- Vacuum rated to  $1 \times 10^{-8}$  Torr.
- Leak rating  $< 1 \times 10^{-9}$  std. cc/s helium
- Temperature range: -26°C to 200°C
- Standard sizes: 5 inches to 16 inches O.D. (for tubing diameter 1 inch up to 12 inches)
- Materials:
  - Flanges and fittings: 304 stainless steel
  - Elastomer seals: Viton®

## Features:

- Reusable flanges and seals
- Rotatable flanges for easier bolt hole alignment
- Adapters to other flange systems available
- Interchangeable with other ASA/ANSI style flanges made

**ANCORP's** ASA/ANSI fittings make up a complete set of modular components that allow our customers to create a custom vacuum system without the trouble and expense of having in-house machining and welding capabilities.



All **ANCORP** ASA/ANSI fittings are made with flanges manufactured to industry specifications to ensure compatibility with other manufacturer's flanges.

## Half Nipples



These fittings are manufactured with a flange on one end and raw tubing on the other.

Half nipples are often welded onto a custom vacuum system or instrument by a customer with in-house welding capabilities. However, these fittings can also be used with quick connect compression fittings to make a vacuum tight connection without welding (see section 7 for our selection of quick disconnect compression fittings). **ANCORP** manufactures standard half nipples in 304 stainless steel, other materials are available on request.

## Nipples



Nipples are manufactured with a flange on each end of a straight section of tubing.

They are used to create a weld free straight connection within a vacuum system. Nipples are also used as straight adapters between different tubing sizes or flange types.

These fittings are available in all ASA/ANSI sizes and flange types. **ANCORP** manufactures standard nipples in 304 stainless steel, other materials are available on request.

## ASA/ANSI Fittings

## Elbows



These fittings are manufactured with a flange on each end of a curved section of tubing. Elbows accommodate turns or alignment considerations for vacuum system design.

Elbows are offered in 3 designs: 45° radius elbow, 90° radius elbow and 90° mitered elbow to accommodate a wide variety of system configurations. **ANCORP** manufactures standard elbows in 304 stainless steel, other materials are available on request.

## Tees



These fittings are manufactured with a flange on each end of a "T" shaped section of tubing. Tees accommodate junctions or alignment considerations for vacuum system design.

Tees are also used as junction adapters between different tubing sizes or flange types. **ANCORP** manufactures standard tees in 304 stainless steel, other materials are available on request.

## Crosses



These fittings are manufactured with a flange on each end of an "X" shaped section of tubing. Crosses accommodate junctions or alignment considerations for vacuum system design.

Crosses are also used as junction adapters between different tubing sizes or flange types. **ANCORP** manufactures standard crosses in 304 stainless steel, other materials are available on request.

## 5 &amp; 6 Way Crosses and Cubes



These fittings are manufactured with a flange on each end of a 5 or 6 sided tubing junction. These crosses accommodate complex junctions or alignment considerations for vacuum system design.

Larger sizes are sometimes used as the starting point of a simple vacuum chamber design. **ANCORP** manufactures standard 5 and 6-way crosses and cubes in 304 stainless steel, other materials are available on request.

**Materials:**

- 304 stainless steel

**Product Notes:**

- Clearance bolt holes
- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Highly customizable
  - O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Custom lengths



| PART #  | REFERENCE ID         | FLANGE O.D. (in) | TUBE O.D. (in) | Tube Wall Thickness | A (in) |
|---------|----------------------|------------------|----------------|---------------------|--------|
| 6000148 | ASA100-100-HN-3.25   | 4.25             | 1.00           | 0.065               | 3.25   |
| 6000149 | ASA100-150-HN-3.25   | 4.25             | 1.50           | 0.065               | 3.25   |
| 6000150 | ASA150-150-HN-3.25   | 5.00             | 1.50           | 0.065               | 3.25   |
| 6000151 | ASA150-200-HN-3.25   | 5.00             | 2.00           | 0.065               | 3.25   |
| 6000152 | ASA150-250-HN-3.25   | 5.00             | 2.50           | 0.065               | 3.25   |
| 6000153 | ASA200-200-HN-3.50   | 6.00             | 2.00           | 0.065               | 3.50   |
| 6000154 | ASA200-250-HN-3.50   | 6.00             | 2.50           | 0.065               | 3.50   |
| 6000155 | ASA200-300-HN-3.50   | 6.00             | 3.00           | 0.065               | 3.50   |
| 6000156 | ASA300-300-HN-4.13   | 7.50             | 3.00           | 0.065               | 4.13   |
| 6000157 | ASA300-400-HN-4.13   | 7.50             | 4.00           | 0.083               | 4.13   |
| 6000158 | ASA400-400-HN-4.13   | 9.00             | 4.00           | 0.083               | 4.13   |
| 6000159 | ASA400-600-HN-5.25   | 9.00             | 6.00           | 0.083               | 5.25   |
| 6000160 | ASA600-600-HN-5.38   | 11.00            | 6.00           | 0.083               | 5.38   |
| 6000161 | ASA600-800-HN-7.38   | 11.00            | 8.00           | 0.120               | 7.38   |
| 6000162 | ASA800-800-HN-7.75   | 13.50            | 8.00           | 0.120               | 7.75   |
| 6000163 | ASA800-1000-HN-9.88  | 13.50            | 10.00          | 0.120               | 9.88   |
| 6000164 | ASA1000-1000-HN-9.88 | 16.00            | 10.00          | 0.120               | 9.88   |
| 6000165 | ASA1000-1200-HN-9.88 | 16.00            | 12.00          | 0.120               | 9.88   |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a custom option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

**Call For Pricing**

## ASA Half Nipples

**Materials:**

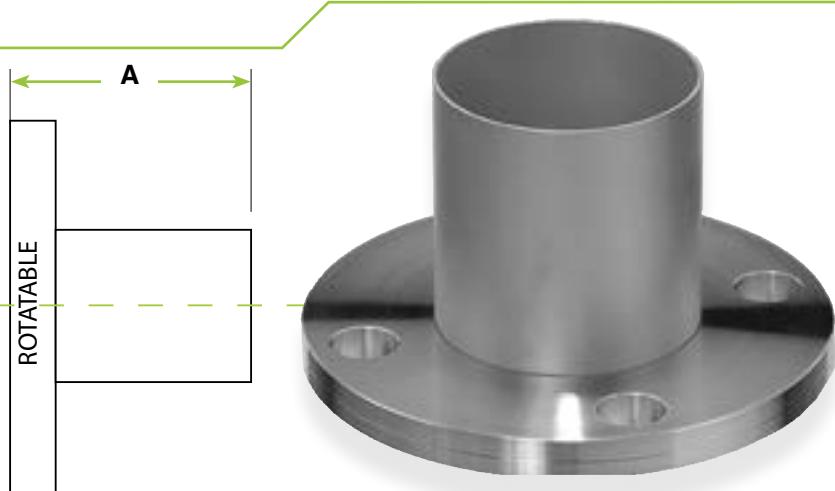
- 304 stainless steel

**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Highly customizable
  - O-ring groove available (see chart below)

**Options: Call for price and delivery**

- Custom lengths



| PART #  | REFERENCE ID          | FLANGE O.D. (in) | TUBE O.D. (in) | Tube Wall Thickness | A (in) |
|---------|-----------------------|------------------|----------------|---------------------|--------|
| 6000184 | ASA100R-100-HN-3.25   | 4.25             | 1.00           | 0.065               | 3.25   |
| 6000185 | ASA100R-150-HN-3.25   | 4.25             | 1.50           | 0.065               | 3.25   |
| 6000186 | ASA150R-150-HN-3.25   | 5.00             | 1.50           | 0.065               | 3.25   |
| 6000187 | ASA150R-200-HN-3.25   | 5.00             | 2.00           | 0.065               | 3.25   |
| 6000188 | ASA150R-250-HN-3.25   | 5.00             | 2.50           | 0.065               | 3.25   |
| 6000189 | ASA200R-200-HN-3.50   | 6.00             | 2.00           | 0.065               | 3.50   |
| 6000190 | ASA200R-250-HN-3.50   | 6.00             | 2.50           | 0.065               | 3.50   |
| 6000191 | ASA200R-300-HN-3.50   | 6.00             | 3.00           | 0.065               | 3.50   |
| 6000192 | ASA300R-300-HN-4.13   | 7.50             | 3.00           | 0.065               | 4.13   |
| 6000193 | ASA300R-400-HN-4.13   | 7.50             | 4.00           | 0.083               | 4.13   |
| 6000194 | ASA400R-400-HN-4.13   | 9.00             | 4.00           | 0.083               | 4.13   |
| 6000195 | ASA400R-600-HN-5.25   | 9.00             | 6.00           | 0.083               | 5.25   |
| 6000196 | ASA600R-600-HN-5.38   | 11.00            | 6.00           | 0.083               | 5.38   |
| 6000197 | ASA600R-800-HN-7.38   | 11.00            | 8.00           | 0.120               | 7.38   |
| 6000198 | ASA800R-800-HN-7.75   | 13.50            | 8.00           | 0.120               | 7.75   |
| 6000199 | ASA800R-1000-HN-9.88  | 13.50            | 10.00          | 0.120               | 9.88   |
| 6000200 | ASA1000R-1000-HN-9.88 | 16.00            | 10.00          | 0.120               | 9.88   |
| 6000201 | ASA1000R-1200-HN-9.88 | 16.00            | 12.00          | 0.120               | 9.88   |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a custom option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

**Call For Pricing**

**Materials:**

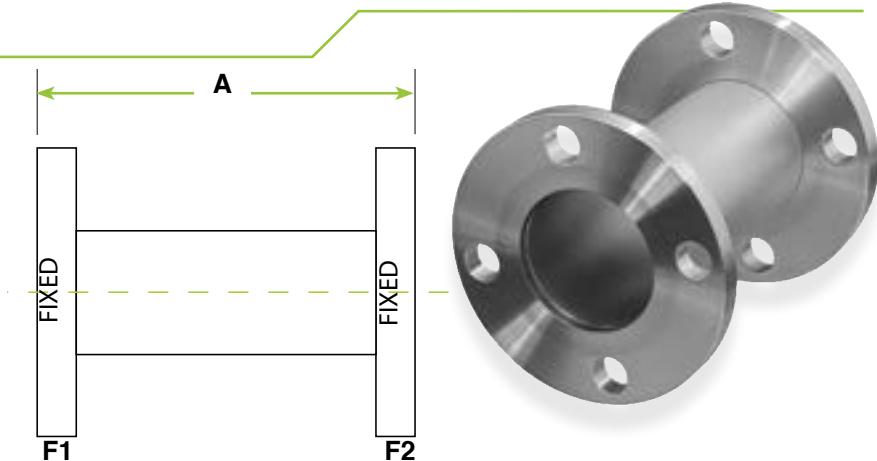
- 304 stainless steel

**Product Notes:**

- Same size flange on both ends
- Both flanges have a fixed bolt hole orientation
- Highly customizable:  
O-ring groove available  
(see chart below)

**Options:****Call for price and delivery**

- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID                 | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|------------------------------|------------------|----------------|--------|
| 6000220 | ASA100XASA100-100-N-6.50     | 4.25             | 1.00           | 6.50   |
| 6000221 | ASA100XASA100-150-N-6.50     | 4.25             | 1.50           | 6.50   |
| 6000222 | ASA100XASA100-150-N-8.00     | 4.25             | 1.50           | 8.00   |
| 6000223 | ASA150XASA150-150-N-6.50     | 5.00             | 1.50           | 6.50   |
| 6000224 | ASA150XASA200-150-N-6.50     | 5.00             | 2.00           | 6.50   |
| 6000225 | ASA150XASA250-150-N-6.50     | 5.00             | 2.50           | 6.50   |
| 6000226 | ASA150XASA250-150-N-8.00     | 5.00             | 2.50           | 8.00   |
| 6000227 | ASA200XASA200-200-N-7.00     | 6.00             | 2.00           | 7.00   |
| 6000228 | ASA200XASA250-200-N-7.00     | 6.00             | 2.50           | 7.00   |
| 6000229 | ASA200XASA300-200-N-7.00     | 6.00             | 3.00           | 7.00   |
| 6000230 | ASA200XASA300-200-N-8.50     | 6.00             | 3.00           | 8.50   |
| 6000231 | ASA300XASA300-300-N-8.26     | 7.50             | 3.00           | 8.26   |
| 6000232 | ASA300XASA300-300-N-9.75     | 7.50             | 3.00           | 9.75   |
| 6000233 | ASA300XASA400-300-N-8.26     | 7.50             | 4.00           | 8.26   |
| 6000234 | ASA300XASA400-300-N-10.24    | 7.50             | 4.00           | 10.24  |
| 6000235 | ASA400XASA400-400-N-8.26     | 9.00             | 4.00           | 8.26   |
| 6000236 | ASA400XASA400-400-N-10.24    | 9.00             | 4.00           | 10.24  |
| 6000237 | ASA400XASA600-400-N-10.50    | 9.00             | 6.00           | 10.50  |
| 6000238 | ASA400XASA600-400-N-12.62    | 9.00             | 6.00           | 12.62  |
| 6000239 | ASA600XASA600-600-N-10.76    | 11.00            | 6.00           | 10.76  |
| 6000240 | ASA600XASA600-600-N-12.88    | 11.00            | 6.00           | 12.88  |
| 6000241 | ASA600XASA800-600-N-10.76    | 11.00            | 8.00           | 10.76  |
| 6000242 | ASA600XASA800-600-N-14.76    | 11.00            | 8.00           | 14.76  |
| 6000243 | ASA800XASA800-800-N-15.50    | 13.50            | 8.00           | 15.50  |
| 6000244 | ASA800XASA1000-800-N-19.76   | 13.50            | 10.00          | 19.76  |
| 6000245 | ASA1000XASA1000-1000-N-19.76 | 16.00            | 10.00          | 19.76  |
| 6000246 | ASA1000XASA1200-1000-N-19.76 | 16.00            | 12.00          | 19.76  |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a custom option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

- For this option add the following to the end of the reference number:  
ASA800GXASA800G

**Call For Pricing**

## ASA Nipples

**Materials:**

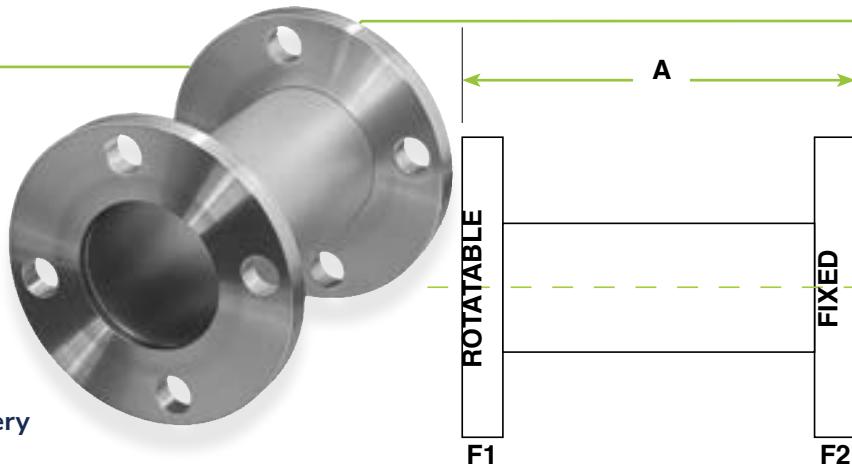
- 304 stainless steel

**Product Notes:**

- Same size flange on both ends
- Clearance bolt holes
- One fixed and one rotatable flange per fitting
- Highly customizable: O-ring groove available (see chart below)

**Options: Call for price and delivery**

- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID         | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|----------------------|------------------|----------------|--------|
| 6000301 | ASA100-100-N-6.50    | 4.25             | 1.00           | 6.50   |
| 6000302 | ASA100-150-N-6.50    | 4.25             | 1.50           | 6.50   |
| 6000303 | ASA100-150-N-8.00    | 4.25             | 1.50           | 8.00   |
| 6000304 | ASA150-150-N-6.50    | 5.00             | 1.50           | 6.50   |
| 6000305 | ASA200-150-N-6.50    | 5.00             | 2.00           | 6.50   |
| 6000306 | ASA250-150-N-6.50    | 5.00             | 2.50           | 6.50   |
| 6000307 | ASA250-150-N-8.00    | 5.00             | 2.50           | 8.00   |
| 6000308 | ASA200-200-N-7.00    | 6.00             | 2.00           | 7.00   |
| 6000309 | ASA250-200-N-7.00    | 6.00             | 2.50           | 7.00   |
| 6000310 | ASA300-200-N-7.00    | 6.00             | 3.00           | 7.00   |
| 6000311 | ASA300-200-N-9.75    | 6.00             | 3.00           | 9.75   |
| 6000312 | ASA300-300-N-8.26    | 7.50             | 3.00           | 8.26   |
| 6000313 | ASA300-300-N-9.75    | 7.50             | 3.00           | 9.75   |
| 6000314 | ASA400-300-N-8.26    | 7.50             | 4.00           | 8.26   |
| 6000315 | ASA400-300-N-10.24   | 7.50             | 4.00           | 10.24  |
| 6000316 | ASA400-400-N-8.26    | 9.00             | 4.00           | 8.26   |
| 6000317 | ASA400-400-N-10.24   | 9.00             | 4.00           | 10.24  |
| 6000318 | ASA600-400-N-10.50   | 9.00             | 6.00           | 10.50  |
| 6000319 | ASA600-400-N-12.62   | 9.00             | 6.00           | 12.62  |
| 6000320 | ASA600-600-N-10.76   | 11.00            | 6.00           | 10.76  |
| 6000321 | ASA600-600-N-12.88   | 11.00            | 6.00           | 12.88  |
| 6000322 | ASA800-600-N-10.76   | 11.00            | 8.00           | 10.76  |
| 6000323 | ASA800-600-N-14.76   | 11.00            | 8.00           | 14.76  |
| 6000324 | ASA800-800-N-15.50   | 13.50            | 8.00           | 15.50  |
| 6000325 | ASA1000-800-N-19.76  | 13.50            | 10.00          | 19.76  |
| 6000326 | ASA1000-1000-N-19.76 | 16.00            | 10.00          | 19.76  |
| 6000327 | ASA1200-1000-N-19.76 | 16.00            | 12.00          | 19.76  |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

- For this option add the following to the end of the reference number:  
ASA400GXASA400R

**Call For Pricing**

**Materials:**

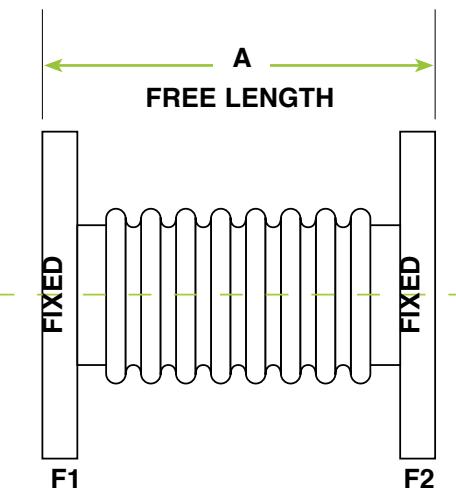
- Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel formed bellows

**Product Notes:**

- Corrects misaligned connections
- Both flanges have a fixed bolt hole orientation
- O-ring groove available (see chart below)

**Options: Call for price and delivery**

- Larger sizes
- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID             | FLANGE TYPE | HOSE I.D. (in) | WALL THICKNESS (in) | A (in) |
|---------|--------------------------|-------------|----------------|---------------------|--------|
| 0800182 | ASA100XASA100-100-B-4.00 | ASA100      | 1.00           | 0.006               | 4.00   |
| 0800183 | ASA100XASA100-150-B-4.00 | ASA100      | 1.50           | 0.006               | 4.00   |
| 0800184 | ASA150XASA150-200-B-4.00 | ASA150      | 2.00           | 0.006               | 4.00   |
| 0800186 | ASA150XASA150-250-B-6.00 | ASA150      | 2.50           | 0.008               | 6.00   |
| 0800187 | ASA200XASA200-300-B-6.00 | ASA200      | 3.00           | 0.008               | 6.00   |
| 0800188 | ASA300XASA300-400-B-6.00 | ASA300      | 4.00           | 0.010               | 6.00   |
| 0800189 | ASA400XASA400-400-B-6.00 | ASA400      | 4.00           | 0.010               | 6.00   |
| 0800190 | ASA400XASA400-600-B-8.00 | ASA400      | 6.00           | 0.012               | 8.00   |
| 0800191 | ASA600XASA600-600-B-8.00 | ASA600      | 6.00           | 0.012               | 8.00   |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

## ASA Flexible Nipples

**Materials:**

- Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel formed bellows

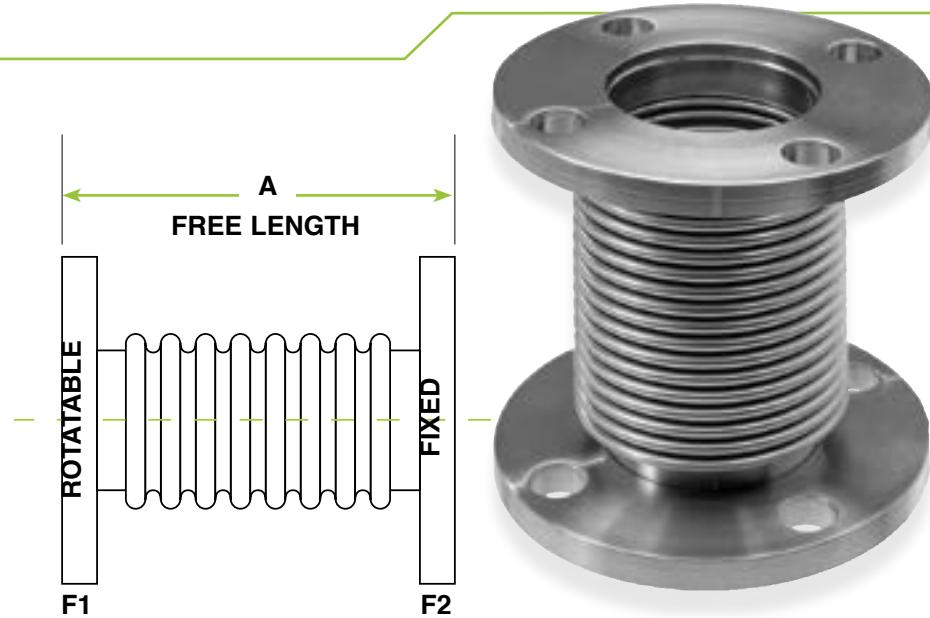
**Product Notes:**

- Corrects misaligned connections
- One fixed and one rotatable flange per fitting
- O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Larger sizes
- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID      | FLANGE TYPE | HOSE I.D. (in) | WALL THICKNESS (in) | A (in) |
|---------|-------------------|-------------|----------------|---------------------|--------|
| 0800197 | ASA100-100-B-4.00 | ASA100      | 1.00           | 0.006               | 4.00   |
| 0800198 | ASA100-150-B-4.00 | ASA100      | 1.50           | 0.006               | 4.00   |
| 0800199 | ASA150-200-B-4.00 | ASA150      | 2.00           | 0.006               | 4.00   |
| 0800200 | ASA150-250-B-6.00 | ASA150      | 2.50           | 0.008               | 6.00   |
| 0800201 | ASA200-300-B-6.00 | ASA200      | 3.00           | 0.008               | 6.00   |
| 0800202 | ASA300-400-B-6.00 | ASA300      | 4.00           | 0.010               | 6.00   |
| 0800203 | ASA400-400-B-6.00 | ASA400      | 4.00           | 0.010               | 6.00   |
| 0800204 | ASA400-600-B-8.00 | ASA400      | 6.00           | 0.012               | 8.00   |
| 0800205 | ASA600-600-B-8.00 | ASA600      | 6.00           | 0.012               | 8.00   |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

**Materials:**

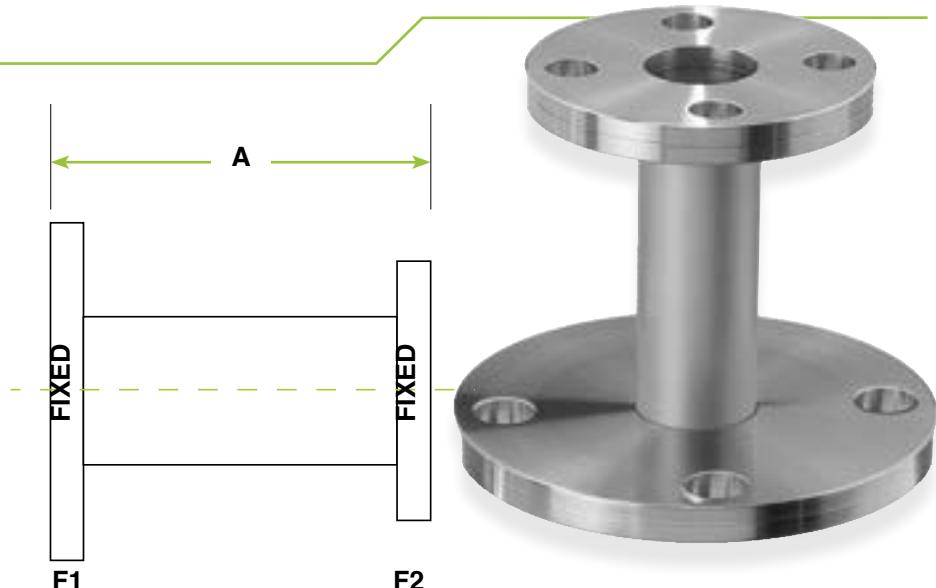
- Flanges: 304 stainless steel

**Product Notes:**

- Connects different size ASA/ANSI flanges
- Both flanges have a fixed bolt hole orientation
- O-ring groove available (see chart on previous page)

**Options:****Call for price and delivery**

- Custom lengths
- Conical reducer fitting
- Custom flange combinations



| PART #  | REFERENCE ID               | FLANGE 1<br>O.D. (in) | FLANGE 2<br>O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|----------------------------|-----------------------|-----------------------|----------------|--------|
| 6000328 | ASA150XASA100-150-N-5.00   | 5.00                  | 4.25                  | 1.50           | 5.00   |
| 6000329 | ASA200XASA100-150-N-5.00   | 6.00                  | 4.25                  | 1.50           | 5.00   |
| 6000330 | ASA200XASA150-200-N-5.00   | 6.00                  | 5.00                  | 2.00           | 5.00   |
| 6000331 | ASA300XASA100-150-N-5.00   | 7.50                  | 4.25                  | 1.50           | 5.00   |
| 6000332 | ASA300XASA150-200-N-5.00   | 7.50                  | 5.00                  | 2.00           | 5.00   |
| 6000333 | ASA300XASA200-300-N-5.00   | 7.50                  | 6.00                  | 3.00           | 5.00   |
| 6000334 | ASA400XASA150-200-N-5.00   | 9.00                  | 5.00                  | 2.00           | 5.00   |
| 6000335 | ASA400XASA200-300-N-5.00   | 9.00                  | 6.00                  | 3.00           | 5.00   |
| 6000336 | ASA400XASA300-400-N-5.00   | 9.00                  | 7.50                  | 4.00           | 5.00   |
| 6000337 | ASA600XASA150-200-N-5.00   | 11.00                 | 5.00                  | 2.00           | 5.00   |
| 6000338 | ASA600XASA200-300-N-5.00   | 11.00                 | 6.00                  | 3.00           | 5.00   |
| 6000339 | ASA600XASA300-400-N-5.00   | 11.00                 | 7.50                  | 4.00           | 5.00   |
| 6000340 | ASA600XASA400-600-N-5.00   | 11.00                 | 9.00                  | 6.00           | 5.00   |
| 6000341 | ASA800XASA150-200-N-5.00   | 13.50                 | 5.00                  | 2.00           | 5.00   |
| 6000342 | ASA800XASA200-300-N-5.00   | 13.50                 | 6.00                  | 3.00           | 5.00   |
| 6000343 | ASA800XASA300-400-N-5.00   | 13.50                 | 7.50                  | 4.00           | 5.00   |
| 6000344 | ASA800XASA400-600-N-5.00   | 13.50                 | 9.00                  | 6.00           | 5.00   |
| 6000345 | ASA800XASA600-800-N-5.00   | 13.50                 | 11.00                 | 8.00           | 5.00   |
| 6000346 | ASA1000XASA150-200-N-5.00  | 16.00                 | 5.00                  | 2.00           | 5.00   |
| 6000347 | ASA1000XASA200-300-N-5.00  | 16.00                 | 6.00                  | 3.00           | 5.00   |
| 6000348 | ASA1000XASA300-400-N-5.00  | 16.00                 | 7.50                  | 4.00           | 5.00   |
| 6000349 | ASA1000XASA400-600-N-5.00  | 16.00                 | 9.00                  | 6.00           | 5.00   |
| 6000350 | ASA1000XASA600-800-N-5.00  | 16.00                 | 11.00                 | 8.00           | 5.00   |
| 6000351 | ASA1000XASA800-1000-N-5.00 | 16.00                 | 13.50                 | 10.00          | 5.00   |

## ASA Reducer Nipples

**Materials:**

- Flanges: 304 stainless steel

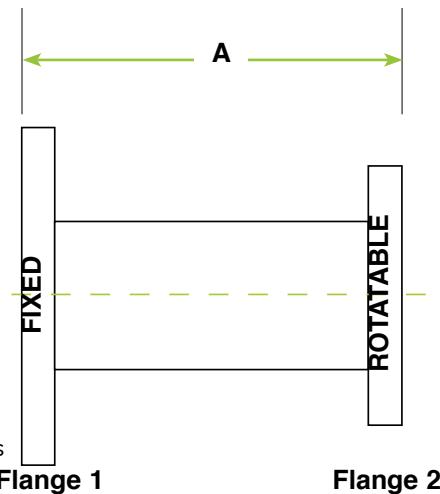
**Product Notes:**

- Connects different size ASA/ANSI flanges
- One fixed and one rotatable flange per fitting
- O-ring groove available (see chart on page 38)

**Options:**

**Call for price and delivery**

- Custom lengths
- Conical reducer fitting
- Custom flange combinations



| PART #  | REFERENCE ID                | FLANGE 1 O.D. (in) | FLANGE 2 O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|-----------------------------|--------------------|--------------------|----------------|--------|
| 6000352 | ASA150XASA100R-150-N-5.00   | 5.00               | 4.25               | 1.50           | 5.00   |
| 6000353 | ASA200XASA100R-150-N-5.00   | 6.00               | 4.25               | 1.50           | 5.00   |
| 6000354 | ASA200XASA150R-200-N-5.00   | 6.00               | 5.00               | 2.00           | 5.00   |
| 6000355 | ASA300XASA100R-150-N-5.00   | 7.50               | 4.25               | 1.50           | 5.00   |
| 6000356 | ASA300XASA150R-200-N-5.00   | 7.50               | 5.00               | 2.00           | 5.00   |
| 6000357 | ASA300XASA200R-300-N-5.00   | 7.50               | 6.00               | 3.00           | 5.00   |
| 6000358 | ASA400XASA150R-200-N-5.00   | 9.00               | 5.00               | 2.00           | 5.00   |
| 6000359 | ASA400XASA200R-300-N-5.00   | 9.00               | 6.00               | 3.00           | 5.00   |
| 6000360 | ASA400XASA300R-400-N-5.00   | 9.00               | 7.50               | 4.00           | 5.00   |
| 6000361 | ASA600XASA150R-200-N-5.00   | 11.00              | 5.00               | 2.00           | 5.00   |
| 6000362 | ASA600XASA200R-300-N-5.00   | 11.00              | 6.00               | 3.00           | 5.00   |
| 6000363 | ASA600XASA300R-400-N-5.00   | 11.00              | 7.50               | 4.00           | 5.00   |
| 6000364 | ASA600XASA400R-600-N-5.00   | 11.00              | 9.00               | 6.00           | 5.00   |
| 6000365 | ASA800XASA150R-200-N-5.00   | 13.50              | 5.00               | 2.00           | 5.00   |
| 6000366 | ASA800XASA200R-300-N-5.00   | 13.50              | 6.00               | 3.00           | 5.00   |
| 6000367 | ASA800XASA300R-400-N-5.00   | 13.50              | 7.50               | 4.00           | 5.00   |
| 6000368 | ASA800XASA400R-600-N-5.00   | 13.50              | 9.00               | 6.00           | 5.00   |
| 6000369 | ASA800XASA600R-800-N-5.00   | 13.50              | 11.00              | 8.00           | 5.00   |
| 6000370 | ASA1000XASA150R-200-N-5.00  | 16.00              | 5.00               | 2.00           | 5.00   |
| 6000371 | ASA1000XASA200R-300-N-5.00  | 16.00              | 6.00               | 3.00           | 5.00   |
| 6000372 | ASA1000XASA300R-400-N-5.00  | 16.00              | 7.50               | 4.00           | 5.00   |
| 6000373 | ASA1000XASA400R-600-N-5.00  | 16.00              | 9.00               | 6.00           | 5.00   |
| 6000374 | ASA1000XASA600R-800-N-5.00  | 16.00              | 11.00              | 8.00           | 5.00   |
| 6000375 | ASA1000XASA800R-1000-N-5.00 | 16.00              | 13.50              | 10.00          | 5.00   |

**Materials:**

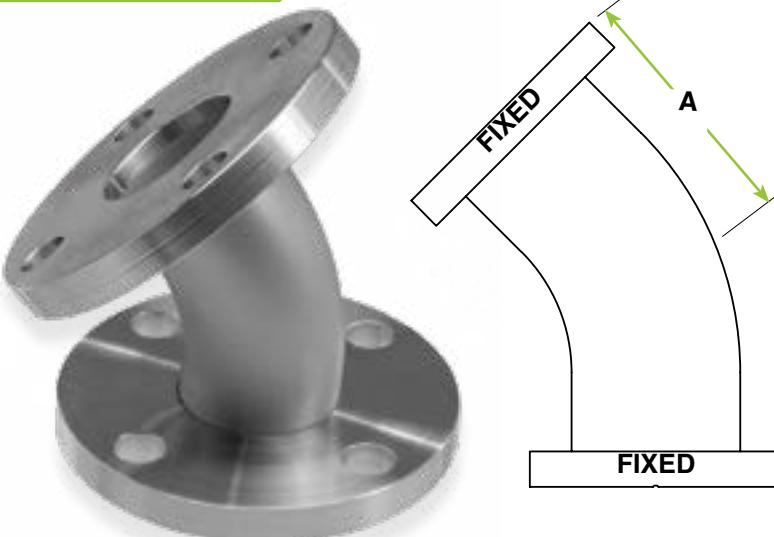
- Flanges: 304 stainless steel

**Product Notes:**

- Radius elbow design
- Both flanges have a fixed bolt hole orientation
- O-ring groove available (see chart below)

**Options:****Call for price and delivery**

- Larger sizes
- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID               | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|----------------------------|------------------|----------------|--------|
| 6000487 | ASA100XASA100-150-E45-1.78 | 4.25             | 1.50           | 1.78   |
| 6000488 | ASA150XASA150-200-E45-2.09 | 5.00             | 2.00           | 2.09   |
| 6000489 | ASA200XASA200-300-E45-3.93 | 6.00             | 3.00           | 3.93   |
| 6000490 | ASA300XASA300-400-E45-5.02 | 7.50             | 4.00           | 5.03   |
| 6000491 | ASA400XASA400-400-E45-5.02 | 9.00             | 4.00           | 5.03   |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

## 45° ASA Elbows

**Materials:**

- Flanges: 304 stainless steel

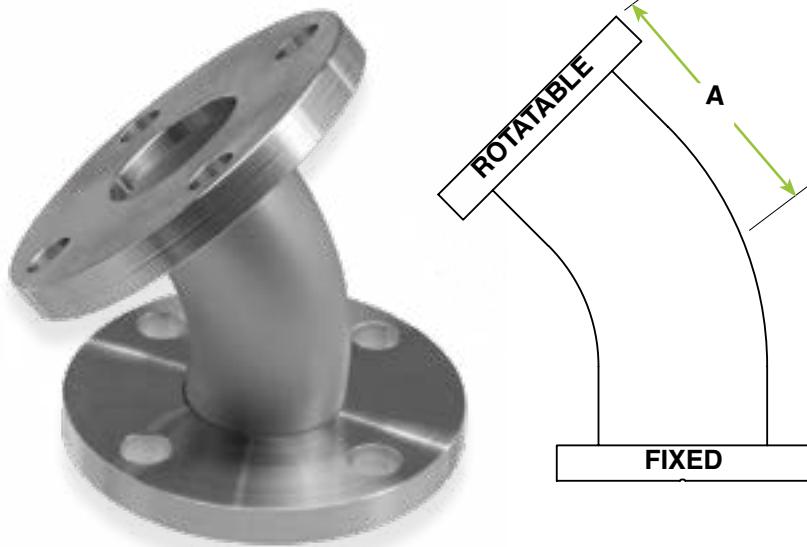
**Product Notes:**

- Radius elbow design
- One fixed and one rotatable flange per fitting
- O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Larger sizes
- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID        | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|---------------------|------------------|----------------|--------|
| 6000493 | ASA100-150-E45-1.78 | 4.25             | 1.50           | 1.78   |
| 6000494 | ASA150-200-E45-2.09 | 5.00             | 2.00           | 2.09   |
| 6000495 | ASA200-300-E45-3.93 | 6.00             | 3.00           | 3.93   |
| 6000496 | ASA300-400-E45-5.02 | 7.50             | 4.00           | 5.03   |
| 6000497 | ASA400-400-E45-5.02 | 9.00             | 4.00           | 5.03   |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

**Materials:**

- Flanges: 304 stainless steel

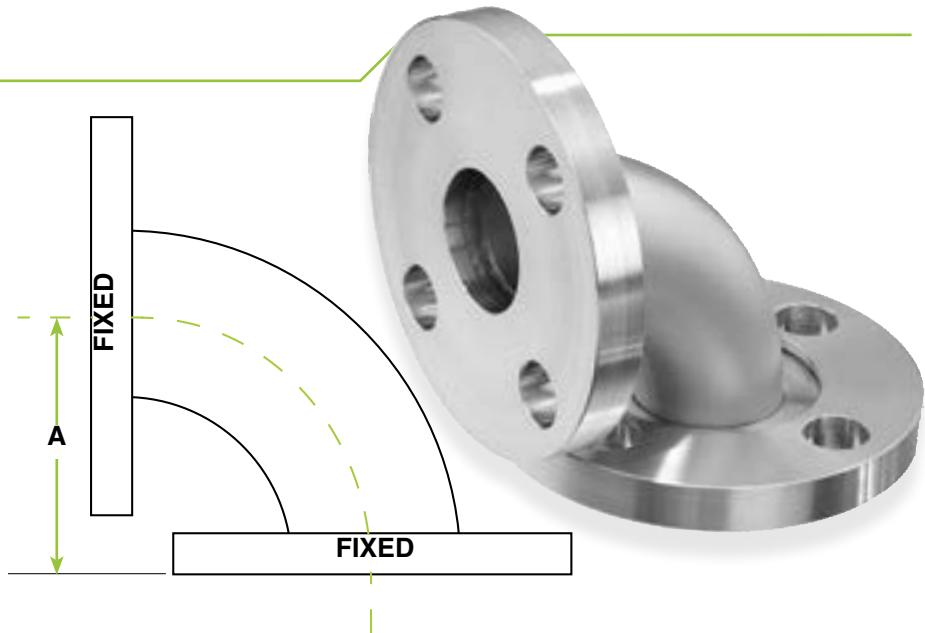
**Product Notes:**

- Radius elbow design
- Both flanges have a fixed bolt hole orientation
- O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID                   | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|--------------------------------|------------------|----------------|--------|
| 6000499 | ASA100XASA100-150-E90-2.66     | 4.25             | 1.50           | 2.66   |
| 6000500 | ASA150XASA150-200-E90-3.25     | 5.00             | 2.00           | 3.25   |
| 6000501 | ASA200XASA200-300-E90-4.75     | 6.00             | 3.00           | 4.75   |
| 6000502 | ASA300XASA300-400-E90-6.25     | 7.50             | 4.00           | 6.25   |
| 6000503 | ASA400XASA400-400-E90-6.25     | 9.00             | 4.00           | 6.25   |
| 6000504 | ASA400XASA400-600-E90-9.25     | 9.00             | 6.00           | 9.25   |
| 6000505 | ASA600XASA600-600-E90-9.38     | 11.00            | 6.00           | 9.38   |
| 6000506 | ASA600XASA600-800-E90-12.38    | 11.00            | 8.00           | 12.38  |
| 6000507 | ASA800XASA800-800-E90-12.38    | 13.50            | 8.00           | 12.38  |
| 6000508 | ASA800XASA800-1000-E90-15.38   | 13.50            | 10.00          | 15.38  |
| 6000509 | ASA1000XASA1000-1000-E90-15.38 | 16.00            | 10.00          | 15.38  |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

## 90° ASA Elbows

**Materials:**

- Flanges: 304 stainless steel

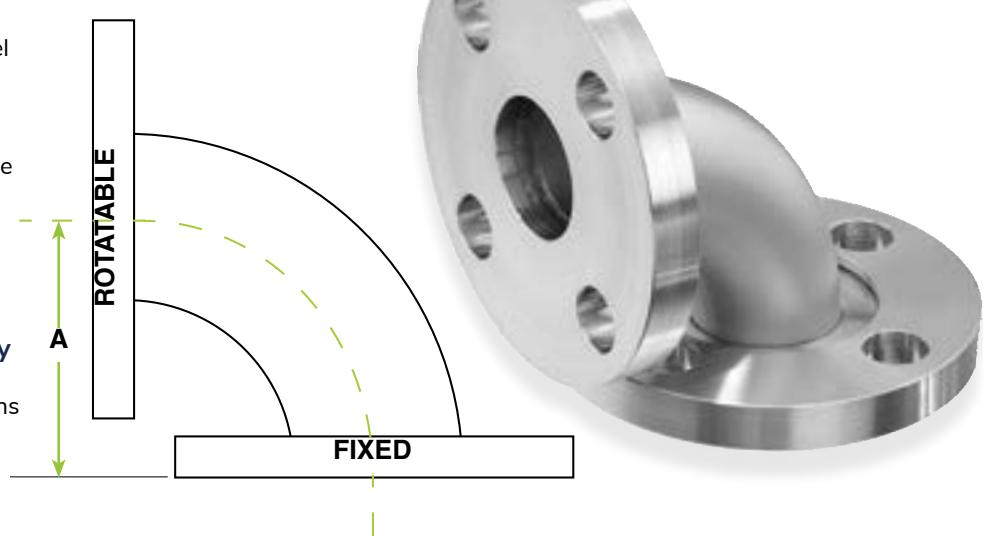
**Product Notes:**

- Radius elbow design
- One fixed and one rotatable flange per fitting
- O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID           | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|------------------------|------------------|----------------|--------|
| 6000511 | ASA100-150-E90-2.66    | 4.25             | 1.50           | 2.66   |
| 6000512 | ASA150-200-E90-3.25    | 5.00             | 2.00           | 3.25   |
| 6000513 | ASA200-300-E90-4.75    | 6.00             | 3.00           | 4.75   |
| 6000514 | ASA300-400-E90-6.25    | 7.50             | 4.00           | 6.25   |
| 6000515 | ASA400-400-E90-6.25    | 9.00             | 4.00           | 6.25   |
| 6000516 | ASA400-600-E90-9.25    | 9.00             | 6.00           | 9.25   |
| 6000517 | ASA600-600-E90-9.38    | 11.00            | 6.00           | 9.38   |
| 6000518 | ASA600-800-E90-12.38   | 11.00            | 8.00           | 12.38  |
| 6000519 | ASA800-800-E90-12.38   | 13.50            | 8.00           | 12.38  |
| 6000520 | ASA800-1000-E90-15.38  | 13.50            | 10.00          | 15.38  |
| 6000521 | ASA1000-1000-E90-15.38 | 16.00            | 10.00          | 15.38  |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

**Materials:**

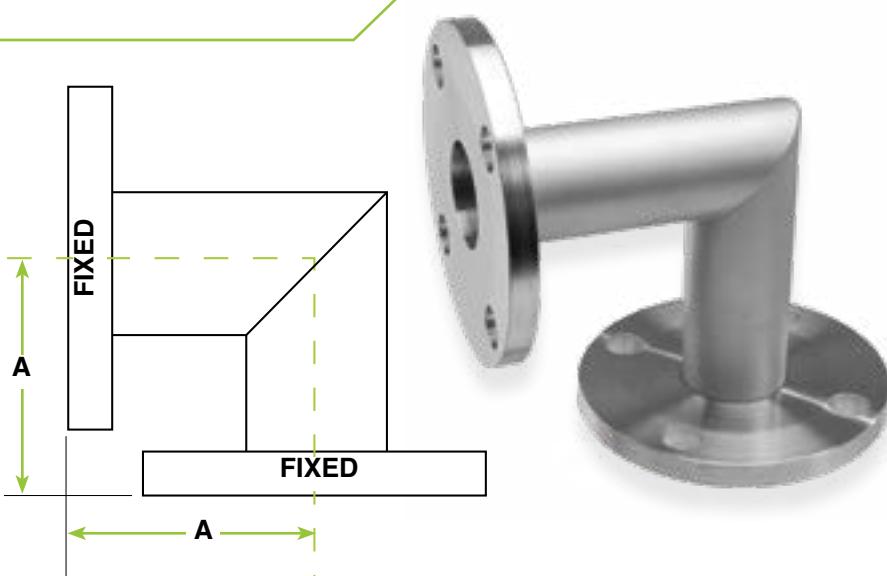
- Flanges: 304 stainless steel

**Product Notes:**

- Mitered elbow design
- Both flanges have a fixed bolt hole orientation
- O-ring groove available (see chart below)

**Options:****Call for price and delivery**

- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID                   | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|--------------------------------|------------------|----------------|--------|
| 6000523 | ASA100XASA100-150-E90M-3.25    | 4.25             | 1.50           | 3.25   |
| 6000525 | ASA150XASA150-200-E90M-3.25    | 5.00             | 2.00           | 3.25   |
| 6000526 | ASA150XASA150-250-E90M-3.25    | 5.00             | 2.50           | 3.25   |
| 6000529 | ASA200XASA200-300-E90M-5.12    | 6.00             | 3.00           | 5.12   |
| 6000530 | ASA300XASA300-300-E90M-5.12    | 7.50             | 3.00           | 5.12   |
| 6000531 | ASA300XASA300-400-E90M-5.12    | 7.50             | 4.00           | 5.12   |
| 6000532 | ASA400XASA400-400-E90M-5.12    | 9.00             | 4.00           | 5.12   |
| 6000533 | ASA400XASA400-600-E90M-5.25    | 9.00             | 6.00           | 5.25   |
| 6000534 | ASA600XASA600-600-E90M-6.44    | 11.00            | 6.00           | 6.44   |
| 6000535 | ASA600XASA600-800-E90M-7.38    | 11.00            | 8.00           | 7.38   |
| 6000536 | ASA800XASA800-800-E90M-7.38    | 13.50            | 8.00           | 7.38   |
| 6000537 | ASA800XASA800-1000-E90M-9.88   | 13.50            | 10.00          | 9.88   |
| 6000538 | ASA1000XASA1000-1000-E90M-9.88 | 16.00            | 10.00          | 9.88   |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

## 90° ASA Elbows

**Materials:**

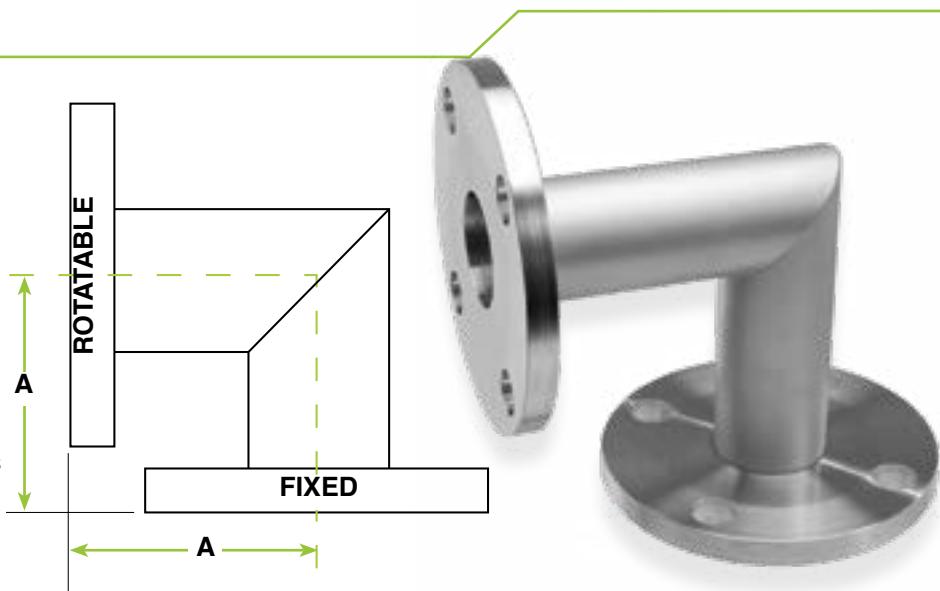
- 304 stainless steel

**Product Notes:**

- One fixed and one rotatable flange per fitting
- O-ring groove available (see chart below)

**Options:****Call for price and delivery**

- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID           | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|------------------------|------------------|----------------|--------|
| 6000540 | ASA100-150-E90M-3.25   | 4.25             | 1.50           | 3.25   |
| 6000542 | ASA150-200-E90M-3.25   | 5.00             | 2.00           | 3.25   |
| 6000543 | ASA150-250-E90M-3.25   | 5.00             | 2.50           | 3.25   |
| 6000546 | ASA200-300-E90M-5.12   | 6.00             | 3.00           | 5.12   |
| 6000547 | ASA300-300-E90M-5.12   | 7.50             | 3.00           | 5.12   |
| 6000548 | ASA300-400-E90M-5.12   | 7.50             | 4.00           | 5.12   |
| 6000549 | ASA400-400-E90M-5.12   | 9.00             | 4.00           | 5.12   |
| 6000550 | ASA400-600-E90M-5.25   | 9.00             | 6.00           | 5.25   |
| 6000551 | ASA600-600-E90M-6.44   | 11.00            | 6.00           | 6.44   |
| 6000552 | ASA600-800-E90M-7.38   | 11.00            | 8.00           | 7.38   |
| 6000553 | ASA800-800-E90M-7.38   | 13.50            | 8.00           | 7.38   |
| 6000554 | ASA800-1000-E90M-9.88  | 13.50            | 10.00          | 9.88   |
| 6000555 | ASA1000-1000-E90M-9.88 | 16.00            | 10.00          | 9.88   |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

**Materials:**

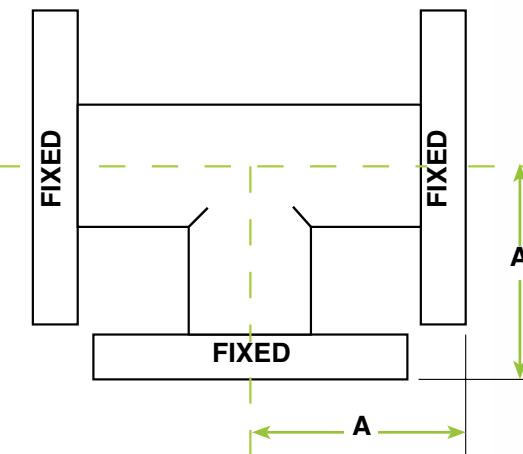
- Flanges: 304 stainless steel

**Product Notes:**

- Pulled ports for optimum vacuum performance
- Flanges have a fixed bolt hole orientation
- O-ring groove available (see chart below)

**Options:****Call for price and delivery**

- Custom lengths
- Custom flange combinations
- Reducing tee fittings



| PART #  | REFERENCE ID                          | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|---------------------------------------|------------------|----------------|--------|
| 6000556 | ASA100XASA100XASA100-150-TEE-2.64     | 4.25             | 1.50           | 2.64   |
| 6000559 | ASA150XASA150XASA150-200-TEE-3.25     | 5.00             | 2.00           | 3.25   |
| 6000560 | ASA150XASA150XASA150-250-TEE-3.25     | 5.00             | 2.50           | 3.25   |
| 6000563 | ASA200XASA200XASA200-300-TEE-3.50     | 6.00             | 3.00           | 3.50   |
| 6000565 | ASA300XASA300XASA300-400-TEE-5.12     | 7.50             | 4.00           | 5.12   |
| 6000566 | ASA400XASA400XASA400-400-TEE-5.12     | 9.00             | 4.00           | 5.12   |
| 6000567 | ASA400XASA400XASA400-600-TEE-5.25     | 9.00             | 6.00           | 5.25   |
| 6000568 | ASA600XASA600XASA600-600-TEE-6.44     | 11.00            | 6.00           | 6.44   |
| 6000569 | ASA600XASA600XASA600-800-TEE-7.38     | 11.00            | 8.00           | 7.38   |
| 6000570 | ASA800XASA800XASA800-800-TEE-7.75     | 13.50            | 8.00           | 7.75   |
| 6000571 | ASA800XASA800XASA800-1000-TEE-9.88    | 13.50            | 10.00          | 9.88   |
| 6000572 | ASA1000XASA1000XASA1000-1000-TEE-9.88 | 16.00            | 10.00          | 9.88   |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a standard option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

## ASA Tees

**Materials:**

- Flanges: 304 stainless steel

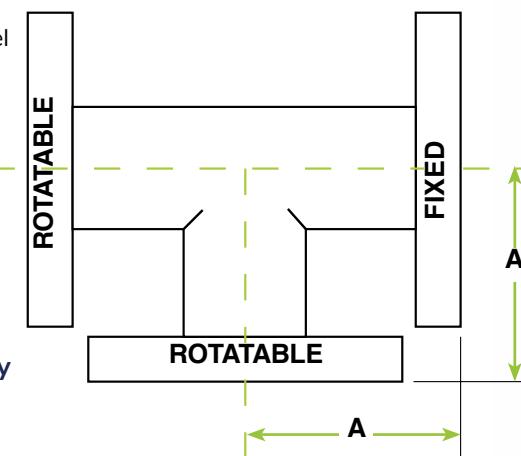
**Product Notes:**

- Pulled ports for optimum vacuum performance
- One Fixed and one Rotatable flange per axis
- O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Custom lengths
- Custom flange combinations
- Reducing tee fittings



| PART #  | REFERENCE ID          | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|-----------------------|------------------|----------------|--------|
| 6000573 | ASA100-150-TEE-2.64   | 4.25             | 1.50           | 2.50   |
| 6000576 | ASA150-200-TEE-3.25   | 5.00             | 2.00           | 3.25   |
| 6000577 | ASA150-250-TEE-3.25   | 5.00             | 2.50           | 3.25   |
| 6000580 | ASA200-300-TEE-3.50   | 6.00             | 3.00           | 3.50   |
| 6000582 | ASA300-400-TEE-5.12   | 7.50             | 4.00           | 5.12   |
| 6000583 | ASA400-400-TEE-5.12   | 9.00             | 4.00           | 5.12   |
| 6000584 | ASA400-600-TEE-5.12   | 9.00             | 6.00           | 5.25   |
| 6000585 | ASA600-600-TEE-6.44   | 11.00            | 6.00           | 6.44   |
| 6000586 | ASA600-800-TEE-7.38   | 11.00            | 8.00           | 7.38   |
| 6000587 | ASA800-800-TEE-7.75   | 13.50            | 8.00           | 7.75   |
| 6000588 | ASA800-1000-TEE-9.88  | 13.50            | 10.00          | 9.88   |
| 6000589 | ASA1000-1000-TEE-9.88 | 16.00            | 10.00          | 9.88   |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. Adding a groove to this product is customization and will no longer be returnable. If you require a grooved flange the additional charge for this is detailed in this chart.

**Call For Pricing**

**Materials:**

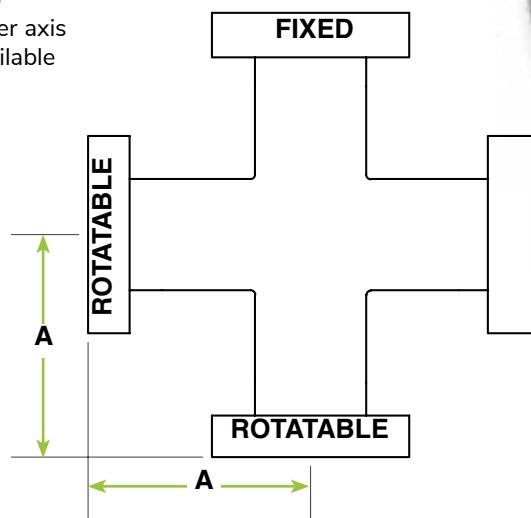
- Flanges: 304 stainless steel

**Product Notes:**

- Pulled ports for optimum vacuum performance
- One fixed and one rotatable flange per axis
- O-ring groove available (see chart below)

**Options:****Call for price and delivery**

- Custom lengths
- Custom flange combinations
- Reducing cross fittings



| PART #  | REFERENCE ID         | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|----------------------|------------------|----------------|--------|
| 6000608 | ASA100-150-4X-2.50   | 4.25             | 1.50           | 2.50   |
| 6000610 | ASA150-200-4X-3.25   | 5.00             | 2.00           | 3.25   |
| 6000611 | ASA150-250-4X-3.25   | 5.00             | 2.50           | 3.25   |
| 6000614 | ASA200-300-4X-3.50   | 6.00             | 3.00           | 3.50   |
| 6000616 | ASA300-400-4X-5.12   | 7.50             | 4.00           | 5.12   |
| 6000617 | ASA400-400-4X-5.12   | 9.00             | 4.00           | 5.12   |
| 6000618 | ASA400-600-4X-5.25   | 9.00             | 6.00           | 5.25   |
| 6000619 | ASA600-600-4X-6.44   | 11.00            | 6.00           | 6.44   |
| 6000620 | ASA800-600-4X-7.38   | 11.00            | 8.00           | 7.38   |
| 6000621 | ASA800-800-4X-7.75   | 13.50            | 8.00           | 7.75   |
| 6000622 | ASA800-1000-4X-9.88  | 13.50            | 10.00          | 9.88   |
| 6000623 | ASA1000-1000-4X-9.88 | 16.00            | 10.00          | 9.88   |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. Adding a groove to this product is customization and will no longer be returnable. If you require a grooved flange the additional charge for this is detailed in this chart.

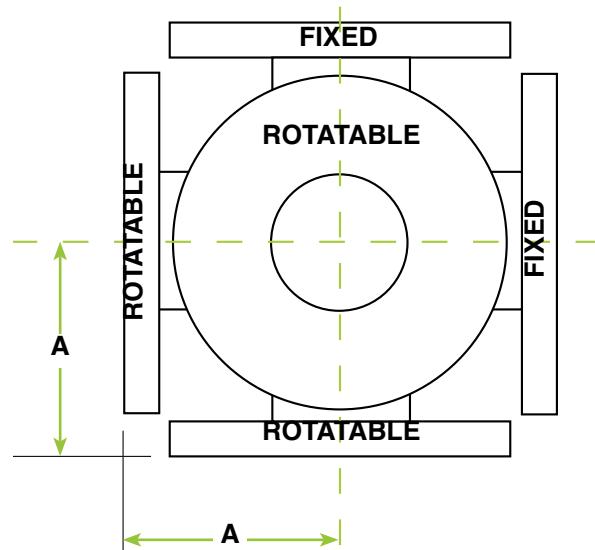
**Call For Pricing**

**ASA 5-Way Crosses****Materials:**

- Flanges: 304 stainless steel

**Product Notes:**

- Pulled ports for optimum vacuum performance
- One fixed and one rotatable flange per axis
- O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Custom lengths
- Custom flange combinations

| PART #  | REFERENCE ID         | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|----------------------|------------------|----------------|--------|
| 6000640 | ASA100-150-5X-2.50   | 4.25             | 1.50           | 2.50   |
| 6000641 | ASA150-200-5X-3.25   | 5.00             | 2.00           | 3.25   |
| 6000642 | ASA150-250-5X-3.25   | 5.00             | 2.50           | 3.25   |
| 6000644 | ASA200-300-5X-3.50   | 6.00             | 3.00           | 3.50   |
| 6000646 | ASA300-400-5X-5.12   | 7.50             | 4.00           | 5.12   |
| 6000647 | ASA400-400-5X-5.12   | 9.00             | 4.00           | 5.12   |
| 6000648 | ASA400-600-5X-5.25   | 9.00             | 6.00           | 5.25   |
| 6000649 | ASA600-600-5X-6.44   | 11.00            | 6.00           | 6.44   |
| 6000650 | ASA600-800-5X-7.38   | 11.00            | 8.00           | 7.38   |
| 6000651 | ASA800-800-5X-7.75   | 13.50            | 8.00           | 7.75   |
| 6000652 | ASA800-1000-5X-9.88  | 13.50            | 10.00          | 9.88   |
| 6000653 | ASA1000-1000-5X-9.88 | 16.00            | 10.00          | 9.88   |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. Adding a groove to this product is customization and will no longer be returnable. If you require a grooved flange the additional charge for this is detailed in this chart.

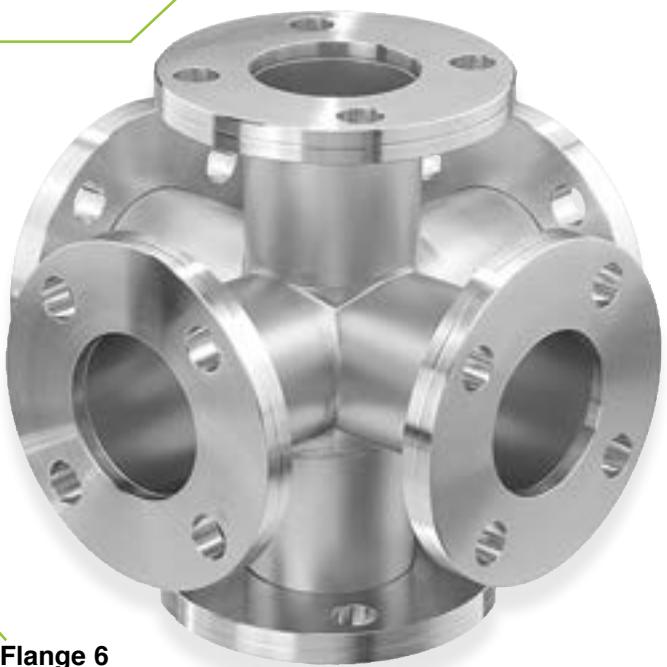
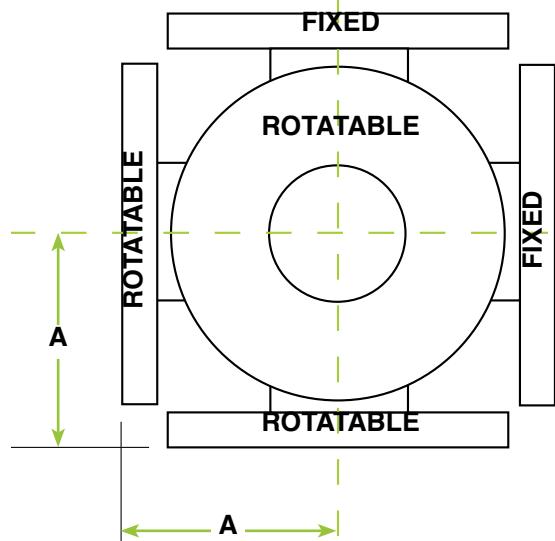
**Call For Pricing**

**Materials:**

- 304 stainless steel

**Product Notes:**

- Pulled ports for optimum vacuum performance
- One fixed and one rotatable flange per axis
- O-ring groove available (see chart below)

**Options:**

**Call for price and delivery**

- Custom lengths
- Custom flange combinations

| PART #  | REFERENCE ID         | FLANGE O.D. (in) | TUBE O.D. (in) | A (in) |
|---------|----------------------|------------------|----------------|--------|
| 6000671 | ASA100-150-6X-2.50   | 4.25             | 1.50           | 2.50   |
| 6000672 | ASA150-200-6X-2.50   | 5.00             | 2.00           | 2.50   |
| 6000673 | ASA150-250-6X-3.25   | 5.00             | 2.50           | 3.25   |
| 6000675 | ASA200-300-6X-3.50   | 6.00             | 3.00           | 3.50   |
| 6000677 | ASA300-400-6X-5.12   | 7.50             | 4.00           | 5.12   |
| 6000678 | ASA400-400-6X-5.12   | 9.00             | 4.00           | 5.12   |
| 6000679 | ASA400-600-6X-5.25   | 9.00             | 6.00           | 5.25   |
| 6000680 | ASA600-600-6X-6.44   | 11.00            | 6.00           | 6.44   |
| 6000681 | ASA600-800-6X-7.38   | 11.00            | 8.00           | 7.38   |
| 6000682 | ASA800-800-6X-7.75   | 13.50            | 8.00           | 7.75   |
| 6000683 | ASA800-1000-6X-9.88  | 13.50            | 10.00          | 9.88   |
| 6000684 | ASA1000-1000-6X-9.88 | 16.00            | 10.00          | 9.88   |

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. Adding a groove to this product is customization and will no longer be returnable. If you require a grooved flange the additional charge for this is detailed in this chart.

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## Hybrid Adapters



4

Hybrid Adapters

**Hybrid Adapters Introduction ..... 4.03****Vacuum Flange to Vacuum Flange Adapters**

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**Vacuum Flange to Process Fitting Adapters**

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|--|-------------|
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# Hybrid ADAPTERS



## Overview

**ANCORP** hybrid adapter fittings allow vacuum users to connect two dissimilar vacuum flanges or a vacuum flange to a fitting used in conjunction with vacuum process (Swagelok®, VCR®, NPT).

To minimize the effect this transition fitting has on conductance, hybrid adapters are designed with the shortest length and with the largest inner diameter possible.

Please note that hybrid adapters are not used to change sizes within one flange family. Fittings used to connect two differently sized flanges from within the **Specifications:** same vacuum flange family are called reducer fittings. These fittings can be found in the catalog section for

### • Vacuum Rating:

- UHV hybrid adapters: CF to Swagelok® or CF to VCR®
- HV hybrid adapters: All flanges and fittings that include an elastomer seal
- **Leak Rating:**  $< 1 \times 10^{-9}$  std. cc/s helium
- **Temperature Range:**
  - Metal seal flanges and fittings: -200°C up to 450°C
  - Elastomer seal flanges and fittings -26°C up to 205°C
- **Materials:**
  - Flanges and fittings: 304 stainless steel and aluminum

### TECH TIP



ISO-QF and ISO-LF look different, but are in fact part of the same vacuum flange family. Thus QF to LF reducer fittings are listed in the ISO section of the catalog.

### Features:

- Adapt from one family of vacuum flanges or fittings to another
- Allows connection of vacuum flanges to non-vacuum fittings.
- Wide variety of design options to meet your application Flange to Flange needs.

These fittings allow transitions between two dissimilar flange families - for example a CF flange to an ISO-QF. Common uses for these fittings include retro-fitting an existing vacuum system or adding gauges and

### Flange to Fitting

These fittings allow transitions between standard vacuum flanges and a variety of specialty fittings employed in a vacuum system. An example of this is a QF flange to VCR® fitting. Common uses for these fittings include the introduction of process

## Hybrid Adapters Introduction

## CF to QF Adapter

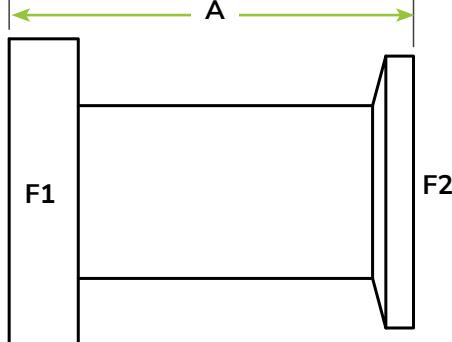
**Materials:**

- 304 stainless steel

flanges

**Product Notes:**

- Adapts from CF to ISO-QF


**Options: Call for price and availability**

- Custom flange combinations and additional sizes



| PART #  | REFERENCE ID          | FLANGE 1 TUBE O.D. (IN) | FLANGE 2 TUBE O.D. (IN) | A (in) | TUBE O.D. (in) |
|---------|-----------------------|-------------------------|-------------------------|--------|----------------|
| 5000678 | CF133XQF16-075-N-1.75 | 1.33                    | 1.180                   | 1.75   | 0.75           |
| 5000679 | CF275XQF16-075-N-1.78 | 2.72                    | 1.180                   | 1.78   | 0.75           |
| 5000680 | CF212XQF25-100-N-1.75 | 2.12                    | 1.575                   | 1.75   | 1.00           |
| 5000681 | CF275XQF25-100-N-1.78 | 2.72                    | 1.575                   | 1.78   | 1.00           |
| 5000682 | CF275XQF40-150-N-1.78 | 2.72                    | 2.165                   | 1.78   | 1.50           |
| 5000683 | CF338XQF40-150-N-1.80 | 3.38                    | 2.165                   | 1.80   | 1.50           |
| 5000684 | CF133XQF50-075-N-1.95 | 1.33                    | 2.953                   | 1.95   | 0.75           |
| 5000685 | CF275XQF50-150-N-1.95 | 2.72                    | 2.953                   | 1.95   | 1.50           |
| 5000686 | CF338XQF50-200-N-1.80 | 3.38                    | 2.953                   | 1.80   | 2.00           |

**ORDERING NOTE:** Tee, cross and elbow hybrid adapters are also available - contact the sales department for a quote

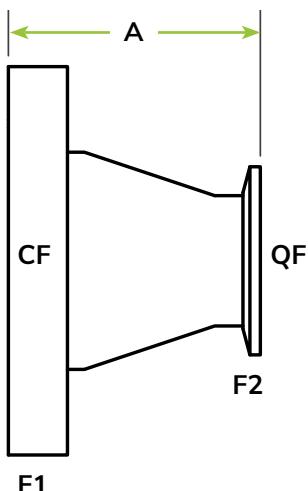
## CF to QF Conical Adapter

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from CF to ISO-QF flanges for different tubing diameters.


**CF to QF**

| PART #  | REFERENCE ID               | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) |
|---------|----------------------------|---------------|-------------------------|---------------|-------------------------|--------|
| 5000691 | CF212XQF16-100X075-CR-1.69 | CF212         | 1.00                    | QF16          | 0.75                    | 1.69   |
| 5000694 | CF275XQF16-150X075-CR-2.73 | CF275         | 1.50                    | QF16          | 0.75                    | 2.73   |
| 5000695 | CF275XQF25-150X100-CR-2.73 | CF275         | 1.50                    | QF25          | 1.00                    | 2.73   |
| 5000697 | CF338XQF25-200X100-CR-2.75 | CF338         | 2.00                    | QF25          | 1.00                    | 2.75   |
| 5000698 | CF338XQF40-200X150-CR-2.75 | CF338         | 2.00                    | QF40          | 1.50                    | 2.75   |
| 5000699 | CF450XQF40-250X150-CR-2.90 | CF450         | 2.50                    | QF40          | 1.50                    | 2.90   |
| 5000700 | CF450XQF50-250X200-CR-2.90 | CF450         | 2.50                    | QF50          | 2.00                    | 2.90   |
| 5000701 | CF462XQF40-300X150-CR-4.15 | CF462         | 3.00                    | QF40          | 1.50                    | 4.15   |
| 5000702 | CF462XQF50-300X200-CR-4.15 | CF462         | 3.00                    | QF50          | 2.00                    | 4.15   |
| 5000703 | CF600XQF50-400X200-CR-4.21 | CF600         | 4.00                    | QF50          | 2.00                    | 4.21   |

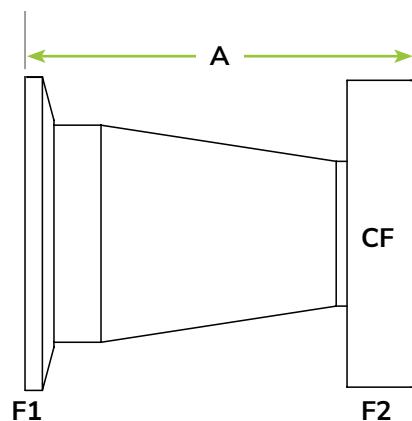
## QF to CF Conical Adapter

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from ISO-QF to CF flanges for different tubing diameters.


**QF to CF**

| PART #  | REFERENCE ID               | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) |
|---------|----------------------------|---------------|-------------------------|---------------|-------------------------|--------|
| 5000689 | QF25XCF133-100X075-CR-2.03 | QF25          | 1.00                    | CF133         | 0.75                    | 2.03   |
| 5000690 | QF40XCF133-150X075-CR-3.03 | QF40          | 1.50                    | CF133         | 0.75                    | 3.03   |
| 5000692 | QF40XCF212-150X100-CR-2.70 | QF40          | 1.50                    | CF212         | 1.00                    | 2.70   |
| 5000693 | QF50XCF212-200X100-CR-2.69 | QF50          | 2.00                    | CF212         | 1.00                    | 2.69   |
| 5000696 | QF50XCF275-200X150-CR-2.73 | QF50          | 2.00                    | CF275         | 1.50                    | 2.73   |

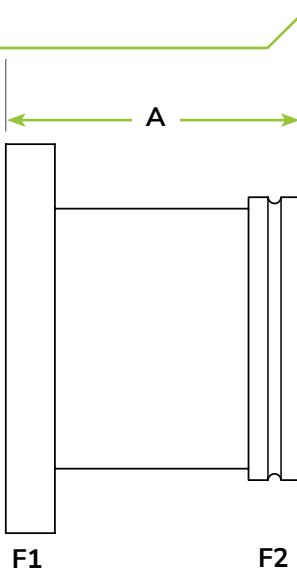
## CF to LF Adapter

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from CF to ISO-LF flanges for the same tubing diameter.

**Options: Call for price and delivery**


| PART #  | REFERENCE ID            | FLANGE 1 TYPE | FLANGE 2 TYPE | A (in) | TUBE O.D. (in) |
|---------|-------------------------|---------------|---------------|--------|----------------|
| 5000704 | CF450XLF63-250-N-4.33   | CF450         | LF63          | 4.33   | 2.50           |
| 5000705 | CF462XLF80-300-N-4.33   | CF462         | LF80          | 4.33   | 3.00           |
| 5000706 | CF600XLF80-300-N-4.33   | CF600         | LF80          | 4.33   | 3.00           |
| 5000707 | CF600XLF100-400-N-4.37  | CF600         | LF100         | 4.37   | 4.00           |
| 5000708 | CF800XLF160-600-N-4.45  | CF800         | LF160         | 4.45   | 6.00           |
| 5000709 | CF1000XLF200-800-N-4.45 | CF1000        | LF200         | 4.45   | 8.00           |



**What advantage does a conical reducer offer compared to a similarly flanged straight reducer? The answer is simple: CONDUCTANCE!**

Over the same length, a conical reducer has a larger mean diameter than a straight reducer with the same flange terminations. As illustrated by the equation for conductance (C) below, diameter (D) has a third-order effect on conductance. So, if you want to increase conductance, increasing diameter is the best place to start! Reducing length (L) helps as well, but length only has a first-order effect on conductance.

Eliminating bends in a system is another way to optimize conductance. When it comes to designing a system for optimal conductance, it helps to remember these three characteristics: Fat, Short, and Straight!

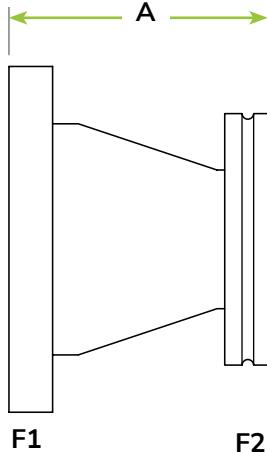
## CF to LF Conical Adapter

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from CF to ISO-LF flanges for the same tubing diameter.

**Options: Call for price and delivery**


### CF to LF

| PART #  | REFERENCE ID               | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) | B.H.C. (in) |
|---------|----------------------------|---------------|-------------------------|---------------|-------------------------|--------|-------------|
| 5000717 | CF462XLF63-300X250-CR-4.25 | CF462         | 3.00                    | LF63          | 2.50                    | 4.250  | 4.030       |
| 5000719 | CF600XLF63-400X250-CR-4.31 | CF600         | 4.00                    | LF63          | 2.50                    | 4.313  | 5.128       |
| 5000720 | CF600XLF80-400X300-CR-4.31 | CF600         | 4.00                    | LF80          | 3.00                    | 4.313  | 5.128       |

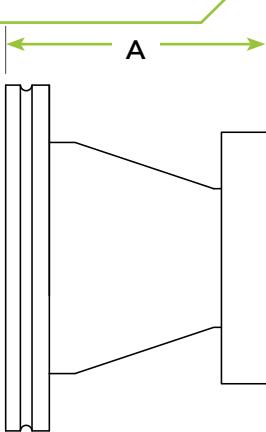
## LF to CF Conical Adapter

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from ISO-CF to LF flanges for the same tubing diameter.

**Options: Call for price and delivery**


### LF to CF

| PART #  | REFERENCE ID                | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) | B.H.C. (in) |
|---------|-----------------------------|---------------|-------------------------|---------------|-------------------------|--------|-------------|
| 5000710 | LF63XCF275-250X150-CR-2.83  | LF63          | 2.50                    | CF275         | 1.50                    | 2.83   | 2.312       |
| 5000711 | LF80XCF275-300X150-CR-4.08  | LF80          | 3.00                    | CF275         | 1.50                    | 4.08   | 2.312       |
| 5000712 | LF63XCF338-250X200-CR-2.85  | LF63          | 2.50                    | CF338         | 2.00                    | 2.85   | 2.850       |
| 5000713 | LF80XCF338-300X200-CR-4.10  | LF80          | 3.00                    | CF338         | 2.00                    | 4.10   | 2.850       |
| 5000714 | LF100XCF338-400X200-CR-4.10 | LF100         | 4.00                    | CF338         | 2.00                    | 4.10   | 2.850       |
| 5000715 | LF80XCF450-300X250-CR-4.25  | LF80          | 3.00                    | CF450         | 2.50                    | 4.25   | 3.628       |
| 5000716 | LF100XCF450-400X250-CR-4.25 | LF100         | 4.00                    | CF450         | 2.50                    | 4.25   | 3.628       |
| 5000718 | LF100XCF462-400X300-CR-4.25 | LF100         | 4.00                    | CF462         | 3.00                    | 4.25   | 4.030       |

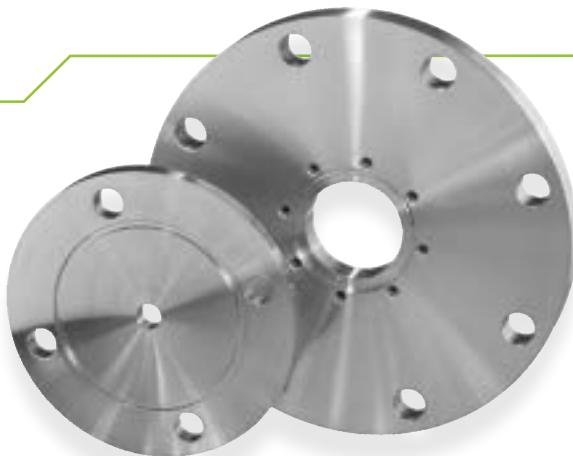
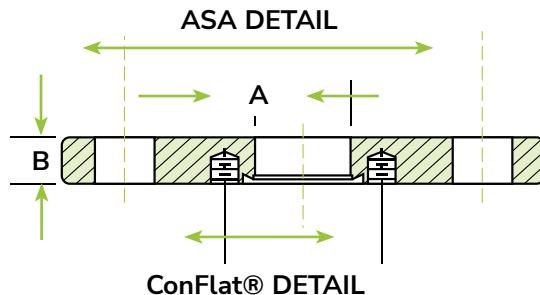
## CF to ASA/ANSI Zero Length Reducer Flange

**Product Notes:**

- Adapts from CF to ASA/ANSI flanges with minimal impact on system space.

**Materials:**

- 304 stainless steel


**Options: Call for price and delivery**

- Custom flange combinations and additional sizes

| PART #  | REFERENCE ID                  | CONFLAT DETAIL | ASA DETAIL | A (in) | B (in) | ASA B.H.C. (in) |
|---------|-------------------------------|----------------|------------|--------|--------|-----------------|
| 5000721 | CF133BTXASA100-063-ZLR-0.50   | CF133BT        | ASA100     | 0.625  | 0.50   | 3.125           |
| 5000723 | CF212BTXASA100-100-ZLR-0.50   | CF212BT        | ASA100     | 1.00   | 0.50   | 3.125           |
| 5000725 | CF133BTXASA150-063-ZLR-0.50   | CF133BT        | ASA150     | 0.625  | 0.50   | 3.880           |
| 5000727 | CF212BTXASA150-100-ZLR-0.50   | CF212BT        | ASA150     | 1.00   | 0.50   | 3.880           |
| 5000729 | CF275BTXASA150-150-ZLR-0.50   | CF275BT        | ASA150     | 1.50   | 0.50   | 3.880           |
| 5000731 | CF133BTXASA200-063-ZLR-0.50   | CF133BT        | ASA200     | 0.625  | 0.50   | 4.750           |
| 5000733 | CF212BTXASA200-100-ZLR-0.50   | CF212BT        | ASA200     | 1.00   | 0.50   | 4.750           |
| 5000735 | CF275BTXASA200-150-ZLR-0.50   | CF275BT        | ASA200     | 1.50   | 0.50   | 4.750           |
| 5000737 | CF338BTXASA200-200-ZLR-0.50   | CF338BT        | ASA200     | 2.00   | 0.50   | 4.750           |
| 5000739 | CF133BTXASA300-063-ZLR-0.50   | CF133BT        | ASA300     | 0.625  | 0.50   | 6.000           |
| 5000741 | CF212BTXASA300-100-ZLR-0.50   | CF212BT        | ASA300     | 1.00   | 0.50   | 6.000           |
| 5000743 | CF275BTXASA300-150-ZLR-0.50   | CF275BT        | ASA300     | 1.50   | 0.50   | 6.000           |
| 5000745 | CF338BTXASA300-200-ZLR-0.50   | CF338BT        | ASA300     | 2.00   | 0.50   | 6.000           |
| 5000747 | CF450BTXASA300-250-ZLR-0.50   | CF450BT        | ASA300     | 2.50   | 0.50   | 6.000           |
| 5000749 | CF133BTXASA400-063-ZLR-0.50   | CF133BT        | ASA400     | 0.625  | 0.50   | 7.500           |
| 5000751 | CF212BTXASA400-100-ZLR-0.50   | CF212BT        | ASA400     | 1.00   | 0.50   | 7.500           |
| 5000753 | CF275BTXASA400-150-ZLR-0.50   | CF275BT        | ASA400     | 1.50   | 0.50   | 7.500           |
| 5000755 | CF338BTXASA400-200-ZLR-0.50   | CF338BT        | ASA400     | 2.00   | 0.50   | 7.500           |
| 5000757 | CF450BTXASA400-250-ZLR-0.50   | CF450BT        | ASA400     | 2.50   | 0.50   | 7.500           |
| 5000759 | CF462BTXASA400-300-ZLR-0.50   | CF462BT        | ASA400     | 3.00   | 0.50   | 7.500           |
| 5000761 | CF600BTXASA400-400-ZLR-0.500  | CF600BT        | ASA400     | 4.00   | 0.50   | 7.500           |
| 5000762 | CF600BTXASA400G-400-ZLR-0.500 | CF600BT        | ASA400     | 4.00   | 0.50   | 7.500           |
| 5000763 | CF133BTXASA600-063-ZLR-0.75   | CF133BT        | ASA600     | 0.625  | 0.75   | 9.500           |
| 5000765 | CF212BTXASA600-100-ZLR-0.75   | CF212BT        | ASA600     | 1.00   | 0.75   | 9.500           |
| 5000767 | CF275BTXASA600-150-ZLR-0.75   | CF275BT        | ASA600     | 1.50   | 0.75   | 9.500           |
| 5000769 | CF338BTXASA600-200-ZLR-0.75   | CF338BT        | ASA600     | 2.00   | 0.75   | 9.500           |
| 5000771 | CF450BTXASA600-250-ZLR-0.75   | CF450BT        | ASA600     | 2.50   | 0.75   | 9.500           |
| 5000773 | CF462BTXASA600-300-ZLR-0.75   | CF462BT        | ASA600     | 3.00   | 0.75   | 9.500           |
| 5000775 | CF600BTXASA600-400-ZLR-0.75   | CF600BT        | ASA600     | 4.00   | 0.75   | 9.500           |
| 5000777 | CF800BTXASA600-600-ZLR-0.75   | CF800BT        | ASA600     | 6.00   | 0.75   | 9.500           |

## CF to ASA/ANSI Adapter Fitting

**Materials:**

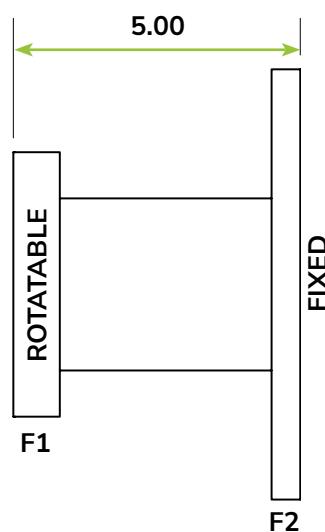
- 304 stainless steel

**Product Notes:**

- Adapts from CF to ASA/ANSI flanges for the same tubing diameter.

**Options: Call for price and delivery**

- Custom Flange Combinations and



## CF to ASA/ANSI Adapters

| PART #  | REFERENCE ID             | FLANGE 1 TYPE | FLANGE 2 TYPE | TUBE O.D. (in) |
|---------|--------------------------|---------------|---------------|----------------|
| 5000807 | CF133RXASA100-075-N-5.00 | CF133R        | ASA100        | 0.75           |
| 5000809 | CF212RXASA100-100-N-5.00 | CF212R        | ASA100        | 1.00           |
| 5000811 | CF275RXASA100-150-N-5.00 | CF275R        | ASA100        | 1.50           |
| 5000813 | CF133RXASA150-075-N-5.00 | CF133R        | ASA150        | 0.75           |
| 5000815 | CF212RXASA150-100-N-5.00 | CF212R        | ASA150        | 1.00           |
| 5000817 | CF275RXASA150-150-N-5.00 | CF275R        | ASA150        | 1.50           |
| 5000819 | CF133RXASA200-075-N-5.00 | CF133R        | ASA200        | 0.75           |
| 5000821 | CF212RXASA200-100-N-5.00 | CF212R        | ASA200        | 1.00           |
| 5000823 | CF275RXASA200-150-N-5.00 | CF275R        | ASA200        | 1.50           |
| 5000825 | CF338RXASA200-200-N-5.00 | CF338R        | ASA200        | 2.00           |
| 5000827 | CF450RXASA200-250-N-5.00 | CF450R        | ASA200        | 2.50           |
| 5000829 | CF462RXASA200-300-N-5.00 | CF462R        | ASA200        | 3.00           |
| 5000831 | CF133RXASA300-075-N-5.00 | CF133R        | ASA300        | 0.75           |
| 5000833 | CF212RXASA300-100-N-5.00 | CF212R        | ASA300        | 1.00           |
| 5000835 | CF275RXASA300-150-N-5.00 | CF275R        | ASA300        | 1.50           |
| 5000837 | CF338RXASA300-200-N-5.00 | CF338R        | ASA300        | 2.00           |
| 5000839 | CF450RXASA300-250-N-5.00 | CF450R        | ASA300        | 2.50           |
| 5000841 | CF462RXASA300-300-N-5.00 | CF462R        | ASA300        | 3.00           |
| 5000843 | CF133RXASA400-075-N-5.00 | CF133R        | ASA400        | 0.75           |
| 5000845 | CF212RXASA400-100-N-5.00 | CF212R        | ASA400        | 1.00           |
| 5000847 | CF275RXASA400-150-N-5.00 | CF275R        | ASA400        | 1.50           |
| 5000849 | CF338RXASA400-200-N-5.00 | CF338R        | ASA400        | 2.00           |
| 5000851 | CF450RXASA400-250-N-5.00 | CF450R        | ASA400        | 2.50           |
| 5000853 | CF462RXASA400-300-N-5.00 | CF462R        | ASA400        | 3.00           |
| 5000855 | CF600RXASA400-400-N-5.00 | CF600R        | ASA400        | 4.00           |
| 5000857 | CF133RXASA600-075-N-5.00 | CF133R        | ASA600        | 0.75           |
| 5000859 | CF212RXASA600-100-N-5.00 | CF212R        | ASA600        | 1.00           |
| 5000861 | CF275RXASA600-150-N-5.00 | CF275R        | ASA600        | 1.50           |
| 5000863 | CF338RXASA600-200-N-5.00 | CF338R        | ASA600        | 2.00           |
| 5000865 | CF450RXASA600-250-N-5.00 | CF450R        | ASA600        | 2.50           |

## CF to ASA/ANSI Adapter Fitting (continued)

### CF to ASA/ANSI Adapters

#### Materials:

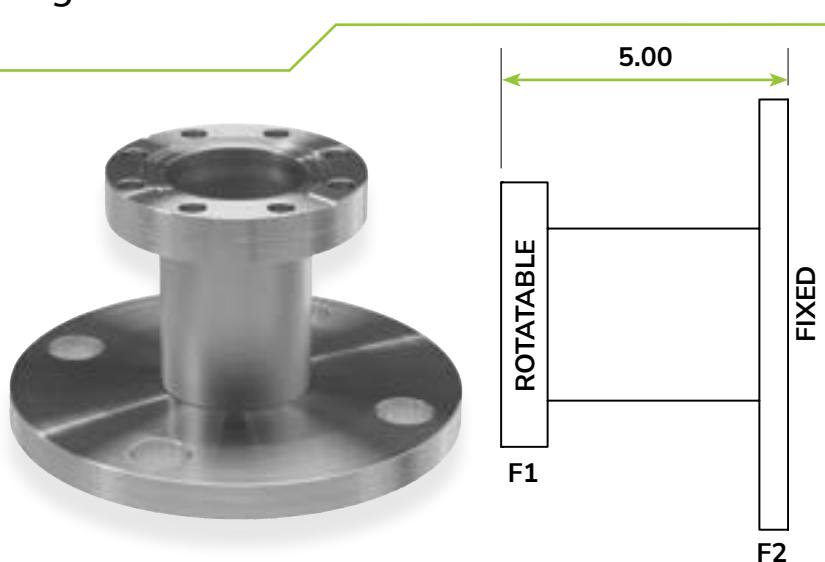
- 304 stainless steel

#### Product Notes:

- Adapts from CF to ASA/ANSI flanges for the same tubing diameter.

#### Options: Call for price and delivery

- Custom Flange Combinations and



| PART #  | REFERENCE ID                | FLANGE 1 TYPE | FLANGE 2 TYPE | TUBE O.D. (in) |
|---------|-----------------------------|---------------|---------------|----------------|
| 5000865 | CF450RXASA600-250-N-5.00    | CF450R        | ASA600        | 2.50           |
| 5000867 | CF462RXASA600-300-N-5.00    | CF462R        | ASA600        | 3.00           |
| 5000869 | CF600RXASA600-400-N-5.00    | CF600R        | ASA600        | 4.00           |
| 5000871 | CF800RXASA600-600-N-5.00    | CF800R        | ASA600        | 6.00           |
| 5000873 | CF133RXASA800-075-N-5.00    | CF133R        | ASA800        | 0.75           |
| 5000875 | CF212RXASA800-100-N-5.00    | CF212R        | ASA800        | 1.00           |
| 5000877 | CF275RXASA800-150-N-5.00    | CF275R        | ASA800        | 1.50           |
| 5000879 | CF338RXASA800-200-N-5.00    | CF338R        | ASA800        | 2.00           |
| 5000881 | CF450RXASA800-250-N-5.00    | CF450R        | ASA800        | 2.50           |
| 5000883 | CF462RXASA800-300-N-5.00    | CF462R        | ASA800        | 3.00           |
| 5000885 | CF600RXASA800-400-N-5.00    | CF600R        | ASA800        | 4.00           |
| 5000887 | CF800RXASA800-600-N-5.00    | CF800R        | ASA800        | 6.00           |
| 5000889 | CF1000RXASA800-800-N-5.00   | CF1000R       | ASA800        | 8.00           |
| 5000891 | CF133RXASA1000-075-N-5.00   | CF133R        | ASA1000       | 0.75           |
| 5000893 | CF212RXASA1000-100-N-5.00   | CF212R        | ASA1000       | 1.00           |
| 5000895 | CF275RXASA1000-150-N-5.00   | CF275R        | ASA1000       | 1.50           |
| 5000897 | CF338RXASA1000-200-N-5.00   | CF338R        | ASA1000       | 2.00           |
| 5000899 | CF450RXASA1000-250-N-5.00   | CF450R        | ASA1000       | 2.50           |
| 5000901 | CF462RXASA1000-300-N-5.00   | CF462R        | ASA1000       | 3.00           |
| 5000903 | CF600RXASA1000-400-N-5.00   | CF600R        | ASA1000       | 4.00           |
| 5000905 | CF800RXASA1000-600-N-5.00   | CF800R        | ASA1000       | 6.00           |
| 5000907 | CF1000RXASA1000-800-N-5.00  | CF1000R       | ASA1000       | 8.00           |
| 5000909 | CF1325RXASA1000-1000-N-5.00 | CF1325R       | ASA1000       | 10.00          |

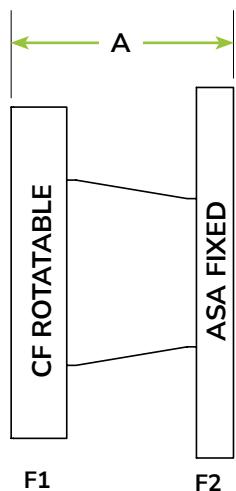
## CF to ASA/ANSI Conical Adapter

**Materials:**

- 304 Stainless steel

**Product Notes:**

- Adapts from CF to ASA/ANSI flanges for different tubing diameters.


**Options: Call for price and delivery**

- Custom Flange Combinations and additional sizes

**CF to ASA**

| PART #  | REFERENCE ID                  | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) |
|---------|-------------------------------|---------------|-------------------------|---------------|-------------------------|--------|
| 5000787 | CF450RXASA150-250X200-CR-3.00 | CF450R        | 2.50                    | ASA150        | 2.00                    | 3.000  |
| 5000789 | CF462RXASA150-300X200-CR-4.25 | CF462R        | 3.00                    | ASA150        | 2.00                    | 4.250  |
| 5000791 | CF600RXASA150-400X200-CR-4.31 | CF600R        | 4.00                    | ASA150        | 2.00                    | 4.313  |
| 5000799 | CF600RXASA200-400X300-CR-4.31 | CF600R        | 4.00                    | ASA200        | 3.00                    | 4.313  |

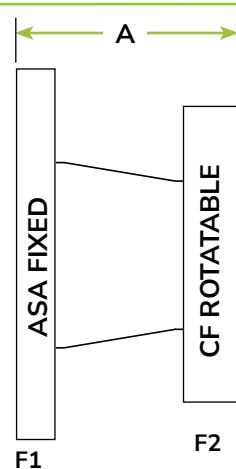
## ASA/ANSI to CF Conical Adapter

**Materials:**

- 304 Stainless steel

**Product Notes:**

- Adapts from ASA/ANSI to CF flanges for different tubing diameters.


**Options: Call for price and delivery**

- Custom Flange Combinations and additional sizes

**ASA to CF**

| PART #  | REFERENCE ID                  | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) |
|---------|-------------------------------|---------------|-------------------------|---------------|-------------------------|--------|
| 5000779 | ASA100XCF133R-150X075-CR-2.91 | ASA100        | 1.50                    | CF133R        | 0.75                    | 2.91   |
| 5000781 | ASA150XCF212R-200X100-CR-2.80 | ASA150        | 2.00                    | CF212R        | 1.00                    | 2.792  |
| 5000783 | ASA150XCF275R-200X150-CR-2.83 | ASA150        | 2.00                    | CF275R        | 1.50                    | 2.834  |
| 5000785 | ASA150XCF338R-250X200-CR-2.85 | ASA150        | 2.50                    | CF338R        | 2.00                    | 2.850  |
| 5000793 | ASA200XCF275R-300X150-CR-4.08 | ASA200        | 3.00                    | CF275R        | 1.50                    | 4.084  |
| 5000795 | ASA200XCF338R-300X200-CR-4.10 | ASA200        | 3.00                    | CF338R        | 2.00                    | 4.100  |
| 5000797 | ASA200XCF450R-300X250-CR-4.25 | ASA200        | 3.00                    | CF450R        | 2.50                    | 4.250  |
| 5000801 | ASA300XCF338R-400X200-CR-4.10 | ASA300        | 4.00                    | CF338R        | 2.00                    | 4.100  |
| 5000803 | ASA300XCF450R-400X250-CR-4.25 | ASA300        | 4.00                    | CF450R        | 2.50                    | 4.250  |
| 5000805 | ASA300XCF462R-400X300-CR-4.25 | ASA300        | 4.00                    | CF462R        | 3.00                    | 4.250  |

## QF to ASA/ANSI Adapters

### QF to ASA/ANSI Adapters

#### Materials:

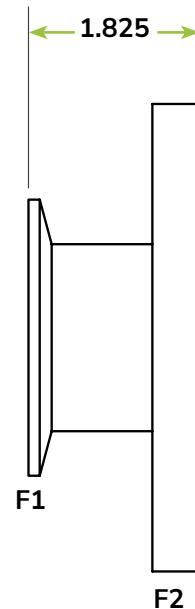
- 304 stainless steel

#### Product Notes:

- Adapts from QF to ASA/ANSI flanges with the same tubing outer diameter.



| PART #  | REFERENCE ID           | FLANGE 1 TYPE | FLANGE 2 TYPE | TUBE O.D.<br>(in) |
|---------|------------------------|---------------|---------------|-------------------|
| 6000376 | QF16XASA100-075-N-1.83 | QF16          | ASA100        | 0.75              |
| 6000378 | QF16XASA150-075-N-1.83 | QF16          | ASA150        | 0.75              |
| 6000380 | QF16XASA200-075-N-1.83 | QF16          | ASA200        | 0.75              |
| 6000382 | QF16XASA300-075-N-1.83 | QF16          | ASA300        | 0.75              |
| 6000384 | QF16XASA400-075-N-1.83 | QF16          | ASA400        | 0.75              |
| 6000386 | QF16XASA600-075-N-1.83 | QF16          | ASA600        | 0.75              |
| 6000388 | QF25XASA200-100-N-1.83 | QF25          | ASA200        | 1.00              |
| 6000390 | QF25XASA300-100-N-1.83 | QF25          | ASA300        | 1.00              |
| 6000392 | QF25XASA400-100-N-1.83 | QF25          | ASA400        | 1.00              |
| 6000394 | QF25XASA600-100-N-1.83 | QF25          | ASA600        | 1.00              |
| 6000396 | QF40XASA150-150-N-1.83 | QF40          | ASA150        | 1.50              |
| 6000398 | QF40XASA200-150-N-1.83 | QF40          | ASA200        | 1.50              |
| 6000400 | QF40XASA300-150-N-1.83 | QF40          | ASA300        | 1.50              |
| 6000402 | QF40XASA400-150-N-1.83 | QF40          | ASA400        | 1.50              |
| 6000404 | QF40XASA600-150-N-1.83 | QF40          | ASA600        | 1.50              |
| 6000406 | QF50XASA150-200-N-1.83 | QF50          | ASA150        | 2.00              |
| 6000408 | QF50XASA200-200-N-1.83 | QF50          | ASA200        | 2.00              |
| 6000410 | QF50XASA300-200-N-1.83 | QF50          | ASA300        | 2.00              |
| 6000412 | QF50XASA400-200-N-1.83 | QF50          | ASA400        | 2.00              |
| 6000414 | QF50XASA600-200-N-1.83 | QF50          | ASA600        | 2.00              |



| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a custom option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

**Call For Pricing**

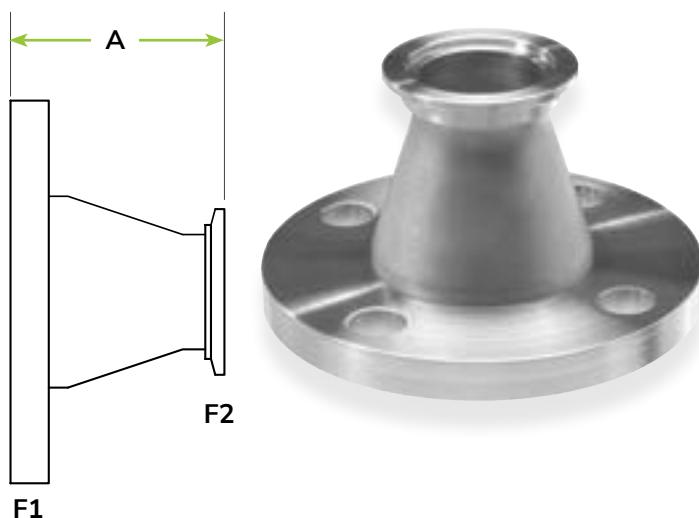
## ASA/ANSI to QF Conical Adapters

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from QF to ASA/ANSI flanges for different tubing diameters.

**Options: Call for price and delivery**


| PART #  | REFERENCE ID                | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) |
|---------|-----------------------------|---------------|-------------------------|---------------|-------------------------|--------|
| 6000466 | ASA100XQF16-150X075-CR-2.80 | ASA100        | 1.50                    | QF16          | 0.75                    | 2.795  |
| 6000468 | ASA150XQF16-150X075-CR-2.80 | ASA150        | 1.50                    | QF16          | 0.75                    | 2.795  |
| 6000470 | ASA100XQF25-150X100-CR-2.80 | ASA100        | 1.50                    | QF25          | 1.00                    | 2.795  |
| 6000472 | ASA150XQF25-150X100-CR-2.80 | ASA150        | 1.50                    | QF25          | 1.00                    | 2.795  |
| 6000474 | ASA150XQF40-250X150-CR-2.80 | ASA150        | 2.50                    | QF40          | 1.50                    | 2.795  |
| 6000476 | ASA200XQF40-300X150-CR-4.05 | ASA200        | 3.00                    | QF40          | 1.50                    | 4.045  |
| 6000478 | ASA300XQF40-300X150-CR-4.03 | ASA300        | 3.00                    | QF40          | 1.50                    | 4.03   |
| 6000480 | ASA150XQF50-250X200-CR-2.80 | ASA150        | 2.50                    | QF50          | 2.00                    | 2.795  |
| 6000482 | ASA200XQF50-300X200-CR-4.05 | ASA200        | 3.00                    | QF50          | 2.00                    | 4.045  |
| 6000484 | ASA300XQF50-300X200-CR-4.05 | ASA300        | 4.00                    | QF50          | 2.00                    | 4.045  |

## LF to ASA/ANSI Adapter

### LF to ASA/ANSI Adapters

**Materials:**

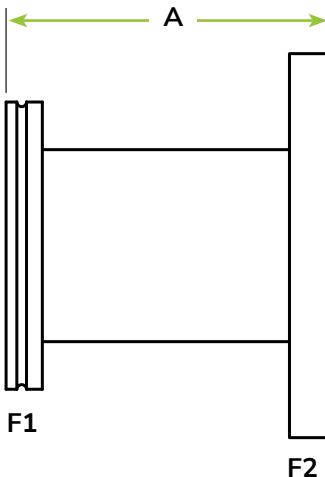
- 304 stainless steel

**Product Notes:**

- Adapts from LF to ASA/ANSI flanges with the same tubing outer diameter.

**Options: Call for price and delivery**

- Custom flange combinations and additional sizes



| PART #  | REFERENCE ID            | FLANGE 1 TYPE | FLANGE 2 TYPE | A (in) | TUBE O.D. (in) |
|---------|-------------------------|---------------|---------------|--------|----------------|
| 6000416 | LF63XASA100-150-N-4.19  | LF63          | ASA100        | 4.19   | 1.50           |
| 6000418 | LF63XASA150-250-N-4.19  | LF63          | ASA150        | 4.19   | 2.50           |
| 6000420 | LF63XASA200-250-N-4.19  | LF63          | ASA200        | 4.19   | 2.50           |
| 6000422 | LF80XASA100-150-N-4.19  | LF80          | ASA100        | 4.19   | 1.50           |
| 6000424 | LF80XASA150-250-N-4.19  | LF80          | ASA150        | 4.19   | 2.50           |
| 6000426 | LF80XASA200-300-N-4.19  | LF80          | ASA200        | 4.19   | 3.00           |
| 6000428 | LF100XASA300-400-N-4.19 | LF100         | ASA300        | 4.19   | 4.00           |
| 6000430 | LF100XASA400-400-N-4.19 | LF100         | ASA400        | 4.19   | 4.00           |
| 6000432 | LF160XASA300-400-N-4.19 | LF160         | ASA300        | 4.19   | 4.00           |
| 6000434 | LF160XASA400-600-N-4.19 | LF160         | ASA400        | 4.19   | 6.00           |
| 6000436 | LF160XASA600-600-N-4.32 | LF160         | ASA600        | 4.32   | 6.00           |
| 6000438 | LF200XASA300-400-N-4.19 | LF200         | ASA300        | 4.19   | 4.00           |
| 6000440 | LF200XASA400-600-N-4.19 | LF200         | ASA400        | 4.19   | 6.00           |
| 6000442 | LF200XASA600-800-N-4.32 | LF200         | ASA600        | 4.32   | 8.00           |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an o-ring groove is a custom option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**Call For Pricing**

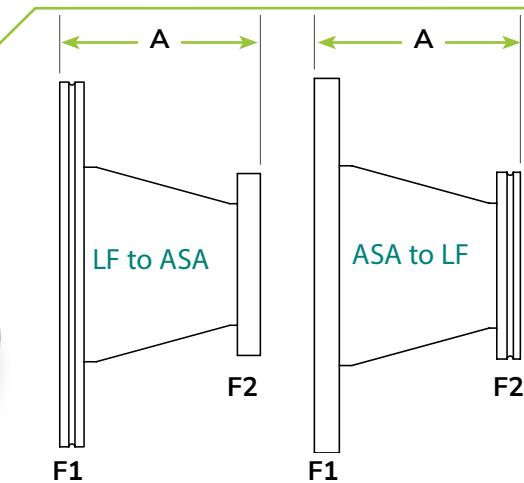
## LF to ASA/ANSI Conical Adapter

**Materials:**

- 304 Stainless steel


**Product Notes:**

- Adapts from LF to ASA/ANSI flanges for different tubing diameters.


**Options:**

Call for price and delivery

**LF to ASA**

| PART #  | REFERENCE ID                 | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) |
|---------|------------------------------|---------------|-------------------------|---------------|-------------------------|--------|
| 6000444 | LF63XASA100-250X150-CR-2.87  | LF63          | 2.50                    | ASA100        | 1.50                    | 2.875  |
| 6000452 | LF80XASA100-300X150-CR-4.12  | LF80          | 3.00                    | ASA100        | 1.50                    | 4.125  |
| 6000454 | LF80XASA150-300X200-CR-4.12  | LF80          | 3.00                    | ASA150        | 2.00                    | 4.125  |
| 6000456 | LF80XASA200-300X250-CR-4.12  | LF80          | 3.00                    | ASA200        | 2.50                    | 4.125  |
| 6000460 | LF100XASA150-400X200-CR-4.12 | LF100         | 4.00                    | ASA150        | 2.00                    | 4.125  |
| 6000462 | LF100XASA200-400X300-CR-4.12 | LF100         | 4.00                    | ASA200        | 3.00                    | 4.125  |
| 6000464 | LF100XASA300-400X300-CR-4.12 | LF100         | 4.00                    | ASA300        | 3.00                    | 4.125  |

**ASA to LF**

| PART #  | REFERENCE ID                | FLANGE 1 TYPE | FLANGE 1 TUBE O.D. (in) | FLANGE 2 TYPE | FLANGE 2 TUBE O.D. (in) | A (in) |
|---------|-----------------------------|---------------|-------------------------|---------------|-------------------------|--------|
| 6000446 | ASA150XLF63-250X200-CR-2.87 | ASA150        | 2.50                    | LF63          | 2.00                    | 2.875  |
| 6000448 | ASA200XLF63-300X250-CR-4.12 | ASA200        | 2.50                    | LF63          | 3.00                    | 4.125  |
| 6000450 | ASA300XLF63-400X250-CR-4.13 | ASA300        | 2.50                    | LF63          | 4.00                    | 4.125  |
| 6000458 | ASA300XLF80-400X300-CR-4.12 | ASA300        | 3.00                    | LF80          | 4.00                    | 4.125  |

## QF to Hose Adapter - Aluminum

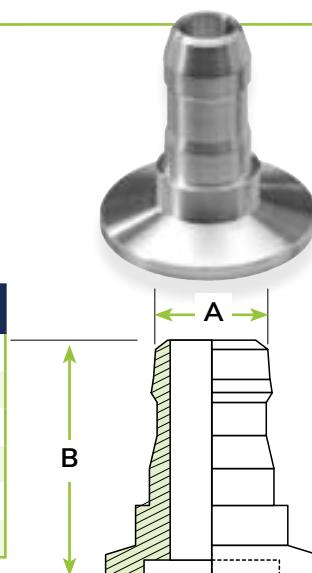
**Materials:**

- 2011 aluminum

**Product Notes:**

- Adapts from ISO-QF flanges

| PART #  | REFERENCE ID       | HOSE SIZE I.D. (in) | A (in) | B (in) |
|---------|--------------------|---------------------|--------|--------|
| 4000257 | QF16X50/63-HA-AL   | 0.50 or 0.63        | 0.63   | 1.63   |
| 4000258 | QF16X63/75-HA-AL   | 0.63 or 0.75        | 0.75   | 1.63   |
| 4000259 | QF25X50/63-HA-AL   | 0.50 or 0.63        | 0.63   | 1.63   |
| 4000261 | QF25X75/88-HA-AL   | 0.75 or 0.88        | 0.88   | 1.73   |
| 4000262 | QF40X150/163-HA-AL | 1.50 or 1.63        | 1.63   | 2.17   |
| 4000263 | QF50X150/163-HA-AL | 1.50 or 1.63        | 1.63   | 2.17   |



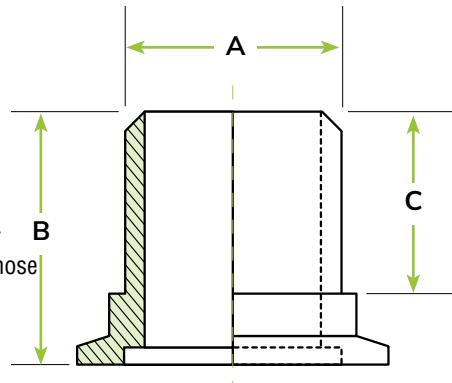
## QF to Hose Adapter - Stainless Steel

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from ISO-QF flanges to rubber or PVC vacuum hose

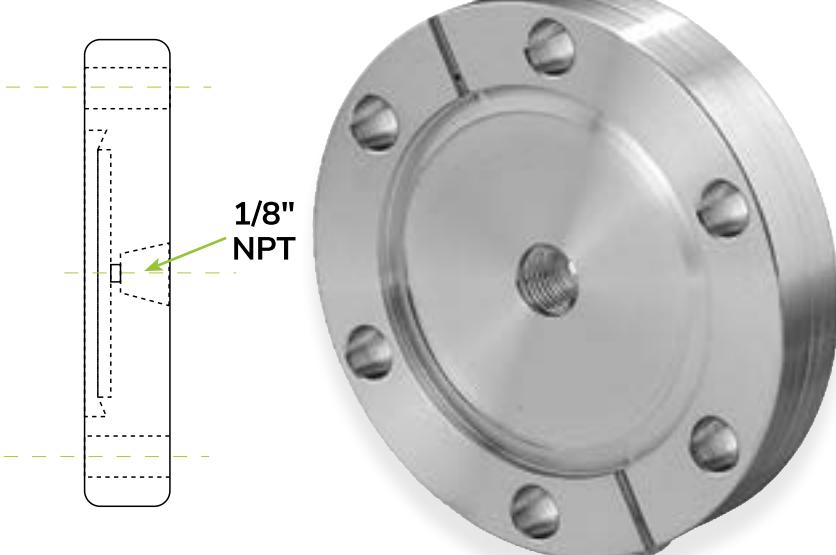


## CF to NPT Adapters

## CF to NPT Female Zero Length Reducer Flange

**Product Features:**

- Ideal for adding vacuum accessories (vacuum measurement, valves, etc.) or gas lines to your system.
- Use standard CF gaskets to seal
- Self-aligning
- Female NPT
- Interchangeable with other ConFlat® style flanges


**Product Specifications:**

- Pressure range: UHV
- Temperature range: -200°C up to 450°C
- Standard materials: 304 grade

| PART #  | REFERENCE ID       | DESCRIPTION                            |
|---------|--------------------|--|
| 5000208 | CF133XFNPT12-0.300 | CF1.33 Flange - (1) 0.125 in. NPT Hole |
| 5000209 | CF275XFNPT12-0.500 | CF2.75 Flange - (1) 0.125 in. NPT Hole |

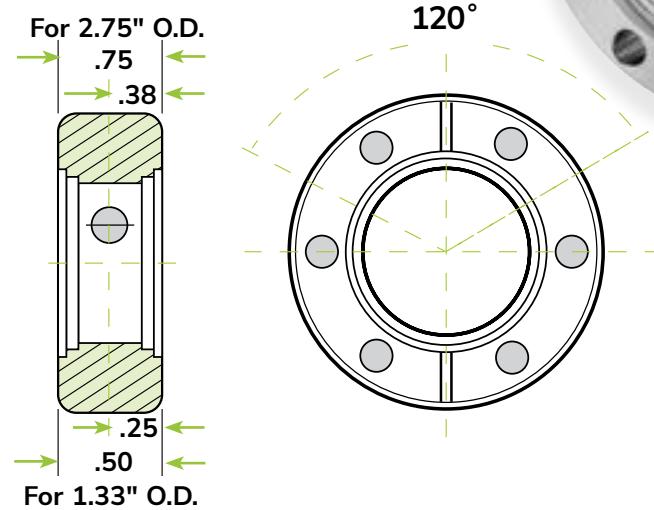
## CF to NPT Female Double Sided Flange – Side Port(s)

### Product Features:

- Ideal for adding vacuum accessories (vacuum measurement, valves, etc.) or gas lines to your system.
- Requires special CF double sided flange bolt kit for fastening
- Use standard CF gaskets to seal
- Self-aligning
- Sexless flanges
- Interchangeable with other ConFlat® style flanges

### Options (approximate) Call for price and availability

- Temperature range:  
-200°C up to 450°C
- Standard materials:  
304 stainless steel



### Product Specifications:

- Pressure range: UHV

## CF to NPT Adapters

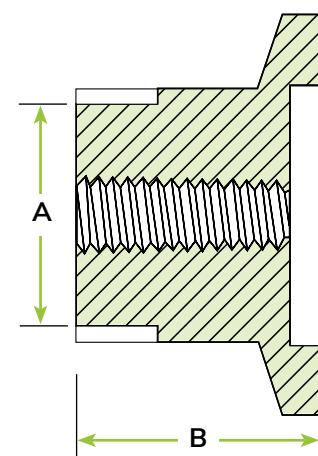
| PART #  | REFERENCE ID         | DESCRIPTION                              |
|---------|----------------------|--|
| 5000220 | CF133DXFNPT06-SPC    | CF1.33 Flange - (1) 0.0625 in. NPT Hole  |
| 5000221 | CF275DXFNPT12-SPC    | CF2.75 Flange - (1) 0.125 in. NPT Hole   |
| 5000222 | CF133DXFNPT06-2X-SPC | CF1.33 Flange - (2) 0.0625 in. NPT Holes |
| 5000223 | CF275DXFNPT12-2X-SPC | CF2.75 Flange - (2) 0.125 in. NPT Holes  |

## QF to NPT Adapters

## QF to NPT Female Adapters

**Materials:**

- 304 stainless steel or aluminum

**Product Notes:**

- Adapts from ISO-QF to NPT fitting

**Options:** Call for price and delivery

**ORDERING NOTE:**

For ISO-QF to NPT male fittings see pg. 4.20

## Stainless Steel

| PART #  | REFERENCE ID       | A (in) | B (in) |
|---------|--------------------|--------|--------|
| 4000191 | QF16X FNPT12-0.750 | 0.62   | 0.75   |
| 4000192 | QF16X FNPT25-0.750 | 0.62   | 0.75   |
| 4000193 | QF25XFNPT12-0.750  | 0.88   | 0.75   |
| 4000194 | QF25XFNPT25-0.750  | 0.88   | 0.75   |
| 4000195 | QF40XFNPT12-1.000  | 1.25   | 1.00   |
| 4000196 | QF40XFNPT25-1.000  | 1.25   | 1.00   |
| 4000197 | QF50XFNPT12-1.000  | 1.75   | 1.00   |
| 4000198 | QF50XFNPT25-1.000  | 1.75   | 1.00   |

## Aluminum

| PART #  | REFERENCE ID         | A (in) | B (in) |
|---------|----------------------|--------|--------|
| 4000201 | QF16XFNPT12-0.750-AL | 0.62   | 0.75   |
| 4000202 | QF16XFNPT25-0.750-AL | 0.62   | 0.75   |
| 4000203 | QF25XFNPT12-0.750-AL | 0.88   | 0.75   |
| 4000204 | QF25XFNPT25-0.750-AL | 0.88   | 0.75   |
| 4000205 | QF40XFNPT12-1.000-AL | 1.25   | 1.00   |
| 4000206 | QF40XFNPT25-1.000-AL | 1.25   | 1.00   |
| 4000207 | QF50XFNPT12-1.000-AL | 1.75   | 1.00   |
| 4000208 | QF50XFNPT25-1.000-AL | 1.75   | 1.00   |

## QF Tee to NPT Female Adapters

**Materials:**

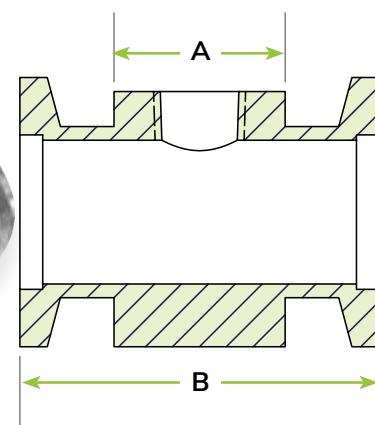
- 304 stainless steel or aluminum


**Product Notes:**

- Adapts from ISO-QF nipple fitting to side port of NPT fitting

**Options: Call for price**
**Stainless Steel**

| PART #  | REFERENCE ID          | A (in) | B (in) |
|---------|-----------------------|--------|--------|
| 4000219 | QF16XFNPT12-TEE-1.575 | 0.76   | 1.57   |
| 4000220 | QF16XFNPT25-TEE-1.575 | 0.76   | 1.57   |
| 4000221 | QF25XFNPT12-TEE-1.575 | 0.76   | 1.57   |
| 4000222 | QF25XFNPT25-TEE-1.575 | 0.76   | 1.57   |
| 4000223 | QF40XFNPT12-TEE-1.575 | 0.76   | 1.57   |
| 4000224 | QF40XFNPT25-TEE-1.575 | 0.76   | 1.57   |
| 4000225 | QF50XFNPT12-TEE-1.575 | 0.76   | 1.57   |
| 4000226 | QF50XFNPT25-TEE-1.575 | 0.76   | 1.57   |


**Aluminum**

| PART #  | REFERENCE ID             | A (in) | B (in) |
|---------|--------------------------|--------|--------|
| 4000227 | QF16XFNPT12-TEE-1.575-AL | 0.76   | 1.57   |
| 4000228 | QF16XFNPT25-TEE-1.575-AL | 0.76   | 1.57   |
| 4000229 | QF25XFNPT12-TEE-1.575-AL | 0.76   | 1.57   |
| 4000230 | QF25XFNPT25-TEE-1.575-AL | 0.76   | 1.57   |
| 4000231 | QF40XFNPT12-TEE-1.575-AL | 0.76   | 1.57   |
| 4000232 | QF40XFNPT25-TEE-1.575-AL | 0.76   | 1.57   |
| 4000233 | QF50XFNPT12-TEE-1.575-AL | 0.76   | 1.57   |
| 4000234 | QF50XFNPT25-TEE-1.575-AL | 0.76   | 1.57   |

## QF to NPT Male

### Product Notes:

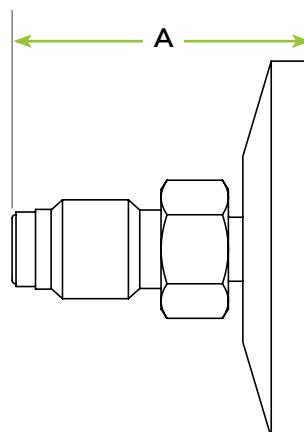
- Adapts from ISO-QF flange to NPT fitting

### Materials:

- 304 stainless steel

### Options:

**Call for price and delivery**

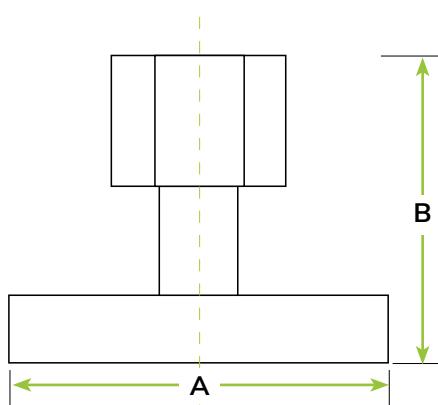


| PART #  | REFERENCE ID      | FLANGE | FITTING       | A (in) |
|---------|-------------------|--------|---------------|--------|
| 4000235 | QF16XMNPT12-0.88  | QF16   | 0.125 in. NPT | 0.88   |
| 4000236 | QF16XMNPT25-1.09  | QF16   | 0.25 in. NPT  | 1.09   |
| 4000237 | QF25XMNPT12-0.88  | QF25   | 0.125 in. NPT | 0.88   |
| 4000238 | QF25XMNPT25-1.09  | QF25   | 0.25 in. NPT  | 1.09   |
| 4000239 | QF25XMNPT50-1.34  | QF25   | 0.50 in. NPT  | 1.34   |
| 4000240 | QF25XMNPT75-1.34  | QF25   | 0.75 in. NPT  | 1.34   |
| 4000241 | QF25XMNPT100-1.63 | QF25   | 1.00 in. NPT  | 1.63   |
| 4000242 | QF40XMNPT12-0.88  | QF40   | 0.125 in. NPT | 0.88   |
| 4000243 | QF40XMNPT25-1.09  | QF40   | 0.25 in. NPT  | 1.09   |
| 4000244 | QF40XMNPT50-1.34  | QF40   | 0.50 in. NPT  | 1.34   |
| 4000245 | QF40XMNPT75-1.34  | QF40   | 0.75 in. NPT  | 1.34   |
| 4000246 | QF40XMNPT100-1.63 | QF40   | 1.00 in. NPT  | 1.63   |
| 4000249 | QF50XMNPT12-0.88  | QF50   | 0.125 in. NPT | 0.88   |
| 4000250 | QF50XMNPT25-1.09  | QF50   | 0.25 in. NPT  | 1.09   |
| 4000251 | QF50XMNPT50-1.34  | QF50   | 0.50 in. NPT  | 1.34   |
| 4000252 | QF50XMNPT75-1.34  | QF50   | 0.75 in. NPT  | 1.34   |
| 4000253 | QF50XMNPT100-1.63 | QF50   | 1.00 in. NPT  | 1.63   |

## CF to VCR® Female

**Materials:**

- CF flange:  
304 stainless steel
- VCR® fitting:  
316 stainless steel

**Product Notes:**

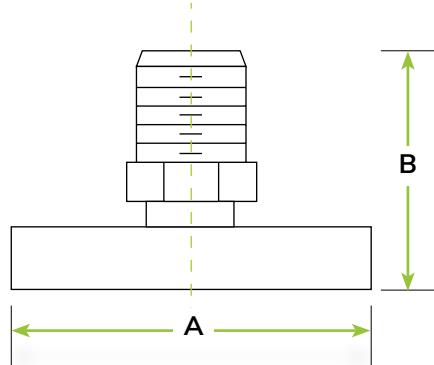
- Adapts from CF flange  
to VCR® fitting

| PART #  | REFERENCE ID      | FLANGE TYPE | TUBE O.D. (in) | A (in) | LENGTH B (in) |
|---------|-------------------|-------------|----------------|--------|---------------|
| 5000633 | CF133XFVCR25-1.90 | CF133       | 0.25           | 1.33   | 1.905         |
| 5000634 | CF133XFVCR38-2.21 | CF133       | 0.38           | 1.33   | 2.209         |
| 5000635 | CF275XFVCR25-1.91 | CF275       | 0.25           | 2.75   | 1.910         |
| 5000636 | CF275XFVCR38-2.27 | CF275       | 0.38           | 2.75   | 2.268         |
| 5000637 | CF275XFVCR50-2.21 | CF275       | 0.50           | 2.75   | 2.209         |

## CF to VCR® Male

**Materials:**

- CF flange:  
304 stainless steel
- VCR® fitting:  
316 stainless steel

**Product Notes:**

- Adapts from CF flange  
to VCR® fitting

| PART #  | REFERENCE ID      | FLANGE TYPE | TUBE O.D. (in) | A (in) | LENGTH B (in) |
|---------|-------------------|-------------|----------------|--------|---------------|
| 5000627 | CF133XMVCR25-1.41 | CF133       | 0.25           | 1.33   | 1.406         |
| 5000628 | CF133XMVCR38-1.65 | CF133       | 0.38           | 1.33   | 1.65          |
| 5000629 | CF275XMVCR25-1.41 | CF275       | 0.25           | 2.75   | 1.411         |
| 5000630 | CF275XMVCR38-1.71 | CF275       | 0.38           | 2.75   | 1.709         |
| 5000631 | CF275XMVCR50-1.90 | CF275       | 0.50           | 2.75   | 1.875         |

## QF to VCR® Female

### Materials:

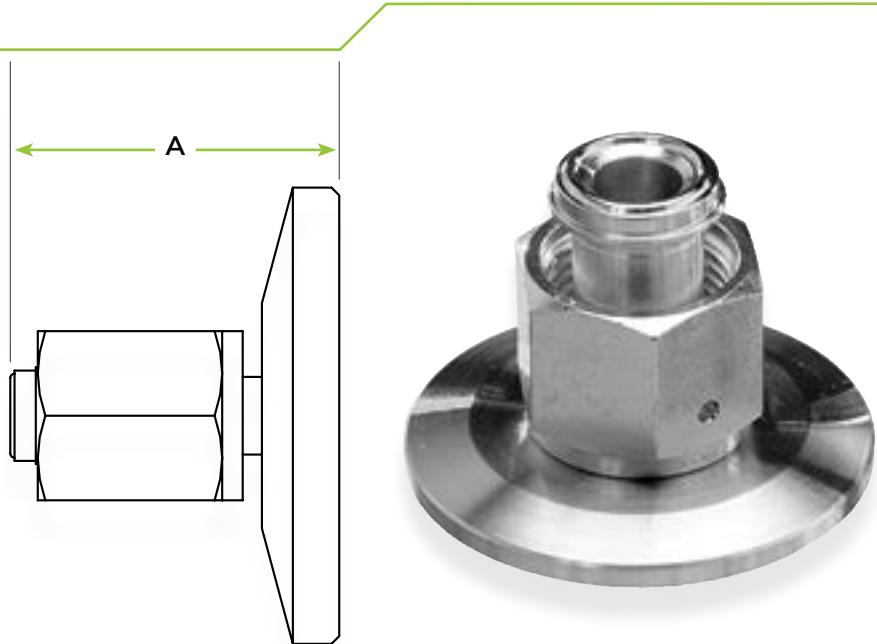
- QF flange: 304 stainless steel
- VCR® Fitting: 316 stainless steel

### Product Notes:

- Adapts from ISO-QF flange to VCR® fitting

### Options: Call for price and delivery

- Additional sizes



| PART #  | REFERENCE ID      | TUBE O.D. (in) | FLANGE TYPE | A (in) |
|---------|-------------------|----------------|-------------|--------|
| 4000270 | QF16XFVCR12-0.85  | 0.12           | QF16        | 0.85   |
| 4000271 | QF16XFVCR25-1.46  | 0.25           | QF16        | 1.46   |
| 4000272 | QF16XFVCR38-1.65  | 0.38           | QF16        | 1.65   |
| 4000273 | QF16XFVCR50-1.65  | 0.50           | QF16        | 1.65   |
| 4000274 | QF25XFVCR12-0.85  | 0.12           | QF25        | 0.85   |
| 4000275 | QF25XFVCR25-1.36  | 0.25           | QF25        | 1.36   |
| 4000276 | QF25XFVCR38-1.55  | 0.38           | QF25        | 1.55   |
| 4000277 | QF25XFVCR50-1.55  | 0.50           | QF25        | 1.55   |
| 4000278 | QF25XFVCR75-2.15  | 0.75           | QF25        | 2.15   |
| 4000279 | QF25XFVCR100-2.37 | 1.00           | QF25        | 2.37   |
| 4000280 | QF40XFVCR12-0.85  | 0.12           | QF40        | 0.85   |
| 4000281 | QF40XFVCR25-1.36  | 0.25           | QF40        | 1.36   |
| 4000282 | QF40XFVCR38-1.55  | 0.38           | QF40        | 1.55   |
| 4000283 | QF40XFVCR50-1.55  | 0.50           | QF40        | 1.55   |
| 4000284 | QF40XFVCR75-2.15  | 0.75           | QF40        | 2.15   |
| 4000285 | QF40XFVCR100-2.37 | 1.00           | QF40        | 2.37   |
| 4000286 | QF50XFVCR12-0.85  | 0.12           | QF50        | 0.85   |
| 4000287 | QF50XFVCR25-1.36  | 0.25           | QF50        | 1.36   |
| 4000288 | QF50XFVCR38-1.55  | 0.38           | QF50        | 1.55   |
| 4000289 | QF50XFVCR50-1.55  | 0.50           | QF50        | 1.55   |
| 4000290 | QF50XFVCR75-2.15  | 0.75           | QF50        | 2.15   |
| 4000291 | QF50XFVCR100-2.37 | 1.00           | QF50        | 2.37   |

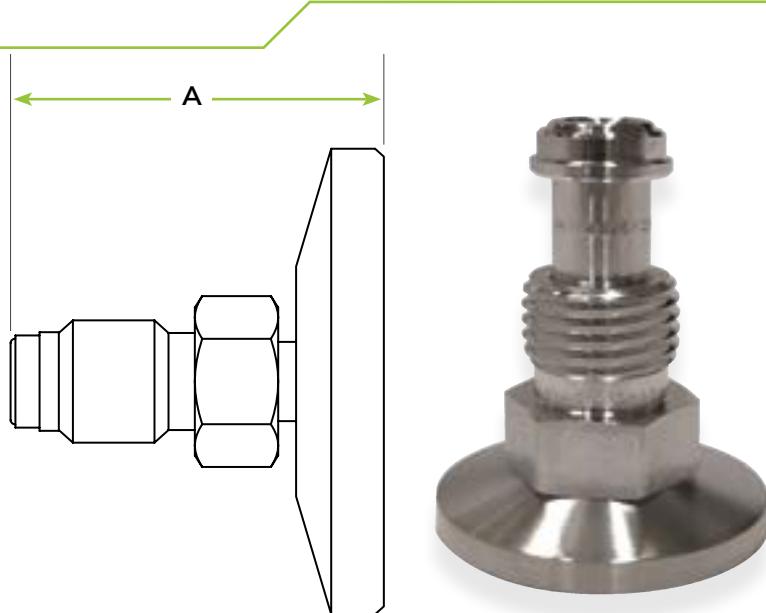
## QF to VCR® Male

**Materials:**

- QF flange: 304 stainless steel
- VCR® Fitting: 316 stainless steel

**Product Notes:**

- Adapts from ISO-QF flange  
to VCR® fitting



| PART #  | REFERENCE ID      | TUBE O.D. (in) | FLANGE TYPE | A (in) |
|---------|-------------------|----------------|-------------|--------|
| 4000292 | QF16XMVCR12-0.85  | 0.12           | QF16        | 0.85   |
| 4000293 | QF16XMVCR25-1.46  | 0.25           | QF16        | 1.46   |
| 4000294 | QF16XMVCR38-1.65  | 0.38           | QF16        | 1.65   |
| 4000295 | QF16XMVCR50-1.55  | 0.50           | QF16        | 1.55   |
| 4000296 | QF25XMVCR12-1.05  | 0.12           | QF25        | 1.05   |
| 4000297 | QF25XMVCR25-1.36  | 0.25           | QF25        | 1.36   |
| 4000298 | QF25XMVCR38-1.55  | 0.38           | QF25        | 1.55   |
| 4000299 | QF25XMVCR50-1.55  | 0.50           | QF25        | 1.55   |
| 4000300 | QF25XMVCR75-2.15  | 0.75           | QF25        | 2.15   |
| 4000301 | QF25XMVCR100-2.37 | 1.00           | QF25        | 2.37   |
| 4000302 | QF40XMVCR12-0.85  | 0.12           | QF40        | 0.85   |
| 4000303 | QF40XMVCR25-1.36  | 0.25           | QF40        | 1.36   |
| 4000304 | QF40XMVCR38-1.55  | 0.38           | QF40        | 1.55   |
| 4000305 | QF40XMVCR50-1.55  | 0.50           | QF40        | 1.55   |
| 4000306 | QF40XMVCR75-2.15  | 0.75           | QF40        | 2.15   |
| 4000307 | QF40XMVCR100-2.37 | 1.00           | QF40        | 2.37   |
| 4000308 | QF50XMVCR12-0.85  | 0.12           | QF50        | 0.85   |
| 4000309 | QF50XMVCR25-1.36  | 0.25           | QF50        | 1.36   |
| 4000310 | QF50XMVCR38-1.55  | 0.38           | QF50        | 1.55   |
| 4000311 | QF50XMVCR50-1.55  | 0.50           | QF50        | 1.55   |
| 4000312 | QF50XMVCR75-2.15  | 0.75           | QF50        | 2.15   |
| 4000313 | QF50XMVCR100-2.37 | 1.00           | QF50        | 2.37   |

## CF to Swagelok®

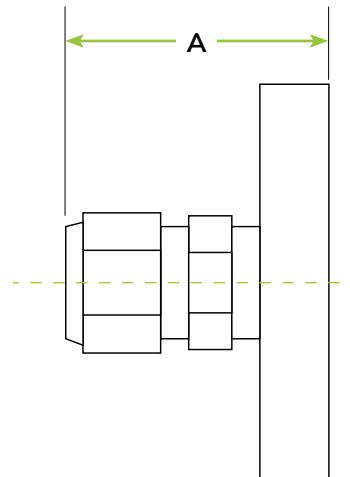
**Materials:**

- CF flange: 304 stainless steel
- Swagelok® fitting: 316 stainless steel

**Options:**

**Call for price  
and delivery**

- Additional sizes



| PART #  | REFERENCE ID      | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|-------------------|-------------|----------------|--------|
| 5000619 | CF133XSWG25-1.70  | CF133       | 0.250          | 1.70   |
| 5000620 | CF133XSWG38-1.72  | CF133       | 0.375          | 1.72   |
| 5000621 | CF133XSWG50-1.80  | CF133       | 0.500          | 1.80   |
| 5000622 | CF275XSWG25-1.64  | CF275       | 0.250          | 1.64   |
| 5000623 | CF275XSWG38-1.78  | CF275       | 0.375          | 1.78   |
| 5000624 | CF275XSWG50-2.18  | CF275       | 0.500          | 2.18   |
| 5000625 | CF275XSWG75-2.20  | CF275       | 0.750          | 2.20   |
| 5000626 | CF275XSWG100-2.60 | CF275       | 1.000          | 2.60   |

## ISO-QF to Swagelok®

### Materials

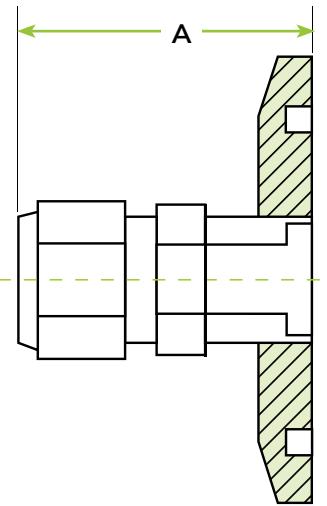
- QF flange: 304 stainless steel
- Swagelok® fitting: 316 stainless steel

### Product Notes:

- Adapts from ISO-QF flange to Swagelok® fitting

### Options: Call for price and delivery

- Additional sizes



## ISO-QF to Swagelok® Adapters

| PART #  | REFERENCE ID     | FLANGE TYPE | TUBE O.D. (in) | A (in) |
|---------|------------------|-------------|----------------|--------|
| 4000314 | QF16XSWG12-1.28  | QF16        | 0.12           | 1.28   |
| 4000315 | QF16XSWG25-1.53  | QF16        | 0.25           | 1.53   |
| 4000316 | QF16XSWG38-1.68  | QF16        | 0.38           | 1.68   |
| 4000317 | QF16XSWG50-1.98  | QF16        | 0.50           | 1.98   |
| 4000318 | QF25XSWG12-1.275 | QF25        | 0.12           | 1.28   |
| 4000319 | QF25XSWG25-1.53  | QF25        | 0.25           | 1.53   |
| 4000320 | QF25XSWG38-1.63  | QF25        | 0.38           | 1.63   |
| 4000321 | QF25XSWG50-2.08  | QF25        | 0.50           | 2.08   |
| 4000322 | QF25XSWG75-2.08  | QF25        | 0.75           | 2.08   |
| 4000323 | QF25XSWG100-2.88 | QF25        | 1.00           | 2.88   |
| 4000324 | QF40XSWG12-1.28  | QF40        | 0.12           | 1.28   |
| 4000325 | QF40XSWG25-1.53  | QF40        | 0.25           | 1.53   |
| 4000326 | QF40XSWG38-1.71  | QF40        | 0.38           | 1.71   |
| 4000327 | QF40XSWG50-1.97  | QF40        | 0.50           | 1.97   |
| 4000328 | QF40XSWG75-2.08  | QF40        | 0.75           | 2.08   |
| 4000329 | QF40XSWG100-2.53 | QF40        | 1.00           | 2.53   |
| 4000330 | QF50XSWG12-1.28  | QF50        | 0.12           | 1.28   |
| 4000331 | QF50XSWG25-1.53  | QF50        | 0.25           | 1.53   |
| 4000332 | QF50XSWG38-1.63  | QF50        | 0.38           | 1.63   |
| 4000333 | QF50XSWG50-1.97  | QF50        | 0.50           | 1.97   |
| 4000334 | QF50XSWG75-2.08  | QF50        | 0.75           | 2.08   |
| 4000335 | QF50XSWG100-2.53 | QF50        | 1.00           | 2.53   |

## CF to Quick Disconnect Adapters

# CF to Quick Disconnect Adapters

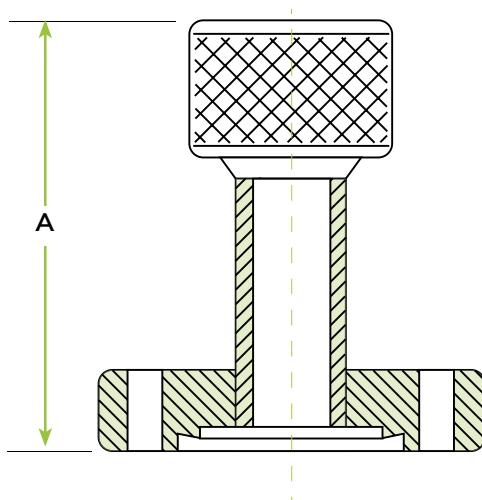
### Materials:

- Standard: 304 stainless steel

### Product Notes:

- Adapts from CF flange to quick disconnect fitting
- Convenient for mounting gauges, instruments or adding tube ports without welds

| PART #  | REFERENCE ID     | FLANGE | FOR TUBE SIZE (in) | A (in) |
|---------|------------------|--------|--------------------|--------|
| 5000596 | CF133XQD06-1.39  | CF133  | 0.063              | 1.312  |
| 5000597 | CF133XQD12-1.36  | CF133  | 0.125              | 1.312  |
| 5000598 | CF133XQD18-1.36  | CF133  | 0.188              | 1.312  |
| 5000599 | CF133XQD25-1.31  | CF133  | 0.250              | 1.312  |
| 5000600 | CF133XQD31-1.38  | CF133  | 0.313              | 1.387  |
| 5000601 | CF133XQD38-1.36  | CF133  | 0.375              | 1.363  |
| 5000602 | CF133XQD50-1.38  | CF133  | 0.50               | 1.380  |
| 5000603 | CF133XQD62-1.47  | CF133  | 0.625              | 1.471  |
| 5000604 | CF275XQD06-1.31  | CF275  | 0.063              | 1.313  |
| 5000605 | CF275XQD12-1.42  | CF275  | 0.125              | 1.417  |
| 5000606 | CF275XQD18-1.36  | CF275  | 0.188              | 1.363  |
| 5000607 | CF275XQD25-1.31  | CF275  | 0.25               | 1.312  |
| 5000608 | CF275XQD31-1.36  | CF275  | 0.313              | 1.363  |
| 5000609 | CF275XQD38-1.36  | CF275  | 0.375              | 1.363  |
| 5000610 | CF275XQD50-1.38  | CF275  | 0.50               | 1.376  |
| 5000611 | CF275XQD62-1.50  | CF275  | 0.625              | 1.500  |
| 5000612 | CF275XQD75-1.63  | CF275  | 0.750              | 1.625  |
| 5000613 | CF275XQD87-1.84  | CF275  | 0.875              | 1.839  |
| 5000614 | CF275XQD100-2.0  | CF275  | 1.00               | 2.000  |
| 5000615 | CF275XQD112-1.99 | CF275  | 1.125              | 1.994  |
| 5000616 | CF275XQD125-2.21 | CF275  | 1.25               | 2.213  |
| 5000617 | CF275XQD138-2.34 | CF275  | 1 3/8              | 2.339  |
| 5000618 | CF275XQD150-2.46 | CF275  | 1 1/2              | 2.464  |



| REFERENCE ID |
|--------------|
| ASA100       |
| ASA150       |
| ASA200       |
| ASA300       |
| ASA400       |
| ASA600       |
| ASA800       |
| ASA1000      |

**ANCORP** ASA/ANSI flanged fittings come standard with a smooth flange face. The addition of an O-ring groove is a custom option. If you require a grooved flange the additional charge for this is detailed in this chart.

**Please Note:** Adding a groove is customizing this product and is no longer returnable.

**Call For Pricing**

## QF to Quick Disconnect Adapters

**Materials:**

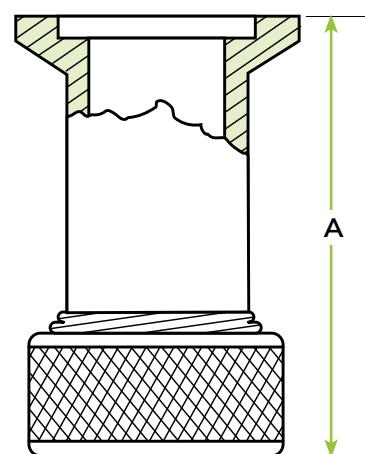
- Standard: 304 stainless steel

**Product Notes:**

- Adapts from ISO-QF flange to quick disconnect fitting
- Convenient for mounting gauges, instruments or adding tube ports without welds



| PART #  | REFERENCE ID    | FOR TUBE SIZE (in) | A (in) |
|---------|-----------------|--------------------|--------|
| 1000002 | QF16XQD25-1.41  | 1/4                | 1.41   |
| 1000003 | QF16XQD50-1.51  | 1/2                | 1.505  |
| 1000004 | QF16XQD75-1.81  | 3/4                | 1.805  |
| 1000005 | QF25XQD50-1.51  | 1/2                | 1.500  |
| 1000006 | QF25XQD62-1.66  | 5/8                | 1.655  |
| 1000007 | QF25XQD75-1.81  | 3/4                | 1.800  |
| 1000008 | QF25XQD100-2.01 | 1                  | 2.000  |
| 1000009 | QF25XQD112-2.01 | 1 1/8              | 2.000  |
| 1000010 | QF40XQD50-1.51  | 1/2                | 1.500  |
| 1000011 | QF40XQD75-1.81  | 3/4                | 1.800  |
| 1000012 | QF40XQD100-2.01 | 1                  | 2.000  |
| 1000013 | QF40XQD112-2.01 | 1 1/8              | 2.000  |
| 1000014 | QF40XQD125-2.16 | 1 1/4              | 2.155  |
| 1000015 | QF40XQD138-2.28 | 1 3/8              | 2.28   |
| 1000016 | QF40XQD150-2.41 | 1 1/2              | 2.41   |
| 1000017 | QF40XQ25        |                    |        |
| 1000018 | QF50XQD75-1.78  | 3/4                | 1.780  |
| 1000019 | QF50XQD100-1.96 | 1                  | 1.955  |
| 1000020 | QF50XQD112-2.08 | 1 1/8              | 1.825  |
| 1000021 | QF50XQD150-2.40 | 1 1/2              | 2.400  |
| 1000022 | QF50XQD200-2.38 | 2                  | 2.375  |
| 1000023 | QF50XQD50-1.47  | 1/2                | 1.467  |



## QF to Quick Disconnect Adapters

## Baseplate Fittings

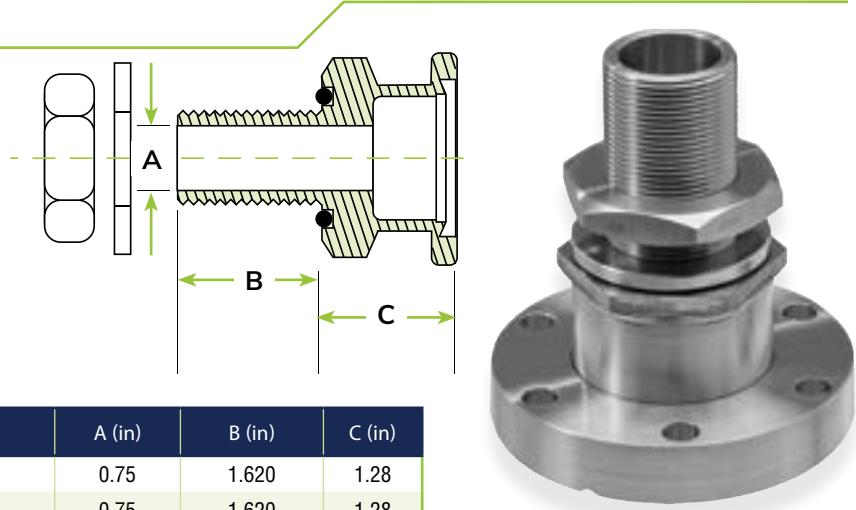
### CF to Baseplate Fitting

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from CF flange to baseplate fitting
- Baseplate fitting designed to fit through 1 inch diameter ports on baseplates up to 1 inch thick



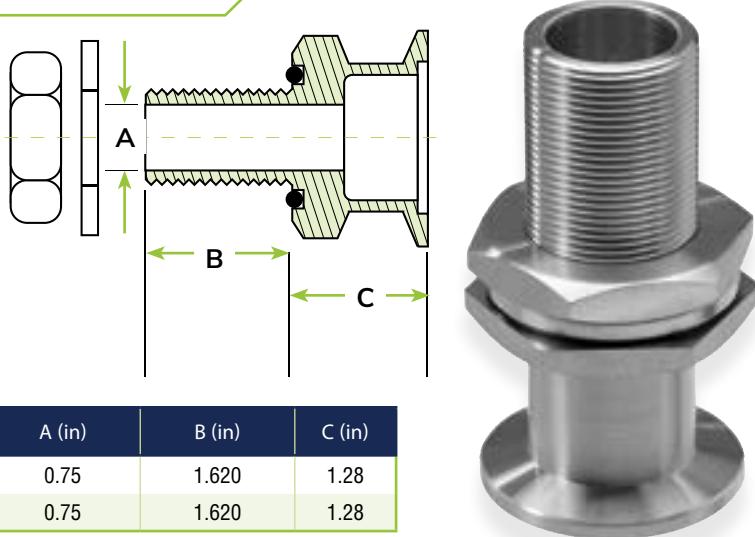
### QF to Baseplate Fitting

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from ISO-QF flange to baseplate fitting
- Baseplate fitting designed to fit through 1 inch diameter ports on baseplates up to 1 inch thick



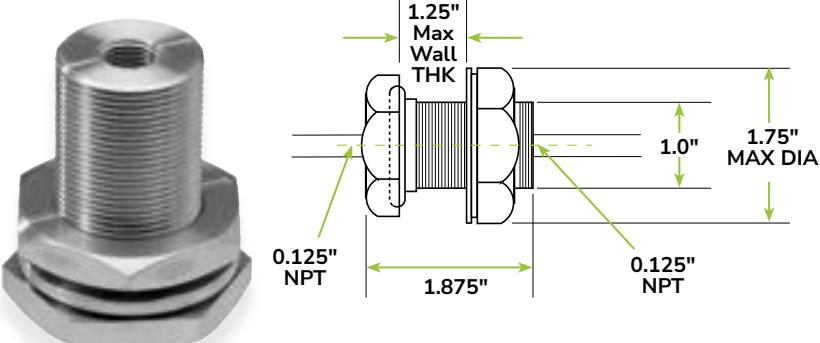
### NPT Female to Baseplate Fitting

**Materials:**

- 304 stainless steel
- Aluminium

**Product Notes:**

- Adapts from NPT female fitting to baseplate fitting
- Baseplate fitting designed to fit 1 inch diameter ports on baseplates up to 1 inch thick



| PART #  | REFERENCE ID          | DESCRIPTION   |
|---------|-----------------------|---|
| 2000005 | BP100XFNPT12-1.875-AL | Baseplate Fitting to 0.125 in. Female NPT-Aluminum        |
| 2000006 | BP100XFNPT12-1.875    | Baseplate Fitting to 0.125 in. Female NPT-Stainless Steel |

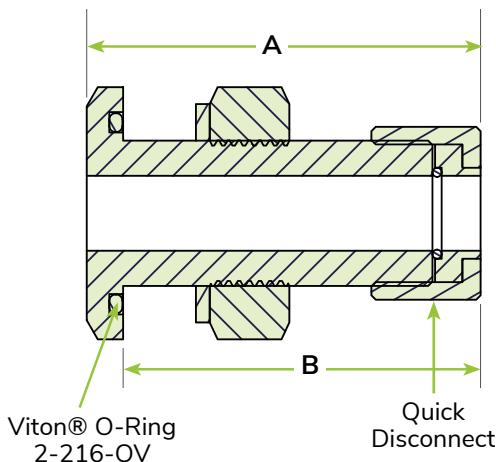
## Baseplate Fitting to Quick Disconnect

**Materials:**

- 304 stainless steel
- Aluminium

**Product Notes:**

- Adapts from baseplate fitting to quick disconnect fitting
- Baseplate fitting designed to fit 1 inch diameter ports on baseplates up to 1 1/4 inch thick
- Convenient for mounting gauges, instruments or adding



## Baseplate Fittings

**Stainless Steel**

| PART #         | REFERENCE ID     | FOR TUBE SIZE (in) | A (in) | B (in) |
|----------------|------------------|--------------------|--------|--------|
| <b>2000050</b> | BP100XQD12-2.62  | 1/8                | 2.62   | 2.37   |
| <b>2000051</b> | BP100XQD25-2.62  | 1/4                | 2.62   | 2.37   |
| <b>2000052</b> | BP100XQD38-2.62  | 3/8                | 2.62   | 2.37   |
| <b>2000053</b> | BP100XQD50-2.62  | 1/2                | 2.62   | 2.37   |
| <b>2000054</b> | BP100XQD62-2.62  | 5/8                | 2.62   | 2.37   |
| <b>2000055</b> | BP100XQD75-2.62  | 3/4                | 2.62   | 2.37   |
| <b>2000057</b> | BP100XQD100-4.25 | 1                  | 4.25   | 2.37   |

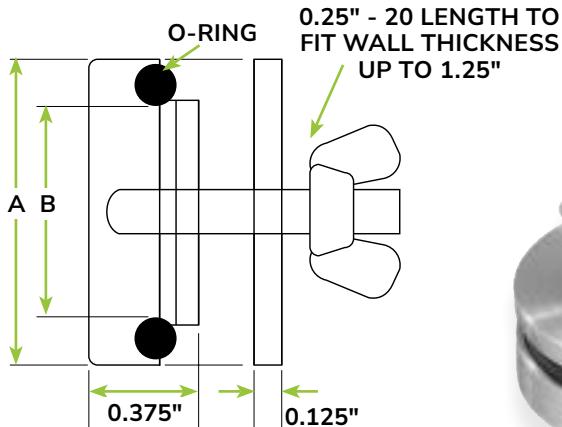
**Aluminum**

| PART #         | REFERENCE ID        | FOR TUBE SIZE (in) | A (in) | B (in) |
|----------------|---------------------|--------------------|--------|--------|
| <b>2000035</b> | BP100XQD12-2.62-AL  | 1/8                | 2.62   | 2.37   |
| <b>2000036</b> | BP100XQD25-2.62-AL  | 1/4                | 2.62   | 2.37   |
| <b>2000037</b> | BP100XQD38-2.62-AL  | 3/8                | 2.62   | 2.37   |
| <b>2000038</b> | BP100XQD50-2.62-AL  | 1/2                | 2.62   | 2.37   |
| <b>2000039</b> | BP100XQD62-2.62-AL  | 5/8                | 2.62   | 2.37   |
| <b>2000040</b> | BP100XQD75-2.62-AL  | 3/4                | 2.62   | 2.37   |
| <b>2000045</b> | BP100XQD100-4.25-AL | 1                  | 4.25   | 2.37   |

## Baseplate Fitting Blank Plug

**Materials:**

- 304 stainless steel or aluminum


**Product Notes:**

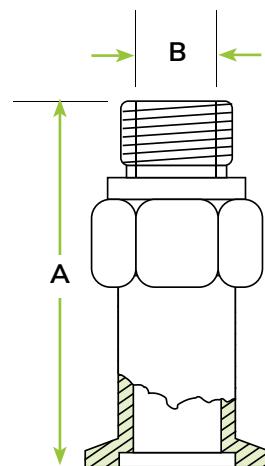
- Close unused baseplate ports
- Baseplate plugs designed to fit through 1 inch diameter ports on baseplates up to 1 inch

| PART #  | REFERENCE ID | A (in) | B (in) | O-RING | DESCRIPTION  |
|---------|--------------|--------|--------|--------|--|
| 2000025 | FTB-075      | 1.50   | 0.74   | 2-216  | Blank Stainless Steel Baseplate Plug w/0.75 in. Hole |
| 2000026 | FTB-100      | 1.50   | 0.99   | 2-216  | Blank Stainless Steel Baseplate Plug w/1.00 in. Hole |
| 2000027 | FTB-125      | 1.75   | 1.24   | 2-220  | Blank Stainless Steel Baseplate Plug w/1.25 in. Hole |
| 2000028 | FTB-150      | 2.00   | 1.49   | 2-223  | Blank Stainless Steel Baseplate Plug w/1.50 in. Hole |
| 2000029 | FTB-175      | 2.25   | 1.74   | 2-225  | Blank Stainless Steel Baseplate Plug w/1.75 in. Hole |
| 2000010 | FTB-100-AL   | 1.50   | 0.99   | 2-216  | Blank Aluminum Baseplate Plug w/1.00 in. Hole        |

## QF to Welch Pump Adapter

**Materials:**

- 304 stainless steel


**Product Notes:**

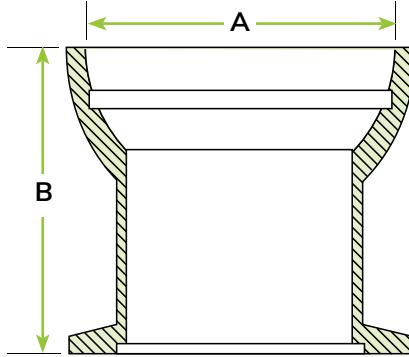
- Adapts from ISO-QF flange to Welch Pump fitting
- Aluminum washer included

| PART #  | REFERENCE ID      | FOR USE WITH WELCH PUMP NO.              | A (in) | B (in) |
|---------|-------------------|--|--------|--------|
| 4000380 | QF16XWP1-075-1.77 | 1399, 1400, 1410                         | 1.77   | 0.75   |
| 4000381 | QF16XWP2-075-2.56 | 1405                                     | 2.56   | 0.58   |
| 4000382 | QF25XWP1-075-2.76 | 1380, 1402, 1403, 8806, 8811, 8816, 8821 | 2.76   | 0.75   |
| 4000383 | QF40XWP1-150-2.56 | 1373, 1376, 8831                         | 2.56   | 1.50   |
| 4000384 | QF40XWP2-150-2.57 | 1374, 1397, 8851                         | 2.56   | 1.50   |

## QF to Ball Socket Fitting

**Materials:**

- 304 stainless steel


**Smooth Socket**

| PART #  | REFERENCE ID | A (in) | B (in) |
|---------|--------------|--------|--------|
| 4000390 | QF40X50/30BS | 2.00   | 2.75   |
| 4000392 | QF50X75/50BS | 3.00   | 3.27   |

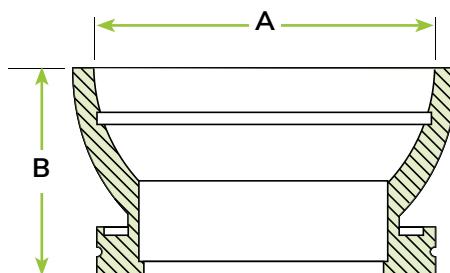
**Socket with O-Ring Groove**

| PART #  | REFERENCE ID  | O-RING SIZE | A (in) | B (in) |
|---------|---------------|-------------|--------|--------|
| 4000391 | QF40X50/30BSG | 2-224       | 2.00   | 2.75   |
| 4000393 | QF50X75/50BSG | 2-232       | 3.00   | 3.27   |

## LF to Ball Socket Fitting

**Materials:**

- 304 stainless steel


**Product Notes:**

- Adapts from ISO-LF flange to ball socket fitting
- Available with and without o-ring groove

**Smooth Socket**

| PART #  | REFERENCE ID   | A (in) | B (in) |
|---------|----------------|--------|--------|
| 4500201 | LF63X102/75BS  | 3.98   | 2.25   |
| 4500202 | LF80X102/75BS  | 3.98   | 2.25   |
| 4500203 | LF100X102/75BS | 3.98   | 2.25   |

**Options: Call for price and delivery**

- Additional sizes

**Socket with O-Ring Groove**

| PART #  | REFERENCE ID    | O-RING SIZE | A (in) | B (in) |
|---------|-----------------|-------------|--------|--------|
| 4500204 | LF63X102/75BSG  | 2-240       | 3.98   | 2.25   |
| 4500205 | LF80X102/75BSG  | 2-240       | 3.98   | 2.25   |
| 4500206 | LF100X102/75BSG | 2-240       | 3.98   | 2.25   |

## Up-to-Air Valves

### Up-to-Air Valves

Installation of an **ANCORP** up-to-air valve allows you to vent your chamber to atmosphere or backfill your chamber with the gas of your choice. Up-to-air valves are available in two mounting options: center or side mounting.

Center mounted valves are welded to the flange, side mounted valves are sealed to the side port of a double sided CF flange with an NPT fitting and allow in-line installation of the valve in your system.



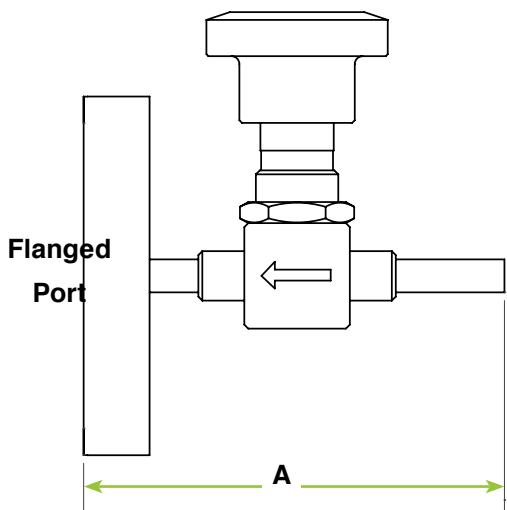
#### Features:

- Valve type: 1/4 inch, bellows sealed
- Actuation: manual
- Temperature range:  
CF flange mount: 60°C up to 315°C  
ISO-QF flange mount: -20°C up to 150°C
- Helium leak rated less than  $4 \times 10^{-9}$  Std.cc/s

#### Options: call for price and availability

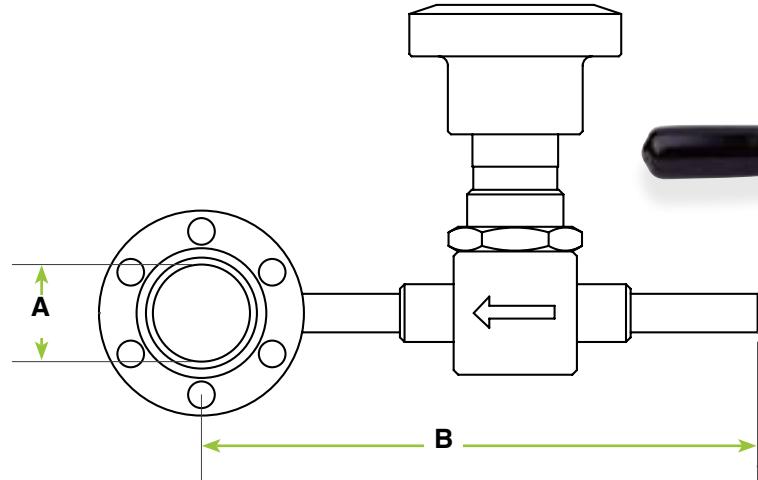
- Optional connections for valve port (VCR®, Swagelok®) standard is 1/4 inch tube end.
- Valves with side mounting to CF flanges can also be provided with a double port CF flange for the addition

### Up-to-Air Valve with CF Flange Port Center Mount



| PART #  | REFERENCE ID        | FLANGED PORT | A (in) | DESCRIPTION                              |
|---------|---------------------|--------------|--------|--|
| 9100105 | CF133-025-UTAV-3.00 | CF133        | 3.00   | Up-to-Air Valve with a CF133 Flange port |
| 9100106 | CF275-025-UTAV-3.19 | CF275        | 3.19   | Up-to-Air Valve with a CF275 Flange port |

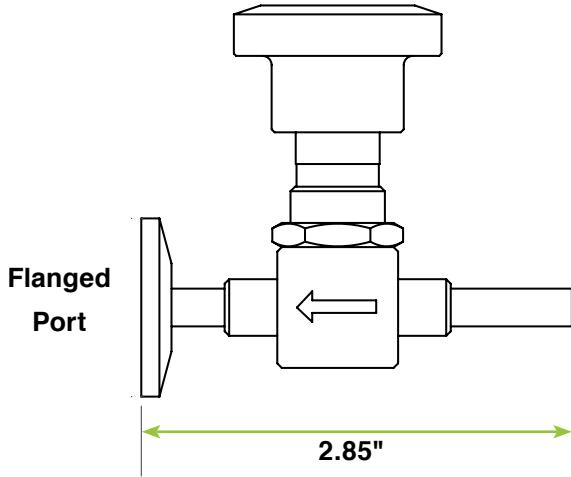
## Up-to-Air Valve with Double-Sided CF Flange Port - Side Mount



## Up-to-Air Valves

| PART #  | REFERENCE ID              | FLANGED PORT | A (in) | B (in) | DESCRIPTION                         |
|---------|---------------------------|--------------|--------|--------|-------------------------------------|
| 9100107 | CF133XCF133-075-UTAV-3.60 | CF133D       | 0.625  | 3.60   | Up-to-Air Valve with a CF133 Flange |
| 9100108 | CF275xCF275-150-UTAV-4.00 | CF275D       | 1.50   | 4.00   | Up-to-Air Valve with a CF275 Flange |

## Up-to-Air Valve with ISO-QF Flange Port Center Mount



| PART #  | REFERENCE ID       | FLANGED PORT | DESCRIPTION                             |
|---------|--------------------|--------------|---|
| 9100101 | QF16-025-UTAV-2.85 | QF16         | Up-to-Air Valve with a QF16 Flange port |
| 9100102 | QF25-025-UTAV-2.85 | QF25         | Up-to-Air Valve with a QF25 Flange port |
| 9100103 | QF40-025-UTAV-2.85 | QF40         | Up-to-Air Valve with a QF40 Flange port |
| 9100104 | QF50-025-UTAV-2.85 | QF50         | Up-to-Air Valve with a QF50 Flange port |

# RELIABLE UNDER ALL CONDITIONS.



Process stability requires reliable components - under all conditions. Don't compromise the reliability of your processes - benefit from the renowned performance of VAT vacuum valve solutions. Now available through ANCOPR.



ANCOPR is proud to announce that we are now an official distributor of a wide range of VAT vacuum valves. Order your next VAT valve from ANCOPR today at [sales@ancorp.com](mailto:sales@ancorp.com) or call us at 1-800-352-6431 (1-800-FLANGE1)

## Vacuum Feedthroughs

6

Vacuum Feedthroughs



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# Vacuum FEEDTHROUGHS



This section is made up of a wide variety of products that allow you to transfer fluid, gas, electricity or motion into your system without compromising hermetic integrity.

## Overview

The **ANCORP** electrical feedthrough line is used to transfer low voltage (50 volts max.), high current electrical power into a vacuum atmosphere. Our feedthrough features one-piece construction, eliminating any possible leakage through weld joints.

Rotary motion feedthroughs are available in two designs. Elastomer sealed rotary feedthroughs and ferro-sealed rotary feedthroughs. The elastomer sealed feedthrough utilizes a double O-ring seal. The ferro-sealed rotary feedthrough uses ferrofluid o-ring technology to provide a reliable vacuum

seal, high RPM and high torque capacity all at a price unmatched for its features. Ferro-sealed rotary feedthroughs are available in multiple flange connection designs.

Fluid and gas feedthroughs transmit fluids, cryogenic cooling agents or gasses into high and ultrahigh vacuum chambers. These feedthroughs are available with multiple tubing and flange connection options.

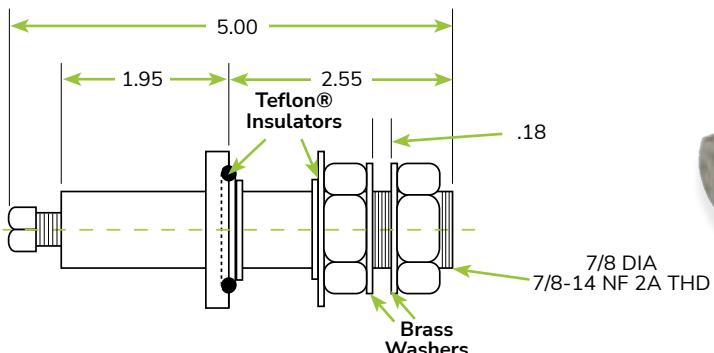
General feedthroughs serve many useful purposes. Attach a vacuum measurement device, add a gas

## Electrical Feedthroughs

This feedthrough is used to transfer low voltage (50 volts, max.), high current electrical power into a vacuum atmosphere. Our feedthrough features one-piece construction eliminating any possible leakage through welded joints.

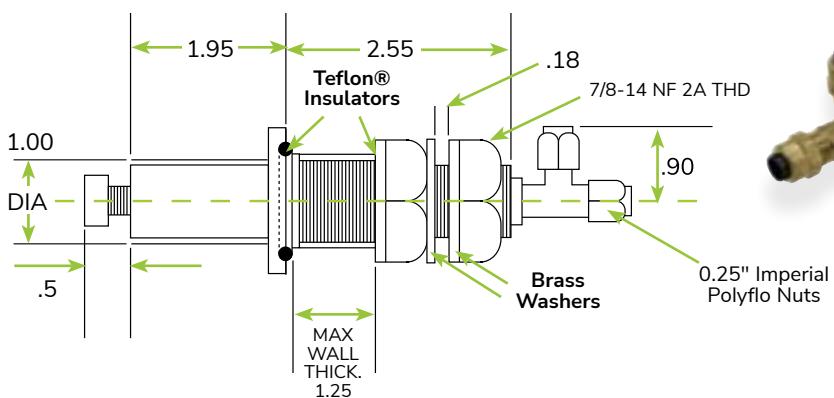
This unit is constructed of oxygen-free copper and brass.

### 400 AMP. Hi-Current Feedthrough



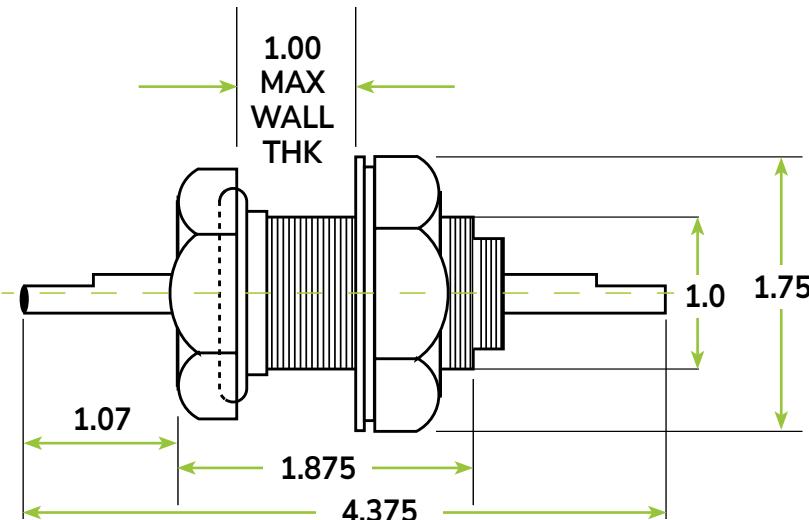
| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 2100002 | FTHC-BH-400  | 400 Amp, High Current Feedthrough                            |
| 2110005 | FTV-RK       | Repair Kit, contains large & small Teflon® insulator, O-ring |

### 1000 AMP. Hi-Current Watercooled Feedthrough



| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 2100001 | FTHC-BH-1000 | 1000 Amp, High Current, Water-Cooled Feedthrough             |
| 2110005 | FTV-RK       | Repair Kit, contains large & small Teflon® insulator, O-ring |
| 2110008 | FTV-T        | Replacement Imperial Tee                                     |

## Rotary Motion Feedthroughs - Elastomer Sealed



**ANCORP's** elastomer sealed rotary feedthrough is ideal for users requiring a rotary feedthrough for manual operation. The 1/4 inch shaft is supported by two ball bearings for smooth rotation. The 3/8 inch and 1/2 inch feedthroughs utilize bronze bearings to support the shaft. The shaft is sealed by a preloaded O-ring virtually foolproof! No spring to wear out or worry about.

This feedthrough is available in aluminum or stainless

steel. The unit is designed to fit standard 1 inch diameter through-hole mounting for wall thickness up to 1 1/4 inches.

The most amazing feature, however, is that the Viton® O-ring may be regreased or serviced by removing and replacing all components from the atmosphere side of the feedthrough in about 10 seconds without the use of any tools!

## Rotary Motion Feedthroughs

| PART #  | REFERENCE ID  | DESCRIPTION  |
|---------|---------------|--|
| 2002010 | FTRE-125-BH-A | 0.25 in. Shaft (Aluminum) Rotary Motion Feedthrough with Elastomer Seal            |
| 2002011 | FTRE-125-BH-S | 0.25 in. Shaft (304 Stainless Steel) Rotary Motion Feedthrough with Elastomer Seal |
| 2002012 | FTRE-138-BH-A | 0.38in. Shaft (Aluminum) Rotary Motion Feedthrough with Elastomer Seal             |
| 2002013 | FTRE-138-BH-S | 0.38 in. Shaft (304 Stainless Steel) Rotary Motion Feedthrough with Elastomer Seal |
| 2002014 | FTRE-150-BH-A | 0.50 in. Shaft (Aluminum) Rotary Motion Feedthrough with Elastomer Seal            |
| 2002015 | FTRE-150-BH-S | 0.50 in. Shaft (304 Stainless Steel) Rotary Motion Feedthrough with Elastomer Seal |

### Spare Parts

| PART #  | REFERENCE ID          | DESCRIPTION                                       |
|---------|-----------------------|---|
| 2002009 | 125-BK                | Replacement Parts: Replacement Bearings & O-rings |
| 0605410 | 1-14 THIN NUT BRASS   | 1-14 in. Brass Hex Nut 35/34 in. Thick            |
| 0605414 | 1-FLATWASHER-BRASS    | 1 in. I.D. Washer Brass                           |
| 0605408 | 1-14 THIN NUT SS 18-8 | 1-14 in. 18-8SS Hex Nut 35/64 in. Thick           |
| 0605412 | 1-FLATWASHER-SS       | 1 in. I.D. Washer 18-8 SS                         |
| 2012015 | 125-KC                | Replacement Parts: Knurled Cap                    |

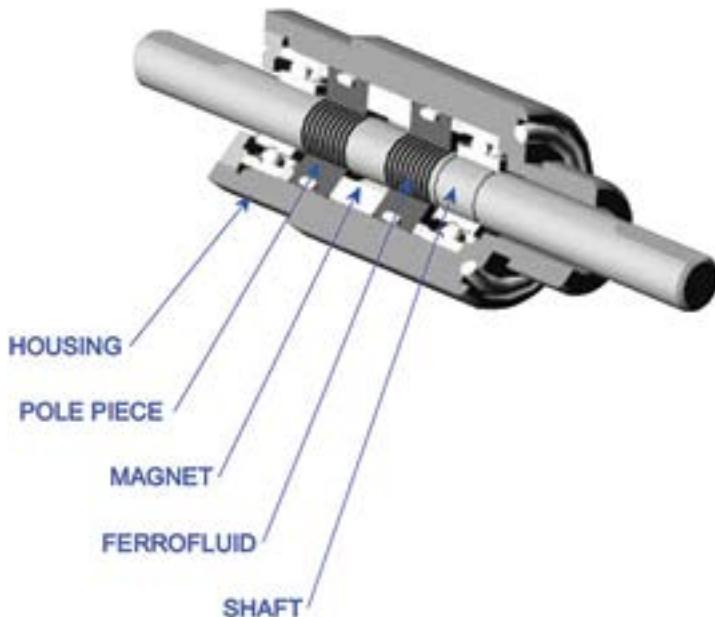
## Ferro-Sealed Rotary Feedthroughs

### Ferro-Sealed Feedthrough

#### Ferrofluid Sealing Technology

Ferrofluid seals are based on the formation of liquid O-rings which create a hermetic seal on the shaft of the feedthrough. This is accomplished by the retention of magnetic fluid (ferrofluid) by powerful magnetic fields created by precise placement of high-strength magnets within the body of the feedthrough. The precise roller bearing spindle design allows for a smooth rotation and

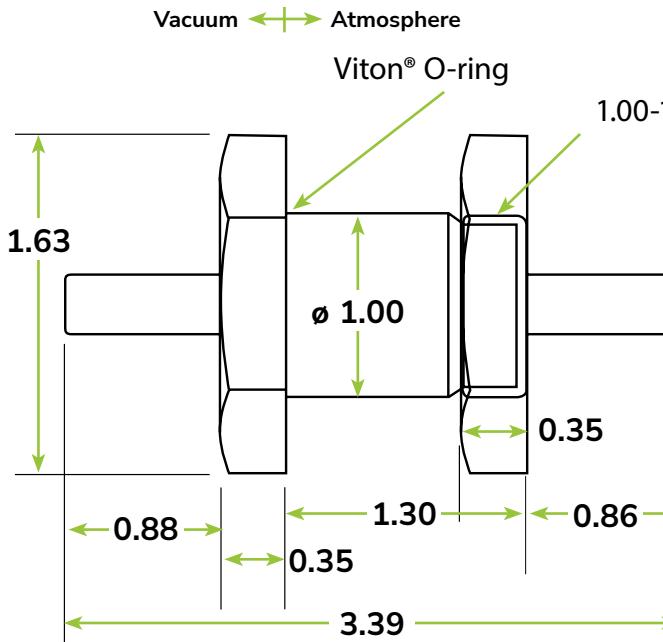
**Ferrofluid forms liquid O-rings with the help of strong, high-energy magnets**



- Hermetically sealed with ferrofluid technology
- Vacuum rated to  $1 \times 10^{-8}$  Torr (UHV option rated to  $1 \times 10^{-9}$  Torr)
- Up to 5000 RPM performance
- Very low stray magnetic fields
- No magnets in the vacuum environment
- High torque capacity
- 2.5 atmospheres of pressure differential tolerance

## Ferro-Sealed Rotary Motion - Baseplate Connection

### 1/4 in. & 3/8 in. Shaft Models



## Ferro-Sealed Rotary Feedthroughs

### Materials:

- Body and shaft – 17-4 PH stainless steel
- Seal – Viton®
- Bearing type: R6
  - Max. static load = 305 lbs.
  - Max. dynamic load = 575 lbs.
  - Lubricant = Fomblin®/Krytox® Blend

### Specifications:

- Vacuum rated:  $1 \times 10^{-8}$  Torr
- Max. operating pressure differential: 2.5 atm.
- Helium leak tested to  $5 \times 10^{-9}$  std. cc/sec.
- Max No-Load speed: 5000 rpm
- Max. temperature: 80°C
- Drag torque:
  - @ Break-away = 11 oz-in
  - @ 100 rpm = 6 oz-in
  - @ 1000 rpm = 9 oz-in

### Product Notes:

- Hermetically sealed with ferrofluid technology
- Very low stray magnetic fields
- No magnets in the vacuum environment
- High torque capacity
- Connection to system: Viton® O-ring seal with baseplate threaded fastener

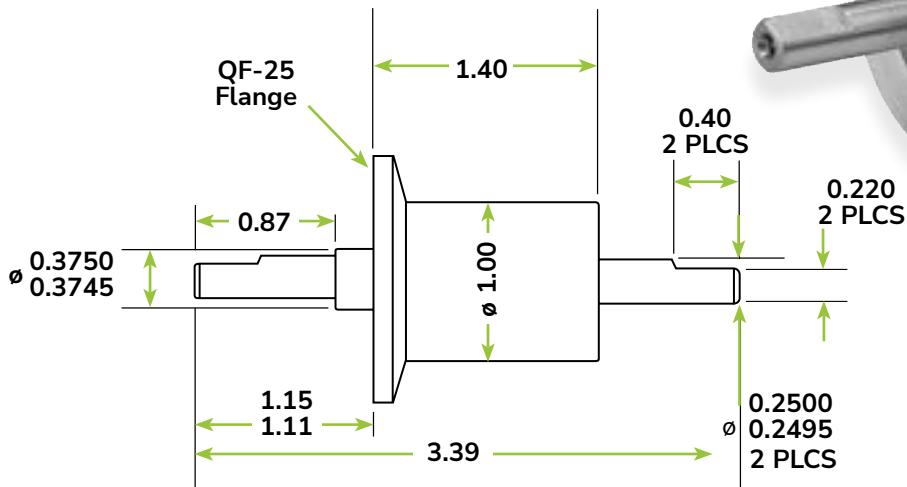
### Options: Call for price and availability

| PART #  | REFERENCE ID            | SHAFT DIAMETER | CONNECTION                        | MAX TRANSMISSION TORQUE |
|---------|-------------------------|----------------|-----------------------------------|-------------------------|
| 2203009 | BP100-025-FTRF-3.39-160 | 0.25 inch      | 0.75 in. or 1 in. Baseplate Ports | 160 in-lbs.             |
| 2203010 | BP100-038-FTRF-3.39-160 | 0.38 inch      | 0.75 in. or 1 in. Baseplate Ports | 160 in-lbs              |

## Ferro-Sealed Rotary Feedthroughs

### Ferro-Sealed Rotary Motion - ISO-QF Connection

1/4 in. & 3/8 in. Shaft Model



#### Materials:

- Body and shaft – 17-4 PH stainless steel
- Seal – Viton®

-@ 1000 rpm = 9 oz-in

- Bearing type: R6
  - Max. static load = 305 lbs.
  - Max. dynamic load = 575 lbs.
  - Lubricant = Fomblin®/Krytox® Blend

#### Specifications:

- Vacuum rated:  $1 \times 10^{-8}$  Torr
- Max. operating pressure differential: 2.5 atm.
- Helium leak tested to  $5 \times 10^{-9}$  std. cc/sec.
- Max No-Load speed: 5000 rpm
- Max. temperature: 80°C
- Drag torque:
  - @ Break-away = 11 oz-in
  - @ 100 rpm = 6 oz-in

#### Product Notes:

- Hermetically sealed with ferrofluid technology
- Very low stray magnetic fields
- No magnets in the vacuum environment
- High torque capacity
- Connection to system: Viton® O-ring seal with baseplate threaded fastener

**Options: Call for price and availability**

| PART #  | REFERENCE ID           | SHAFT DIAMETER | CONNECTION | MAX TRANSMISSION TORQUE |
|---------|------------------------|----------------|------------|-------------------------|
| 2203003 | QF25-025-FTRF-3.39-160 | 0.25 inch      | ISO-QF25 F | 160 in-lbs.             |
| 2203004 | QF25-038-FTRF-3.39-160 | 0.38 inch      | ISO-QF25 F | 160 in-lbs              |

## Ferro-Sealed Rotary Motion - CF Connection



### Materials:

- Body and shaft – 17-4 PH stainless steel
- Seal – Viton®

- Bearing type: R6
  - Max. static load = 3
  - Max. dynamic load
  - Lubricant = Fomblin

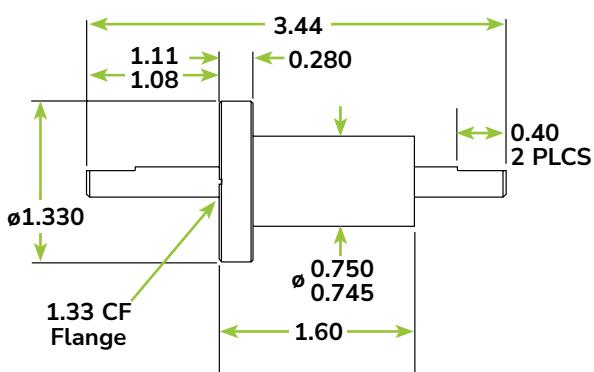
### Specifications:

- Vacuum rated:  $1 \times 10^{-8}$  Torr (UHV option rated to  $1 \times 10^{-9}$  torr)
- Max. operating pressure differential: 2.5 atm.
- Helium leak tested to  $5 \times 10^{-9}$  std. cc/sec.
- Max No-Load speed: 5000 rpm
- Max. temperature: 80°C
- Drag torque:
  - @ Break-away = 11 oz-in
  - @ 100 rpm = 6 oz-in
  - @ 1000 rpm = 9 oz-in

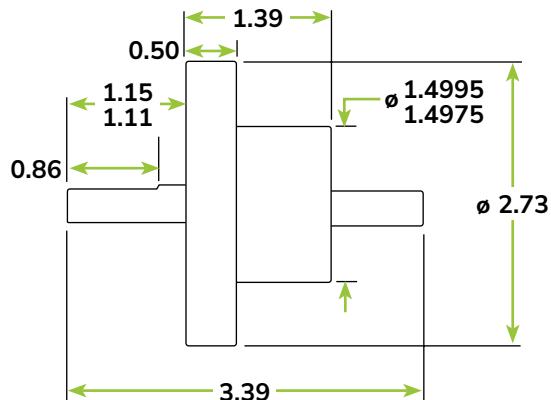
### Product Notes:

- Hermetically sealed with ferrofluid technology
- Very low stray magnetic fields
- No magnets in the vacuum environment
- High torque capacity

Drawing A



Drawing B



| PART #  | REFERENCE ID            | DRAWING | SHAFT DIAMETER | CONNECTION   | MAX TRANSMISSION TORQUE |
|---------|-------------------------|---------|----------------|--------------|-------------------------|
| 2203005 | CF133-025-FTRF-3.44-160 | A       | 0.25 inch      | CF133 Flange | 160 in-lbs.             |
| 2203006 | CF275-025-FTRF-3.39-160 | B       | 0.25 inch      | CF275 Flange | 160 in-lbs.             |
| 2203007 | CF275-038-FTRF-3.39-160 | B       | 0.38 inch      | CF275 Flange | 160 in-lbs.             |

# Non-Cryogenic Fluid and Gas Single Feedthrough

## Non-Cryogenic Feedthroughs

### Materials:

- Flanges and tubing: 304 stainless steel
- Fittings: 316 stainless steel

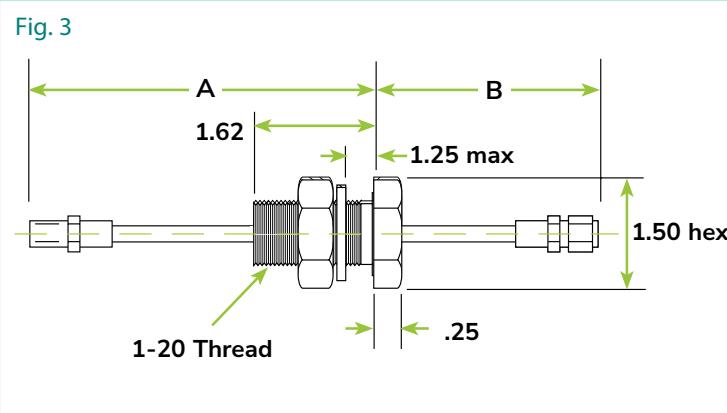
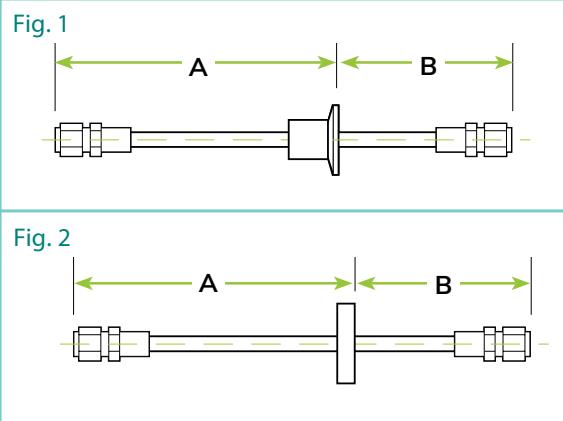
### Max. Temperature:

- CF flanged feedthrough: 450°C
- ISO-QF and baseplate feedthroughs: 150°C (200°C intermittent)



### Options: Call for price and delivery

- Custom designs are available.



| PART #  | REFERENCE ID           | FLANGE          | CONNECTION         | DRAWING | A (in) | B (in) |
|---------|------------------------|-----------------|--------------------|---------|--------|--------|
| 2001000 | QF16XTE-025-FTST-6.00  | QF16            | 0.25 in. Tube Ends | 1       | 4.0    | 2.0    |
| 2001001 | QF50XTE-025-FTST-6.00  | QF50            | 0.25 in. Tube Ends | 1       | 4.0    | 2.0    |
| 2001003 | BP100XTE-025-FTST-7.00 | 1 in. Baseplate | 0.25 in. Tube Ends | 3       | 4.5    | 2.5    |
| 2001004 | CF133XTE-025-FTST-6.00 | CF133           | 0.25 in. Tube Ends | 2       | 4.0    | 2.0    |
| 2001005 | QF25XTE-025-FTST-6.00  | QF25            | 0.25 in. Tube Ends | 1       | 4.0    | 2.0    |
| 2001006 | QF40XTE-025-FTST-6.00  | QF40            | 0.25 in. Tube Ends | 1       | 4.0    | 2.0    |
| 2001008 | CF275XTE-025-FTST-6.00 | CF275           | 0.25 in. Tube Ends | 2       | 4.0    | 2.0    |
| 2001015 | QF16XSWG25-FTST-8.00   | QF16            | 0.25 in. Swagelok® | 1       | 5.0    | 3.0    |
| 2001016 | QF25XSWG25-FTST-8.00   | QF25            | 0.25 in. Swagelok® | 1       | 5.0    | 3.0    |
| 2001017 | QF40XSWG25-FTST-8.00   | QF40            | 0.25 in. Swagelok® | 1       | 5.0    | 3.0    |
| 2001019 | QF50XSWG25-FTST-8.00   | QF50            | 0.25 in. Swagelok® | 1       | 5.0    | 3.0    |
| 2001021 | BP100XSWG25-FTST-9.00  | 1 in. Baseplate | 0.25 in. Swagelok® | 3       | 5.5    | 3.5    |
| 2001022 | CF133XSWG25-FTST-8.00  | CF133           | 0.25 in. Swagelok® | 2       | 5.0    | 3.0    |
| 2001023 | CF275XSWG25-FTST-8.00  | CF275           | 0.25 in. Swagelok® | 2       | 5.0    | 3.0    |
| 2001030 | QF16XMVCR25-FTST-8.00  | QF16            | 0.25 in. Male VCR® | 1       | 5.0    | 3.0    |
| 2001031 | QF25XMVCR25-FTST-8.00  | QF25            | 0.25 in. Male VCR® | 1       | 5.0    | 3.0    |
| 2001032 | QF40XMVCR25-FTST-8.00  | QF40            | 0.25 in. Male VCR® | 1       | 5.0    | 3.0    |
| 2001034 | QF50XMVCR25-FTST-8.00  | QF50            | 0.25 in. Male VCR® | 1       | 5.0    | 3.0    |
| 2001036 | BP100XMVCR25-FTST-9.00 | 1 in. Baseplate | 0.25 in. Male VCR® | 3       | 5.5    | 3.5    |
| 2001037 | CF133XMVCR25-FTST-8.00 | CF133           | 0.25 in. Male VCR® | 2       | 5.0    | 3.0    |
| 2001038 | CF275XMVCR25-FTST-8.00 | CF275           | 0.25 in. Male VCR® | 2       | 5.0    | 3.0    |

## Non-Cryogenic Fluid and Gas Double Feedthrough

**Materials:**

- Flanges and tubing: 304 stainless steel
- Fittings: 316 stainless steel

**Max. Temperature:**

- CF flanged feedthrough: 450°C
- ISO-QF and baseplate feedthroughs:  
150°C (200°C intermittent)

**Vacuum Rating:**

- CF flanged feedthroughs:  
UHV  $1 \times 10^{-13}$  Torr
- ISO-QF and baseplate  
feedthroughs:  
HV  $1 \times 10^{-8}$  Torr


**Options: Call for price and delivery**

- Custom designs are available.

Fig. 4

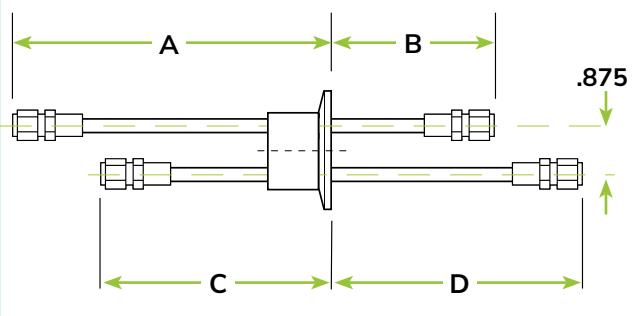
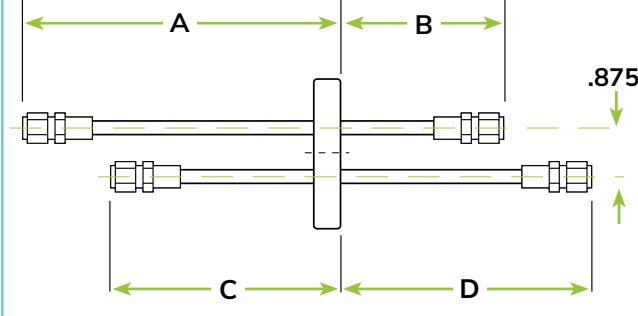


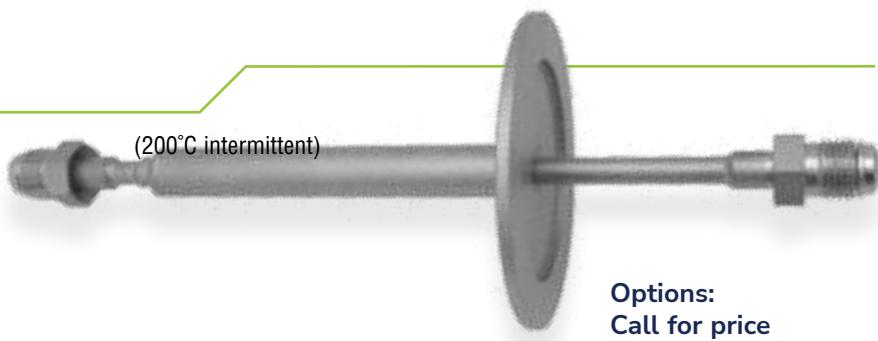
Fig. 5



## Non-Cryogenic Feedthroughs

| PART #  | REFERENCE ID           | FLANGE | CONNECTION         | DRAWING | A (in) | B (in) | C (in) | D (in) |
|---------|------------------------|--------|--------------------|---------|--------|--------|--------|--------|
| 2001002 | QF50XTE-025-FTDT-6.00  | QF50   | 0.25 in. Tube      | 4       | 4.0    | 2.0    | 2.0    | 4.0    |
| 2001009 | CF275XTE-025-FTDT-6.00 | CF275  | 0.25 in. Tube      | 5       | 4.0    | 2.0    | 2.0    | 4.0    |
| 2001011 | QF40XTE-025-FTDT-6.00  | QF40   | 0.25 in. Tube      | 4       | 4.0    | 2.0    | 2.0    | 4.0    |
| 2001018 | QF40XSWG25-FTDT-8.00   | QF40   | 0.25 in. Swagelok® | 4       | 5.0    | 3.0    | 3.0    | 5.0    |
| 2001020 | QF50XSWG25-FTDT-8.00   | QF50   | 0.25 in. Swagelok® | 4       | 5.0    | 3.0    | 3.0    | 5.0    |
| 2001024 | CF275XSWG25-FTDT-8.00  | CF275  | 0.25 in. Swagelok® | 5       | 5.0    | 3.0    | 3.0    | 5.0    |
| 2001033 | QF40XMVCR25-FTDT-8.00  | QF40   | 0.25 in. Male VCR® | 4       | 5.0    | 3.0    | 3.0    | 5.0    |
| 2001035 | QF50XMVCR25-FTDT-8.00  | QF50   | 0.25 in. Male VCR® | 4       | 5.0    | 3.0    | 3.0    | 5.0    |
| 2001039 | CF275XMVCR25-FTDT-8.00 | CF275  | 0.25 in. Male VCR® | 5       | 5.0    | 3.0    | 3.0    | 5.0    |

# Cryogenic Fluid Single Feedthroughs


**Materials:**

- Fittings: 316 stainless steel
  - Flanges and tubing: 304 stainless steel

**Max. Temperature:**

- CF flanged feedthrough: 450°C
- ISO-QF and baseplate feedthroughs: 150°C

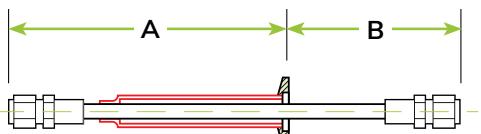
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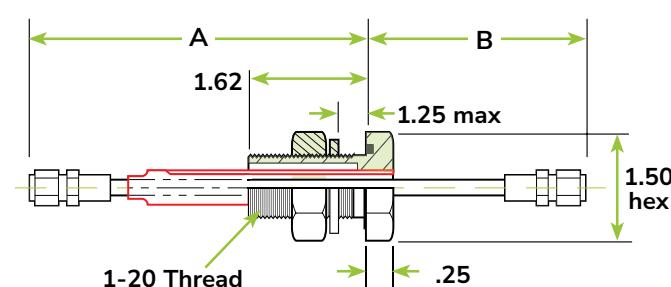
**Call for price and delivery**

- Custom designs are available.

**Vacuum Rating:**

- CF flanged feedthroughs: UHV  $1 \times 10^{-13}$  Torr

**Fig. 1**

**Fig. 2**

**Fig. 3**


## Cryogenic Fluid Feedthroughs

| PART #  | REFERENCE ID           | FLANGE          | CONNECTION         | FIGURE | A (in) | B (in) |
|---------|------------------------|-----------------|--------------------|--------|--------|--------|
| 2001040 | QF16XTE-025-FTCS-7.00  | QF16            | 0.25 in. Tube Ends | 1      | 5.0    | 2.0    |
| 2001041 | QF25XTE-025-FTCS-7.00  | QF25            | 0.25 in. Tube Ends | 1      | 5.0    | 2.0    |
| 2001042 | QF40XTE-025-FTCS-7.00  | QF40            | 0.25 in. Tube Ends | 1      | 5.0    | 2.0    |
| 2001044 | QF50XTE-025-FTCS-7.00  | QF50            | 0.25 in. Tube Ends | 1      | 5.0    | 2.0    |
| 2001046 | BP100XTE-025-FTCS-7.00 | 1 in. Baseplate | 0.25 in. Tube Ends | 3      | 4.5    | 2.5    |
| 2001047 | CF133XTE-025-FTCS-7.00 | CF133           | 0.25 in. Tube Ends | 2      | 5.0    | 2.0    |
| 2001048 | CF275XTE-025-FTCS-7.00 | CF275           | 0.25 in. Tube Ends | 2      | 5.0    | 2.0    |
| 2001050 | QF16XSWG25-FTCS-9.00   | QF16            | 0.25 in. Swagelok® | 1      | 6.0    | 3.0    |
| 2001051 | QF25XSWG25-FTCS-9.00   | QF25            | 0.25 in. Swagelok® | 1      | 6.0    | 3.0    |
| 2001052 | QF40XSWG25-FTCS-9.00   | QF40            | 0.25 in. Swagelok® | 1      | 6.0    | 3.0    |
| 2001054 | QF50XSWG25-FTCS-9.00   | QF50            | 0.25 in. Swagelok® | 1      | 6.0    | 3.0    |
| 2001056 | BP100XSWG25-FTCS-9.00  | 1 in. Baseplate | 0.25 in. Swagelok® | 3      | 5.5    | 3.5    |
| 2001057 | CF133XSWG25-FTCS-9.00  | CF133           | 0.25 in. Swagelok® | 2      | 6.0    | 3.0    |
| 2001058 | CF275XSWG25-FTCS-9.00  | CF275           | 0.25 in. Swagelok® | 2      | 6.0    | 3.0    |
| 2001065 | QF16XMVCR25-FTCS-9.00  | QF16            | 0.25 in. Male VCR® | 1      | 6.0    | 3.0    |
| 2001066 | QF25XMVCR25-FTCS-9.00  | QF25            | 0.25 in. Male VCR® | 1      | 6.0    | 3.0    |
| 2001067 | QF40XMVCR25-FTCS-9.00  | QF40            | 0.25 in. Male VCR® | 1      | 6.0    | 3.0    |
| 2001069 | QF50XMVCR25-FTCS-9.00  | QF50            | 0.25 in. Male VCR® | 1      | 6.0    | 3.0    |
| 2001071 | BP100XMVCR25-FTCS-9.00 | 1 in. Baseplate | 0.25 in. Male VCR® | 3      | 5.5    | 3.5    |
| 2001072 | CF133XMVCR25-FTCS-9.00 | CF133           | 0.25 in. Male VCR® | 2      | 6.0    | 3.0    |
| 2001073 | CF275XMVCR25-FTCS-9.00 | CF275           | 0.25 in. Male VCR® | 2      | 6.0    | 3.0    |

## Cryogenic Fluid Double Feedthroughs

**Materials:**

- Flanges and tubing: 304 stainless steel
- Fittings: 316 stainless steel

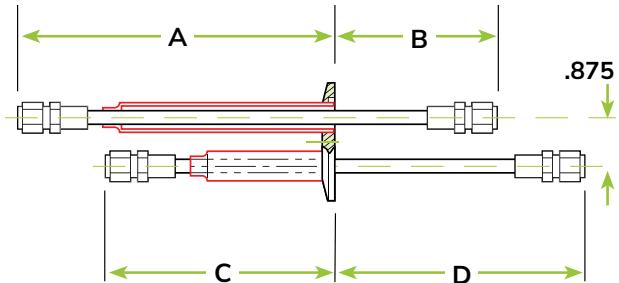
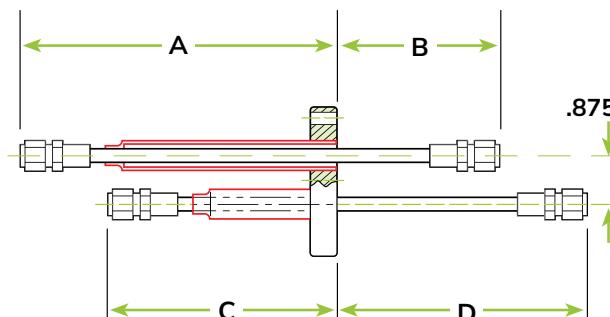
**Max. Temperature:**

- CF flanged feedthrough: 450°C
- ISO-QF and baseplate feedthroughs: 150°C (200°C intermittent)


**Vacuum Rating:**

- CF flanged feedthroughs: UHV  $1 \times 10^{-13}$  Torr
- ISO-QF and baseplate feedthroughs: HV  $1 \times 10^{-8}$  Torr

**Options:** Call for price and delivery

**Fig. 4**

**Fig. 5**


### Cryogenic Fluid Double Feedthrough

| PART #  | REFERENCE ID           | FLANGE | CONNECTION         | FIGURE | A (in) | B (in) | C (in) | D (in) |
|---------|------------------------|--------|--------------------|--------|--------|--------|--------|--------|
| 2001043 | QF40XTE-025-FTCD-7.00  | QF40   | 0.25 in. Tube Ends | 4      | 5.0    | 2.0    | 3.0    | 4.0    |
| 2001045 | QF50XTE-025-FTCD-7.00  | QF50   | 0.25 in. Tube Ends | 4      | 5.0    | 2.0    | 3.0    | 4.0    |
| 2001049 | CF275XTE-025-FTCD-7.00 | CF275  | 0.25 in. Tube Ends | 5      | 5.0    | 2.0    | 3.0    | 4.0    |
| 2001053 | QF40XSWG25-FTCD-9.00   | QF40   | 0.25 in. Swagelok® | 4      | 6.0    | 3.0    | 4.0    | 5.0    |
| 2001055 | QF50XSWG25-FTCD-9.00   | QF50   | 0.25 in. Swagelok® | 4      | 6.0    | 3.0    | 4.0    | 5.0    |
| 2001059 | CF275XSWG25-FTCD-9.00  | CF275  | 0.25 in. Swagelok® | 5      | 6.0    | 3.0    | 4.0    | 5.0    |
| 2001068 | QF40XMVCR25-FTCD-9.00  | QF40   | 0.25 in. Male VCR® | 4      | 6.0    | 3.0    | 4.0    | 5.0    |
| 2001070 | QF50XMVCR25-FTCD-9.00  | QF50   | 0.25 in. Male VCR® | 4      | 6.0    | 3.0    | 4.0    | 5.0    |
| 2001074 | CF275XMVCR25-FTCD-9.00 | CF275  | 0.25 in. Male VCR® | 5      | 6.0    | 3.0    | 4.0    | 5.0    |

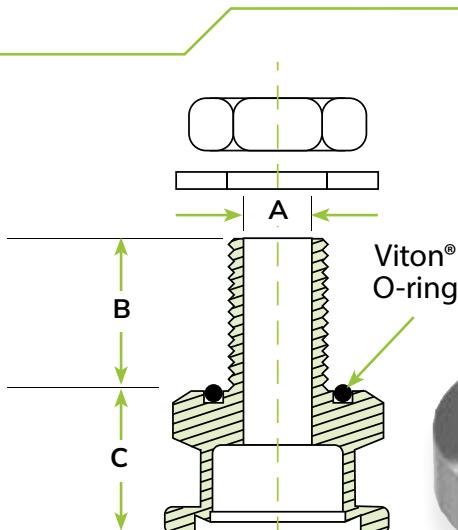
## Baseplate to CF Flange Transition Feedthrough

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from baseplate fitting to CF flange
- Baseplate fitting designed to fit 1 inch diameter ports on baseplates up to 1 inch thick



## General Feedthroughs

| PART #  | REFERENCE ID         | A (in) | B (in) | C (in) |
|---------|----------------------|--------|--------|--------|
| 2000065 | CF212XBP100-075-2.90 | 0.75   | 1.62   | 1.28   |
| 2000066 | CF275XBP100-075-2.90 | 0.75   | 1.62   | 1.28   |

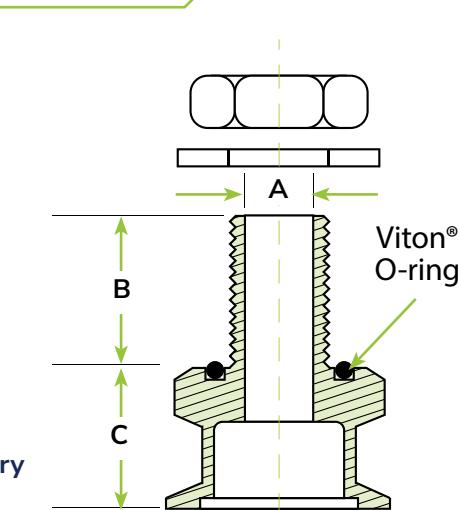
## Baseplate to ISO-QF Flange Transition Feedthrough

**Materials:**

- 304 stainless steel

**Product Notes:**

- Adapts from baseplate fitting to ISO-QF flange
- Baseplate fitting designed to fit 1 inch diameter ports on baseplates up to 1 inch thick


**Options: Call for price and delivery**

- Additional sizes

| PART #  | REFERENCE ID        | A (in) | B (in) | C (in) |
|---------|---------------------|--------|--------|--------|
| 2000060 | QF25XBP100-075-2.90 | 0.75   | 1.620  | 1.28   |
| 2000061 | QF40XBP100-075-2.90 | 0.75   | 1.620  | 1.28   |

## Baseplate to Female NPT Transition Feedthrough

**Materials:**

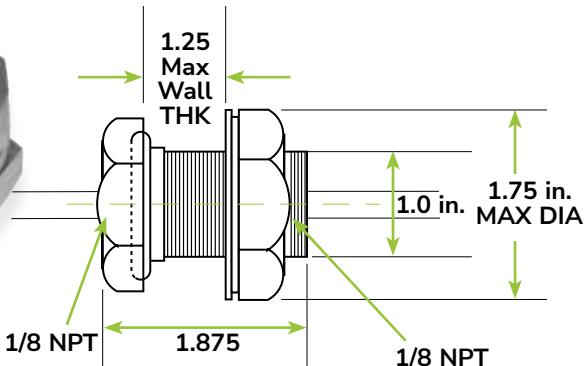
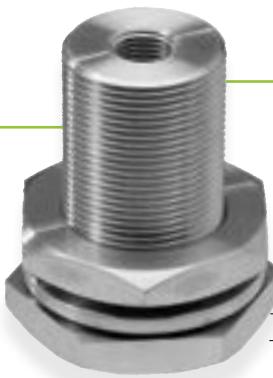
- 304 stainless steel
- Aluminum

**Options: Call for price and delivery**

- Additional sizes

**Product Notes:**

- Adapts from baseplate fitting to NPT fitting



| PART #  | REFERENCE ID          | DESCRIPTION   |
|---------|-----------------------|---|
| 2000005 | BP100XFNPT12-1.875-AL | Aluminum Baseplate Fitting to 0.13 inch Female NPT        |
| 2000006 | BP100XFNPT12-1.875    | Stainless Steel Baseplate Fitting to 0.13 inch Female NPT |

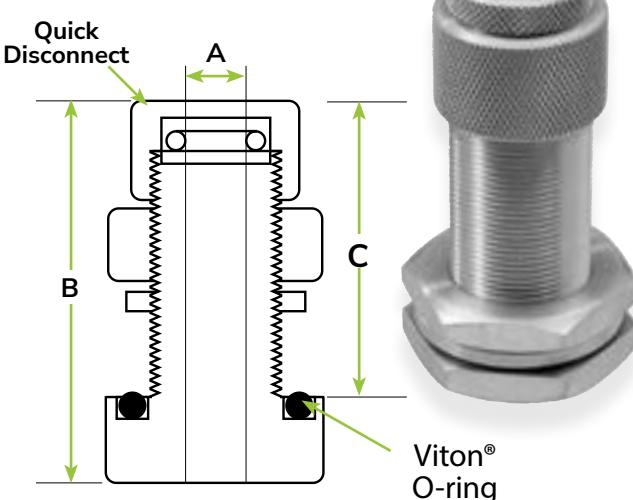
## Baseplate to Quick Disconnect Transition Feedthrough

**Stainless Steel**

| PART #  | REFERENCE ID     | A (in) | B (in) | C (in) |
|---------|------------------|--------|--------|--------|
| 2000050 | BP100XQD12-2.62  | 0.125  | 2.62   | 2.37   |
| 2000051 | BP100XQD25-2.62  | 0.25   | 2.62   | 2.37   |
| 2000052 | BP100XQD38-2.62  | 0.375  | 2.62   | 2.37   |
| 2000053 | BP100XQD50-2.62  | 0.50   | 2.62   | 2.37   |
| 2000054 | BP100XQD62-2.62  | 0.625  | 2.62   | 2.37   |
| 2000055 | BP100XQD75-2.62  | 0.75   | 2.62   | 2.37   |
| 2000057 | BP100XQD100-4.25 | 1.00   | 4.25   | 2.37   |

**Aluminum**

| PART #  | REFERENCE ID        | A (in) | B (in) | C (in) |
|---------|---------------------|--------|--------|--------|
| 2000035 | BP100XQD12-2.62-AL  | 0.125  | 2.62   | 2.37   |
| 2000036 | BP100XQD25-2.62-AL  | 0.25   | 2.62   | 2.37   |
| 2000037 | BP100XQD38-2.62-AL  | 0.375  | 2.62   | 2.37   |
| 2000038 | BP100XQD50-2.62-AL  | 0.50   | 2.62   | 2.37   |
| 2000039 | BP100XQD62-2.62-AL  | 0.625  | 2.62   | 2.37   |
| 2000040 | BP100XQD75-2.62-AL  | 0.75   | 2.62   | 2.37   |
| 2000045 | BP100XQD100-4.25-AL | 1.00   | 4.25   | 2.37   |


**Materials:**

- 304 stainless steel
- Aluminium
- Blank plug included

**Product Notes:**

- Adapts from baseplate fitting to quick disconnect fitting
- Baseplate fitting designed to fit 1 inch diameter ports on baseplates up to 1 1/4 inches thick
- Convenient for mounting gauges, instruments or

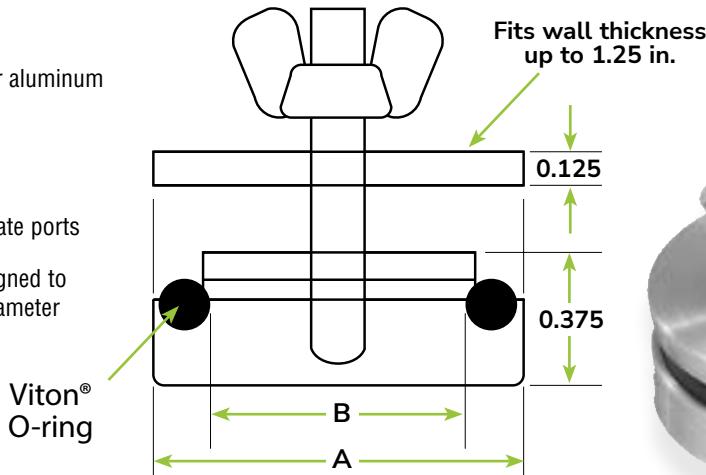
## Baseplate Fitting - Blank Plug

**Materials:**

- 304 stainless steel or aluminum

**Product Notes:**

- Close unused baseplate ports
- Baseplate plugs designed to fit through 1 inch diameter



## General Feedthroughs

| PART #  | REFERENCE ID     | A (in) | B (in) | O-RING | DESCRIPTION                                      |
|---------|------------------|--------|--------|--------|--|
| 2000025 | 075-FTBP-2.00    | 1.50   | 0.74   | 2-216  | Stainless Steel Baseplate Plug for 0.75 in. Hole |
| 2000026 | 100-FTBP-2.00    | 1.50   | 0.99   | 2-216  | Stainless Steel Baseplate Plug for 1.00 in. Hole |
| 2000027 | 125-FTBP-2.00    | 1.75   | 1.24   | 2-220  | Stainless Steel Baseplate Plug for 1.25 in. Hole |
| 2000028 | 150-FTBP-2.00    | 2.00   | 1.49   | 2-223  | Stainless Steel Baseplate Plug for 1.50 in. Hole |
| 2000029 | 175-FTBP-2.00    | 2.25   | 1.74   | 2-225  | Stainless Steel Baseplate Plug for 1.75 in. Hole |
| 2000010 | 100-FTBP-2.00-AL | 1.50   | 0.99   | 2-216  | Aluminum Baseplate Plug for 1 in. Hole           |

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## Vacuum Traps & Filters



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# VACUUM TRAPS & FILTERS What's the Difference?



**TRAPS:** Capture vapors and gases.



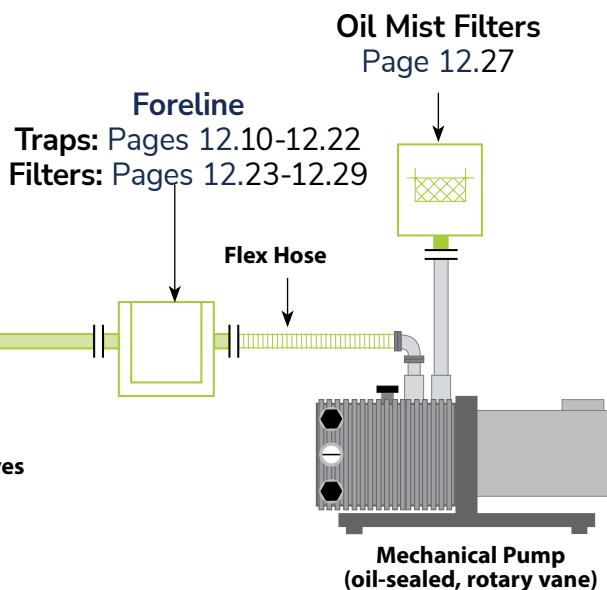
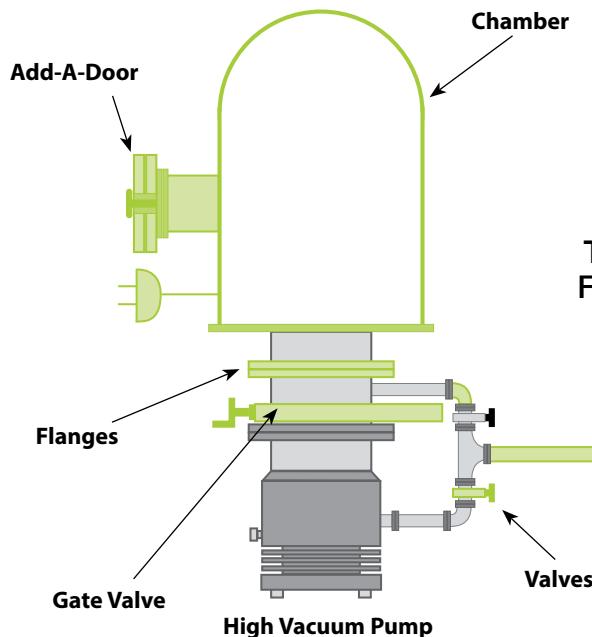
**FILTERS:** Capture particulates, dust, smoke, and aerosols.

## Traps vs. Filters Introduction

In a high vacuum setting, traps and filters may be installed on a vacuum foreline, but each has a different function:

**TRAPS:** A trap is a device that is designed to capture vapors and gases.

**FILTERS:** A filter is a device that is designed to capture or reduce particulates, dust, smoke, and aerosols. A common filter function, for example, is to capture the oil mist (an aerosol) that is discharged from the outlet of an oil-sealed rotary vane mechanical pump.



# To EP Or Not To EP?

## Electropolishing or Sandblasting?

By Garrett Hanrahan

If you intend to answer this question yourself before purchasing a custom-fabricated vacuum component, it helps to know what electropolishing can and cannot do for you in the context of your vacuum application.

### What EP Can Do?

#### Enhance Component Cleanliness

The concentrated acidic solution baths used in EP thoroughly clean a component by removing contaminants that can be introduced during fabrication (dust, debris, lubricants, fingerprints, etc.).

Moreover, the surface of a stainless-steel component is rendered smoother after undergoing EP, meaning the resultant surface is easier to sterilize repeatedly over the life of the component.

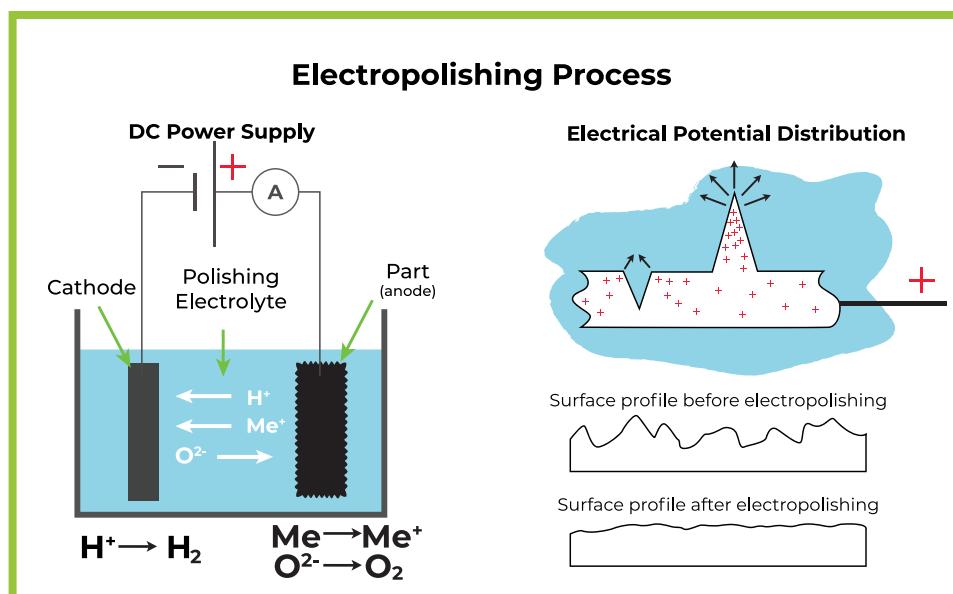
#### Prolong Component Life

The EP process passivates stainless-steel components by removing iron from the surface and enhancing the concentration of chromium and nickel.

As a result, electropolished parts are less susceptible to corrosion over time.

#### Improve Aesthetic Quality

Electropolishing stainless steel concentrates chromium at the component's surface and smooths out microscopic peaks and valleys in the material. When the EP process is



performed after the component has been adequately polished by mechanical means beforehand, the result is a bright, smooth, mirror-like finish that is uniform across the entire component. Additionally, electropolishing can polish areas of a component that would otherwise be inaccessible by other polishing methods due to component geometry.

## What EP Cannot Do

### Achieve Exceptionally Smooth Surface Finishes On Its Own

The EP process serves to improve the surface finish that is already there, but it can only do so much. If you EP a rough, non-uniform, non-polished surface, the results will be neither aesthetically pleasing nor will they be particularly beneficial to the component's vacuum performance. EP works best when done after the component has been given a uniform finish by some mechanical means (e.g. glass-bead blasted, machine-polished). The mechanical method employed will be determined by the surface finish specification and vacuum-performance benefits you hope to achieve post-EP.

### Drastically Improve Pump-Down Time

The notion that rougher stainless-steel surfaces outgas more than comparably smoother surfaces has been refuted by several studies. When it comes to pump-down time, the main benefit to be achieved through electropolishing is the reduction of a component's surface area at a microscopic level. This reduction in surface area allows water vapor to be more readily evacuated from the component's surface. At high-vacuum and ultra-high vacuum pressure levels, water vapor becomes the primary gas load within a vacuum system. If a vacuum component is specified to be baked out prior to installation, then the pump-down benefits of electropolishing become even more negligible since the bake-out process will remove most of the water vapor.

## What's Best For You?

Will your component need to be sterilized regularly? Will it operate in a corrosive environment? Are aesthetics of critical importance? Are you concerned that water vapor may prevent you from reaching your desired vacuum level?

If the answer to any of these questions is yes, then it is likely that the added cost and lead time of electropolishing will be worthwhile for you.

If the answers to these questions are no, then you may be able to save both time and money by opting for a glass-bead blasted or machine-polished finish for your component instead.



## SELECTION CRITERIA

When selecting a trap or a filter, there are three selection criteria: **Body Style, Port Terminations, and Media.**

**1. Body Style:** A trap or filter's body style incorporates the geometry of the plumbing (i.e., coaxial, in-line, or right angle), body volume, and, in a few instances, the choice between a sealed and a rechargeable housing. The choice between a coaxial or an in-line body style is based on the geometry of your foreline and your system's available footprint.

The decision on body volume is determined from your anticipated gas loads. Typically, larger gas loads require larger body volumes. Larger body volumes provide a higher conductance and a lower frequency of media change-outs.

The choice between a sealed and a rechargeable trap is based on system runtime (continuous vs. intermittent) and cost. Sealed traps are discarded after the media has been consumed and are ideal for light gas loads or intermittent use. With rechargeable traps, the housing is reused and only the media is replaced.

Because a clamp, gasket, and two additional vacuum flanges are required to gain access to the media, rechargeable traps typically cost more than sealed traps. Rechargeable traps are ideal for high gas loads and continuous use.

**2. Port Terminations:** Port selection is based on ultimate base pressure. Systems with a base pressure of  $10^{-3}$  Torr or higher can employ tube end terminations.

Systems with base pressures between  $10^{-3}$  Torr and  $10^{-8}$  Torr can employ elastomeric seals and terminations (ISO-QF and ISO-LF). Systems with base pressures less than  $10^{-8}$  Torr require metal seals (CF-ULRIC®) and sealed traps.

**3. Media:** Media selection is entirely dependent on the trap or filter's intended function. The following six categories summarize the universe of trap and filter applications:

- Prevention of pump lubricant backstreaming;
- Capturing process gases;
- Capturing moisture and/or process condensibles;
- Capturing process particulates;
- Capturing mechanical pump discharge; and
- Reduction of system base pressure via cryopumping.

Please contact an **ANCORP** factory engineer or account representative with any questions regarding media selection.

## Application Matrix

| VacuShield:<br>Application:     | Sealed<br>VSSC<br>PAGES<br>10-11 | Rechargeable<br>VSRC<br>PAGES<br>12-15 | Molecular<br>Sieve<br>VSMI<br>PAGES<br>17-18 | LN2<br>VSCI<br>PAGES<br>20-21 | Dry Ice<br>VSDI<br>PAGES<br>21-22 | VacuView<br>VVRI<br>PAGE<br>26 | Small<br>Particles<br>VSPC<br>VSPI<br>PAGES<br>24-25 | Large Par-<br>ticles<br>( $> 100 \mu$ )<br>VSPS<br>PAGE<br>25 | Oil Mist Filters<br>VSHE, VSOE,<br>VCEC, VCEA<br>PAGES<br>27-29 |
|---------------------------------|----------------------------------|--|--|-------------------------------|-----------------------------------|--------------------------------|--|---|---|
| Backstreaming                   | X                                | X                                      | X  |                               |                                   |                                |  |   |   |
| Process Gases                   |                                  | X                                      | X  |                               |                                   | X                              |  |   |   |
| Moisture and/or<br>Condensibles |                                  |  |  | X                             | X                                 |                                |  |   |   |
| Process Particulates            |                                  |  |  |                               |                                   |                                | X  | X   |   |
| Mechanical Pump<br>Discharge    |                                  |  |  |                               |                                   |                                |  |   | X   |
| Cryopumping                     |                                  |  |  | X                             |                                   |                                |  |   |   |

The following table summarizes the media that are available with the various trap and filter styles.

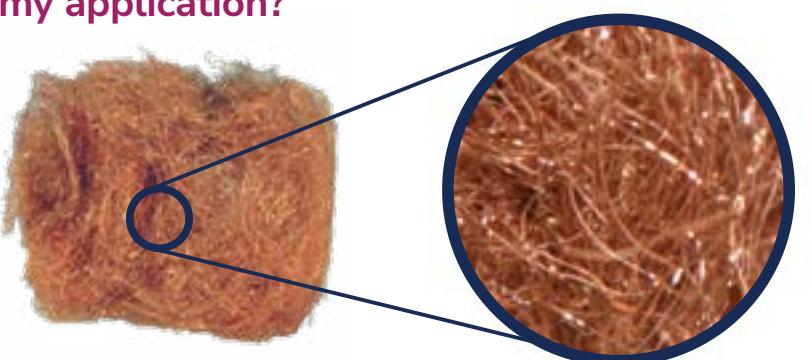
## Trap and Filter Media Matrix

| VacuShield:<br>Media    | Sealed<br>VSSC<br>PAGES<br>10-11 | Rechargeable<br>VSRC<br>PAGES<br>12-15 | Molecular<br>Sieve<br>VSMI<br>PAGES<br>17-18 | LN2<br>VSCI<br>PAGES<br>20-21 | Dry Ice<br>VSDI<br>PAGES<br>21-22 | VacuView<br>VVRI<br>PAGE<br>26 | Small<br>Particles<br>VSPC<br>VSPI<br>PAGES<br>24-25 | Large<br>Particles<br>(> 100 $\mu$ )<br>VSPS<br>PAGE<br>25 | Oil Mist Filters<br>VSHE, VSOE,<br>VCEC, VCEA<br>PAGES<br>27-29 |
|-------------------------|----------------------------------|--|--|-------------------------------|-----------------------------------|--------------------------------|--|--|---|
| Alumina                 |                                  | X                                      |  |                               |                                   | X                              |  |  |   |
| Borosilicate Fibers     |                                  |  |  |                               |                                   |                                |  |  | X   |
| Caustic Soda            |                                  |  |  |                               |                                   | X                              |  |  |   |
| Charcoal                |                                  | X                                      |  |                               |                                   | X                              |  |  |   |
| Copper                  | X                                | X                                      |  |                               |                                   |                                |  |  |   |
| Dry Ice & Isopropanol   |                                  |  |  |                               | X                                 |                                |  |  |   |
| Other Materials         |                                  |  |  |                               |                                   |                                |  | X  |   |
| Liquid Nitrogen         |                                  |  |  | X                             |                                   |                                |  |  |   |
| Molecular Sieve Zeolite |                                  |  | X  |                               |                                   |                                |  |  |   |
| Paper                   |                                  |  |  |                               |                                   |                                | X  |  |   |
| Polyester               |                                  |  |  |                               |                                   |                                | X  |  |   |
| Stainless Steel         | X                                | X                                      |  |                               |                                   |                                |  |  |   |

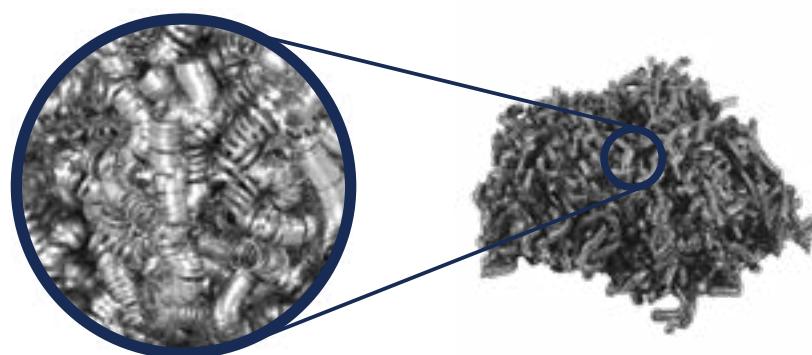
## Which trap media is best for my application?

### Copper vs. Stainless Steel

**COPPER:** ANCORP's fine mesh copper wool media provides a dense physical barrier against backstreaming pump lubricants. Copper, however, is a reactive metal that may not be compatible with all process effluents.



**STAINLESS STEEL:** ANCORP's coarse stainless steel media is an excellent physical barrier to backstreaming pump lubricants. The stainless steel media, however, is slightly less dense than fine mesh wool. The advantage of stainless steel is its high level of corrosion resistance to many aggressive process environments. If your process requires PFPE type pump oils, then stainless steel is the recommended metallic media.



## FORELINE VACUUM TRAPS: PRODUCT OVERVIEW

Foreline vacuum traps are installed between the mechanical pump and the high vacuum pump in a vacuum system. Foreline traps can perform three distinct functions within your vacuum system:

**FUNCTION 1:** Protect your high vacuum pump and/or chamber from pump oil backstreaming from the mechanical pump.

### SOLUTION 1: Trapping with Copper or Stainless Steel Media

ANCORP VacuShield Foreline traps employ a two-stage trapping system. In the first stage, rogue hydrocarbons are blocked by a baffle that is attached near the trap's inlet. Hydrocarbons and other pump oils coalesce here and drip harmlessly back into the pump. In the second stage, vaporized pump oil is trapped by the trap's copper or stainless steel media which prevent line-of-sight travel between the inlet and outlet of the trap.

It is impossible for the hydrocarbon molecules to pass through the trap without colliding many thousands of times with the trap media and the trap's inner walls. Eventually, more than 99% of the pump's oil is captured and retained within the trap.

ANCORP's VacuShield Foreline traps come in two models: sealed and rechargeable. Sealed traps are replaced after the media becomes saturated or is used up. Sealed traps are an economical solution for applications with intermittent use or continuous use with light gas loads. Rechargeable traps reuse the trap's housing and require only the trap's media to be replaced.

### SOLUTION 2: Molecular Sieve Trapping

The ANCOPR molecular sieve trap employs synthetic zeolites (molecular sieve 13X) as an adsorbent. The large surface area provided by the numerous molecular-sized pores of the zeolite sieve provides excellent absorption of water vapor, oil vapor, and other gas molecules. Additionally, the zeolite sieve can be regenerated once it has become saturated with water vapor. This is accomplished through a bake-out cycle performed with the included,

self-regulating heaters. The molecular sieve trap is a multi-purpose trap. It is useful for the prevention of pump oil backstreaming as well as the reduction of the base vacuum through the removal of water vapor from the system.

**FUNCTION 2:** Protect your mechanical pump from process gasses and vapors:

This is the most challenging application because of the wide range of toxic and corrosive chemicals used in today's vacuum applications. While no means an exhaustive list, the following provides a brief guide to the more common applications.

### SOLUTION 1: Rechargeable Traps

ANCORP's rechargeable traps may be purchased with a wide range of media including copper, stainless steel, activated alumina, and activated charcoal. Copper and stainless steel media are used exclusively to minimize backstreaming of mechanical pump oils. Activated alumina and activated charcoal are both effective moisture getters. That is, they are quite hydrophilic. However, they do become quickly saturated with moisture and must be replaced.

As a result, cold reservoirs are the preferred method for moisture trapping. Activated alumina is also an excellent trap for many acids. Activated charcoal is also an excellent trap for many heavy metals (such as mercury) and organic solvents.

### SOLUTION 2: Molecular Sieve Zeolite

ANCORP's zeolite traps provide protection against a wide range of gases and vapors. In addition to being excellent mechanical pump oil getters, they are also excellent moisture traps. That is, zeolites are very hydrophilic.

Although zeolites saturate rapidly with moisture (as do activated charcoal and activated alumina), the onboard heaters allow this media to be periodically refreshed (regenerated) by driving off most of the water.

### SOLUTION 3: VacuView

ANCORP's VacuView traps are designed with clear

polycarbonate housings that provide a means to observe the surface of the media in-situ. The most common media for these traps is caustic soda for the trapping of hydrous acids. Activated alumina and activated charcoal media are also available.

### **FUNCTION 3: Protect your rough vacuum pump from or reduce system pressure by eliminating water and other condensable or solvent vapors produced upstream within the vacuum system:**

#### **SOLUTION 1: Cold Trapping**

The ANCORP VacuShield cold trap removes condensable vapor from the vacuum system before it can enter the pump. It also protects the system from lubricants that may backstream from the pump.

A secondary benefit of cold trapping is a reduction in base pressure as the trapping process also serves as a form of vacuum cryopump. The VacuShield cold trap utilizes the surface area of a cooled stainless steel Dewar to trap water and other condensable vapors. The reservoir is cooled by either liquid nitrogen or a dry ice and alcohol mixture.

All surfaces of the trap are electropolished to ease cleaning and deflect heat. The liquid nitrogen unit includes a vented stopper to reduce liquid nitrogen evaporation and assist in the maintenance of a stable temperature within the Dewar.

#### **SOLUTION 2: Adsorption Trapping with Alumina or Charcoal**

The ANCORP VacuShield adsorption traps utilize a two stage trapping system. This system protects the

pump from water and condensable vapor and protects the vacuum system from lubricants that may backstream from the pump. The first stage is a baffle welded to the lower containment screen within the trap. Condensables from the pump coalesce here and are either trapped or drip harmlessly back into the pump.

In the second stage, all flow within the trap is directed through the tortuous porous trapping media. There are two options: activated alumina for acids and water vapor and activated charcoal for organics and heavy metals.

#### **SOLUTION 3: Molecular Sieve Trapping**

The ANCORP molecular sieve trap employs synthetic zeolite (molecular sieve 13X) as an adsorbent. The large surface area of the numerous molecular-sized pores of the zeolite sieve provides excellent adsorption of water vapor, oil vapor, and other gas molecules.

This trap operates at room temperature which reduces maintenance and cost as compared with the use of cold traps. Additionally, the zeolite sieve can be regenerated once it has become saturated with oil and water vapor. This is accomplished through a bake-out cycle performed with the integrated, self-regulating heaters. The molecular sieve trap is a multi-purpose trap.

It is useful for the prevention of pump oil backstreaming as well as the reduction of the base vacuum through the removal of water vapor from the system.

The following table provides a quick reference for media selection. Please contact an ANCORP factory engineer or account representative with any questions regarding media selection.

| Trap & Filter Media                | PUMP OIL BACKSTREAMING | WATER VAPOR | PARTICULATE | ACID | ORGANICS | OTHER CONDENSABLE VAPOR |
|------------------------------------|------------------------|-------------|-------------|------|----------|-------------------------|
| Metallic (copper, stainless steel) | X                      |             |             |      |          |                         |
| Alumina                            |                        | X           |             | X    |          |                         |
| Charcoal                           |                        |             |             |      | X        |                         |
| Cold Reservoir                     |                        | X           |             |      |          |                         |
| Molecular Sieve (zeolite)          | X                      | X           |             |      |          |                         |
| Caustic Soda                       |                        |             |             | X    |          |                         |

## Model VSSC: Sealed Coaxial Vacuum Traps

The VSSC series foreline trap provides a low cost, non-rechargeable shield for your vacuum system from the effects of pump fluid backstreaming. The trapping medias are durable, dense copper or stainless steel held in place by recessed stainless steel screens. The housing is bead-blasted 304 stainless steel. Service by replacing the contaminated trap.



## Sealed Traps: Hose Connection

### Materials:

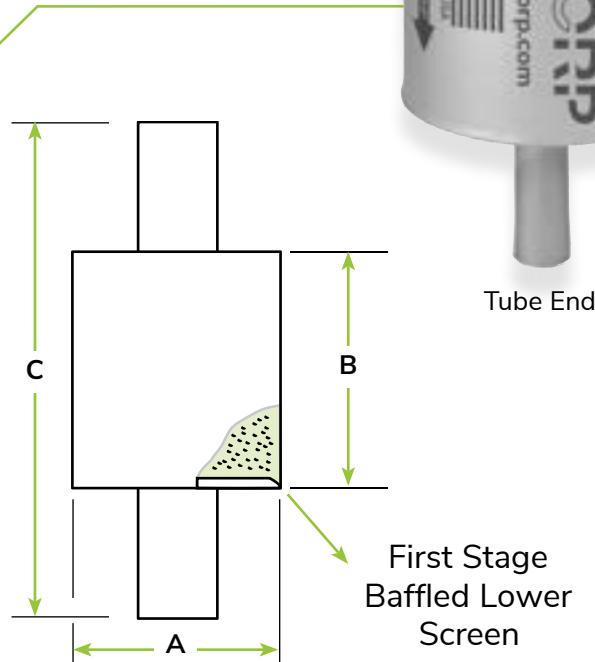
- Body: sand blasted 304L stainless steel
- Trapping media: copper or stainless steel

### Product Notes:

- Trapping mechanics: adsorption

### Benefits:

- Low cost system protection from pump oil backstreaming
- 2-stage trapping system
  - Stage 1:** stainless steel baffle – extends the life of the media
  - Stage 2:** coalescing media
- 304L stainless steel body, flanges and baffle
- Multiple connection options (ISO-QF, tube end, others on request)
- Simple, one-piece body design



## Sealed Coaxial Vacuum Traps

| PART #  | REFERENCE ID   | TUBE END CONNECTION (in) | TRAPPING MEDIA  | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|----------------|--------------------------|-----------------|-------------------------|--------------------|-----------------------|
| 7500001 | VSSC-250-075-C | 0.75                     | Copper          | 2.50                    | 3.05               | 6.05                  |
| 7500002 | VSSC-250-075-S | 0.75                     | Stainless Steel | 2.50                    | 3.05               | 6.05                  |
| 7500031 | VSSC-250-100-C | 1.00                     | Copper          | 2.50                    | 3.05               | 6.05                  |
| 7500032 | VSSC-250-100-S | 1.00                     | Stainless Steel | 2.50                    | 3.05               | 6.05                  |
| 7500007 | VSSC-400-075-C | 0.75                     | Copper          | 4.00                    | 4.55               | 8.55                  |
| 7500008 | VSSC-400-075-S | 0.75                     | Stainless Steel | 4.00                    | 4.55               | 8.55                  |
| 7500009 | VSSC-400-100-C | 1.00                     | Copper          | 4.00                    | 4.55               | 8.55                  |
| 7500010 | VSSC-400-100-S | 1.00                     | Stainless Steel | 4.00                    | 4.55               | 8.55                  |
| 7500011 | VSSC-400-150-C | 1.50                     | Copper          | 4.00                    | 4.55               | 8.55                  |
| 7500012 | VSSC-400-150-S | 1.50                     | Stainless Steel | 4.00                    | 4.55               | 8.55                  |
| 7500013 | VSSC-400-200-C | 2.00                     | Copper          | 4.00                    | 4.55               | 8.55                  |
| 7500014 | VSSC-400-200-S | 2.00                     | Stainless Steel | 4.00                    | 4.55               | 8.55                  |

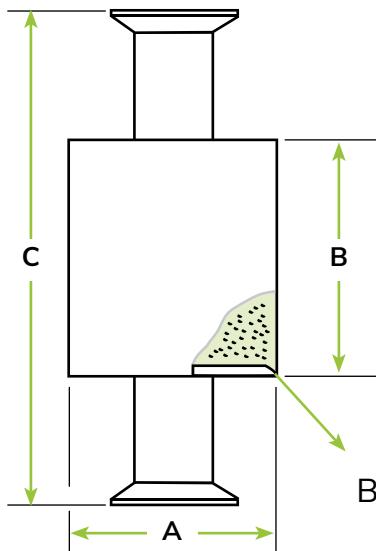
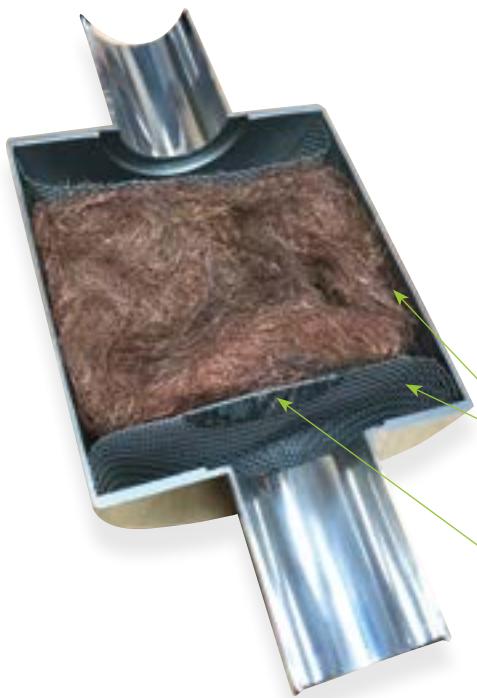
## Sealed Traps: ISO-QF Connection

## Materials:

- Body: bead-blasted 304L stainless steel
- Trapping media: copper or stainless steel

## Product Notes:

- Trapping mechanics: adsorption
- Connection to system: ISO-QF flanges



## Benefits:

- Low cost system protection from pump oil backstreaming
- 2-stage trapping system
  - Stage 1:** stainless steel baffle – extends the life of the media
  - Stage 2:** coalescing media
- 304L stainless steel body, flanges and baffle
- Multiple connection options (ISO-QF, others on request)
- Simple, one-piece body design
- For Sealed and Rechargeable traps: The baffle plate and mesh block oil sputtered from the pump. The trapping media collects vaporized oil to be harmlessly dripped back into the pump.

| PART #  | REFERENCE ID    | TUBE END CONNECTION | TRAPPING MEDIA  | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|-----------------|---------------------|-----------------|-------------------------|--------------------|-----------------------|
| 7500003 | VSSC-250-QF16-C | QF16 Flange         | Copper          | 2.50                    | 3.05               | 6.30                  |
| 7500004 | VSSC-250-QF16-S | QF16 Flange         | Stainless Steel | 2.50                    | 3.05               | 6.30                  |
| 7500005 | VSSC-250-QF25-C | QF25 Flange         | Copper          | 2.50                    | 3.05               | 6.30                  |
| 7500006 | VSSC-250-QF25-S | QF25 Flange         | Stainless Steel | 2.50                    | 3.05               | 6.30                  |
| 7500015 | VSSC-400-QF16-C | QF16 Flange         | Copper          | 4.00                    | 4.55               | 8.80                  |
| 7500016 | VSSC-400-QF16-S | QF16 Flange         | Stainless Steel | 4.00                    | 4.55               | 8.80                  |
| 7500017 | VSSC-400-QF25-C | QF25 Flange         | Copper          | 4.00                    | 4.55               | 8.80                  |
| 7500018 | VSSC-400-QF25-S | QF25 Flange         | Stainless Steel | 4.00                    | 4.55               | 8.80                  |
| 7500019 | VSSC-400-QF40-C | QF40 Flange         | Copper          | 4.00                    | 4.55               | 8.80                  |
| 7500020 | VSSC-400-QF40-S | QF40 Flange         | Stainless Steel | 4.00                    | 4.55               | 8.80                  |
| 7500021 | VSSC-400-QF50-C | QF50 Flange         | Copper          | 4.00                    | 4.55               | 8.80                  |
| 7500022 | VSSC-400-QF50-S | QF50 Flange         | Stainless Steel | 4.00                    | 4.55               | 8.80                  |

## Model VSRC: Rechargeable Vacuum Traps

The VSRC series foreline trap provides a rechargeable shield within your vacuum system. These traps can protect your system from backstreaming pump oil and/or your pump from contaminates created upstream within your system. The design of the rechargeable VacuShield traps allows multiple trapping media to be used with the same body. The VSRC traps have a coaxial port design for installation and a simple 2-piece clamped body design for easy media recharging and trap cleaning. A rechargeable trap is recommended for applications that experience heavy gas loads or continuous use.

### Rechargeable Traps: with Copper ISO-QF & LF Connection

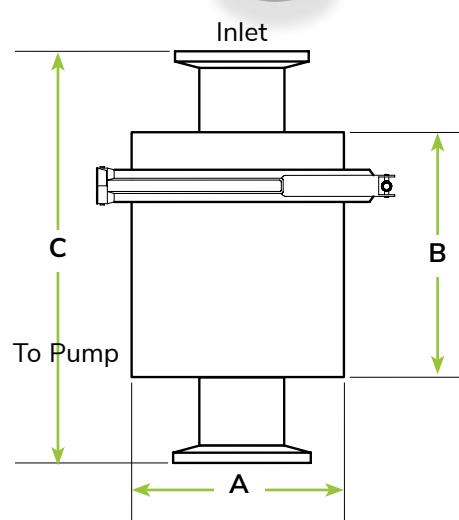


#### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

#### Product Notes:

- Trapping media: **COPPER**. Provides protection from pump fluid backstreaming. See pg. 7.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system  
**Stage 1:** stainless steel baffle – extends the life of the media  
**Stage 2:** coalescing media



### Rechargeable Traps: ISO-QF & LF

| PART #  | REFERENCE ID     | TUBE END CONNECTION | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|------------------|---------------------|-------------------------|--------------------|-----------------------|
| 7500101 | VSRC-200-QF16-C  | QF16 Flange         | 2.00                    | 3.80               | 5.90                  |
| 7500111 | VSRC-250-QF16-C  | QF16 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500115 | VSRC-250-QF25-C  | QF25 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500121 | VSRC-300-QF25-C  | QF25 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500125 | VSRC-300-QF40-C  | QF40 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500131 | VSRC-400-QF16-C  | QF16 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500135 | VSRC-400-QF25-C  | QF25 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500139 | VSRC-400-QF40-C  | QF40 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500143 | VSRC-400-QF50-C  | QF50 Flange         | 4.00                    | 5.00               | 8.00                  |
| 7500151 | VSRC-600-QF40-C  | QF40 Flange         | 6.00                    | 7.30               | 9.40                  |
| 7500155 | VSRC-600-QF50-C  | QF50 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500159 | VSRC-600-LF63-C  | LF63 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500163 | VSRC-600-LF80-C  | LF80 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500171 | VSRC-800-LF63-C  | LF63 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500175 | VSRC-800-LF80-C  | LF80 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500179 | VSRC-800-LF100-C | LF100 Flange        | 8.00                    | 7.30               | 10.40                 |

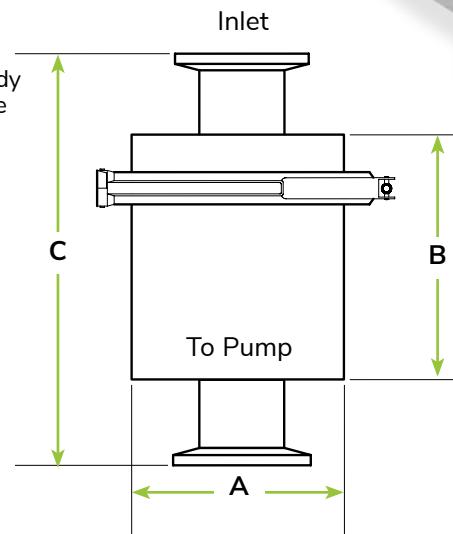
## Rechargeable Traps: with Stainless Steel ISO-QF & LF Connection

### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

### Product Notes:

- Trapping media: **STAINLESS STEEL**. Provides protection from pump fluid backstreaming. See pg. 7.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system  
**Stage 1:** stainless steel baffle – extends the life of the media  
**Stage 2:** coalescing media



| PART #  | REFERENCE ID     | TUBE END CONNECTION | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|------------------|---------------------|-------------------------|--------------------|-----------------------|
| 7500102 | VSRC-200-QF16-S  | QF16 Flange         | 2.00                    | 3.80               | 5.90                  |
| 7500112 | VSRC-250-QF16-S  | QF16 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500116 | VSRC-250-QF25-S  | QF25 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500122 | VSRC-300-QF25-S  | QF25 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500126 | VSRC-300-QF40-S  | QF40 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500132 | VSRC-400-QF16-S  | QF16 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500136 | VSRC-400-QF25-S  | QF25 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500140 | VSRC-400-QF40-S  | QF40 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500144 | VSRC-400-QF50-S  | QF50 Flange         | 4.00                    | 5.00               | 8.00                  |
| 7500152 | VSRC-600-QF40-S  | QF40 Flange         | 6.00                    | 7.30               | 9.40                  |
| 7500156 | VSRC-600-QF50-S  | QF50 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500160 | VSRC-600-LF63-S  | LF63 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500164 | VSRC-600-LF80-S  | LF80 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500172 | VSRC-800-LF63-S  | LF63 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500176 | VSRC-800-LF80-S  | LF80 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500180 | VSRC-800-LF100-S | LF100 Flange        | 8.00                    | 7.30               | 10.40                 |

Rechargeable Traps: ISO-QF & LF

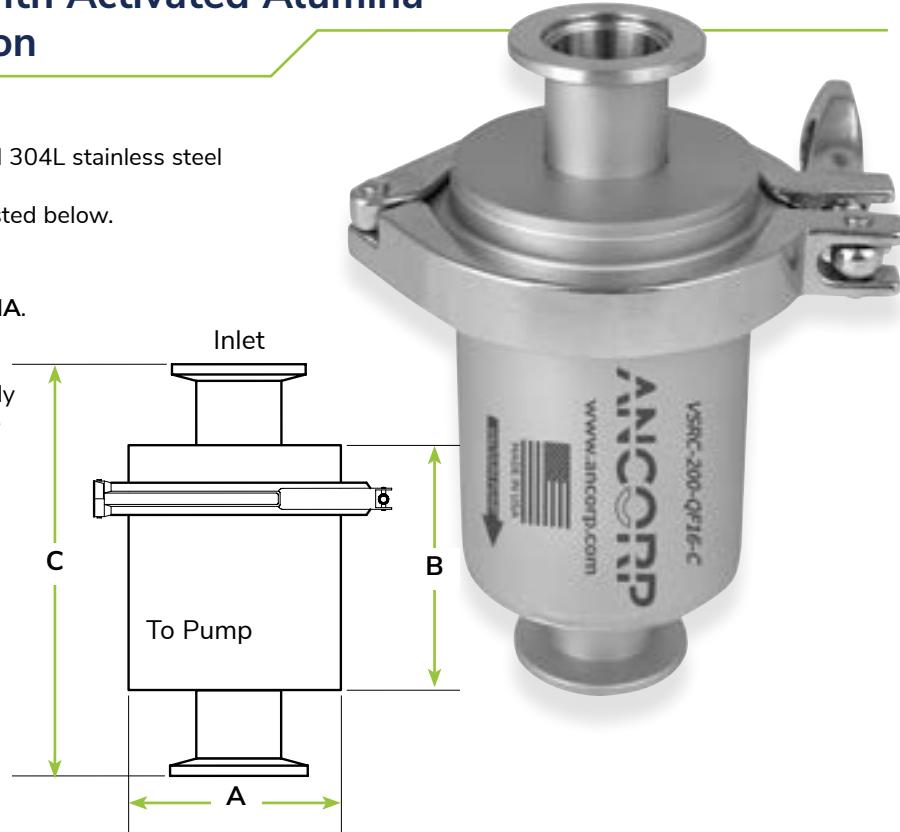
## Rechargeable Traps: with Activated Alumina ISO-QF & LF Connection

### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

### Product Notes:

- Trapping media: **ACTIVATED ALUMINA**. Provides protection from pump fluid backstreaming.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system  
**Stage 1:** stainless steel baffle – extends the life of the media  
**Stage 2:** coalescing media



## Rechargeable Traps: ISO-QF & LF

| PART #  | REFERENCE ID     | TUBE END CONNECTION | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|------------------|---------------------|-------------------------|--------------------|-----------------------|
| 7500103 | VSRC-200-QF16-A  | QF16 Flange         | 2.00                    | 3.80               | 5.90                  |
| 7500113 | VSRC-250-QF16-A  | QF16 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500117 | VSRC-250-QF25-A  | QF25 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500123 | VSRC-300-QF25-A  | QF25 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500127 | VSRC-300-QF40-A  | QF40 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500133 | VSRC-400-QF16-A  | QF16 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500137 | VSRC-400-QF25-A  | QF25 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500141 | VSRC-400-QF40-A  | QF40 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500145 | VSRC-400-QF50-A  | QF50 Flange         | 4.00                    | 5.00               | 8.00                  |
| 7500153 | VSRC-600-QF40-A  | QF40 Flange         | 6.00                    | 7.30               | 9.40                  |
| 7500157 | VSRC-600-QF50-A  | QF50 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500161 | VSRC-600-LF63-A  | LF63 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500165 | VSRC-600-LF80-A  | LF80 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500173 | VSRC-800-LF63-A  | LF63 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500177 | VSRC-800-LF80-A  | LF80 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500181 | VSRC-800-LF100-A | LF100 Flange        | 8.00                    | 7.30               | 10.40                 |

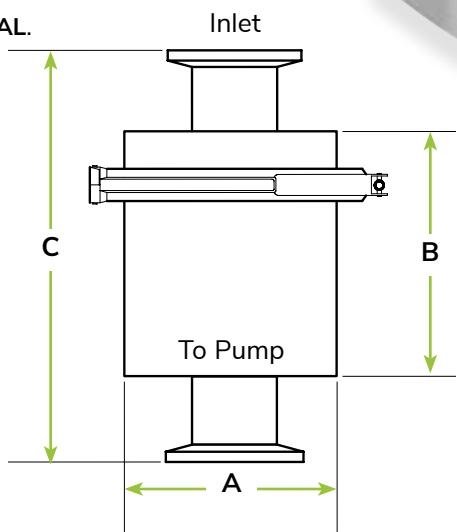
## Rechargeable Traps: with Activated Charcoal ISO-QF & LF Connection

### Materials:

- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N
- Fully charged: replacement media is listed below.

### Product Notes:

- Trapping media: **ACTIVATED CHARCOAL**. Provides protection from pump fluid backstreaming.
- Flanged body connection for large body diameter to ease assembly and ensure consistent seals.
- 2-stage trapping system
  - Stage 1:** stainless steel baffle – extends the life of the media
  - Stage 2:** coalescing media



| PART #  | REFERENCE ID     | TUBE END CONNECTION | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|------------------|---------------------|-------------------------|--------------------|-----------------------|
| 7500104 | VSRC-200-QF16-O  | QF16 Flange         | 2.00                    | 3.80               | 5.90                  |
| 7500114 | VSRC-250-QF16-O  | QF16 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500118 | VSRC-250-QF25-O  | QF25 Flange         | 2.50                    | 3.80               | 5.90                  |
| 7500124 | VSRC-300-QF25-O  | QF25 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500128 | VSRC-300-QF40-O  | QF40 Flange         | 3.00                    | 4.80               | 6.90                  |
| 7500134 | VSRC-400-QF16-O  | QF16 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500138 | VSRC-400-QF25-O  | QF25 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500142 | VSRC-400-QF40-O  | QF40 Flange         | 4.00                    | 5.00               | 7.00                  |
| 7500146 | VSRC-400-QF50-O  | QF50 Flange         | 4.00                    | 5.00               | 8.00                  |
| 7500154 | VSRC-600-QF40-O  | QF40 Flange         | 6.00                    | 7.30               | 9.40                  |
| 7500158 | VSRC-600-QF50-O  | QF50 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500162 | VSRC-600-LF63-O  | LF63 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500166 | VSRC-600-LF80-O  | LF80 Flange         | 6.00                    | 7.30               | 10.40                 |
| 7500174 | VSRC-800-LF63-O  | LF63 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500178 | VSRC-800-LF80-O  | LF80 Flange         | 8.00                    | 7.30               | 10.40                 |
| 7500182 | VSRC-800-LF100-O | LF100 Flange        | 8.00                    | 7.30               | 10.40                 |

## Rechargeable Traps Replacement Media



**Copper Media**

| PART #  | REFERENCE ID | HOUSING SIZE (in) |
|---------|--------------|-------------------|
| 7501001 | VSR-200-C    | 2.00              |
| 7501011 | VSR-250-C    | 2.50              |
| 7501021 | VSR-300-C    | 3.00              |
| 7501031 | VSR-400-C    | 4.00              |
| 7501051 | VSR-600-C    | 6.00              |
| 7501071 | VSR-800-C    | 8.00              |

**Stainless Steel Media**

| PART #  | REFERENCE ID | HOUSING SIZE (in) |
|---------|--------------|-------------------|
| 7501002 | VSR-200-S    | 2.00              |
| 7501012 | VSR-250-S    | 2.50              |
| 7501022 | VSR-300-S    | 3.00              |
| 7501032 | VSR-400-S    | 4.00              |
| 7501052 | VSR-600-S    | 6.00              |
| 7501072 | VSR-800-S    | 8.00              |

## Rechargeable Trap Replacement Media

With the exception of cold traps, ANCOPR traps are sold fully charged with the desired media. Replacement media is available and listed below.

**Activated Alumina Media**

| PART #  | REFERENCE ID | HOUSING SIZE (in) |
|---------|--------------|-------------------|
| 7501003 | VSR-200-A    | 2.00              |
| 7501013 | VSR-250-A    | 2.50              |
| 7501023 | VSR-300-A    | 3.00              |
| 7501033 | VSR-400-A    | 4.00              |
| 7501053 | VSR-600-A    | 6.00              |
| 7501073 | VSR-800-A    | 8.00              |

**Activated Charcoal Media**

| PART #  | REFERENCE ID | HOUSING SIZE (in) |
|---------|--------------|-------------------|
| 7501004 | VSR-200-O    | 2.00              |
| 7501014 | VSR-250-O    | 2.50              |
| 7501024 | VSR-300-O    | 3.00              |
| 7501034 | VSR-400-O    | 4.00              |
| 7501054 | VSR-600-O    | 6.00              |
| 7501074 | VSR-800-O    | 8.00              |

## Model VSMI: Molecular Sieve Vacuum Traps

The VSMI series foreline trap provides a rechargeable and regenerable shield within your vacuum system. These traps can protect your system from backstreaming pump oil and/or your pump from water created upstream within your system. The design of the VacuShield Molecular Sieve traps includes a heating element that allows the trapping media to be refreshed once the synthetic zeolite has become saturated with water. The VSMI traps have an in-line port design for easy installation and a simple threaded fill port design to facilitate synthetic zeolite recharge.

- **Trapping Media:** molecular sieve (SYNTHETIC ZEOLITE)
- **System protection from pump oil backstreaming**
- **Pump protection from water**
- **2-stage trapping system**
  - Stage 1:** Stainless Steel Baffle – extends the life of the media
  - Stage 2:** Adsorbent Media

- **Body:** bead-blasted 304L Stainless Steel
- **Rechargeable Media** – refresh saturated synthetic zeolite by baking with the included heater element or replace with fresh synthetic zeolite
- **Connection Options** (ISO-QF, tube end, others on request)

## Molecular Sieve Traps: Hose Connection

### Materials:

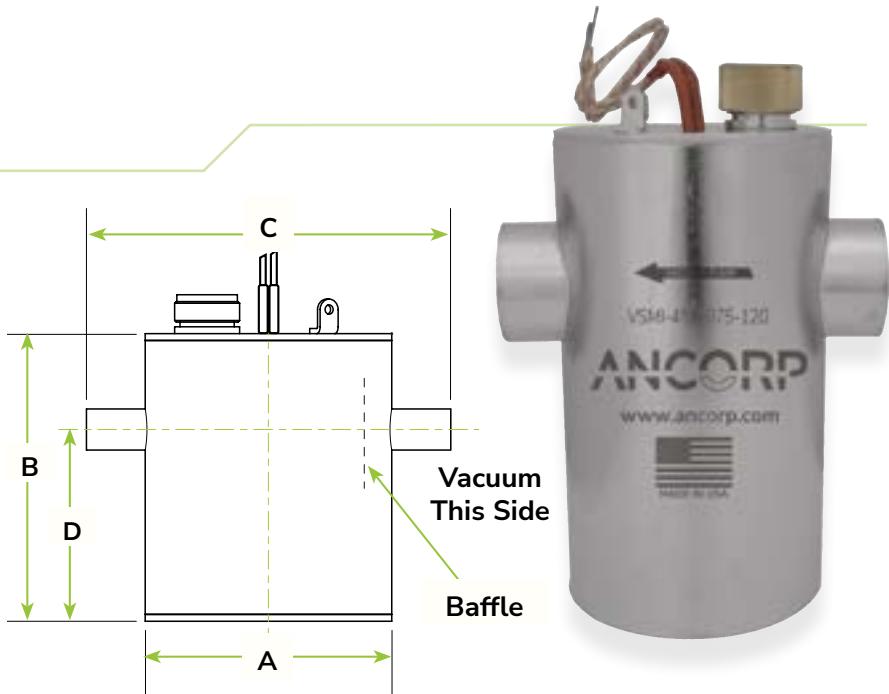
- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N

### Product Notes:

- Trapping mechanics: adsorption
- Trapping media: **SYNTHETIC ZEOLITE**.
- Connection to system: tube ends

### Heater Notes:

- -120 = 75w 120V AC
- -220 = 125w 220V AC



| PART #  | REFERENCE ID     | TUBE END CONNECTION (in) | A (in) | B (in) | C (in) | D (in) |
|---------|------------------|--------------------------|--------|--------|--------|--------|
| 7500321 | VSMI-450-075-120 | 0.75                     | 4.50   | 5.25   | 6.70   | 3.50   |
| 7500331 | VSMI-450-075-220 | 0.75                     | 4.50   | 5.25   | 6.70   | 3.50   |
| 7500322 | VSMI-450-100-120 | 1.00                     | 4.50   | 5.25   | 6.70   | 3.50   |
| 7500332 | VSMI-450-100-220 | 1.00                     | 4.50   | 5.25   | 6.70   | 3.50   |
| 7500323 | VSMI-450-150-120 | 1.50                     | 4.50   | 8.00   | 6.70   | 5.50   |
| 7500333 | VSMI-450-150-220 | 1.50                     | 4.50   | 8.00   | 6.70   | 5.50   |
| 7500324 | VSMI-450-200-120 | 2.00                     | 4.50   | 8.00   | 6.70   | 5.50   |
| 7500334 | VSMI-450-200-220 | 2.00                     | 4.50   | 8.00   | 6.70   | 5.50   |

## Molecular Sieve Traps: ISO-QF Connection

### Materials:

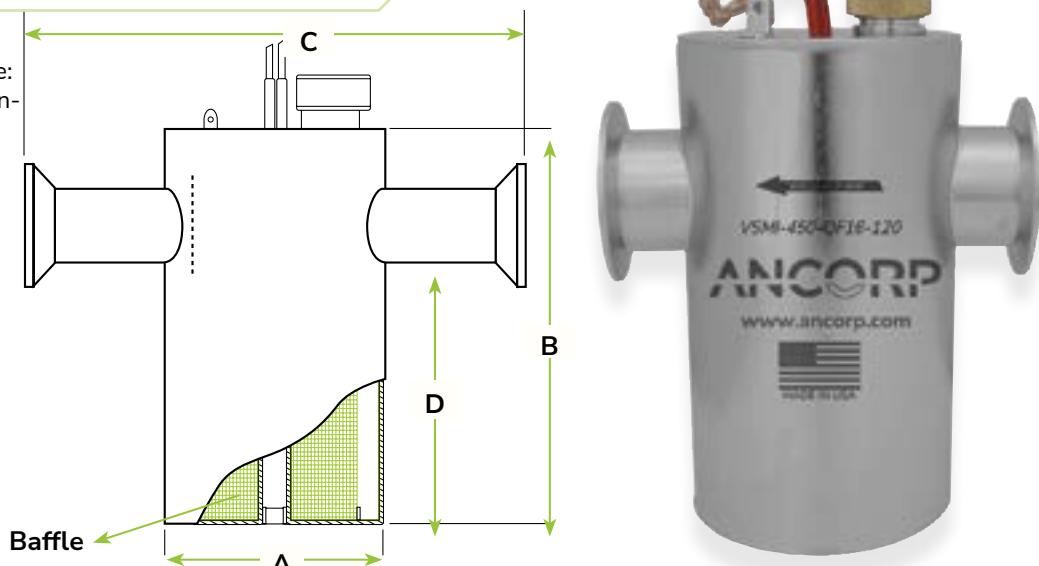
- Body, flanges and baffle: bead-blasted 304L stainless steel
- Seal: Buna-N

### Product Notes:

- Trapping mechanics: adsorption
- Trapping media: **SYNTHETIC ZEOLITE**.
- Connection to system: ISO-QF flanges

### Heater Notes:

- -120 = 75w 120V AC
- -220 = 125w 220V AC



## Molecular Sieve Vacuum Traps

| PART #  | REFERENCE ID      | TUBE END CONNECTION | A (in) | B (in) | C (in) | D (in) |
|---------|-------------------|---------------------|--------|--------|--------|--------|
| 7500301 | VSMI-450-QF16-120 | QF16                | 4.50   | 5.25   | 7.00   | 3.50   |
| 7500311 | VSMI-450-QF16-220 | QF16                | 4.50   | 5.25   | 7.00   | 3.50   |
| 7500302 | VSMI-450-QF25-120 | QF25                | 4.50   | 5.25   | 7.00   | 3.50   |
| 7500312 | VSMI-450-QF25-220 | QF25                | 4.50   | 5.25   | 7.00   | 3.50   |
| 7500303 | VSMI-450-QF40-120 | QF40                | 4.50   | 8.00   | 7.00   | 5.50   |
| 7500313 | VSMI-450-QF40-220 | QF40                | 4.50   | 8.00   | 7.00   | 5.50   |
| 7500304 | VSMI-450-QF50-120 | QF50                | 4.50   | 8.00   | 7.00   | 5.50   |
| 7500314 | VSMI-450-QF50-220 | QF50                | 4.50   | 8.00   | 7.00   | 5.50   |

### Molecular Sieve Replacement Media

| PART #  | REFERENCE ID | TRAPPING MEDIA    | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) |
|---------|--------------|-------------------|-------------------------|--------------------|
| 7510020 | VSM-450-5-M  | Synthetic Zeolite | 4.50                    | 5.25               |
| 7510021 | VSM-450-8-M  | Synthetic Zeolite | 4.50                    | 8.00               |

### Molecular Sieve Replacement Parts and Accessories

| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 7510350 | VSM-H75-120  | Molecular Sieve Trap Heater - 75 Watts, 120VAC               |
| 7510352 | VSM-H75-220  | Molecular Sieve Trap Heater - 75 Watts, 220VAC               |
| 7510354 | VSM-H125-120 | Molecular Sieve Trap Heater - 125 Watts, 120VAC              |
| 7510356 | VSM-H125-220 | Molecular Sieve Trap Heater - 125 Watts, 220VAC              |
| 7510358 | VSM-HEC      | Electrical Connection for Trap Heater - Hubble 7464-7465 Set |

## Model VSCI and VSDI: Cold Vacuum Traps

The VacuShield cold trap is capable of working with two different cooling agents. For high vacuum application, liquid nitrogen is the preferred agent and provides better trapping results. At low vacuum levels or during system pump down, a dry ice and alcohol mixture can be used. The trap is electropolished inside and out, has cap handles, and has a vented stopper all included standard. The VSCI traps have an in-line port design for installation and a simple 2-piece clamped body design to ease trap cleaning.

### Recommended Options:

A third port is included on all LN2 traps except the 0.8 liter trap. This third port is intended to serve as a vacuum break or vent. Without some means to break vacuum on this line, the liquid nitrogen Dewar will be difficult to disassemble for clean-

ing or servicing. Under no circumstances should a screwdriver or similar tool be used to separate the liquid nitrogen Dewar from its stainless steel, vacuum jacketed housing.

The most common configuration for this port is to include a tee with the appropriate ISO-QF terminations. On one side of the tee an up-to-air valve is attached and, on the other side of the tee, a vacuum gauge is attached. The up-to-air valve allows the system to be safely vented and the vacuum gauge provides an additional check on the trap's base pressure to ensure vacuum integrity. Note: If a separate up-to-air valve is not employed or the vent port is sealed (blanked off) during use, some means of venting or breaking vacuum must be included in the inlet or outlet pumping lines.

- **Trapping Element:** cold Dewar
- **Pump protection from water and condensable vapor**
- **Multi-option trapping system**
- **Option 1:** liquid nitrogen for high vacuum trapping of condensable vapors
- **Option 2:** mixture of dry ice and alcohol to trap condensable vapors in low vacuum or during initial evacuation of your vacuum system
- **Simple, clamped two piece body design** – eases cleaning, assembly and provides a consistent seal

- **Electropolished Body:** eases cleaning, deflects heat and reduces iron concentration on trap surfaces which increases corrosion resistance
- **Cap handles included to ease handling of trap**
- **Large fill port**
- **Port Stopper Included** - reduces liquid nitrogen evaporation and assists in the maintenance of a stable temperature within the Dewar
- **Connection options** (ISO-QF, others on request)

## Liquid Nitrogen or Dry Ice?

Water trapping is an excellent application for cold reservoirs and illustrates the choice between liquid nitrogen and dry ice traps. When molecules collide with a cold surface, they can surrender some of their (kinetic) energy to that surface. The colder the surface, the less energetic (i.e. slower) the particles will become. The temperature of liquid nitrogen is 77 K (-196<sup>0</sup> C) and a dry ice/isopropanol slurry is about 194 K (-79<sup>0</sup> C). The vapor pressure of water at 77 K is about 10<sup>-12</sup> Torr.

Therefore, water is effectively removed (cryopumped) from a vacuum system with a liquid nitrogen trap. Alternatively, the vapor pressure of water at 194 K is about 10<sup>-3</sup> Torr. That is, a vacuum system trapping moisture with dry ice trap should expect a base pressure no better than about 1 milliTorr (or the highest vapor pressure of the condensibles being pumped).

## Cold Traps: LN2 ISO-QF Connection

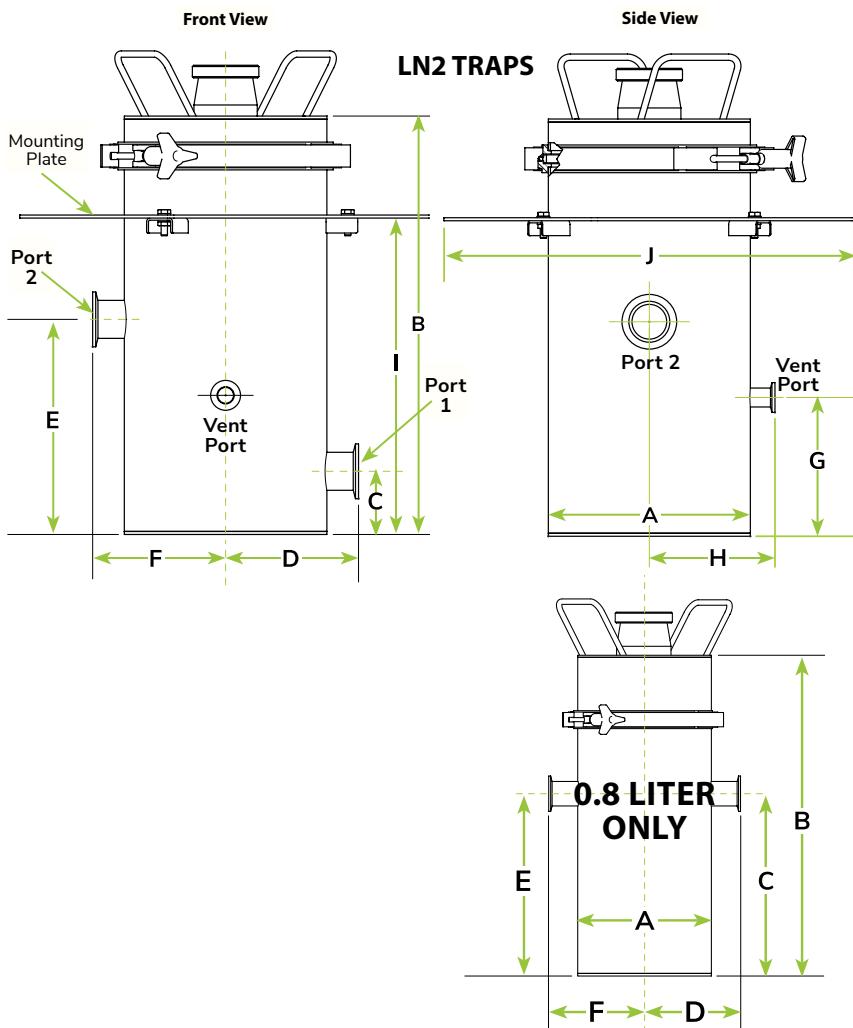
### Materials:

- Body, flanges and baffle: 304 stainless steel electropolished
- Seal: Buna-N

### Product Notes:

- Trapping mechanics: condensation
- Connection to system: ISO-QF flanges
- No mounting plate or exhaust vent on 0.8 liter

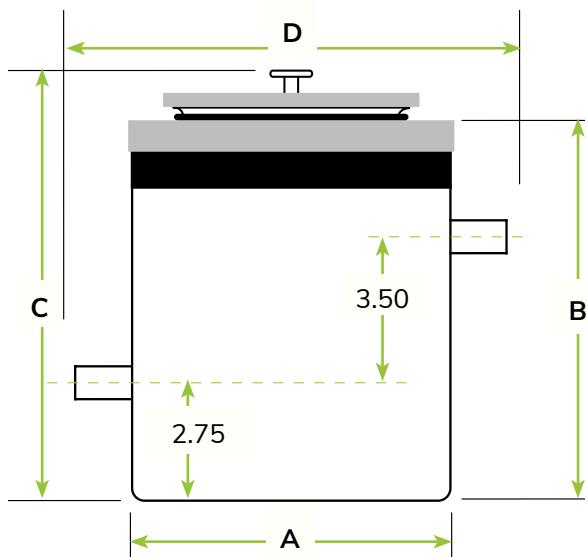
(All Dimension in Inches)



| PART #  | REFERENCE ID   | TUBE END CONNECTION | VOL (L) | A    | B     | C    | D    | E    | F    | G    | H    | I     | J     |
|---------|----------------|---------------------|---------|------|-------|------|------|------|------|------|------|-------|-------|
| 7500404 | VSCI-800-QF16  | QF16 Flange         | 0.8     | 4.00 | 10.00 | 5.50 | 2.75 | 5.50 | 2.75 | N/A  | N/A  | N/A   | N/A   |
| 7500405 | VSCI-800-QF25  | QF25 Flange         | 0.8     | 4.00 | 10.00 | 5.50 | 2.75 | 5.50 | 2.75 | N/A  | N/A  | N/A   | N/A   |
| 7500406 | VSCI-800-QF40  | QF40 Flange         | 0.8     | 4.00 | 10.00 | 5.50 | 2.75 | 5.50 | 2.75 | N/A  | N/A  | N/A   | N/A   |
| 7500411 | VSCI-1000-QF25 | QF25 Flange         | 1.0     | 4.00 | 14.50 | 2.50 | 2.75 | 7.50 | 2.75 | 5.00 | 2.98 | 10.20 | 7.00  |
| 7500412 | VSCI-1000-QF40 | QF40 Flange         | 1.0     | 4.00 | 14.50 | 2.50 | 2.75 | 7.50 | 2.75 | 5.00 | 2.98 | 10.20 | 7.00  |
| 7500425 | VSCI-2000-QF25 | QF25 Flange         | 2.0     | 6.00 | 15.50 | 2.50 | 4.25 | 8.50 | 4.25 | 5.50 | 3.98 | 11.40 | 10.00 |
| 7500426 | VSCI-2000-QF40 | QF40 Flange         | 2.0     | 6.00 | 15.50 | 2.50 | 4.25 | 8.50 | 4.25 | 5.50 | 3.98 | 11.40 | 10.00 |
| 7500427 | VSCI-2000-QF50 | QF50 Flange         | 2.0     | 6.00 | 15.50 | 2.50 | 4.25 | 8.50 | 4.25 | 5.50 | 3.98 | 11.40 | 10.00 |
| 7500431 | VSCI-5000-QF25 | QF25 Flange         | 5.0     | 8.00 | 16.50 | 2.50 | 5.25 | 8.50 | 5.25 | 5.50 | 4.98 | 12.50 | 12.00 |
| 7500432 | VSCI-5000-QF40 | QF40 Flange         | 5.0     | 8.00 | 16.50 | 2.50 | 5.25 | 8.50 | 5.25 | 5.50 | 4.98 | 12.50 | 12.00 |
| 7500433 | VSCI-5000-QF50 | QF50 Flange         | 5.0     | 8.00 | 16.50 | 2.50 | 5.25 | 8.50 | 5.25 | 5.50 | 4.98 | 12.50 | 12.00 |

## LN2 Replacement Parts

| PART #  | REFERENCE ID | DESCRIPTION   |
|---------|--------------|---|
| 7510450 | VSC-800-D    | DEWAR Kit for 0.8 Liter - includes DEWAR and Plug   |
| 7510451 | VSC-1000-D   | DEWAR Kit for 1.0 Liter - includes DEWAR and Plug   |
| 7510452 | VSC-2000-D   | DEWAR Kit for 2.0 Liter - includes DEWAR and Plug   |
| 7510453 | VSC-5000-D   | DEWAR Kit for 5.0 Liter - includes DEWAR and Plug   |
| 7510475 | VSC-DPK-S    | DEWAR Plug Kit for - Sizes 0.8, 1.0, and 2.0 Liters |
| 7510476 | VSC-DPK-L    | DEWAR Plug Kit for - Size 5.0 Liter                 |

Cold Traps: Dry Ice  
Tube Port Connection

Cold Traps: Dry Ice

**Materials:**

- Electropolished wetted surfaces: facilitates cleaning and servicing, promotes system cleanliness, and deflects heat to minimize frequency of media change-outs.
- Clear, loose fitting lid: see through design allows a quick check on condition of cold media. Loose fitting lid provides a simple vent for sublimating carbon dioxide and prevents unsafe pressure build up.

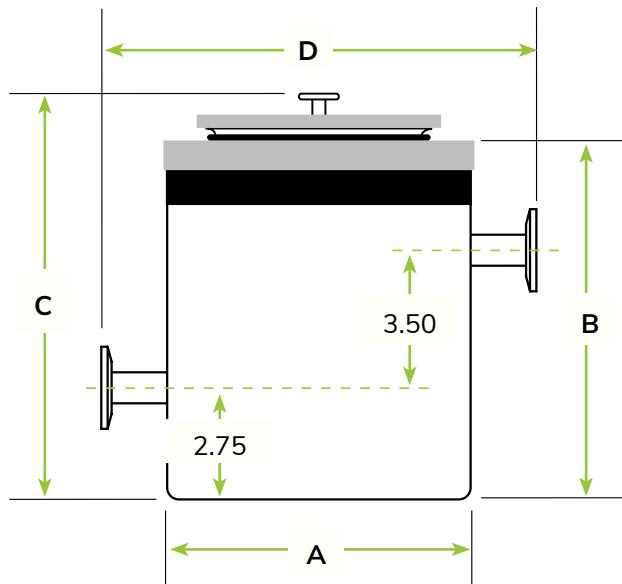
- Clear view ring: see through design allows a quick visual check on condition of cold surface. Visually determine when cold surface needs to be cleaned due to ice bridges and pump lubricant deposition.

**Product Notes:**

- Port terminations: tube end
- Media: use dry ice and isopropanol slurry for maximum cold trapping effect

| PART #  | REFERENCE ID | TUBE END CONNECTION (in) | TRAPPING MEDIA | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) | OVERALL WIDTH D (in) |
|---------|--------------|--------------------------|----------------|-------------------------|--------------------|-----------------------|----------------------|
| 7500420 | VSDI-800-050 | 0.50                     | Dry Ice        | 7.88                    | 9.00               | 10.50                 | 10.70                |
| 7500421 | VSDI-800-075 | 0.75                     | Dry Ice        | 7.88                    | 9.00               | 10.50                 | 10.70                |

## Cold Traps: Dry Ice ISO-QF Connection



### Product Notes:

- Port terminations: ISO-QF
- Media: use dry ice and isopropanol slurry for maximum cold trapping effect

### Materials:

- Electropolished wetted surfaces: facilitates cleaning and servicing, promotes system cleanliness, and deflects heat to minimize frequency of media change-outs.
- Clear, loose fitting lid: see through design allows a quick check on condition of cold media. Loose fitting lid provides a simple vent for sublimating carbon dioxide and prevents unsafe pressure build up.
- Clear view ring: see through design allows a quick visual check on condition of cold surface. Visually determine when cold surface needs to be cleaned due to ice bridges and pump lubricant deposition.

| PART #  | REFERENCE ID  | TUBE END CONNECTION | TRAPPING MEDIA | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) | OVERALL WIDTH D (in) |
|---------|---------------|---------------------|----------------|-------------------------|--------------------|-----------------------|----------------------|
| 7500422 | VSDI-800-QF16 | QF16                | Dry Ice        | 7.88                    | 9.00               | 10.50                 | 11.00                |
| 7500423 | VSDI-800-QF25 | QF25                | Dry Ice        | 7.88                    | 9.00               | 10.50                 | 11.00                |
| 7500424 | VSDI-800-QF40 | QF40                | Dry Ice        | 7.88                    | 9.00               | 10.50                 | 11.00                |

## Dry Ice Replacement Parts

| PART #  | REFERENCE ID | DESCRIPTION                         |
|---------|--------------|-------------------------------------|
| 7510400 | VSDI-800-BSK | Replacement Seal Kit - Buna         |
| 7510401 | VSDI-800-VSK | Replacement Seal Kit - Viton®       |
| 8751421 | VSDI-800-ESK | Replacement Seal Kit - EPDM         |
| 7510410 | VSDI-800-VR  | Replacement Acrylic Viewing Ring    |
| 7510403 | VSDI-800-LA  | Replacement Acrylic Lid             |
| 7510476 | VSC-DPK-L    | DEWAR Plug Kit for - Size 5.0 Liter |
| 7510415 | VSDI-800-W   | Replacement Stainless Steel Well    |



## Foreline Vacuum Filter Product Overview

Foreline filters are installed between the mechanical pump and the high vacuum pump in a vacuum system. Oil mist filters are installed on the outlet of an oil-sealed rotary vane mechanical pump. Each serves a unique function:

**FUNCTION 1:** Protect your mechanical pump from dust and particulates generated upstream within the vacuum system:

### SOLUTION 1: Particulate Filtration

For particulates between 10 and 100 microns in size, **ANCORP** particulate filters (VSPC and VSPI, pg. 24 and 25) are an excellent solution. Particulate filters may be configured with either paper (VSPC, pg. 24) or polyester (VSPI, pg. 25) media. Paper is the low cost option and is the more common choice. Paper filters, however, are unsuitable for wet applications and are disposable. Polyester filters may be reused after being cleaned with a shop vacuum or rinsed with soap and water and dried or both.

### SOLUTION 2: Particulate Filtration

For particulates greater than 100 microns, **ANCORP** particulate separators (VSPS, pg. 25) are an excellent choice. Particulate filters use gravity and a series of baffles (a tortuous path) to separate large particles from their gaseous carriers.

**FUNCTION 2:** Protect your working environment from mechanical pump oil discharge:

### SOLUTION 1: Open Exhaust Filters

**ANCORP's** VSOE (pg. 28) filters are a low cost solution to mechanical pump lubricant discharge. While retaining over 99% of the discharged pump oil, these filters do allow the pumped gases to pass through into the surrounding environment. Therefore, this filter is suitable for vacuum applications based on breathable air.

### SOLUTION 2: Closed Exhaust Filters

**ANCORP's** VCEC (pg. 29) and VCEA (pg. 29) filters capture mechanical pump oil discharge and allow the system's gaseous exhaust to be pumped away to a scrubber or an outside exhaust. The filter's body seal, however, is not a standard flanged vacuum seal and therefore is not intended for toxic or corrosive applications.

### SOLUTION 3: Hermetic Exhaust Filters

**ANCORP's** VSHE (pg. 27) filters trap more than 99% of the mechanical pump's lubricants and allow the captured lubricants to be transported back to the pump via a series of internal channels and a one-way valve. In addition, the filter's housing is sealed with a elastomeric high vacuum flange. As a result, chamber gases that are compatible with Buna-N seals may be safely transported to a scrubber or exhaust system.

### Trap and Filter Media

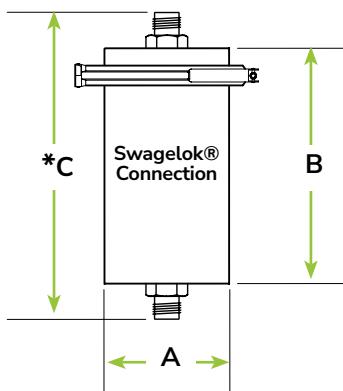
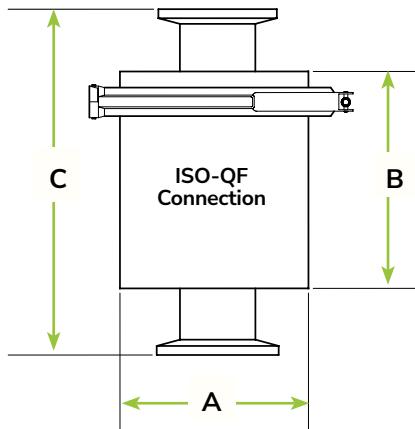
| FILTER MEDIA              | PUMP OIL BACKSTREAMING | WATER VAPOR | PARTICULATE | ACID | ORGANICS | OTHER CONDENSABLE VAPOR |
|---------------------------|------------------------|-------------|-------------|------|----------|-------------------------|
| Borosilicate Fibers       |                        |             |             |      |          | X                       |
| Filter (polyester, paper) |                        |             | X           |      |          | X                       |
| Gravity                   |                        |             | X           |      |          |                         |
| Borosilicate Fibers       |                        |             |             |      |          | X                       |

Table provides a quick reference for media selection. Please contact an **ANCORP** factory engineer or account representative with any questions regarding media selection.

## Model VSPC, VSPI, and VSPS: Particulate Filters

Large filters are designed to capture particulates 100 microns or larger. Small filters are designed to capture particulates ranging from 10 to 100 microns -nominally. Large filters (we call these filters particulate separators) use gravity and stainless steel baffles as a media. Small filters have two media: paper and polyester. Both paper and polyester media have a nominal mesh size of about 10 microns. Paper filters are a low cost, disposable solution for dry applications. Polyester filters can be cleaned and reused.

### Particulate Foreline Filters: Coaxial Ports Swagelok® and ISO-QF Connection



#### Materials:

- Body: bead-blasted 304 stainless steel
- Seals: Buna N

#### Product Notes:

- Port Terminations: Swagelok® and ISO-QF
- Media: paper

- \*(On Swagelok® connection: C dimension is from male nut to male nut.)
- Rechargeable housing: allows rapid, in-situ vacuum gasket servicing and media replacement. Elastomeric gasket and stainless steel clamp suitable for high vacuum applications.

| PART #  | REFERENCE ID   | TUBE END CONNECTION (in) | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|----------------|--------------------------|-------------------------|--------------------|-----------------------|
| 7500501 | VSPC-200-25SWG | 0.25 Swagelok®           | 2.00                    | 3.80               | 5.20                  |
| 7500502 | VSPC-200-38SWG | 0.375 Swagelok®          | 2.00                    | 3.80               | 5.20                  |
| 7500503 | VSPC-200-50SWG | 0.50 Swagelok®           | 2.00                    | 3.80               | 5.40                  |
| 7500510 | VSPC-300-QF25  | QF25                     | 3.00                    | 3.50               | 5.50                  |
| 7500511 | VSPC-400-QF40  | QF40                     | 4.00                    | 3.50               | 5.50                  |
| 7500512 | VSPC-400-QF50  | QF50                     | 4.00                    | 3.50               | 6.50                  |

#### Particulate - Coaxial Replacement Media

| PART #  | REFERENCE ID | FILTER BODY SIZE A (in) | FILTER MEDIA                                  |
|---------|--------------|-------------------------|---|
| 7510501 | VSPC-200-F   | 2.00                    | Industrial paper filter 2U for 2 in. dia body |
| 7510510 | VSPC-300-F   | 3.00                    | Industrial paper filter 2U for 3 in. dia body |
| 7510511 | VSPC-400-F   | 4.00                    | Industrial paper filter 2U for 4 in. dia body |

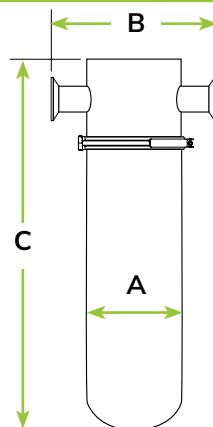
## Particulate Foreline Filters: In-Line Ports ISO-QF Connection

**Materials:**

- Body: 304 stainless steel
- Seals: Buna N

**Product Notes:**

- Port Terminations: ISO-QF
- Media: polyester
- Rechargeable housing: allows rapid, in-situ vacuum gasket servicing and media replacement. Elastomeric gasket and stainless steel clamp suitable for high vacuum applications.



| PART #  | REFERENCE ID  | TUBE END CONNECTION | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) |
|---------|---------------|---------------------|-------------------------|--------------------|-----------------------|
| 7500525 | VSPI-400-QF25 | QF25                | 4.00                    | 15.00              | 6.00                  |
| 7500526 | VSPI-600-QF40 | QF40                | 6.00                    | 16.50              | 8.50                  |

### Particulate - In-Line Replacement Media

| PART #  | REFERENCE ID | FILTER BODY SIZE A (in) | FILTER MEDIA                     |
|---------|--------------|-------------------------|----------------------------------|
| 7510525 | VSPI-400-F   | 4.00                    | Polyester particulate filter 10U |
| 7510526 | VSPI-600-F   | 6.00                    | Polyester particulate filter 10U |

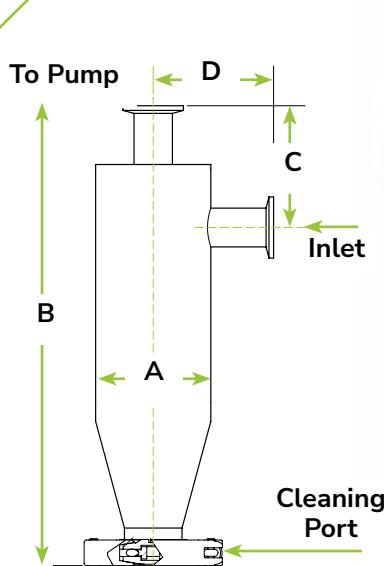
## Particulate Separator Filters: ISO-QF Connection

**Materials:**

- Body: 304 stainless steel
- Clamp: Aluminum
- Seals: Buna N

**Product Notes:**

- Port Terminations: ISO-QF
- Media: gravity and internal stainless steel baffles
- Electropolished: facilitates cleaning and servicing and promotes system cleanliness
- Applications: suitable for dusts and particulates greater than 100 microns. Also an excellent solution for back siphoning accidents.

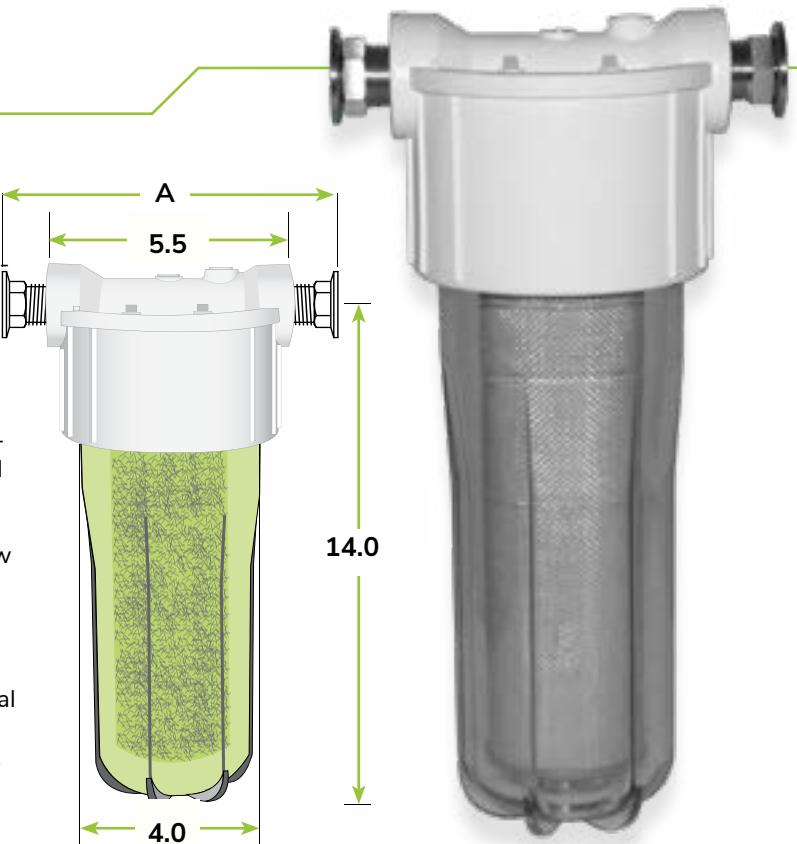


| PART #  | REFERENCE ID  | TUBE END CONNECTION | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | C (in) | D (in) |
|---------|---------------|---------------------|-------------------------|--------------------|--------|--------|
| 7500601 | VSPS-300-QF25 | QF25 Port           | 3.00                    | 12.00              | 3.14   | 3.14   |
| 7500605 | VSPS-400-QF40 | QF40 Port           | 4.00                    | 14.00              | 3.14   | 3.52   |

## VacuView Filters: ISO-QF Connection

### Materials:

- Clear housing: The see through design allows quick visual check on condition of media and amount of trapped or neutralized contaminants. The clear housing maximizes utility of outside-in flow design.



### Product Notes:

- Port terminations: ISO-QF
- Media: caustic soda (for hydrous acid neutralization), activated alumina, or activated charcoal.
- Dimension A: represents the approximate length between flanges depending on how tightly the ends are screwed in.
- Rechargeable housing: allows in-situ vacuum gasket servicing and media replacement.
- Port labels: Installation orientation is critical for this outside-in trap design. Inlet and Pump are clearly identified on the product labeling.

## VacuView Filters: ISO-QF

| PART #  | REFERENCE ID      | TUBE END CONNECTION | FILTER MEDIA       | A (in) |
|---------|-------------------|---------------------|--------------------|--------|
| 7500701 | VVRI-1000-QF16-CS | QF16                | Caustic Soda       | 7.00   |
| 7500702 | VVRI-1000-QF25-CS | QF25                | Caustic Soda       | 7.20   |
| 7500703 | VVRI-1000-QF16-A  | QF16                | Activated Alumina  | 7.00   |
| 7500704 | VVRI-1000-QF25-A  | QF25                | Activated Alumina  | 7.20   |
| 7500705 | VVRI-1000-QF16-O  | QF16                | Activated Charcoal | 7.00   |
| 7500706 | VVRI-1000-QF25-O  | QF25                | Activated Charcoal | 7.20   |

### VacuView Replacement Media

| PART #  | REFERENCE ID | FILTER MEDIA                         |
|---------|--------------|--------------------------------------|
| 7510701 | VVR-1000-CS  | Caustic Soda Replacement Media       |
| 7510702 | VVR-1000-A   | Activated Alumina Replacement Media  |
| 7510703 | VVR-1000-O   | Activated Charcoal Replacement Media |

### VacuView Accessories

| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 7510730 | VVR-MK       | Mounting Kit - contains Bracket with 4 Standoffs and Bolts |

## Model VSHE, VSOE, VCEC and VCEA: Oil Mist Filters

Oil mist filters are installed on the outlet port of an oil-sealed, rotary vane mechanical vacuum pump. During each exhaust cycle, process chamber gases along with a tiny amount of pump lubricant leave the pump. If left uncorrected, over time, a greasy film of pump lubricant will form around the pump's outlet. Oil mist filters capture this lubricant and, in some instances, return the pump lubricant to the pump's oil reservoir.

**ANCORP** manufactures three (3) styles of oil mist filters. The VSOE or open-exhaust oil mist filter is a low cost solution designed for air only applications. That is, the VSOE captures the pump's lubricants but discharges the process gases into the area surrounding the pump. The VCEC/VCEA or closed-exhaust allows the process gases to be piped away to a scrub-

ber or external exhaust line. The VCEC/VCEA's steel housing has an enamel finish and employs integrated body tabs to form the vacuum seal. While suitable for vacuum applications requiring an elastomer seal, this filter is not recommended for aggressive or toxic applications. In addition to allowing the exhaust gases to be piped safely to a scrubber or external exhaust, the VSHE or hermetic exhaust filter is equipped with a rechargeable, machined stainless steel housing. The vacuum seal is formed with elastomeric gaskets (i.e. Buna-N) and stainless steel clamps. The VSHE is the best solution for those critical applications requiring high vacuum seals throughout the process piping run. All three oil mist filters use borosilicate glass fiber media.

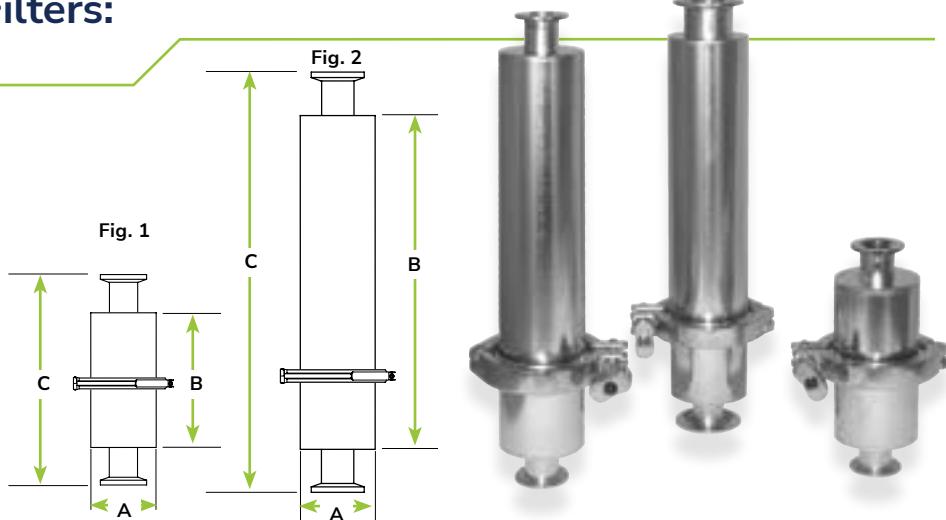
## Hermetic Exhaust Filters: ISO-QF Connection

### Materials:

- Stainless steel

### Product Notes:

- Port Terminations: ISO-QF
- Media: borosilicate glass fiber
- Rechargeable, 304 stainless steel housing: allows rapid, in-situ vacuum gasket servicing and media replacement. Elastomeric gasket and stainless steel clamp suitable for high vacuum applications.



| PART #  | REFERENCE ID | FIGURE | HOUSING DIAMETER<br>A (in) | BODY HEIGHT<br>B (in) | OVERALL LENGTH<br>C (in) |
|---------|--------------|--------|----------------------------|-----------------------|--------------------------|
| 7505001 | VSHE-S-QF25  | 1      | 2.50                       | 4.80                  | 6.90                     |
| 7505002 | VSHE-L-QF25  | 2      | 2.50                       | 11.30                 | 13.30                    |
| 7505003 | VSHE-L-QF40  | 2      | 2.50                       | 11.30                 | 13.30                    |

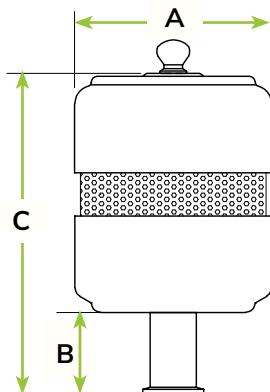
## Hermetic Exhaust Replacement Media

| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 7515001 | HE-RF-S      | Replacement Filter for Short Body                            |
| 7515002 | HE-RF-L      | Replacement Filter for Long Body                             |
| 7515005 | HE-RFK-S     | Replacement Filter Kit for Short Body - includes Filter Caps |
| 7515006 | HE-RFK-L     | Replacement Filter Kit for Long Body - includes Filter Caps  |

## Open Exhaust Filter: ISO-QF and NPT Connection

### Product Notes:

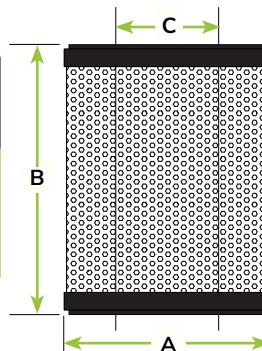
- Port Terminations: ISO-QF and NPT
- Media: borosilicate glass fiber



| PART #  | REFERENCE ID | CONNECTION  | CFM   | HOUSING DIAMETER A (in) | HEIGHT B (in) | OVERALL LENGTH C (in) |
|---------|--------------|-------------|-------|-------------------------|---------------|-----------------------|
| 7505105 | VSOE-5-50NPT | 0.50 in NPT | 4.50  | 2.50                    | 0.90          | 4.00                  |
| 7505110 | VSOE-5-QF16  | QF16        | 4.50  | 2.50                    | 0.90          | 4.00                  |
| 7505111 | VSOE-5-QF25  | QF25        | 4.50  | 2.50                    | 0.90          | 4.00                  |
| 7505112 | VSOE-7-QF25  | QF25        | 7.00  | 2.50                    | 0.90          | 5.00                  |
| 7505120 | VSOE-10-QF25 | QF25        | 24.00 | 5.10                    | 2.10          | 8.50                  |

### Open Exhaust Replacement Media

| PART #  | REFERENCE ID | DESCRIPTION                    | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | INNER DIAMETER C (in) |
|---------|--------------|--------------------------------|-------------------------|--------------------|-----------------------|
| 7515111 | VOE-RF5      | For VSOE-5-50NPT, -QF16, -QF25 | 2.25                    | 3.00               | 1.25                  |
| 7515112 | VOE-RF7      | For VSOE-7-QF25                | 2.25                    | 4.00               | 1.25                  |
| 7515120 | VOE-RF10     | For VSOE-10-QF25               | 4.00                    | 6.00               | 3.00                  |



### Closed Exhaust Replacement Media

| PART #  | REFERENCE ID | DESCRIPTION                     |
|---------|--------------|---------------------------------|
| 7515205 | VCE-RF8      | For VCEC-8-QF16 and VCEC-8-QF25 |
| 7515201 | VCE-RF50     | For VCEA-50-150NPT              |
| 7515210 | VCE-RF125    | For VCEA-125-200NPT             |
| 7515211 | VCE-RF175    | For VCEA-175-200NPT             |

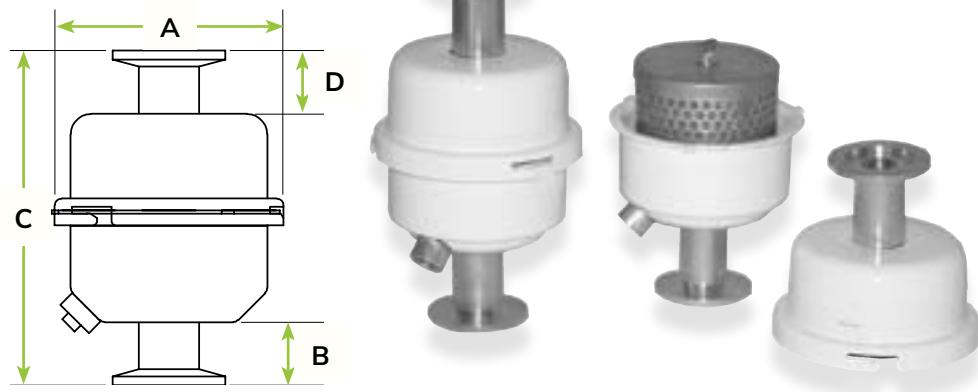
### Closed Exhaust Replacement Kits

| PART #  | REFERENCE ID | DESCRIPTION         |
|---------|--------------|---------------------|
| 7515218 | VCE-RK50     | For VCEA-50-150NPT  |
| 7515216 | VCE-RK125    | For VCEA-125-200NPT |
| 7515216 | VCE-RK175    | For VCEA-175-200NPT |

## Closed Exhaust Filter: Coaxial ISO-QF Connection

### Product Notes:

- Port Terminations: ISO-QF
- Media: borosilicate glass fiber
- Rechargeable, enameled steel housing: allows rapid, in-situ vacuum gasket servicing and media replacement.
- Integral oil drain: allows captured oil to be safely discarded.

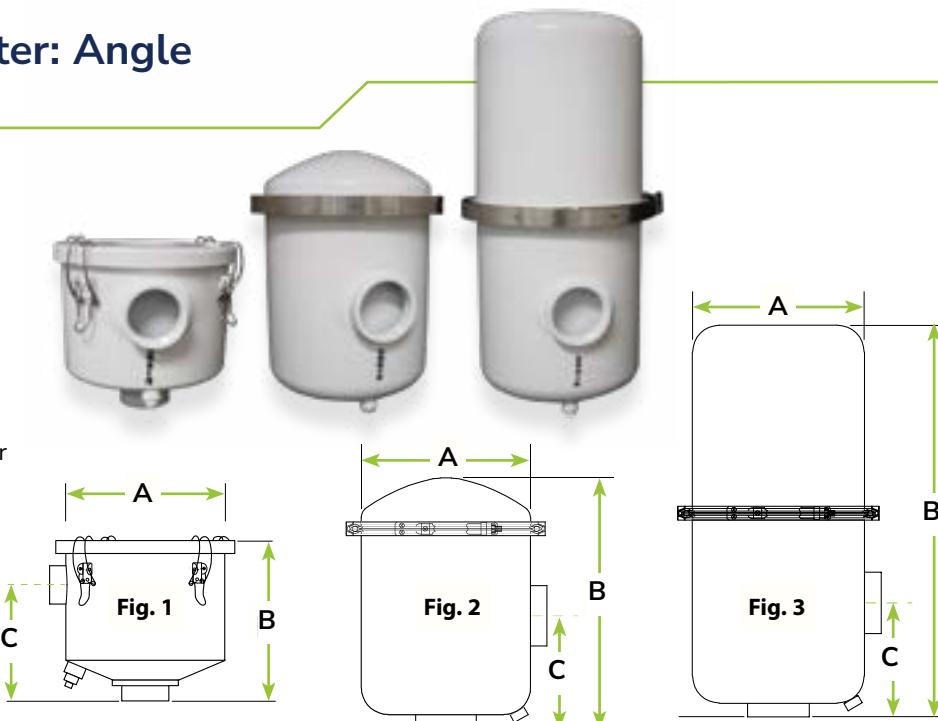


| PART #  | REFERENCE ID | CONNECTION | CFM | HOUSING DIAMETER A (in) | BODY HEIGHT B (in) | OVERALL HEIGHT C (in) | LENGTH D (in) |
|---------|--------------|------------|-----|-------------------------|--------------------|-----------------------|---------------|
| 7505205 | VCEC-8-QF16  | QF16       | 8   | 3.25                    | 0.88               | 4.69                  | 0.88          |
| 7505206 | VCEC-8-QF25  | QF25       | 8   | 3.25                    | 0.88               | 4.69                  | 0.88          |

## Closed Exhaust Filter: Angle NPT Connection

### Product Notes:

- Port Terminations: NPT
- Media: borosilicate glass fiber
- Rechargeable, enameled steel housing: allows rapid, in-situ vacuum gasket servicing and media replacement.
- Integral oil drain: allows captured oil to be safely discarded.
- NPT to ISO-QF Hybrid adapter available upon request



| PART #  | REFERENCE ID    | CONNECTION          | CFM | FIG | HOUSING DIAMETER A (in) | OVERALL LENGTH B (in) | LENGTH C (in) |
|---------|-----------------|---------------------|-----|-----|-------------------------|-----------------------|---------------|
| 7505201 | VCEA-50-150NPT  | 1.50 in. Female NPT | 50  | 1   | 7.32                    | 6.75                  | 4.62          |
| 7505210 | VCEA-125-200NPT | 2.00 in. Female NPT | 125 | 2   | 8.75                    | 11.25                 | 5.00          |
| 7505211 | VCEA-175-200NPT | 2.00 in. Female NPT | 175 | 3   | 8.75                    | 17.50                 | 5.00          |

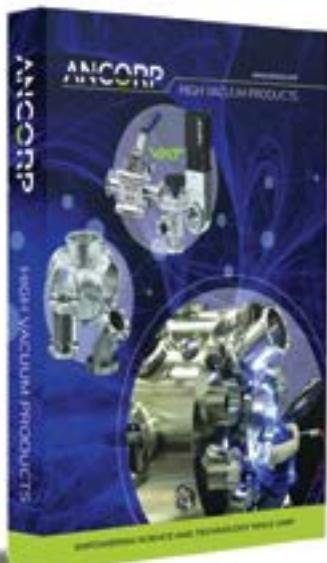


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## Roughing Vacuum Components



8

**Roughing Vacuum Components**

|  |             |
|--|-------------|
| <b>Roughing Vacuum Components Overview .....</b>           | <b>8.03</b> |
| <b>Flexible Nipples (Bellows)</b>                          |             |
| ISO-QF Bellows .....                                       | 8.04        |
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| <b>ISO Flexible Metal Hose</b>                             |             |
| ISO-QF/LF Bellows Metal Hose - Thin Wall .....             | 8.07        |
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| Hose Clamps .....  | 8.14        |

# Roughing Vacuum COMPONENTS



**Roughing Vacuum Components**

This section offers a selection of products for the rough vacuum section of your system. Flexible vacuum hose assists in connecting sections of your system that are misaligned or with vibration isolation. PVC vacuum fittings and tubing are an economical means of running rough vacuum and exhaust lines.

## Overview

Vacuum flexible hose is the best solution for misaligned vacuum ports or for those applications where straight plumbing is simply not an option. These products are also excellent vibration dampeners. Flexible vacuum hose is available in stainless steel or wire-reinforced

PVC.

PVC vacuum fittings are an excellent money saving option for rough vacuum plumbing and exhaust lines. One advantage provided by PVC fittings is easy on site customization of the fittings and tubing that you

## ISO-QF Bellows

**Materials:**

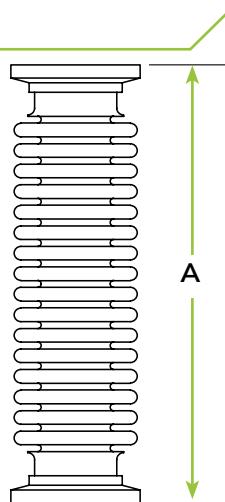
- Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel

**Product Notes:**

- Corrects misaligned connections

**Options: Call for price and delivery**

- Custom lengths
- Custom flange combination



| PART #  | REFERENCE ID   | HOSE I.D. (in) | WALL (in) | A (in) |
|---------|----------------|----------------|-----------|--------|
| 0800000 | QF16-075-B-4.0 | 0.75           | 0.006     | 4.00   |
| 0800001 | QF25-100-B-4.0 | 1.00           | 0.006     | 4.00   |
| 0800002 | QF40-150-B-4.0 | 1.50           | 0.006     | 4.00   |
| 0800003 | QF50-200-B-4.0 | 2.00           | 0.006     | 4.00   |

## CF Bellows - Rotatable

**Materials:**

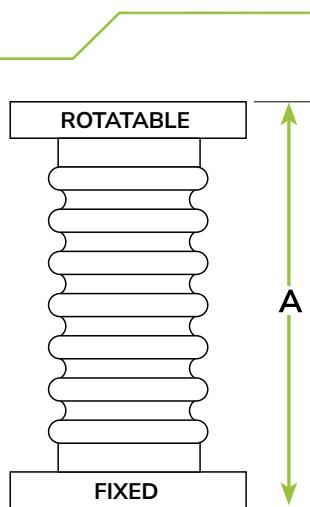
- Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel formed bellows

**Product Notes:**

- Corrects misaligned connections
- Compress up to 20% or extend up to 15% of free length

**Options: Call for price and availability**

- Custom lengths
- Tapped flanges
- Custom flange combination



| PART #  | REFERENCE ID    | FLANGE TYPE | HOSE I.D. (in) | WALL (in) | A (in) |
|---------|-----------------|-------------|----------------|-----------|--------|
| 0800089 | CF133-075-B-4.0 | CF133       | 0.75           | 0.006     | 4.00   |
| 0800092 | CF212-100-B-4.0 | CF212       | 1.00           | 0.006     | 4.00   |
| 0800095 | CF275-150-B-4.0 | CF275       | 1.50           | 0.006     | 4.00   |
| 0800098 | CF338-150-B-4.0 | CF338       | 2.00           | 0.006     | 4.00   |
| 0800099 | CF450-250-B-6.0 | CF450       | 2.50           | 0.006     | 6.00   |
| 0800100 | CF462-300-B-6.0 | CF462       | 3.00           | 0.008     | 6.00   |
| 0800101 | CF600-400-B-6.4 | CF600       | 4.00           | 0.008     | 6.40   |
| 0800103 | CF800-600-B-8.5 | CF800       | 6.00           | 0.010     | 8.50   |

**Materials:**

- Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel formed bellows

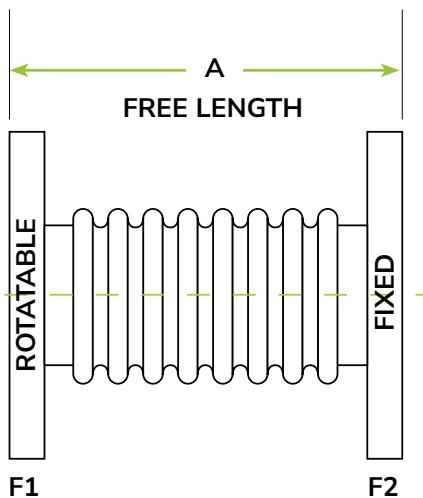
**Product Notes:**

- Corrects misaligned connections
- One fixed and one rotatable flange per fitting
- O-ring groove available

**Options:**

**Call for price and delivery**

- Larger sizes
- Custom lengths
- Custom flange combinations



| PART #  | REFERENCE ID      | FLANGE TYPE | HOSE I.D. (in) | WALL THICKNESS (in) | A (in) |
|---------|-------------------|-------------|----------------|---------------------|--------|
| 0800197 | ASA100-100-B-4.00 | ASA100      | 1.00           | 0.006               | 4.00   |
| 0800198 | ASA100-150-B-4.00 | ASA100      | 1.50           | 0.006               | 4.00   |
| 0800199 | ASA150-200-B-4.00 | ASA150      | 2.00           | 0.006               | 4.00   |
| 0800200 | ASA150-250-B-6.00 | ASA150      | 2.50           | 0.008               | 6.00   |
| 0800201 | ASA200-300-B-6.00 | ASA200      | 3.00           | 0.008               | 6.00   |
| 0800202 | ASA300-400-B-6.00 | ASA300      | 4.00           | 0.010               | 6.00   |
| 0800203 | ASA400-400-B-6.00 | ASA400      | 4.00           | 0.010               | 6.00   |
| 0800204 | ASA400-600-B-8.00 | ASA400      | 6.00           | 0.012               | 8.00   |
| 0800205 | ASA600-600-B-8.00 | ASA600      | 6.00           | 0.012               | 8.00   |

## ISO-LF Bellows

**Materials:**

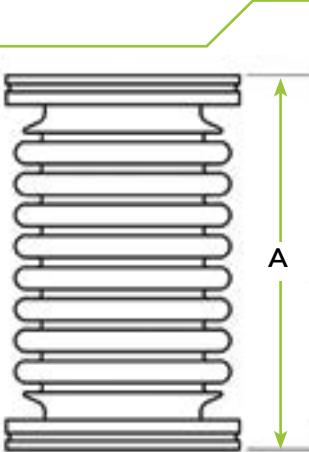
- Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel

**Product Notes:**

- Corrects misaligned connections

**Options: Call for price and delivery**

- Larger sizes
- Custom lengths
- Custom flange combination



| PART #  | REFERENCE ID    | HOSE I.D. (in) | WALL (in) | A (in) | B (in) |
|---------|-----------------|----------------|-----------|--------|--------|
| 0800069 | LF63-250-B-6.0  | 2.5            | 0.006     | 6.00   | 4.50   |
| 0800070 | LF80-300-B-6.0  | 3.0            | 0.008     | 6.00   | 4.50   |
| 0800071 | LF100-400-B-6.0 | 4.0            | 0.008     | 6.00   | 4.50   |
| 0800072 | LF160-600-B-8.0 | 6.0            | 0.010     | 8.00   | 5.70   |

## ASA/ANSI Bellows - Fixed

**Materials:**

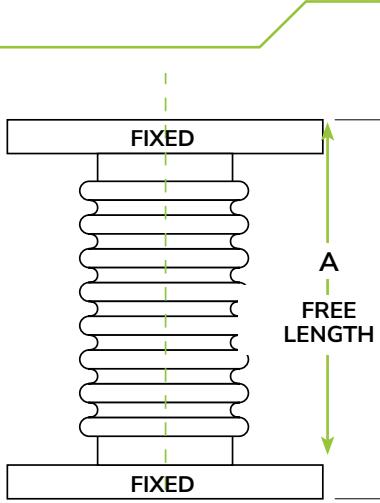
- Fixed Flanges: 304 stainless steel
- Flexible hose: 321 stainless steel formed bellows

**Product Notes:**

- Corrects misaligned connections
- Both flanges have a fixed bolt hole orientation

**Options: Call for price and delivery**

- Larger sizes
- Custom lengths
- O-ring groove available
- Custom flange combination
- Alternative materials: 316 stainless steel



| PART #  | REFERENCE ID             | FLANGE TYPE | HOSE I.D. (in) | WALL (in) | A (in) |
|---------|--------------------------|-------------|----------------|-----------|--------|
| 0800182 | ASA100XASA100-100-B-4.00 | ASA100      | 1.00           | 0.006     | 4.00   |
| 0800183 | ASA100XASA100-150-B-4.00 | ASA100      | 1.50           | 0.006     | 4.00   |
| 0800184 | ASA150XASA150-200-B-4.00 | ASA150      | 2.00           | 0.006     | 4.00   |
| 0800186 | ASA150XASA150-250-B-6.00 | ASA150      | 2.50           | 0.006     | 6.00   |
| 0800187 | ASA200XASA200-300-B-6.00 | ASA200      | 3.00           | 0.008     | 6.00   |
| 0800188 | ASA300XASA300-400-B-6.00 | ASA300      | 4.00           | 0.008     | 6.00   |
| 0800189 | ASA400XASA400-400-B-6.00 | ASA400      | 4.00           | 0.008     | 6.00   |
| 0800190 | ASA400XASA400-600-B-8.00 | ASA400      | 6.00           | 0.010     | 8.00   |
| 0800191 | ASA600XASA600-600-B-8.00 | ASA 600     | 6.00           | 0.010     | 8.00   |

## ISO-QF/LF Bellows

**Materials:**

- Flanges: 304 stainless steel
- Formed flexible hose: 321 stainless steel

**Product Notes:**

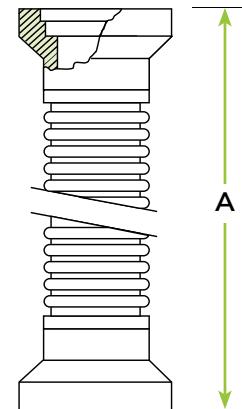
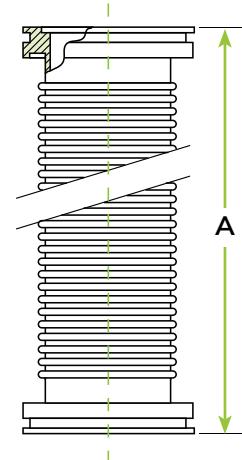
- Thin wall design provides maximum flexibility
- Medium wall design for price economy
- Corrects misaligned connections
- Provides vibration isolation

**Options: Call for price and delivery**

- Custom lengths
- Custom flange combination


**ISO-QF/LF Bellows - Thin Wall**

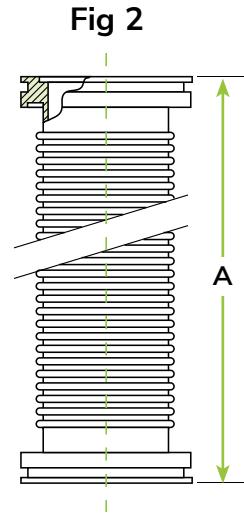
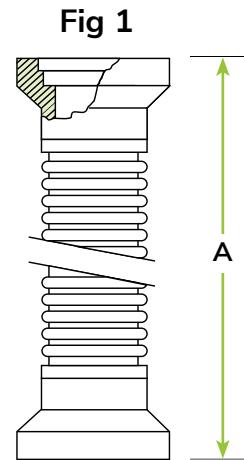
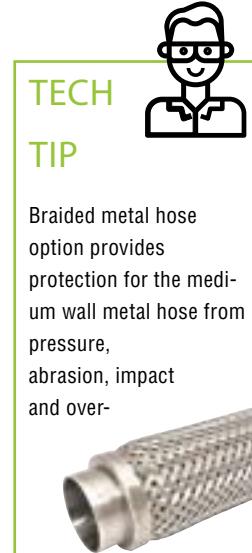
| PART #  | REFERENCE ID    | FLANGES | DRAWING FIGURE | NOMINAL TUBE I.D. (in) | WALL (in) | A O.A.L (in) |
|---------|-----------------|---------|----------------|------------------------|-----------|--------------|
| 0800004 | QF16-075-B-10.0 | QF16    | 1              | 0.75                   | 0.006     | 10           |
| 0800005 | QF16-075-B-12.0 | QF16    | 1              | 0.75                   | 0.006     | 12           |
| 0800006 | QF16-075-B-18.0 | QF16    | 1              | 0.75                   | 0.006     | 18           |
| 0800007 | QF16-075-B-20.0 | QF16    | 1              | 0.75                   | 0.006     | 20           |
| 0800008 | QF16-075-B-24.0 | QF16    | 1              | 0.75                   | 0.006     | 24           |
| 0800009 | QF16-075-B-36.0 | QF16    | 1              | 0.75                   | 0.006     | 36           |
| 0800010 | QF16-075-B-40.0 | QF16    | 1              | 0.75                   | 0.006     | 40           |
| 0800011 | QF16-075-B-48.0 | QF16    | 1              | 0.75                   | 0.006     | 48           |
| 0800012 | QF25-100-B-10.0 | QF25    | 1              | 1.00                   | 0.006     | 10           |
| 0800013 | QF25-100-B-12.0 | QF25    | 1              | 1.00                   | 0.006     | 12           |
| 0800014 | QF25-100-B-18.0 | QF25    | 1              | 1.00                   | 0.006     | 18           |
| 0800015 | QF25-100-B-20.0 | QF25    | 1              | 1.00                   | 0.006     | 20           |
| 0800016 | QF25-100-B-24.0 | QF25    | 1              | 1.00                   | 0.006     | 24           |
| 0800017 | QF25-100-B-36.0 | QF25    | 1              | 1.00                   | 0.006     | 36           |
| 0800018 | QF25-100-B-40.0 | QF25    | 1              | 1.00                   | 0.006     | 40           |
| 0800019 | QF25-100-B-48.0 | QF25    | 1              | 1.00                   | 0.006     | 48           |
| 0800020 | QF40-150-B-10.0 | QF40    | 1              | 1.50                   | 0.006     | 10           |
| 0800021 | QF40-150-B-12.0 | QF40    | 1              | 1.50                   | 0.006     | 12           |
| 0800022 | QF40-150-B-18.0 | QF40    | 1              | 1.50                   | 0.006     | 18           |
| 0800023 | QF40-150-B-20.0 | QF40    | 1              | 1.50                   | 0.006     | 20           |
| 0800024 | QF40-150-B-24.0 | QF40    | 1              | 1.50                   | 0.006     | 24           |
| 0800025 | QF40-150-B-36.0 | QF40    | 1              | 1.50                   | 0.006     | 36           |
| 0800026 | QF40-150-B-40.0 | QF40    | 1              | 1.50                   | 0.006     | 40           |
| 0800027 | QF40-150-B-48.0 | QF40    | 1              | 1.50                   | 0.006     | 48           |
| 0800028 | QF50-200-B-10.0 | QF50    | 1              | 2.00                   | 0.006     | 10           |
| 0800029 | QF50-200-B-12.0 | QF50    | 1              | 2.00                   | 0.006     | 12           |
| 0800030 | QF50-200-B-18.0 | QF50    | 1              | 2.00                   | 0.006     | 18           |
| 0800031 | QF50-200-B-20.0 | QF50    | 1              | 2.00                   | 0.006     | 20           |
| 0800032 | QF50-200-B-24.0 | QF50    | 1              | 2.00                   | 0.006     | 24           |
| 0800033 | QF50-200-B-36.0 | QF50    | 1              | 2.00                   | 0.006     | 36           |
| 0800034 | QF50-200-B-40.0 | QF50    | 1              | 2.00                   | 0.006     | 40           |
| 0800035 | QF50-200-B-48.0 | QF50    | 1              | 2.00                   | 0.006     | 48           |

**Fig 1****Flexible Nipples (Bellows)****Fig 2**

## ISO Flexible Metal Hose

### ISO-QF/LF Metal Hose - Medium Wall

| PART #  | REFERENCE ID      | FLANGES | DRAWING FIGURE | NOMINAL TUBE I.D. (in) | WALL (in) | A O.A.L (in) |
|---------|-------------------|---------|----------------|------------------------|-----------|--------------|
| 0800036 | QF16-075-MH-10.0  | QF16    | 1              | 0.75                   | 0.008     | 10           |
| 0800037 | QF16-075-MH-12.0  | QF16    | 1              | 0.75                   | 0.008     | 12           |
| 0800038 | QF16-075-MH-18.0  | QF16    | 1              | 0.75                   | 0.008     | 18           |
| 0800039 | QF16-075-MH-20.0  | QF16    | 1              | 0.75                   | 0.008     | 20           |
| 0800040 | QF16-075-MH-24.0  | QF16    | 1              | 0.75                   | 0.008     | 24           |
| 0800041 | QF16-075-MH-36.0  | QF16    | 1              | 0.75                   | 0.008     | 36           |
| 0800042 | QF16-075-MH-40.0  | QF16    | 1              | 0.75                   | 0.008     | 40           |
| 0800043 | QF16-075-MH-48.0  | QF16    | 1              | 0.75                   | 0.008     | 48           |
| 0800045 | QF25-100-MH-10.0  | QF25    | 1              | 1.00                   | 0.008     | 10           |
| 0800046 | QF25-100-MH-12.0  | QF25    | 1              | 1.00                   | 0.008     | 12           |
| 0800047 | QF25-100-MH-18.0  | QF25    | 1              | 1.00                   | 0.008     | 18           |
| 0800048 | QF25-100-MH-20.0  | QF25    | 1              | 1.00                   | 0.008     | 20           |
| 0800049 | QF25-100-MH-24.0  | QF25    | 1              | 1.00                   | 0.008     | 24           |
| 0800050 | QF25-100-MH-36.0  | QF25    | 1              | 1.00                   | 0.008     | 36           |
| 0800051 | QF25-100-MH-40.0  | QF25    | 1              | 1.00                   | 0.008     | 40           |
| 0800052 | QF25-100-MH-48.0  | QF25    | 1              | 1.00                   | 0.008     | 48           |
| 0800053 | QF40-150-MH-10.0  | QF40    | 1              | 1.50                   | 0.010     | 10           |
| 0800054 | QF40-150-MH-12.0  | QF40    | 1              | 1.50                   | 0.010     | 12           |
| 0800055 | QF40-150-MH-18.0  | QF40    | 1              | 1.50                   | 0.010     | 18           |
| 0800056 | QF40-150-MH-20.0  | QF40    | 1              | 1.50                   | 0.010     | 20           |
| 0800057 | QF40-150-MH-24.0  | QF40    | 1              | 1.50                   | 0.010     | 24           |
| 0800058 | QF40-150-MH-36.0  | QF40    | 1              | 1.50                   | 0.010     | 36           |
| 0800059 | QF40-150-MH-40.0  | QF40    | 1              | 1.50                   | 0.010     | 40           |
| 0800060 | QF40-150-MH-48.0  | QF40    | 1              | 1.50                   | 0.010     | 48           |
| 0800061 | QF50-200-MH-10.0  | QF50    | 1              | 2.00                   | 0.012     | 10           |
| 0800062 | QF50-200-MH-12.0  | QF50    | 1              | 2.00                   | 0.012     | 12           |
| 0800063 | QF50-200-MH-18.0  | QF50    | 1              | 2.00                   | 0.012     | 18           |
| 0800064 | QF50-200-MH-20.0  | QF50    | 1              | 2.00                   | 0.012     | 20           |
| 0800065 | QF50-200-MH-24.0  | QF50    | 1              | 2.00                   | 0.012     | 24           |
| 0800066 | QF50-200-MH-36.0  | QF50    | 1              | 2.00                   | 0.012     | 36           |
| 0800067 | QF50-200-MH-40.0  | QF50    | 1              | 2.00                   | 0.012     | 40           |
| 0800068 | QF50-200-MH-48.0  | QF50    | 1              | 2.00                   | 0.012     | 48           |
| 0800080 | LF63-250-MH-12.0  | LF63    | 2              | 2.50                   | 0.012     | 12           |
| 8082034 | LF63-250-MH-18.0  | LF63    | 2              | 2.50                   | 0.012     | 18           |
| 0800240 | LF63-250-MH-24.0  | LF63    | 2              | 2.50                   | 0.012     | 24           |
| 0800310 | LF63-250-MH-36.0  | LF63    | 2              | 2.50                   | 0.012     | 36           |
| 8080208 | LF63-250-MH-48.0  | LF63    | 2              | 2.50                   | 0.012     | 48           |
| 8450781 | LF80-300-MH-12.0  | LF80    | 2              | 3.00                   | 0.016     | 12           |
| 0800327 | LF80-300-MH-18.0  | LF80    | 2              | 3.00                   | 0.016     | 18           |
| 0800316 | LF80-300-MH-24.0  | LF80    | 2              | 3.00                   | 0.016     | 24           |
| 8082035 | LF80-300-MH-36.0  | LF80    | 2              | 3.00                   | 0.016     | 36           |
| 0800308 | LF80-300-MH-48.0  | LF80    | 2              | 3.00                   | 0.016     | 48           |
| 8082033 | LF100-400-MH-12.0 | LF100   | 2              | 4.00                   | 0.016     | 12           |
| 8082027 | LF100-400-MH-18.0 | LF100   | 2              | 4.00                   | 0.016     | 18           |
| 0800307 | LF100-400-MH-24.0 | LF100   | 2              | 4.00                   | 0.016     | 24           |
| 0800315 | LF100-400-MH-36.0 | LF100   | 2              | 4.00                   | 0.016     | 36           |
| 0800249 | LF100-400-MH-48.0 | LF100   | 2              | 4.00                   | 0.016     | 48           |



## CF Flexible Bellows - Thin Wall

**Materials:**

- Flanges: 304 stainless steel
- Formed flexible hose: 321 stainless steel

**Product Notes:**

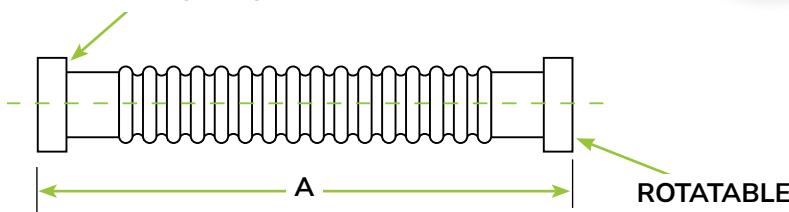
- Thin wall design provides maximum flexibility
- Corrects misaligned connections
- Provides vibration isolation

**Options: Call for price and delivery**

- Custom lengths
- Custom flange combination



NON-ROTATABLE



| PART #  | REFERENCE NUMBER | FLANGES | NOMINAL TUBE I.D. (in) | WALL (in) | A O.A.L (in) |
|---------|------------------|---------|------------------------|-----------|--------------|
| 0800111 | CF133-075-B-12.0 | CF133   | 0.75                   | 0.006     | 12           |
| 0800113 | CF133-075-B-18.0 | CF133   | 0.75                   | 0.006     | 18           |
| 0800115 | CF133-075-B-24.0 | CF133   | 0.75                   | 0.006     | 24           |
| 0800117 | CF133-075-B-36.0 | CF133   | 0.75                   | 0.006     | 36           |
| 0800239 | CF133-075-B-48.0 | CF133   | 0.75                   | 0.006     | 48           |
| 0800123 | CF212-100-B-12.0 | CF212   | 1.00                   | 0.006     | 12           |
| 0800125 | CF212-100-B-18.0 | CF212   | 1.00                   | 0.006     | 18           |
| 0800127 | CF212-100-B-24.0 | CF212   | 1.00                   | 0.006     | 24           |
| 0800129 | CF212-100-B-36.0 | CF212   | 1.00                   | 0.006     | 36           |
| 0800135 | CF275-150-B-12.0 | CF275   | 1.50                   | 0.006     | 12           |
| 0800137 | CF275-150-B-18.0 | CF275   | 1.50                   | 0.006     | 18           |
| 0800139 | CF275-150-B-24.0 | CF275   | 1.50                   | 0.006     | 24           |
| 0800141 | CF275-150-B-36.0 | CF275   | 1.50                   | 0.006     | 36           |
| 0800147 | CF338-200-B-12.0 | CF338   | 2.00                   | 0.006     | 12           |
| 0800149 | CF338-200-B-18.0 | CF338   | 2.00                   | 0.006     | 18           |
| 0800151 | CF338-200-B-24.0 | CF338   | 2.00                   | 0.006     | 24           |
| 0800153 | CF338-200-B-36.0 | CF338   | 2.00                   | 0.006     | 36           |
| 0800161 | CF450-250-B-18.0 | CF450   | 2.50                   | 0.006     | 18           |

## CF Flexible Metal Hose - Medium Wall

**Materials:**

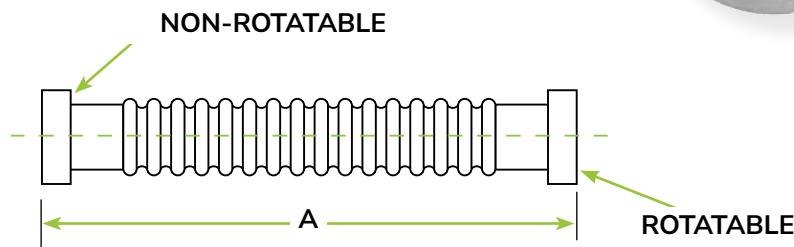
- Flanges: 304 stainless steel
- Formed Flexible Hose:  
321 stainless steel

**Product Notes:**

- Medium wall design for price economy
- Corrects misaligned connections
- Provides vibration isolation

**Options: Call for price and delivery**

- Custom lengths
- Custom flange combination
- Braided metal hose


**TECH TIP**


Braided metal hose option provides protection for the medium wall metal hose from pressure, abrasion, impact and over-

## CF Flexible Metal Hose

| PART #  | REFERENCE ID      | FLANGES | NOMINAL TUBE I.D. (in) | WALL (in) | A O.A.L (in) |
|---------|-------------------|---------|------------------------|-----------|--------------|
| 0800241 | CF133-075-MH-12.0 | CF133   | 0.75                   | 0.008     | 12           |
| 0800238 | CF133-075-MH-18.0 | CF133   | 0.75                   | 0.008     | 18           |
| 0800324 | CF133-075-MH-24.0 | CF133   | 0.75                   | 0.008     | 24           |
| 8080372 | CF133-075-MH-36.0 | CF133   | 0.75                   | 0.008     | 36           |
| 0800242 | CF133-075-MH-48.0 | CF133   | 0.75                   | 0.008     | 48           |
| 0800237 | CF212-100-MH-12.0 | CF212   | 1.00                   | 0.008     | 12           |
| 0800230 | CF212-100-MH-48.0 | CF212   | 1.00                   | 0.008     | 48           |
| 0800312 | CF275-150-MH-12.0 | CF275   | 1.50                   | 0.010     | 12           |
| 0800313 | CF275-150-MH-18.0 | CF275   | 1.50                   | 0.010     | 18           |
| 0800309 | CF275-150-MH-24.0 | CF275   | 1.50                   | 0.010     | 24           |
| 0800314 | CF275-150-MH-36.0 | CF275   | 1.50                   | 0.010     | 36           |
| 0800318 | CF275-150-MH-48.0 | CF275   | 1.50                   | 0.010     | 48           |
| 0800244 | CF450-250-MH-12.0 | CF450   | 2.50                   | 0.012     | 12           |
| 0800243 | CF450-250-MH-18.0 | CF450   | 2.50                   | 0.012     | 18           |
| 0800245 | CF450-250-MH-24.0 | CF450   | 2.50                   | 0.012     | 24           |
| 0800233 | CF462-300-MH-12.0 | CF462   | 3.00                   | 0.016     | 12           |
| 0800232 | CF462-300-MH-18.0 | CF462   | 3.00                   | 0.016     | 18           |
| 0800234 | CF600-400-MH-12.0 | CF600   | 4.00                   | 0.016     | 12           |
| 0800215 | CF600-400-MH-18.0 | CF600   | 4.00                   | 0.016     | 18           |
| 0800216 | CF600-400-MH-24.0 | CF600   | 4.00                   | 0.016     | 24           |
| 0800403 | CF600-400-MH-36.0 | CF600   | 4.00                   | 0.016     | 36           |
| 0800404 | CF600-400-MH-48.0 | CF600   | 4.00                   | 0.016     | 48           |

## Weldable End Flexible Bellows - Thin Wall

**Materials:**

- Weldable tube ends: 304 stainless steel
- Formed flexible hose: 321 stainless steel

**Product Notes:**

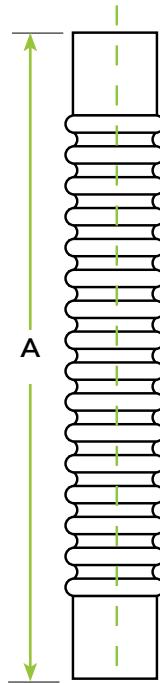
- Thin wall design provides maximum flexibility
- Corrects misaligned connections
- Provides vibration isolation

**Options: Call for price and delivery**

- Custom lengths
- Custom flange combination



| PART #  | REFERENCE ID  | NOMINAL TUBE I.D. (in) | WALL (in) | A O.A.L (in) |
|---------|---------------|------------------------|-----------|--------------|
| 0802000 | TE-075-B-12.0 | 0.75                   | 0.006     | 12           |
| 0802001 | TE-075-B-18.0 | 0.75                   | 0.006     | 18           |
| 0802002 | TE-075-B-24.0 | 0.75                   | 0.006     | 24           |
| 0802003 | TE-075-B-36.0 | 0.75                   | 0.006     | 36           |
| 0802004 | TE-075-B-48.0 | 0.75                   | 0.006     | 48           |
| 0802005 | TE-100-B-11.5 | 1.00                   | 0.006     | 12           |
| 0802006 | TE-100-B-18.0 | 1.00                   | 0.006     | 18           |
| 0802007 | TE-100-B-24.0 | 1.00                   | 0.006     | 24           |
| 0802008 | TE-100-B-36.0 | 1.00                   | 0.006     | 36           |
| 0802009 | TE-100-B-48.0 | 1.00                   | 0.006     | 48           |
| 0802012 | TE-150-B-24.0 | 1.50                   | 0.006     | 24           |
| 0802013 | TE-150-B-36.0 | 1.50                   | 0.006     | 36           |
| 0802014 | TE-150-B-48.0 | 1.50                   | 0.006     | 48           |
| 0802015 | TE-200-B-12.0 | 2.00                   | 0.006     | 12           |
| 0802016 | TE-200-B-18.0 | 2.00                   | 0.006     | 18           |
| 0802017 | TE-200-B-24.0 | 2.00                   | 0.006     | 24           |
| 0802018 | TE-200-B-36.0 | 2.00                   | 0.006     | 36           |
| 0802019 | TE-200-B-48.0 | 2.00                   | 0.006     | 48           |



**Weldable End Flexible Bellows**

## Weldable End Flexible Metal Hose

# Weldable End Flexible Metal Hose - Medium Wall


**Materials:**

- Weldable Tube Ends: 304 stainless steel
- Formed Flexible Hose: 321 stainless steel

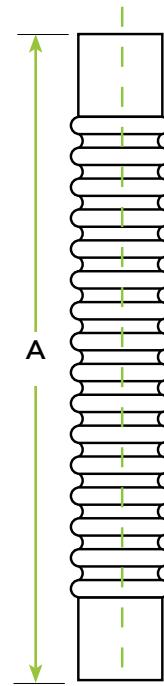
**Product Notes:**

- Medium wall design for price economy
- Corrects misaligned connections
- Provides vibration isolation

**Options: Call for price and delivery**

- Custom Lengths
- Custom Flange Combination
- Braided Metal Hose

| PART #  | REFERENCE ID   | NOMINAL TUBE I.D. (in) | WALL (in) | A O.A.L (in) |
|---------|----------------|------------------------|-----------|--------------|
| 0801072 | TE-075-MH-12.0 | 0.75                   | 0.008     | 12           |
| 8088013 | TE-075-MH-18.0 | 0.75                   | 0.008     | 18           |
| 0800501 | TE-075-MH-24.0 | 0.75                   | 0.008     | 24           |
| 8080365 | TE-075-MH-36.0 | 0.75                   | 0.008     | 36           |
| 0800503 | TE-075-MH-48.0 | 0.75                   | 0.008     | 48           |
| 0800505 | TE-100-MH-12.0 | 1.00                   | 0.008     | 12           |
| 8081072 | TE-100-MH-18.0 | 1.00                   | 0.009     | 18           |
| 0801104 | TE-100-MH-24.0 | 1.00                   | 0.009     | 24           |
| 8081074 | TE-100-MH-36.0 | 1.00                   | 0.009     | 36           |
| 0800509 | TE-150-MH-12.0 | 1.50                   | 0.010     | 12           |
| 0800510 | TE-150-MH-18.0 | 1.50                   | 0.010     | 18           |
| 0800511 | TE-150-MH-24.0 | 1.50                   | 0.010     | 24           |
| 0800512 | TE-150-MH-36.0 | 1.50                   | 0.010     | 36           |
| 0801074 | TE-150-MH-48.0 | 1.50                   | 0.010     | 48           |
| 0801050 | TE-250-MH-12.0 | 2.50                   | 0.012     | 12           |
| 0801111 | TE-250-MH-18.0 | 2.50                   | 0.012     | 18           |
| 0801109 | TE-250-MH-24.0 | 2.50                   | 0.012     | 24           |
| 0801113 | TE-250-MH-36.0 | 2.50                   | 0.012     | 36           |
| 0801096 | TE-250-MH-48.0 | 2.50                   | 0.012     | 48           |
| 0801087 | TE-300-MH-12.0 | 3.00                   | 0.016     | 12           |
| 0801115 | TE-300-MH-18.0 | 3.00                   | 0.016     | 18           |
| 0801116 | TE-300-MH-24.0 | 3.00                   | 0.016     | 24           |
| 0801084 | TE-300-MH-36.0 | 3.00                   | 0.016     | 36           |
| 0801117 | TE-300-MH-48.0 | 3.00                   | 0.016     | 48           |
| 8083062 | TE-400-MH-12.0 | 4.00                   | 0.016     | 12           |
| 0801095 | TE-400-MH-18.0 | 4.00                   | 0.016     | 18           |
| 0801119 | TE-400-MH-24.0 | 4.00                   | 0.016     | 24           |
| 0801120 | TE-400-MH-36.0 | 4.00                   | 0.016     | 36           |
| 8080268 | TE-400-MH-48.0 | 4.00                   | 0.016     | 48           |


**TECH TIP**

Braided metal hose option provides protection for the medium wall metal hose from pressure, abrasion, impact and over-bending.



## QF Flexible PVC Hose

**Materials:**

- PVC hose: clear, wire reinforced
- Flanges: 304 stainless steel
- Temperature range: min. 23° F, max. 150° F

**Product Notes:**

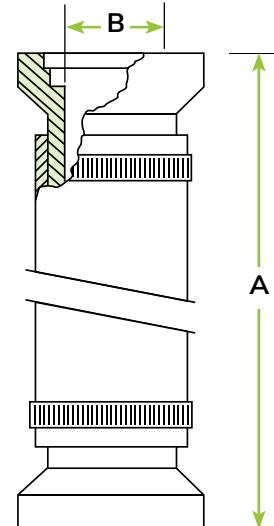
- Hose clamp fastens flange to PVC hose
- Ready to use: helium leak checked
- Good for exhaust lines

**Options: Call for price and delivery**

- Custom lengths



| PART #  | REFERENCE ID       | A (in) | B (in) | MAX. PSI |
|---------|--------------------|--------|--------|----------|
| 4000394 | QF10-050-PVC-20.0  | 20     | 0.50   | 130      |
| 4000395 | QF10-050-PVC-40.0  | 40     | 0.50   | 130      |
| 4000396 | QF16-050-PVC-20.0  | 20     | 0.50   | 130      |
| 4000397 | QF16-050-PVC-40.0  | 40     | 0.50   | 130      |
| 4000398 | QF16-075-PVC-20.0  | 20     | 0.75   | 100      |
| 4000399 | QF16-075-PVC-40.0  | 40     | 0.75   | 100      |
| 4000400 | QF25-100-PVC-20.0  | 20     | 1.00   | 70       |
| 4000401 | QF25-100-PVC-40.0  | 40     | 1.00   | 70       |
| 4000402 | QF40-150-PVC-20.0  | 20     | 1.50   | 50       |
| 4000403 | QF40-150-PVC-40.0  | 40     | 1.50   | 50       |
| 4000404 | QF50-200-PVC-20.0  | 20     | 2.00   | 50       |
| 4000405 | QF50-200-PVC-40.0  | 40     | 2.00   | 50       |
| 4000548 | QF50-200-PVC-120.0 | 120    | 2.00   | 50       |



## Wire Reinforced Flexible PVC Hose

**Materials:**

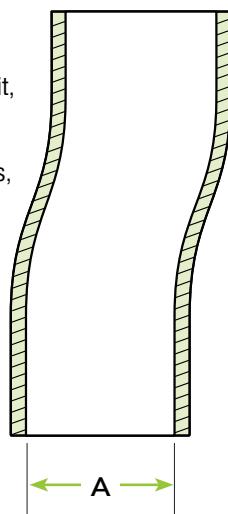
- Spiral steel wire reinforced PVC tubing
- Made from FDA approved ingredients
- Kink and crush resistant
- Handles pressure and full vacuum (29.9 inHg) applications
- Clear, smooth surfaces provide outstanding visual flow characteristics
- Lightweight, tough, corrosion and abrasion resistant
- Temperature range: min. 23° F, max. 150° F
- Length is cut to order

**Product Notes:**

Used to transport various chemicals in areas with tight turns and sharp bends. Its bend radius is approximately four times the I.D.

Excellent for exhaust lines, Chemical Transfer, Conduit, Coolant Lines, Environmental Suit Air Feed, Floor Cleaning Equipment, Food & Beverage Lines, Material Handling, Shop Air Supply, Spray Systems, Vacuum Lines, Water Feeds and more.

| PART #  | REFERENCE ID | HOSE CLAMP PART NUMBER | A (in) | OD (in) | WALL  | WORKING PSI (@ 70°F) |
|---------|--------------|------------------------|--------|---------|-------|----------------------|
| 0701245 | 025-PVC      | 025-HC                 | 0.25   | .453    | 0.102 | 140                  |
| 0701250 | 050-PVC      | 050-HC                 | 0.50   | .748    | 0.124 | 140                  |
| 0701255 | 075-PVC      | 075-HC                 | 0.75   | 1.024   | 0.137 | 100                  |
| 0701260 | 100-PVC      | 100-HC                 | 1.00   | 1.319   | 0.160 | 85                   |
| 0701265 | 150-PVC      | 150-HC                 | 1.50   | 1.909   | 0.205 | 85                   |
| 0701270 | 200-PVC      | 200-HC                 | 2.00   | 2.382   | 0.191 | 70                   |



## Hose Adapter to QF - Aluminum

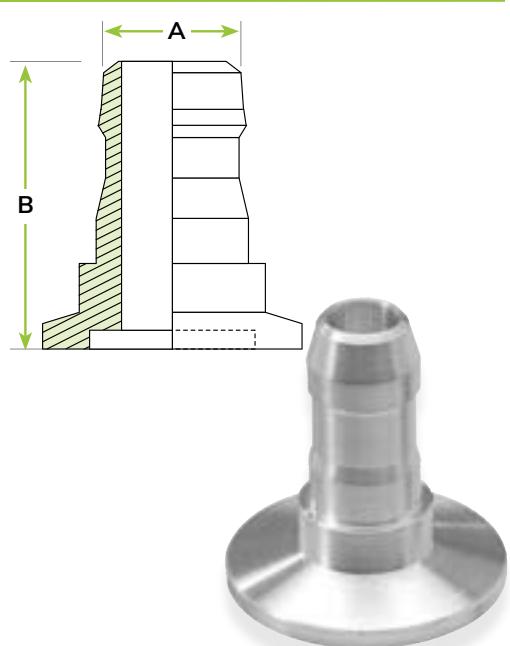
**Materials:**

- 2011 aluminum

**Product Notes:**

- Adapts from rubber or PVC vacuum hose to ISO-QF flanges
- Each kit adapts two sizes

| PART #  | REFERENCE ID   | HOSE I.D. (in) | A (in) | B (in) |
|---------|----------------|----------------|--------|--------|
| 4000256 | QF10-50/63-H   | 0.50 or 0.63   | 0.63   | 1.63   |
| 4000257 | QF16-50/63-H   | 0.50 or 0.63   | 0.63   | 1.63   |
| 4000258 | QF16-63/75-H   | 0.63 or 0.75   | 0.75   | 1.63   |
| 4000259 | QF25-50/63-H   | 0.50 or 0.63   | 0.63   | 1.63   |
| 4000261 | QF25-75/88-H   | 0.75 or 0.88   | 0.88   | 1.73   |
| 4000262 | QF40-150/163-H | 1.50 or 1.63   | 1.63   | 2.17   |
| 4000263 | QF50-150/163-H | 1.50 or 1.63   | 1.63   | 2.17   |



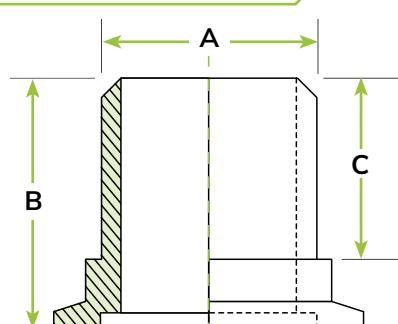
## Hose Adapter to QF - Stainless Steel

**Materials:**

- 304 stainless steel

**Product Notes:**

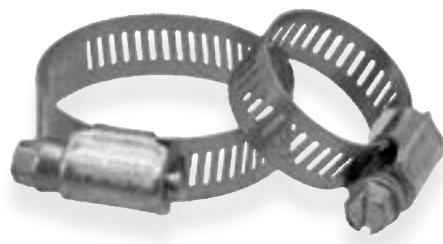
- Adapts from rubber or PVC vacuum hose to ISO-QF flanges



| PART #  | REFERENCE ID | HOSE I.D. (in) | A (in) | B (in) | C (in) |
|---------|--------------|----------------|--------|--------|--------|
| 4000264 | QF10-050-SH  | 0.50           | 0.50   | 1.26   | 0.79   |
| 4000265 | QF16-050-SH  | 0.50           | 0.50   | 1.26   | 0.79   |
| 4000266 | QF16-075-SH  | 0.75           | 0.75   | 1.26   | 0.79   |
| 4000267 | QF25-100-SH  | 1.00           | 1.00   | 1.50   | 1.02   |
| 4000268 | QF40-150-SH  | 1.50           | 1.50   | 1.97   | 1.50   |
| 4000269 | QF50-200-SH  | 2.00           | 2.00   | 2.17   | 1.61   |

## Hose Clamps

| PART #  | REFERENCE ID | DESCRIPTION                         |
|---------|--------------|-------------------------------------|
| 4000520 | 050-HC       | PVC Hose Clamp for 1/2 in. tubing   |
| 4000521 | 075-HC       | PVC Hose Clamp for 3/4 in. tubing   |
| 4000522 | 100-HC       | PVC Hose Clamp for 1 in. tubing     |
| 4000523 | 150-HC       | PVC Hose Clamp for 1 1/2 in. tubing |
| 4000524 | 200-HC       | PVC Hose Clamp for 2 in. tubing     |



## Quick Disconnect Fittings



9

Quick Disconnect Fittings

**Quick Disconnect Fittings Introduction ..... 9.03**

|  |      |
|--|------|
| Quick Disconnect Fittings - Thin Wall.....       | 9.04 |
| Quick Disconnect Fittings - Thick Wall.....      | 9.05 |
| Blank Plug .....                                 | 9.06 |
| Quick Disconnect Unions .....                    | 9.07 |
| Quick Disconnect Replacement Nut.....            | 9.08 |
| Quick Disconnect Replacement Retaining Ring..... | 9.08 |
| Quick Disconnect Replacement O-Ring .....        | 9.09 |

# Quick-Disconnect FITTINGS



## Overview

Quick disconnects are a fast and easy way to make and break a vacuum seal onto metal or glass tubing. These useful fittings can be welded, brazed, soldered or flange mounted onto your system, chamber or flange. They are commonly used to mount vacuum measurement gauges, feedthroughs and other vacuum accessories.

**ANCORP** quick disconnects compress an o-ring onto the outer diameter of metal or glass tubing as the outer nut is hand tightened. Sizes for quick disconnect fittings are based on the outer diameter of the tube that will be inserted into the assembly.

All fittings offered by **ANCORP** are manufactured on state-of-the-art CNC (computer controlled) lathes to ensure consistency with dimensional tolerances, and extremely fine surface finishes. Water soluble, non-sulfur based coolants are used during the manufacturing process. The fittings are cleaned in an ultrasonic de-ionized water based cleaning system and vacuum packaged free from visible particulates and oils, ready for immediate use in any vacuum application.

## Specifications:

- Vacuum rated to: HV design  $1 \times 10^{-8}$  Torr.
- Leak rating:  $< 1 \times 10^{-9}$  std. cc/s helium
- Materials:
  - Bodies, rings: 304 stainless steel
  - Nuts: 303 stainless steel
- Accept metal and glass tubing with outer diameter 1/16 inch up to 2 inch
- Larger sizes available upon request

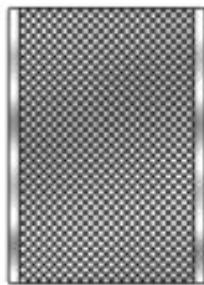
| TEMPERATURE LIMITS |        |                |                  |
|--------------------|--------|----------------|------------------|
| O-ring MATERIAL    | LOW    | SUSTAINED HIGH | INTERMITTENT USE |
| Viton®             | -26 °C | 150 °C         | 205 °C           |
| Buna               | -20 °C | 80 °C          | 100 °C           |

## Features:

- Quickly make and break vacuum seals
- Reusable seals
- Adapters to other flange systems available
- Interchangeable with other quick disconnect style fittings

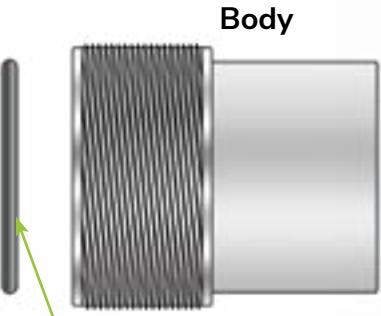
## Quick Disconnect Assembly

Retaining Ring



Nut

Body



O-Ring

Glass or Metal Tube



## Quick Disconnect Fittings - Thin Wall

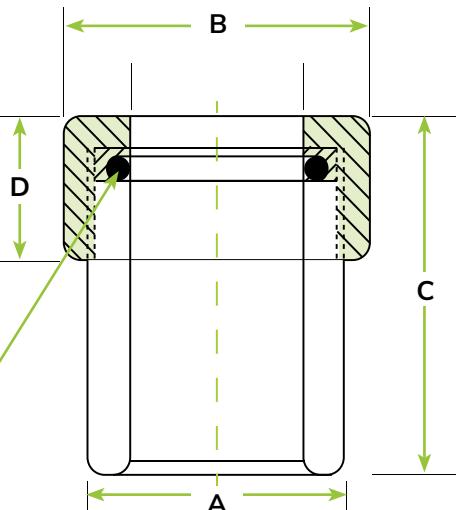
### Materials:

- Body, plug, nut and retaining ring: 304 stainless steel
- Seals: Standard Buna-N or Custom Viton® O-ring

### Product Features:

- Designed to accept standard inch tubing O.D.'s
- Infinitely rotatable, sexless connection to tubing or gauges
- Reusable seals

O-ring



### Stainless Steel



### ORDERING NOTE:

- To connect thin wall quick disconnects to your system utilize welding for stainless steel.
- Use a thick wall quick disconnect if you desire to solder the assembly to your system.

| PART #  | REFERENCE ID  | ACCEPTS TUBE O.D. (in) | A (in) | B (in) | C (in) | D (in) |
|---------|---------------|------------------------|--------|--------|--------|--------|
| 1000103 | 18-QDTN-1.32  | 0.188                  | 0.375  | 0.625  | 1.317  | 0.625  |
| 1000104 | 25-QDTN-1.32  | 0.250                  | 0.375  | 0.625  | 1.317  | 0.625  |
| 1000106 | 31-QDTN-1.32  | 0.312                  | 0.500  | 0.875  | 1.317  | 0.625  |
| 1000108 | 38-QDTN-1.32  | 0.375                  | 0.500  | 0.875  | 1.317  | 0.625  |
| 1000110 | 50-QDTN-1.32  | 0.500                  | 0.625  | 0.875  | 1.317  | 0.625  |
| 1000112 | 62-QDTN-1.51  | 0.625                  | 0.750  | 1.188  | 1.500  | 0.750  |
| 1000114 | 75-QDTN-1.63  | 0.750                  | 0.875  | 1.375  | 1.625  | 0.750  |
| 1000116 | 87-QDTN-1.63  | 0.875                  | 1.00   | 1.375  | 1.625  | 0.750  |
| 1000118 | 100-QDTN-1.88 | 1.00                   | 1.125  | 1.625  | 1.875  | 0.750  |
| 1000120 | 112-QDTN-1.88 | 1.125                  | 1.250  | 1.875  | 1.875  | 0.750  |
| 1000122 | 125-QDTN-2.00 | 1.250                  | 1.500  | 1.875  | 2.000  | 0.750  |
| 1000124 | 138-QDTN-2.13 | 1.375                  | 1.625  | 2.000  | 2.125  | 0.875  |
| 1000126 | 150-QDTN-2.25 | 1.50                   | 1.750  | 2.250  | 2.250  | 0.875  |
| 1000128 | 162-QDTN-2.25 | 1.625                  | 1.875  | 2.375  | 2.250  | 0.875  |
| 1000130 | 200-QDTN-2.30 | 2.00                   | 2.250  | 2.750  | 2.250  | 0.875  |

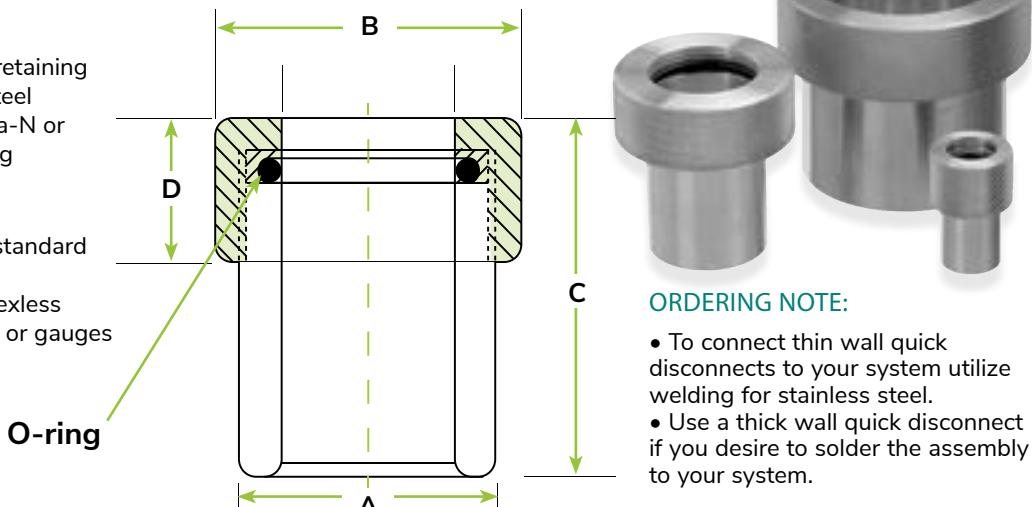
## Quick Disconnect Fittings - Thick Wall

**Materials:**

- Body, plug, nut and retaining ring: 304 stainless steel
- Seals: Standard Buna-N or Custom Viton® O-ring

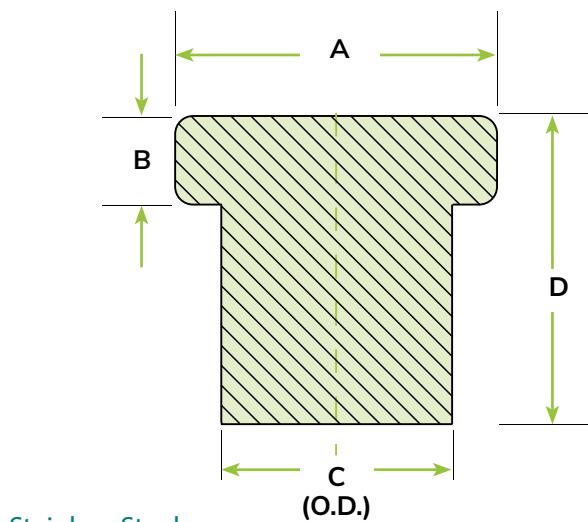
**Product Features:**

- Designed to accept standard inch tubing O.D.'s
- Infinitely rotatable, sexless connection to tubing or gauges
- Reusable seals


**Stainless Steel**

| PART #  | REFERENCE ID  | ACCEPTS TUBE O.D. (in) | A (in) | B (in) | C (in) | D (in) |
|---------|---------------|------------------------|--------|--------|--------|--------|
| 1000101 | 06-QDTK-1.32  | 0.063                  | 0.375  | 0.500  | 1.317  | 0.625  |
| 1000102 | 12-QDTK-1.32  | 0.125                  | 0.375  | 0.500  | 1.317  | 0.625  |
| 1000105 | 25-QDTK-1.32  | 0.250                  | 0.500  | 0.625  | 1.317  | 0.625  |
| 1000109 | 38-QDTK-1.32  | 0.375                  | 0.625  | 0.875  | 1.317  | 0.625  |
| 1000111 | 50-QDTK-1.32  | 0.500                  | 0.750  | 0.875  | 1.317  | 0.625  |
| 1000113 | 62-QDTK-1.50  | 0.625                  | 0.875  | 1.188  | 1.505  | 0.750  |
| 1000115 | 75-QDTK-1.63  | 0.750                  | 1.125  | 1.375  | 1.630  | 0.750  |
| 1000117 | 87-QDTK-1.63  | 0.875                  | 1.250  | 1.375  | 1.630  | 0.750  |
| 1000119 | 100-QDTK-1.88 | 1.000                  | 1.375  | 1.625  | 1.880  | 0.750  |
| 1000121 | 112-QDTK-1.88 | 1.125                  | 1.500  | 1.875  | 1.880  | 0.750  |
| 1000123 | 125-QDTK-2.00 | 1.250                  | 1.688  | 1.875  | 2.005  | 0.750  |
| 1000125 | 138-QDTK-2.13 | 1.375                  | 1.813  | 2.000  | 2.130  | 0.875  |
| 1000127 | 150-QDTK-2.25 | 1.500                  | 2.000  | 2.250  | 2.255  | 0.875  |
| 1000129 | 162-QDTK-2.25 | 1.625                  | 2.125  | 2.375  | 2.255  | 0.875  |
| 1000131 | 200-QDTK-2.25 | 2.000                  | 2.500  | 2.750  | 2.255  | 0.875  |

## Blank Plug



**Stainless Steel**



### Materials:

- 304 stainless steel

### Product Features:

- Close unused quick disconnect ports
- Custom modify for your application

| PART #  | REFERENCE ID  | A (in) | B (in) | C (in) | D (in) |
|---------|---------------|--------|--------|--------|--------|
| 1000301 | 06-QDBP-0.75  | 0.375  | 0.250  | 0.063  | 0.750  |
| 1000302 | 12-QDBP-0.75  | 0.375  | 0.250  | 0.125  | 0.750  |
| 1000303 | 18-QDBP-0.75  | 0.375  | 0.250  | 0.188  | 0.750  |
| 1000304 | 25-QDBP-0.75  | 0.500  | 0.250  | 0.250  | 0.750  |
| 1000305 | 31-QDBP-0.75  | 0.625  | 0.250  | 0.313  | 0.750  |
| 1000306 | 38-QDBP-0.75  | 0.625  | 0.250  | 0.375  | 0.750  |
| 1000307 | 50-QDBP-0.75  | 0.750  | 0.250  | 0.500  | 0.750  |
| 1000308 | 62-QDBP-0.75  | 0.875  | 0.250  | 0.625  | 0.750  |
| 1000309 | 75-QDBP-0.75  | 1.000  | 0.250  | 0.750  | 0.750  |
| 1000310 | 87-QDBP-0.75  | 1.125  | 0.250  | 0.875  | 0.750  |
| 1000311 | 100-QDBP-0.75 | 1.250  | 0.250  | 1.000  | 0.750  |
| 1000312 | 112-QDBP-0.75 | 1.375  | 0.250  | 1.125  | 0.750  |
| 1000313 | 125-QDBP-0.75 | 1.500  | 0.250  | 1.250  | 0.750  |
| 1000314 | 138-QDBP-0.75 | 1.625  | 0.250  | 1.375  | 0.750  |
| 1000315 | 150-QDBP-0.75 | 1.750  | 0.250  | 1.500  | 0.750  |
| 1000316 | 162-QDBP-0.75 | 1.875  | 0.250  | 1.625  | 0.750  |
| 1000317 | 200-QDBP-0.75 | 2.250  | 0.250  | 2.000  | 0.750  |

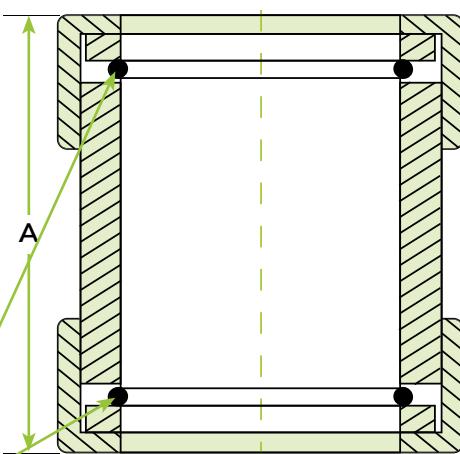
## Quick Disconnect Unions

**Materials:**

- Body and retaining ring: 304 stainless steel
- Nut: 303 stainless steel
- Seals: Viton® O-ring standard, Buna is available

**Product Features:**

- Quickly connect and disconnect two sections of glass or metal tubing without welding
- Custom modify for your application



O-rings



| PART #  | REFERENCE ID | ACCEPTS TUBE O.D. (in) | A (in) |
|---------|--------------|------------------------|--------|
| 1000732 | 25-QDU-1.60  | 0.25                   | 1.6    |
| 1000733 | 50-QDU-1.57  | 0.50                   | 1.56   |
| 1000735 | 75-QDU-1.89  | 0.75                   | 1.88   |
| 1000737 | 100-QDU-2.14 | 1.00                   | 2.13   |
| 1000738 | 112-QDU-2.00 | 1.125                  | 2.13   |
| 1000740 | 125-QDU-2.13 | 1.25                   | 2.25   |
| 1000741 | 150-QDU-2.51 | 1.50                   | 2.50   |
| 1000744 | 200-QDU-2.51 | 2.00                   | 2.50   |

## Quick Disconnect Replacement Nut

| PART #  | REFERENCE ID | THREAD SIZE | COUPLING SIZE |
|---------|--------------|-------------|---------------|
| 1010101 | 06-QDNUT     | 0.375-20    | 06            |
| 1010102 | 12-QDNUT     | 0.375-20    | 12            |
| 1010103 | 18-QDNUT     | 0.50-20     | 18            |
| 1010104 | 25-QDNUT     | 0.50-20     | 25            |
| 1010105 | 31-QDNUT     | 1.0625-20   | 31            |
| 1010106 | 38-QDNUT     | 1.0625-20   | 38            |
| 1010107 | 50-QDNUT     | 0.75-20     | 50            |
| 1010108 | 62-QDNUT     | 1-20        | 62            |
| 1010109 | 75-QDNUT     | 1.0625-20   | 75            |
| 1010110 | 87-QDNUT     | 1.25-20     | 87            |
| 1010111 | 100-QDNUT    | 1.375-20    | 100           |
| 1010112 | 112-QDNUT    | 1.625-20    | 112           |
| 1010113 | 125-QDNUT    | 1.6875-20   | 125           |
| 1010114 | 138-QDNUT    | 1.8125-20   | 138           |
| 1010115 | 150-QDNUT    | 2-20        | 150           |
| 1010116 | 162-QDNUT    | 2.125-20    | 162           |
| 1010117 | 200-QDNUT    | 2.50-20     | 200           |


**Materials:**

- 303 stainless steel

**Product Features:**

- Replace damaged or lost parts

## Quick Disconnect Replacement Retaining Ring

| PART #  | REFERENCE ID | COUPLING SIZE |
|---------|--------------|---------------|
| 1010201 | 06-QDRR      | 06            |
| 1010202 | 12-QDRR      | 12            |
| 1010203 | 18-QDRR      | 18            |
| 1010204 | 25-QDRR      | 25            |
| 1010205 | 31-QDRR      | 31            |
| 1010206 | 38-QDRR      | 38            |
| 1010207 | 50-QDRR      | 50            |
| 1010208 | 62-QDRR      | 62            |
| 1010209 | 75-QDRR      | 75            |
| 1010210 | 87-QDRR      | 87            |
| 1010211 | 100-QDRR     | 100           |
| 1010212 | 112-QDRR     | 112           |
| 1010213 | 125-QDRR     | 125           |
| 1010214 | 138-QDRR     | 138           |
| 1010215 | 150-QDRR     | 150           |
| 1010216 | 162-QDRR     | 162           |
| 1010217 | 200-QDRR     | 200           |


**Materials:**

- 304 stainless steel

**Product Features:**

- Aligns o-ring for consistent sealing
- Replace damaged or lost parts

## Quick Disconnect Replacement O-Ring

**Materials:**

- Viton® or Buna

| TEMPERATURE LIMITS |        |                |                  |
|--------------------|--------|----------------|------------------|
| O-ring MATERIAL    | LOW    | SUSTAINED HIGH | INTERMITTENT USE |
| Viton®             | -26 °C | 150 °C         | 205 °C           |
| Buna               | -20 °C | 80 °C          | 100 °C           |


**Viton®**

| PART #  | REFERENCE ID | COUPLING SIZE |
|---------|--------------|---------------|
| 0600003 | 2-003-OV     | 06            |
| 0600006 | 2-006-OV     | 12            |
| 0600008 | 2-008-OV     | 18            |
| 0600010 | 2-010-OV     | 25            |
| 0600011 | 2-011-OV     | 31            |
| 0600012 | 2-012-OV     | 38            |
| 0600014 | 2-014-OV     | 50            |
| 0600114 | 2-114-OV     | 62            |
| 0600116 | 2-116-OV     | 75            |
| 0600118 | 2-118-OV     | 87            |
| 0600120 | 2-120-OV     | 100           |
| 0600216 | 2-216-OV     | 112           |
| 0600218 | 2-218-OV     | 125           |
| 0600220 | 2-220-OV     | 138           |
| 0600222 | 2-222-OV     | 150           |
| 0600223 | 2-223-OV     | 162           |
| 0600226 | 2-226-OV     | 200           |

**Buna-N**

| PART #  | REFERENCE ID | COUPLING SIZE |
|---------|--------------|---------------|
| 0601003 | 2-003-OB     | 06            |
| 0601006 | 2-006-OB     | 12            |
| 0601008 | 2-008-OB     | 18            |
| 0601010 | 2-010-OB     | 25            |
| 0601011 | 2-011-OB     | 31            |
| 0601012 | 2-012-OB     | 38            |
| 0601014 | 2-014-OB     | 50            |
| 0601114 | 2-114-OB     | 62            |
| 0601116 | 2-116-OB     | 75            |
| 0601118 | 2-118-OB     | 87            |
| 0601120 | 2-120-OB     | 100           |
| 0601216 | 2-216-OB     | 112           |
| 0601218 | 2-218-OB     | 125           |
| 0601220 | 2-220-OB     | 138           |
| 0601222 | 2-222-OB     | 150           |
| 0601223 | 2-223-OB     | 162           |
| 0601226 | 2-226-OB     | 200           |



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## Weldable Components



10

Weldable Components

|   |              |
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# Weldable COMPONENTS INTRODUCTION



## OVERVIEW

**ANCORP** weldable components provide an extensive array of options for the assembly of your pumping lines, exhaust lines or custom vacuum components.

**ANCORP's** weldable component product line includes tubing, conical reducers, elbows, tees, crosses, end caps and ball socket fittings. These components come in multiple sizes, lengths and designs to offer you the greatest flexibility in your system design while offering you the cost benefit of specifying standard product.

Tubing sizes are specified by their outer diameter measured in inches. The inner diameter is calculated by taking the outer diameter and subtracting 2 times the wall thickness. This measurement is approximate as tubing has no official specifications regarding tolerances for concentricity, ovality or parallelism.

All **ANCORP** vacuum components are shipped clean

## Specifications:

Sizes: 1/2 in. up to 10 in. outer diameter tubing

Vacuum Range:  $< 1 \times 10^{-9}$  std. cc/s helium

Materials:

## Features:

Pulled ports optimize vacuum performance

Full penetration welds for maximum cleanliness and crevice free weld joints

Customizable with any combination of **ANCORP** vacuum flanges

Shipped clean and packaged for vacuum service

## Tubing - Stainless Steel

### Materials:

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

### Product Notes:

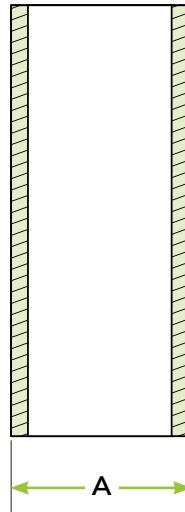
- Butt weld
- Designed to fit standard inch tubing O.D.'s
- Custom cut to your specified length



| PART #  | REFERENCE ID  | WALL THICKNESS (in) | TUBE O.D. A (in) |
|---------|---------------|---------------------|------------------|
| 0705110 | 050-304T-065  | 0.065               | 0.50             |
| 0705115 | 075-304T-065  | 0.065               | 0.75             |
| 0705120 | 100-304T-065  | 0.065               | 1.00             |
| 0705125 | 125-304T-065  | 0.065               | 1.25             |
| 0705130 | 150-304T-065  | 0.065               | 1.50             |
| 0705135 | 200-304T-065  | 0.065               | 1.63             |
| 0705140 | 250-304T-065  | 0.065               | 1.75             |
| 0705145 | 300-304T-065  | 0.065               | 2.00             |
| 0705150 | 400-304T-083  | 0.083               | 2.50             |
| 0705155 | 600-304T-083  | 0.083               | 3.00             |
| 0705160 | 800-304T-120  | 0.120               | 4.00             |
| 0705165 | 1000-304T-120 | 0.120               | 5.00             |
| 0705170 | 1200-304T-120 | 0.120               | 6.00             |

The welding of raw tubing to a flange should be done by a welder experienced in welding for vacuum applications.

To ensure a proper fit and alignment, additional machining may be necessary.



## Tubing and Ball Sockets

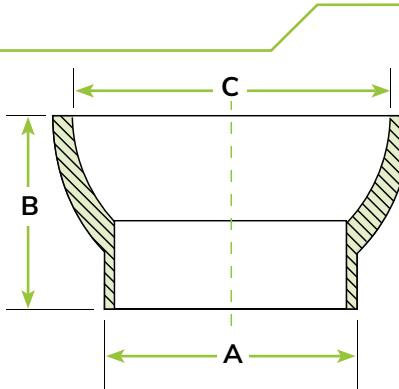
## Ball Socket

### Materials:

- Standard: 304 stainless steel

### Product Notes:

- Butt weld
- Designed to fit standard inch tubing O.D.'s



| PART #  | REFERENCE ID        | TUBE O.D. A (in) | LENGTH B (in) | SOCKET I.D. C (in) |
|---------|---------------------|------------------|---------------|--------------------|
| 0700125 | 50/30-150-WBS-2.00  | 1.50             | 2.00          | 1.995              |
| 0700130 | 75/50-200-WBS-2.52  | 2.00             | 2.52          | 3.00               |
| 0700135 | 102/75-300-WBS-2.00 | 3.00             | 2.00          | 3.98               |

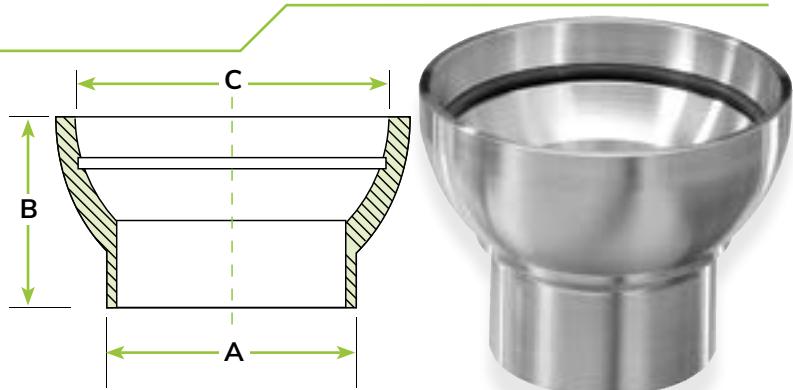
## Ball Socket - Grooved

**Materials:**

- 304 stainless steel

**Product Notes:**

- Butt weld
- Designed to fit standard inch tubing O.D.'s



| PART #  | REFERENCE ID         | TUBE O.D. A (in) | LENGTH B (in) | SOCKET I.D. C (in) | O-RING SIZE |
|---------|----------------------|------------------|---------------|--------------------|-------------|
| 0700140 | 50/30-150-WBSG-2.00  | 1.50             | 2.00          | 1.995              | 2-224       |
| 0700145 | 75/50-200-WBSG-2.52  | 2.00             | 2.52          | 3.00               | 2-232       |
| 0700150 | 102/75-300-WBSG-2.00 | 3.00             | 2.00          | 3.98               | 2-240       |

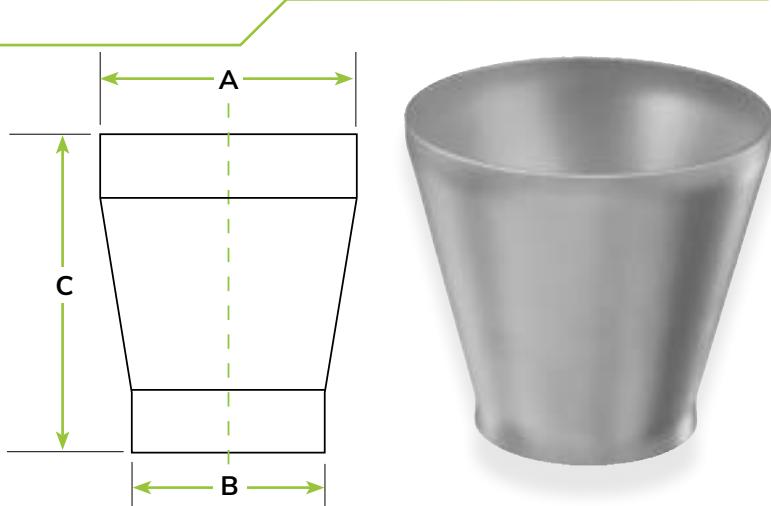
## Conical Reducers

**Materials:**

- Standard: 304 stainless steel

**Product Notes:**

- Designed to fit standard inch tubing O.D.'s
- Connects different tubing O.D.'s



| PART #  | REFERENCE ID           | WALL THICKNESS (in) | TUBE O.D. A (in) | TUBE O.D. B (in) | LENGTH C (in) |
|---------|------------------------|---------------------|------------------|------------------|---------------|
| 0700155 | 100X075X0.065-WCR-1.38 | 0.065               | 1.00             | 0.75             | 1.38          |
| 0700160 | 150X075X0.065-WCR-2.38 | 0.065               | 1.50             | 0.75             | 2.38          |
| 0700165 | 150X100X0.065-WCR-2.38 | 0.065               | 1.50             | 1.00             | 2.38          |
| 0700170 | 200X100X0.065-WCR-2.38 | 0.065               | 2.00             | 1.00             | 2.38          |
| 0700175 | 200X150X0.065-WCR-2.38 | 0.065               | 2.00             | 1.50             | 2.38          |
| 0700180 | 250X150X0.065-WCR-2.38 | 0.065               | 2.50             | 1.50             | 2.38          |
| 0700185 | 250X200X0.065-WCR-2.38 | 0.065               | 2.50             | 2.00             | 2.38          |
| 0700190 | 300X150X0.065-WCR-3.63 | 0.065               | 3.00             | 1.50             | 3.63          |
| 0700195 | 300X200X0.065-WCR-3.63 | 0.065               | 3.00             | 2.00             | 3.63          |
| 0700200 | 300X250X0.065-WCR-3.63 | 0.065               | 3.00             | 2.50             | 3.63          |
| 0700205 | 400X200X0.065-WCR-3.63 | 0.065               | 4.00             | 2.00             | 3.63          |
| 0700210 | 400X250X0.083-WCR-3.63 | 0.083               | 4.00             | 2.50             | 3.63          |
| 0700215 | 400X300X0.083-WCR-3.63 | 0.083               | 4.00             | 3.00             | 3.63          |

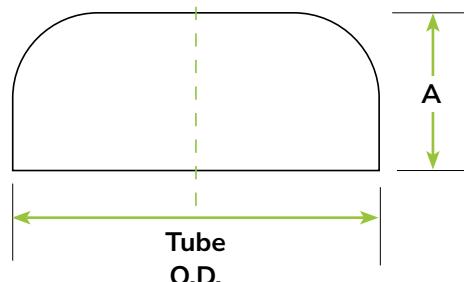
## End Cap: 304 Stainless Steel

### Materials:

- Standard: 304 stainless steel

### Product Notes:

- Designed to fit standard inch tubing O.D.'s



| PART #  | REFERENCE ID       | TUBE O.D. (in) | WALL THICKNESS (in) | LENGTH A (in) |
|---------|--------------------|----------------|---------------------|---------------|
| 0700010 | 075X0.050-WEC-0.31 | 0.75           | 0.050               | 0.31          |
| 0700015 | 100X0.065-WEC-0.44 | 1.00           | 0.065               | 0.44          |
| 0700020 | 150X0.065-WEC-0.56 | 1.50           | 0.065               | 0.56          |
| 0700025 | 200X0.065-WEC-0.75 | 2.00           | 0.065               | 0.75          |
| 0700030 | 250X0.065-WEC-1.00 | 2.50           | 0.065               | 1.00          |
| 0700035 | 300X0.065-WEC-1.25 | 3.00           | 0.075               | 1.25          |
| 0700040 | 400X0.075-WEC-1.50 | 4.00           | 0.075               | 1.50          |
| 0700045 | 600X0.075-WEC-0.88 | 6.00           | 0.075               | 0.88          |

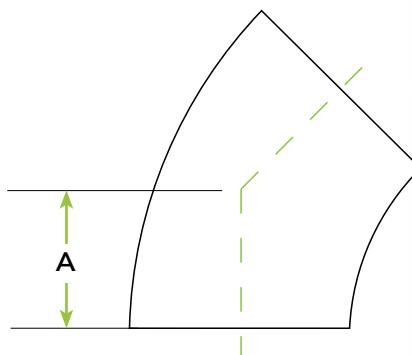
## 45° Elbow

**Materials:**

- Standard: 304 stainless steel

**Product Notes:**

- Radius elbow design



| PART #  | REFERENCE ID         | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|---------|----------------------|---------------------|----------------|-------------------|
| 0700220 | 075X0.065-WE45-0.46  | 0.065               | 0.75           | 0.46              |
| 0700225 | 100X0.065-WE45-0.63  | 0.065               | 1.00           | 0.63              |
| 0700230 | 150X0.065-WE45-0.94  | 0.065               | 1.50           | 0.94              |
| 0700235 | 200X0.065-WE45-1.25  | 0.065               | 2.00           | 1.25              |
| 0700240 | 250X0.065-WE45-1.56  | 0.065               | 2.50           | 1.56              |
| 0700245 | 300X0.065-WE45-1.881 | 0.065               | 3.00           | 1.88              |
| 0700250 | 400X0.083-WE45-2.50  | 0.083               | 4.00           | 2.50              |
| 0700255 | 600X0.120-WE45-3.75  | 0.120               | 6.00           | 3.75              |

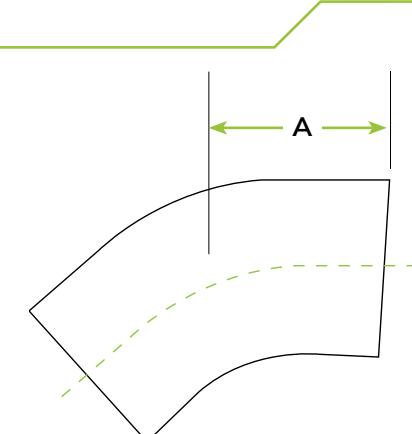
## 45° Elbow with Tangents

**Materials:**

- Standard: 304 stainless steel

**Product Notes:**

- Radius elbow design

**Options: Call for price and delivery**

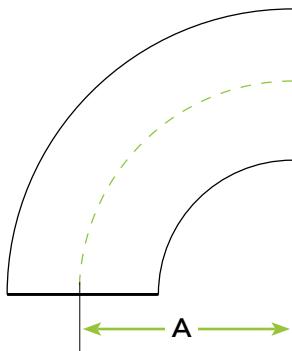
- Custom lengths

| PART #  | REFERENCE ID          | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|---------|-----------------------|---------------------|----------------|-------------------|
| 0700260 | 075X0.065-WE45T-0.765 | 0.065               | 0.75           | 0.76              |
| 0700265 | 100X0.065-WE45T-0.970 | 0.065               | 1.00           | 0.97              |
| 0700270 | 150X0.065-WE45T-1.530 | 0.065               | 1.50           | 1.53              |
| 0700275 | 200X0.065-WE45T-1.840 | 0.065               | 2.00           | 1.84              |
| 0700280 | 250X0.065-WE45T-3.003 | 0.065               | 2.50           | 3.00              |
| 0700285 | 300X0.065-WE45T-3.680 | 0.065               | 3.00           | 3.68              |
| 0700290 | 400X0.083-WE45T-4.770 | 0.083               | 4.00           | 4.78              |

## 90° Elbow

**Materials:**

- Standard: 304 stainless steel


**Product Notes:**

- Radius elbow design

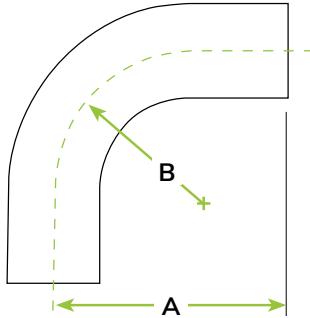
| PART #  | REFERENCE ID          | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|---------|-----------------------|---------------------|----------------|-------------------|
| 0700410 | 075X0.035-WE90-1.00   | 0.035               | 0.75           | 1.00              |
| 0700415 | 075X0.065-WE90-1.12   | 0.065               | 0.75           | 1.12              |
| 0700420 | 100X0.065-WE90-1.50   | 0.065               | 1.00           | 1.50              |
| 0700430 | 150X0.065-WE90-2.25   | 0.065               | 1.50           | 2.25              |
| 0700435 | 200X0.065-WE90-3.00   | 0.065               | 2.00           | 3.00              |
| 0700440 | 250X0.065-WE90-3.75   | 0.065               | 2.50           | 3.75              |
| 0700445 | 300X0.065-WE90-4.5    | 0.065               | 3.00           | 4.50              |
| 0700450 | 400X0.083-WE90-6.00   | 0.083               | 4.00           | 6.00              |
| 0700455 | 600X0.109-WE90-9.00   | 0.109               | 6.00           | 9.00              |
| 0700460 | 800X0.109-WE90-12.00  | 0.109               | 8.00           | 12.00             |
| 0700465 | 1000X0.109-WE90-15.00 | 0.109               | 10.00          | 15.00             |

## 90° Elbow with Tangents

### 90° Elbows

**Materials:**

- Standard: 304 stainless steel


**Product Notes:**

- Radius elbow design

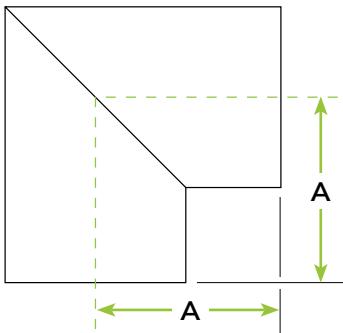
**Options:** Call for price and delivery

| PART #  | REFERENCE ID         | WALL THICKNESS (in) | TUBE O.D. (in) | A (in) | B (in) |
|---------|----------------------|---------------------|----------------|--------|--------|
| 0700405 | 050X0.035-WE90T-1.25 | 0.035               | 0.50           | 1.25   | 0.75   |
| 0700470 | 075X0.065-WE90T-1.42 | 0.065               | 0.75           | 1.42   | 1.00   |
| 0700475 | 100X0.065-WE90T-1.82 | 0.065               | 1.00           | 1.82   | 1.50   |
| 0700480 | 150X0.065-WE90T-2.41 | 0.065               | 1.50           | 2.41   | 2.25   |
| 0700485 | 150X0.065-WE90T-4.97 | 0.065               | 1.50           | 4.97   | 2.25   |
| 0700490 | 200X0.065-WE90T-4.06 | 0.065               | 2.00           | 4.06   | 3.00   |
| 0700495 | 200X0.065-WE90T-5.36 | 0.065               | 2.00           | 5.36   | 3.00   |
| 0700500 | 250X0.065-WE90T-5.19 | 0.065               | 2.50           | 5.19   | 3.75   |
| 0700505 | 300X0.065-WE90T-6.31 | 0.065               | 3.00           | 6.31   | 4.50   |
| 0700510 | 400X0.083-WE90T-8.31 | 0.083               | 4.00           | 8.31   | 6.00   |

## 90° Elbow - Mitered

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Options: Call for price and delivery**

**ORDERING NOTE**

For radius elbow fittings  
see pg. 10.7 - 10.8

| PART #  | REFERENCE ID          | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|---------|-----------------------|---------------------|----------------|-------------------|
| 0700310 | 075X0.065-WE90M-1.00  | 0.065               | 0.75           | 1.00              |
| 0700315 | 075X0.065-WE90M-1.40  | 0.065               | 0.75           | 1.40              |
| 0700325 | 100X0.065-WE90M-1.88  | 0.065               | 1.00           | 1.88              |
| 0700330 | 150X0.065-WE90M-2.25  | 0.065               | 1.50           | 2.25              |
| 0700335 | 150-0.065-WE90M-2.39  | 0.065               | 1.50           | 2.39              |
| 0700340 | 200X0.065-WE90M-2.59  | 0.065               | 2.00           | 2.59              |
| 0700345 | 200X0.065-WE90M-2.98  | 0.065               | 2.00           | 2.98              |
| 0700350 | 250X0.065-WE90M-3.00  | 0.065               | 2.50           | 3.00              |
| 0700355 | 250X0.065-WE90M-3.21  | 0.065               | 2.50           | 3.21              |
| 0700360 | 250X0.065-WE90M-3.75  | 0.065               | 2.50           | 3.75              |
| 0700365 | 300X0.065-WE90M-2.97  | 0.065               | 3.00           | 2.97              |
| 0700370 | 400X0.083-WE90M-3.88  | 0.083               | 4.00           | 3.88              |
| 0700375 | 400X0.083-WE90M-4.87  | 0.083               | 4.00           | 4.87              |
| 0700380 | 500X0.083-WE90M-4.25  | 0.083               | 5.00           | 4.25              |
| 0700385 | 600X0.083-WE90M-5.00  | 0.083               | 6.00           | 5.00              |
| 0700390 | 600X0.083-WE90M-6.06  | 0.083               | 6.00           | 6.06              |
| 0700395 | 800X0.120-WE90M-7.00  | 0.120               | 8.00           | 7.00              |
| 0700400 | 1000X0.120-WE90M-9.50 | 0.120               | 10.00          | 9.50              |

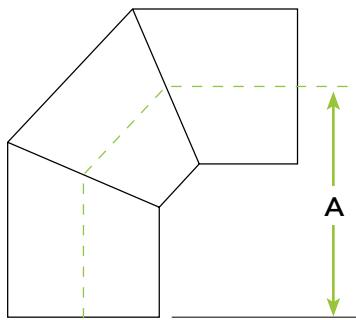
## 90° Elbow: Mitered High Conductance

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Options: Call for price and delivery**

- Custom lengths

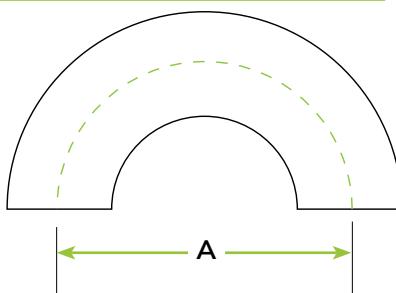


## 90° Elbows

## 180° Returns

**Materials:**

- Standard: 304 stainless steel


**Options:**

**Call for price and delivery**

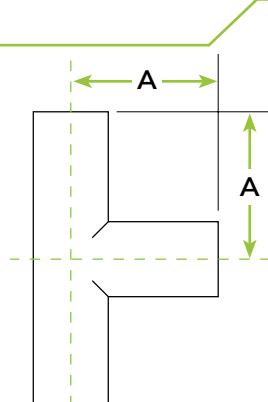
- Custom lengths

| PART #         | REFERENCE ID         | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|----------------|----------------------|---------------------|----------------|-------------------|
| <b>0700515</b> | 075X0.065-WE180-2.25 | 0.065               | 0.75           | 2.25              |
| <b>0700520</b> | 100X0.065-WE180-3.00 | 0.065               | 1.00           | 3.00              |
| <b>0700525</b> | 150X0.065-WE180-4.50 | 0.065               | 1.50           | 4.50              |
| <b>0700530</b> | 200X0.065-WE180-6.00 | 0.065               | 2.00           | 6.00              |

## Tee

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)


**Product Notes:**

- Pulled ports optimize vacuum performance

## 180° Returns - Tees

| PART #         | REFERENCE ID         | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|----------------|----------------------|---------------------|----------------|-------------------|
| <b>0700555</b> | 050X0.049-WTEE-0.75  | 0.049               | 0.50           | 0.75              |
| <b>0700560</b> | 075X0.035-WTEE-1.00  | 0.035               | 0.75           | 1.00              |
| <b>0700565</b> | 075X0.065-WTEE-1.40  | 0.065               | 0.75           | 1.40              |
| <b>0700570</b> | 100X0.065-WTEE-1.80  | 0.065               | 1.00           | 1.80              |
| <b>0700575</b> | 100X0.065-WTEE-1.88  | 0.065               | 1.00           | 1.88              |
| <b>0700580</b> | 150X0.065-WTEE-2.25  | 0.065               | 1.50           | 2.25              |
| <b>0700585</b> | 150X0.065-WTEE-2.39  | 0.065               | 1.50           | 2.39              |
| <b>0700590</b> | 150X0.065-WTEE-2.41  | 0.065               | 1.50           | 2.41              |
| <b>0700595</b> | 200X0.065-WTEE-2.59  | 0.065               | 2.00           | 2.59              |
| <b>0700600</b> | 200X0.065-WTEE-3.00  | 0.065               | 2.00           | 3.00              |
| <b>0700605</b> | 250X0.065-WTEE-3.00  | 0.065               | 2.50           | 3.00              |
| <b>0700610</b> | 250X0.065-WTEE-3.75  | 0.065               | 2.50           | 3.75              |
| <b>0700615</b> | 300X0.065-WTEE-3.25  | 0.065               | 3.00           | 3.25              |
| <b>0700620</b> | 400X0.083-WTEE-3.88  | 0.083               | 4.00           | 3.88              |
| <b>0700625</b> | 400X0.083-WTEE-4.87  | 0.083               | 4.00           | 4.87              |
| <b>0700630</b> | 600X0.083-WTEE-5.00  | 0.083               | 6.00           | 5.00              |
| <b>0700635</b> | 600X0.083-WTEE-6.06  | 0.083               | 6.00           | 6.06              |
| <b>0700640</b> | 800X0.109-WTEE-7.00  | 0.109               | 8.00           | 7.00              |
| <b>0700645</b> | 1000X0.120-WTEE-9.50 | 0.120               | 10.00          | 9.50              |

## Tee: Reducer

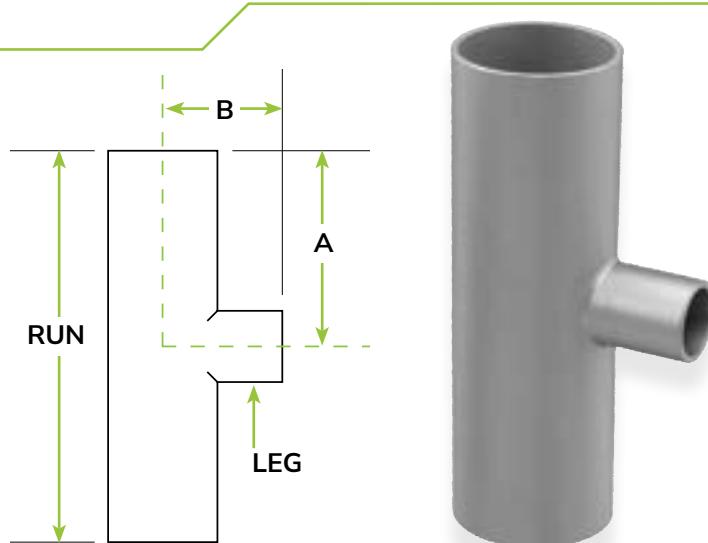
**Materials:**

- Standard: 304 stainless steel

- Alternative: 6061 aluminum  
(Call for price and delivery)

**Product Notes:**

- Pulled ports optimize vacuum performance
- Reducing intersection for different tube sizes



| PART #  | REFERENCE ID                | RUN O.D. (in) | LEG O.D. (in) | A (in) | B (in) |
|---------|-----------------------------|---------------|---------------|--------|--------|
| 0700650 | 100X050X0.065-WRT-1.88X1.00 | 1.00          | 0.50          | 1.88   | 1.00   |
| 0700655 | 100X075X0.065-WRT-1.88X1.12 | 1.00          | 0.75          | 1.88   | 1.12   |
| 0700660 | 150X050X0.065-WRT-2.25X1.25 | 1.50          | 0.50          | 2.25   | 1.25   |
| 0700665 | 150X075X0.065-WRT-2.25X1.38 | 1.50          | 0.75          | 2.25   | 1.38   |
| 0700670 | 150X100X0.065-WRT-2.25X2.13 | 1.50          | 1.00          | 2.25   | 2.13   |
| 0700680 | 200X075X0.065-WRT-3.00X1.63 | 2.00          | 0.75          | 3.00   | 1.63   |
| 0700683 | 200X100X0.065-WRT-3.00X2.38 | 2.00          | 1.00          | 3.00   | 2.38   |
| 0700685 | 200X150X0.065-WRT-3.00X2.50 | 2.00          | 1.50          | 3.00   | 2.50   |
| 0700690 | 250X150X0.065-WRT-3.00X2.75 | 2.50          | 1.50          | 3.00   | 2.75   |
| 0700695 | 250X200X0.065-WRT-3.00X3.25 | 2.50          | 2.00          | 3.00   | 3.25   |
| 0700700 | 300X150X0.065-WRT-3.25X3.00 | 3.00          | 1.50          | 3.25   | 3.00   |
| 0700705 | 300X200X0.065-WRT-3.25X3.50 | 3.00          | 2.00          | 3.25   | 3.50   |
| 0700710 | 300X250X0.065-WRT-3.25X3.25 | 3.00          | 2.50          | 3.25   | 3.25   |
| 0700715 | 400X150X0.083-WRT-3.88X3.50 | 4.00          | 1.50          | 3.88   | 3.50   |
| 0700720 | 400X200X0.083-WRT-3.88X4.00 | 4.00          | 2.00          | 3.88   | 4.00   |
| 0700725 | 400X250X0.083-WRT-3.88X3.75 | 4.00          | 2.50          | 3.88   | 3.75   |
| 0700730 | 400X300X0.083-WRT-3.88X3.75 | 4.00          | 3.00          | 3.88   | 3.75   |
| 0700735 | 500X400X0.083-WRT-4.25X4.38 | 5.00          | 4.00          | 4.25   | 4.38   |
| 0700740 | 600X150X0.083-WRT-5.00X4.50 | 6.00          | 1.50          | 5.00   | 4.50   |
| 0700745 | 600X200X0.083-WRT-5.00X5.00 | 6.00          | 2.00          | 5.00   | 5.00   |
| 0700750 | 600X250X0.083-WRT-5.00X4.75 | 6.00          | 2.50          | 5.00   | 4.75   |
| 0700755 | 600X400X0.083-WRT-5.00X4.88 | 6.00          | 4.00          | 5.00   | 4.88   |
| 0700760 | 600X500X0.083-WRT-5.00X4.75 | 6.00          | 5.00          | 5.00   | 4.75   |
| 0700765 | 800X600X0.109-WRT-7.00X7.00 | 8.00          | 6.00          | 7.00   | 7.00   |

## Cross

### Materials:

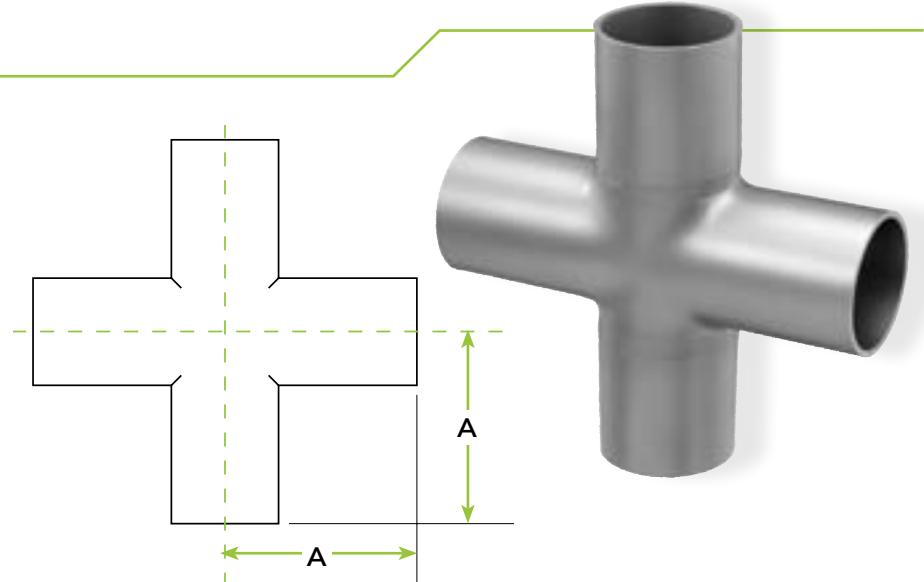
- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

### Product Notes:

- Pulled ports optimize vacuum performance

### Options:

Call for price and delivery



| PART #  | REFERENCE ID        | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|---------|---------------------|---------------------|----------------|-------------------|
| 0700770 | 050X0.049-W4X-0.75  | 0.049               | 0.50           | 0.75              |
| 0700775 | 075X0.035-W4X-1.00  | 0.035               | 0.75           | 1.00              |
| 0700780 | 075X0.065-W4X-1.40  | 0.065               | 0.75           | 1.40              |
| 0700785 | 100X0.065-W4X-1.80  | 0.065               | 1.00           | 1.80              |
| 0700790 | 100X0.065-W4X-1.88  | 0.065               | 1.00           | 1.88              |
| 0700795 | 150X0.065-W4X-2.25  | 0.065               | 1.50           | 2.25              |
| 0700800 | 150X0.065-W4X-2.39  | 0.065               | 1.50           | 2.39              |
| 0700805 | 200X0.065-W4X-2.59  | 0.065               | 2.00           | 2.59              |
| 0700810 | 200X0.065-W4X-3.00  | 0.065               | 2.00           | 3.00              |
| 0700815 | 250X0.065-W4X-3.00  | 0.065               | 2.50           | 3.00              |
| 0700820 | 250X0.065-W4X-3.75  | 0.065               | 2.50           | 3.75              |
| 0700825 | 300X0.065-W4X-3.25  | 0.065               | 3.00           | 3.25              |
| 0700830 | 400X0.083-W4X-3.88  | 0.083               | 4.00           | 3.88              |
| 0700835 | 400X0.083-W4X-4.87  | 0.083               | 4.00           | 4.87              |
| 0700840 | 600X0.083-W4X-5.00  | 0.083               | 6.00           | 5.00              |
| 0700845 | 600X0.083-W4X-6.06  | 0.083               | 6.00           | 6.06              |
| 0700850 | 800X0.120-W4X-7.00  | 0.120               | 8.00           | 7.00              |
| 0700855 | 1000X0.120-W4X-9.50 | 0.120               | 10.00          | 9.50              |

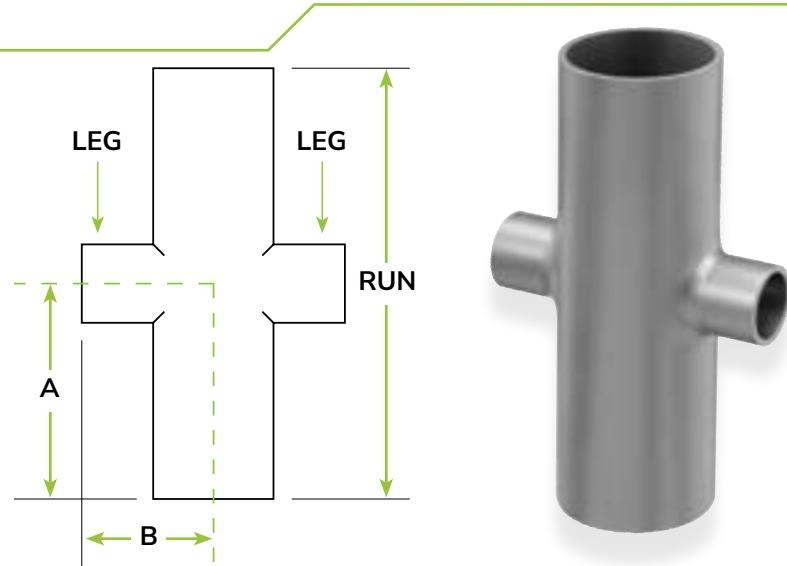
## Cross: Reducer

**Materials:**

- Standard: 304 stainless steel
- Alternative: 6061 aluminum  
(Call for price and delivery)

**Product Notes:**

- Pulled ports optimize vacuum performance
- Reducing intersection for different tube sizes



| PART #  | REFERENCE ID                       | RUN O.D. (in) | LEG O.D. (in) | A (in) | B (in) |
|---------|------------------------------------|---------------|---------------|--------|--------|
| 0700860 | 100X050X0.065-WR4X-1.88X1.00       | 1.00          | 0.50          | 1.88   | 1.00   |
| 0700865 | 100X075X0.065-WR4X-1.88X1.12       | 1.00          | 0.75          | 1.88   | 1.12   |
| 0700870 | 150X050X0.065-WR4X-2.25X1.25       | 1.50          | 0.50          | 2.25   | 1.25   |
| 0700875 | 150X075X0.065-WR4X-2.25X1.38       | 1.50          | 0.75          | 2.25   | 1.38   |
| 0700880 | 150X100X0.065-WR4X-2.25X2.13       | 1.50          | 1.00          | 2.25   | 2.13   |
| 0700890 | 200X075X0.065-WR4X-3.00X1.63       | 2.00          | 0.75          | 3.00   | 1.63   |
| 0700894 | 200X100X0.065-WR4X-3.00X2.38       | 2.00          | 1.00          | 3.00   | 2.38   |
| 0700895 | 200X150X0.065-WR4X-3.00X2.50       | 2.00          | 1.50          | 3.00   | 2.50   |
| 0700900 | 250X150X0.065-WR4X-3.00X2.75       | 2.50          | 1.50          | 3.00   | 2.75   |
| 0700905 | 250X200X0.065-WR4X-3.00X3.25       | 2.50          | 2.00          | 3.00   | 3.25   |
| 0700910 | 300X150X0.065-WR4X-3.25X3.00       | 3.00          | 1.50          | 3.25   | 3.00   |
| 0700915 | 300X200X0.065-WR4X-3.25X3.50       | 3.00          | 2.00          | 3.25   | 3.20   |
| 0700920 | 300X250X0.065-WR4X-3.25X3.25       | 3.00          | 2.50          | 3.25   | 3.25   |
| 0700925 | 400X150X0.083-WR4X-3.88X3.50       | 4.00          | 1.50          | 3.88   | 3.50   |
| 0700930 | 400X200X0.083-WR4X-3.88X4.00       | 4.00          | 2.00          | 3.88   | 4.00   |
| 0700935 | 400X0.083X250X0.065-WR4X-3.88X3.75 | 4.00          | 2.50          | 3.88   | 3.75   |
| 0700940 | 400X300X0.083-WR4X-3.88X3.75       | 4.00          | 3.00          | 3.88   | 3.75   |
| 0700945 | 500X400X0.083-WR4X-4.25X4.38       | 5.00          | 4.00          | 4.25   | 4.38   |
| 0700950 | 600X150X0.083-WR4X-5.00X4.50       | 6.00          | 1.50          | 5.00   | 4.50   |
| 0700955 | 600X200X0.083-WR4X-5.00X5.00       | 6.00          | 2.00          | 5.00   | 5.00   |
| 0700960 | 600X250X0.083-WR4X-5.00X4.75       | 6.00          | 2.50          | 5.00   | 4.75   |
| 0700965 | 600X300X0.083-WB4X-5.00X4.75       | 6.00          | 3.00          | 5.00   | 4.75   |
| 0700970 | 600X400X0.083-WB4X-5.00X4.88       | 6.00          | 4.00          | 5.00   | 4.88   |
| 0700975 | 600X500X0.083-WB4X-5.00X4.75       | 6.00          | 5.00          | 5.00   | 4.75   |
| 0700980 | 800X600X0.083-WB4X-7.00X6.00       | 8.00          | 6.00          | 7.00   | 6.00   |

## Cross Reducer

## 5-Way Cross

**Materials:**

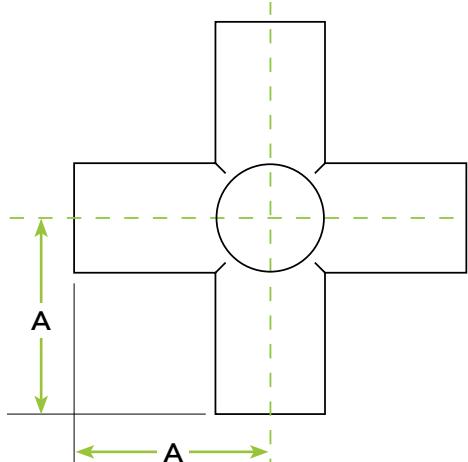
- Standard:  
304 stainless steel

**Product Notes:**

- Pulled ports optimize vacuum performance

**Options: Call for price and delivery**

- Custom lengths



| PART #  | REFERENCE ID        | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|---------|---------------------|---------------------|----------------|-------------------|
| 0700985 | 075x0.065-W5X-1.00  | 0.035               | 0.75           | 1.00              |
| 0700990 | 100x0.065-W5X-1.88  | 0.065               | 1.00           | 1.88              |
| 0700995 | 150x0.065-W5X-2.25  | 0.065               | 1.50           | 2.25              |
| 0701000 | 200x0.065-W5X-3.00  | 0.065               | 2.00           | 3.00              |
| 0701005 | 250x0.065-W5X-3.00  | 0.065               | 2.50           | 3.00              |
| 0701010 | 250x0.065-W5X-3.75  | 0.065               | 2.50           | 3.75              |
| 0701015 | 300x0.065-W5X-3.25  | 0.065               | 3.00           | 3.25              |
| 0701020 | 400x0.083-W5X-3.88  | 0.083               | 4.00           | 3.88              |
| 0701025 | 400x0.083-W5X-4.87  | 0.083               | 4.00           | 4.87              |
| 0701030 | 500x0.083-W5X-4.25  | 0.083               | 5.00           | 4.25              |
| 0701035 | 600x0.083-W5X-5.00  | 0.083               | 6.00           | 5.00              |
| 0701040 | 600x0.083-W5X-6.06  | 0.083               | 6.00           | 6.06              |
| 0701045 | 800x0.120-W5X-7.00  | 0.120               | 8.00           | 7.00              |
| 0701050 | 1000x0.120-W5X-9.50 | 0.120               | 10.00          | 9.50              |

## 6-Way Cross

**Materials:**

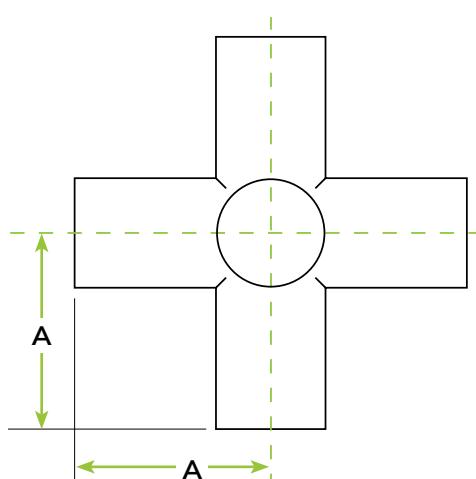
- Standard:  
304 stainless steel

**Product Notes:**

- Pulled ports optimize vacuum performance

**Options: Call for price and delivery**

- Custom lengths



| PART #  | REFERENCE ID        | WALL THICKNESS (in) | TUBE O.D. (in) | CENTERLINE A (in) |
|---------|---------------------|---------------------|----------------|-------------------|
| 0701055 | 075x0.035-W6X-1.00  | 0.035               | 0.75           | 1.00              |
| 0701060 | 100x0.065-W6X-1.88  | 0.065               | 1.00           | 1.88              |
| 0701065 | 150X0.065-W6X-2.25  | 0.065               | 1.50           | 2.25              |
| 0701070 | 200X0.065-W6X-3.00  | 0.065               | 2.00           | 3.00              |
| 0701075 | 250X0.065-W6X-3.00  | 0.065               | 2.50           | 3.00              |
| 0701080 | 250X0.065-W6X-3.75  | 0.065               | 2.50           | 3.75              |
| 0701085 | 300X0.065-W6X-3.25  | 0.065               | 3.00           | 3.25              |
| 0701090 | 400X0.083-W6X-3.88  | 0.083               | 4.00           | 3.88              |
| 0701095 | 400X0.083-W6X-4.87  | 0.083               | 4.00           | 4.87              |
| 0701100 | 500X0.083-W6X-4.25  | 0.083               | 5.00           | 4.25              |
| 0701105 | 600X0.083-W6X-5.00  | 0.083               | 6.00           | 5.00              |
| 0701110 | 600X0.083-W6X-6.06  | 0.083               | 6.00           | 6.06              |
| 0701115 | 800X0.120-W6X-7.00  | 0.120               | 8.00           | 7.00              |
| 0701120 | 1000X0.120-W6X-9.50 | 0.120               | 10.00          | 9.50              |

**6-Way Cross**

# RELIABLE UNDER ALL CONDITIONS.



Process stability requires reliable components - under all conditions. Don't compromise the reliability of your processes - benefit from the renowned performance of VAT vacuum valve solutions. Now available through ANCOPR.



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## Glass Components & Chamber Accessories



11

Glass Components

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## Glass Components

# Glass Components and CHAMBER ACCESSORIES

### Overview

Vacuum viewports, also known as windows or sight glasses, are commonly used to observe or illuminate processes inside of a vacuum chamber.

In optical applications, viewports are used to transmit electromagnetic radiation into or out of a vacuum chamber. Viewport selection is typically based on requirements for flange type, transmission range, thermal stability, durability, and other optical and physical properties of the window material.

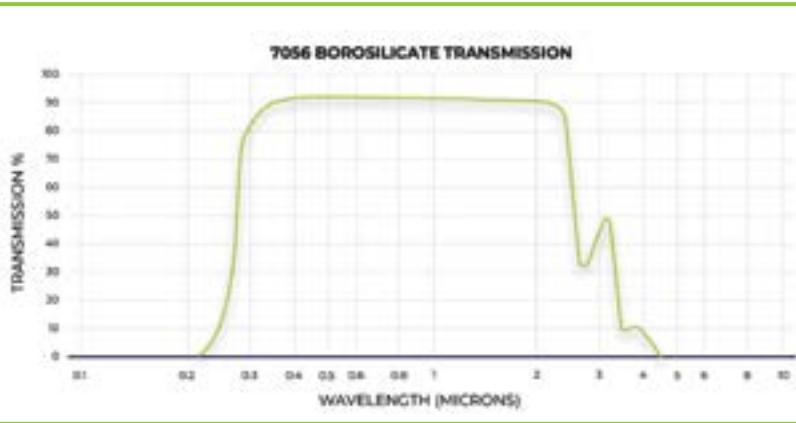
**ANCORP** offers a wide selection of vacuum viewports with borosilicate glass, quartz, fused silica, sapphire, zinc selenide, magnesium fluoride, and calcium fluoride windows and designs rated for high and ultra-high vacuum (UHV) applications.

Weldable viewports provide a simple method of adding an observation window to coating systems and other applications that deposit materials onto the

inner surfaces of the chamber. The window material in these viewports is replaceable. The window material is captured between a pair of sealing fluoroelastomer rings, as the assembly is compressed together by a retaining flange. Note that because this is a fluoroelastomer sealed assembly the ultimate pressure rating for this viewport is limited to high vacuum.

Add-a-doors are an excellent way to provide physical access to the interior of your vacuum system. Add-a-doors bolt onto an existing standard flange port on your chamber and can function as a viewing window as well as access point for your system. The body of an add-a-door is a CF flange generally capable of UHV pressures, but the door is sealed with a fluoroelastomer O-ring. Thus the ultimate vacuum pressure rating for this component is limited to high vacuum. NOTE: **ANCORP**'s viewport add-a-doors have been designed to allow for the replacement of the windows.

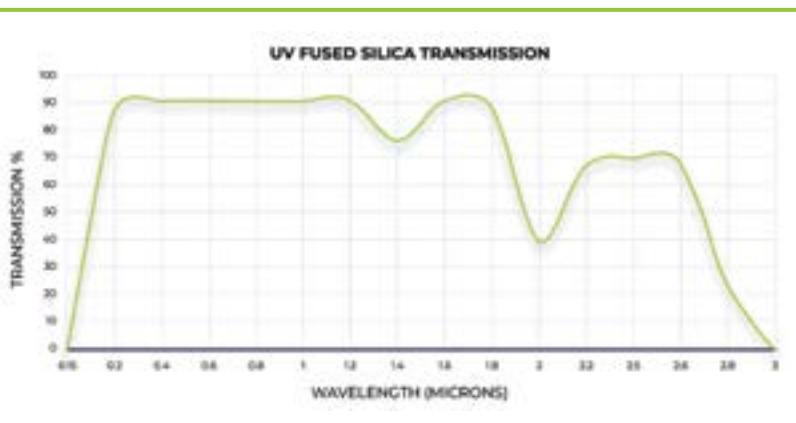
## Transmission Curves



### 7056 BOROSILICATE GLASS

ANCORP's 7056 borosilicate glass viewports are excellent general-purpose windows for observation within a vacuum chamber. Borosilicate glass has a low coefficient of thermal expansion and has high transmission in the visible range.

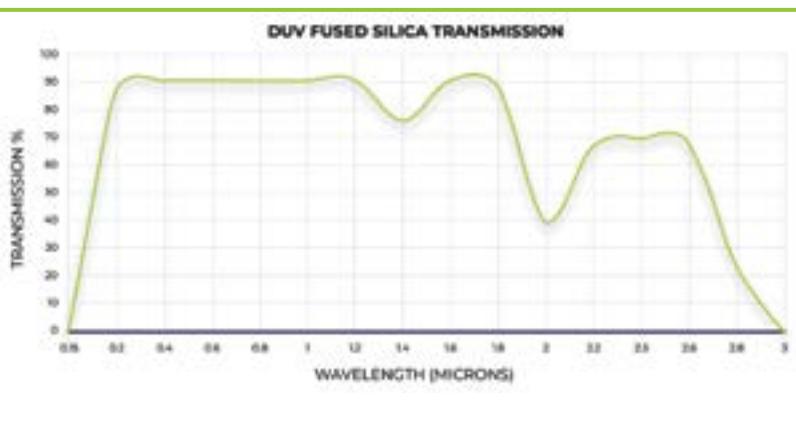
Borosilicate glass viewports are available with zero-length profile ConFlat (CF), ISO-QF (quick flange, KF, NW), and ISO-LF (large flange, ISO-K) flanges.



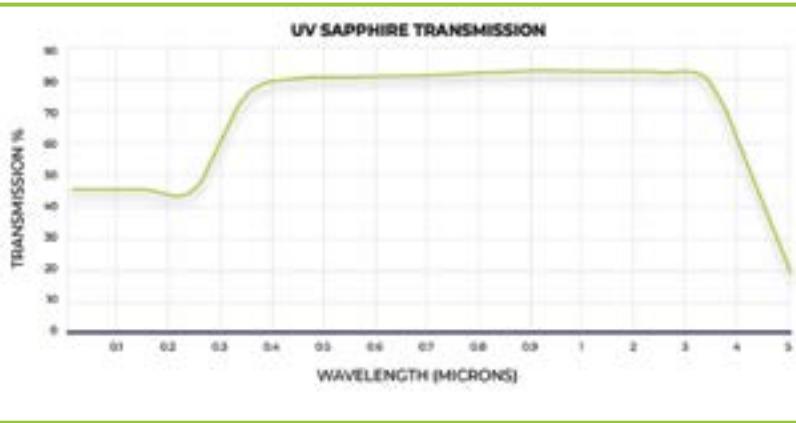
### FUSED SILICA

ANCORP offers fused silica viewports in both ultraviolet (UV) grade and deep ultraviolet (DUV) laser-grade viewing window materials. Fused silica provides better transmission in the UV range compared to standard borosilicate glass. Fused silica is a type of ultra-pure non-crystalline synthetic quartz with great optical and thermal properties. It is colorless, resistant to abrasion and thermal shock, non-birefringent, has high working temperatures, and has a low coefficient of thermal expansion.

**Zero-length UV grade fused silica viewports** are available in ConFlat (CF), and ISO-QF (Quick Flange, KF, NW) flanges for high vacuum and ultra-high vacuum (UHV) applications.



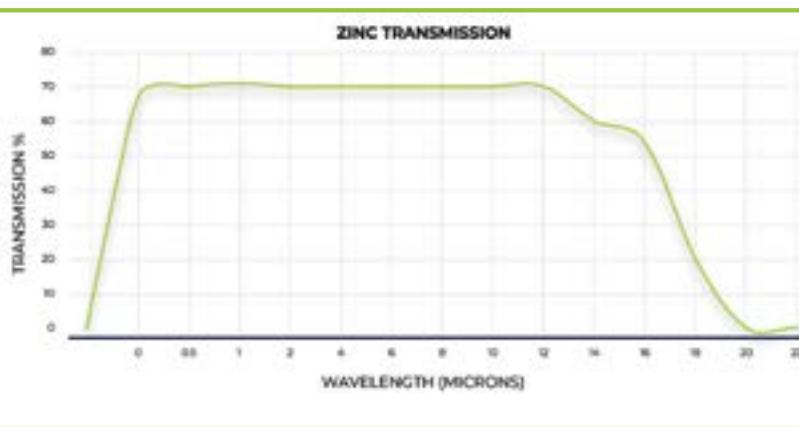
**Zero-length DUV grade fused silica viewports** are available in a variety of ConFlat (CF) flange sizes for ultra-high vacuum (UHV) performance. Single AR and broadband AR anti-reflective coatings are available for minimized reflectance.



### SAPPHIRE

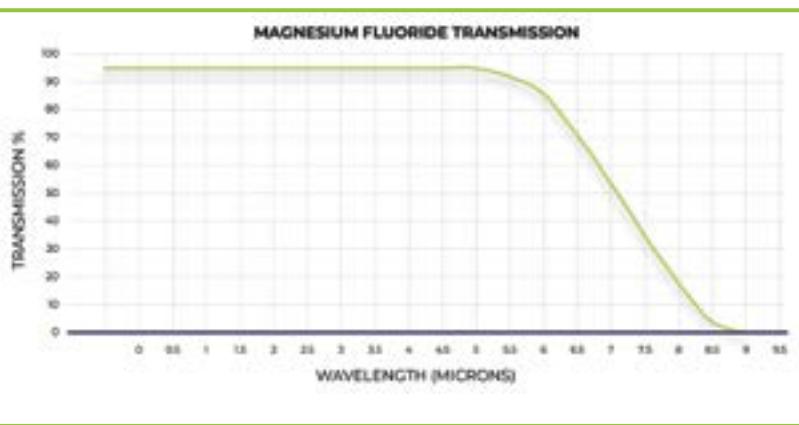
**Sapphire** has a broad transmission range from UV to near-infrared (NIR) and is excellent in harsh environments and high temperatures. Sapphire is durable, scratch resistant, birefringent, and has a low coefficient of thermal expansion.

ANCORP offers zero-length UV grade sapphire viewports in ConFlat (CF) and ISO-QF (Quick flange, KF, NW) flange sizes for use in high and ultra-high vacuum (UHV) applications.

**ZINC SELENIDE (ZnSe)**

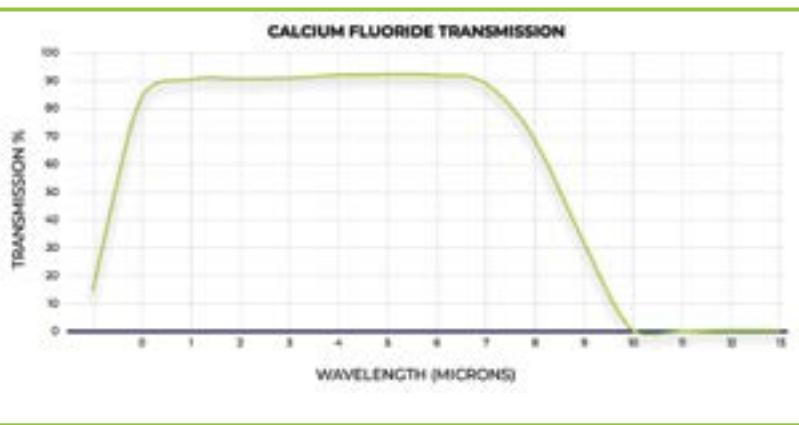
**Zinc Selenide (ZnSe) viewports** are ideal for transmission in the near infrared (NIR) to IR range. Zinc selenide viewports are commonly used in IR applications such as thermal imaging and FLIR cameras. Zinc selenide has low absorption and high resistance to thermal shock.

**ANCORP** offers both anti-reflective (AR) coated and uncoated zero-length zinc selenide viewports with zero-length ConFlat (CF) flanges for use in ultra-high vacuum (UHV) applications.

**MAGNESIUM FLUORIDE (MgF<sub>2</sub>)**

**Magnesium Fluoride (MgF<sub>2</sub>) viewports** offer an extended range of transmission from the vacuum ultraviolet (VUV) region into the mid-IR. Magnesium fluoride is birefringent, very durable, and resistant to physical stress and thermal shock.

**ANCORP** offers zero-length magnesium fluoride viewports with ConFlat (CF) flanges for use in ultra-high vacuum (UHV) environments.

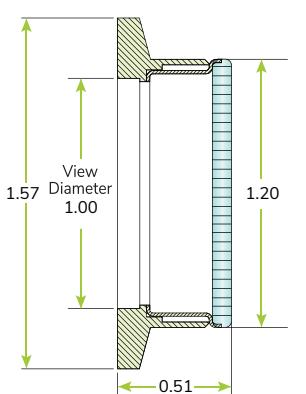
**CALCIUM FLUORIDE (CaF<sub>2</sub>)**

**Calcium Fluoride (CaF<sub>2</sub>) viewports** provide extended transmission from the vacuum ultraviolet (VUV) into the infrared range. Calcium fluoride features low absorption, a high laser damage threshold, and good moisture and chemical resistance. Calcium fluoride is birefringent and has a low index of refraction.

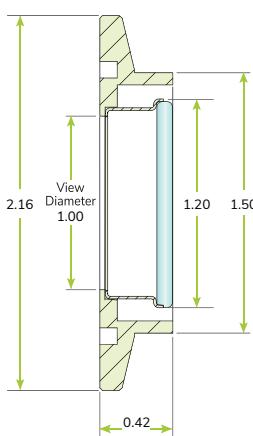
**ANCORP** offers zero-length calcium fluoride viewports with ConFlat (CF) flanges for use in ultra-high vacuum (UHV) applications.

## Zero Length Viewports

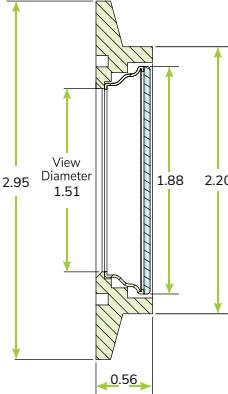
### ISO-QF Zero Length Viewports



**QF25**  
Borosilicate Glass Viewport



**QF40**  
Borosilicate Glass Viewport



**QF50**  
Borosilicate Glass Viewport



#### Features:

- Vacuum rating of  $1 \times 10^{-8}$  torr
- Temperature maximum: 200°C
- ISO-QF (KF, NW) flange
- Body is manufactured from 304 stainless steel
- Viewing window is manufactured from 7056 borosilicate glass
- Transition material is Kovar
- Avoid thermal changes in excess of 10°C/min
- Do not expose to pressure above 1 atmosphere

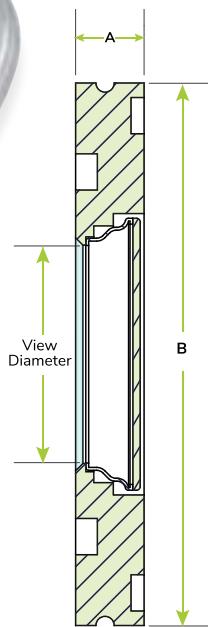
### ISO-LF Zero Length Viewports

#### Features:

- Vacuum rating of  $1 \times 10^{-8}$  torr
- Temperature maximum of 150°C
- ISO-LF (ISO-K) flange
- Body is manufactured from 304 stainless steel
- Viewing window material is 7056 borosilicate glass
- Transition material is Kovar
- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere

#### Options: Call for price and availability

- Larger sizes
- Alternative viewing window materials:  
Quartz, Sapphire



| PART #         | REFERENCE ID    | A     | B     | VIEW DIAMETER |
|----------------|-----------------|-------|-------|---------------|
| <b>9110005</b> | LF63-ZLVP-1.500 | 0.472 | 3.74  | 1.50          |
| <b>9110006</b> | LF80-ZLVP-1.500 | 0.472 | 4.33  | 1.50          |
| <b>9110007</b> | LF100-ZLVP-2.67 | 0.472 | 5.12  | 2.67          |
| <b>9110008</b> | LF160-ZLVP-4.00 | 0.472 | 7.09  | 3.98          |
| <b>9110009</b> | LF200-ZLVP-5.52 | 0.472 | 9.45  | 5.52          |
| <b>9110010</b> | LF250-ZVP       | 0.472 | 10.00 | 6.00          |

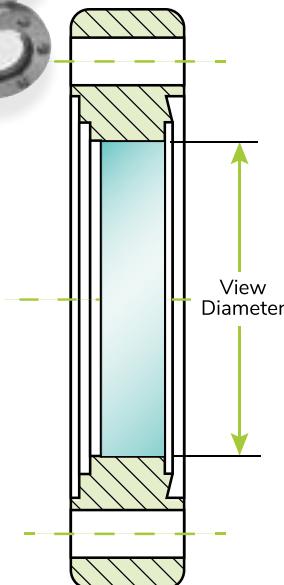
## CF Zero Length Viewports

**Features:**

- Vacuum rating of  $1 \times 10^{-10}$  torr
- Temperature maximum of 400°C
- ConFlat flange
- Flange material is 304 stainless steel
- Viewing window is 7056 borosilicate glass
- Transition material is Kovar
- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere



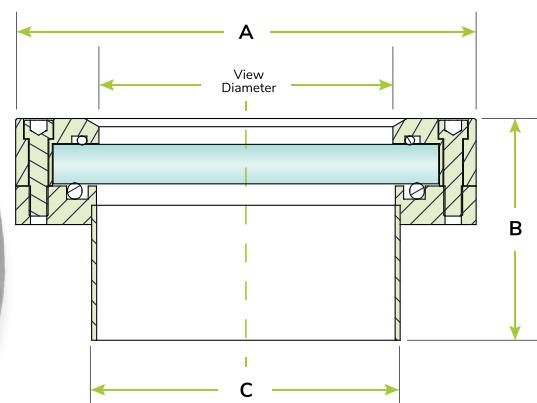
| PART #  | REFERENCE ID      | FLANGE SIZE | VIEW DIAMETER |
|---------|-------------------|-------------|---------------|
| 9110025 | CF133-ZLVP-0.625  | 1.33        | 0.63          |
| 9110026 | CF212-ZLVP-0.625  | 2.12        | 0.63          |
| 9110027 | CF275-ZLVP-1.500  | 2.75        | 1.50          |
| 9110028 | CF338-ZLVP-1.500  | 3.38        | 1.50          |
| 9110029 | CF450-ZLVP-2.672  | 4.50        | 2.67          |
| 9110030 | CF462-ZLVP-2.672  | 4.62        | 2.67          |
| 9110031 | CF600-ZLVP-3.980  | 6.00        | 3.98          |
| 9110032 | CF675-ZLVP-3.980  | 6.75        | 3.98          |
| 9110033 | CF800-ZLVP-5.520  | 8.00        | 5.52          |
| 9110034 | CF1000-ZLVP-5.520 | 10.00       | 5.52          |



## Weldable Glass and Quartz Viewports

**Features:**

- High Vacuum rating of  $1 \times 10^{-8}$  torr
- Temperature maximum of 150°C
- Body is manufactured from 304 stainless steel
- Viewing window is borosilicate glass (Borofloat® 33)
- Viton seal
- Aluminum retaining flange
- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere
- Options: Call for price and availability
  - Larger sizes
  - Custom lengths



| PART #  | REFERENCE ID    | VIEWING MATERIAL | A (in) | B (in) | C (in) | VIEW DIAMETER (in) |
|---------|-----------------|------------------|--------|--------|--------|--------------------|
| 9118001 | 400-WVP-3.812   | 7740 Glass       | 5.97   | 2.88   | 4.00   | 3.81               |
| 9118002 | 600-WVP-6.00    | 7740 Glass       | 7.97   | 2.88   | 6.00   | 6.00               |
| 9118003 | 250-WVP-2.50    | 7740 Glass       | 4.47   | 2.88   | 2.50   | 2.50               |
| 9118005 | 250-WVP-2.50-Q  | Quartz           | 4.47   | 2.88   | 2.50   | 2.50               |
| 9118010 | 400-WVP-3.812-Q | Quartz           | 5.97   | 2.88   | 4.00   | 3.81               |
| 9118015 | 600-WVP-6.00-Q  | Quartz           | 7.97   | 2.88   | 6.00   | 6.00               |

## Add-A-Door Viewport

**Materials:**

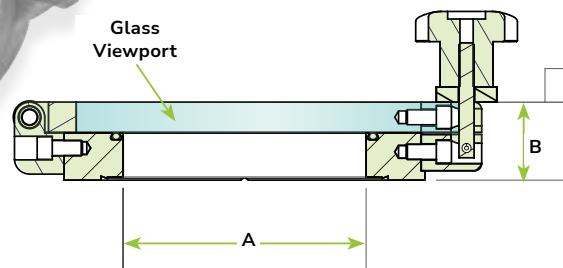
- Body: 304 stainless steel
- Door: 304 stainless steel
- Viewing window:  
7056 borosilicate glass
- Seals: Viton®
- Fastening knob:  
Polypropylene plastic (PP)
- Temperature: 150°C maximum
- Vacuum rating:  $1 \times 10^{-8}$  Torr,

**Product Notes:**

- Avoid Thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere

**Options: Call for price and availability**

- Larger sizes



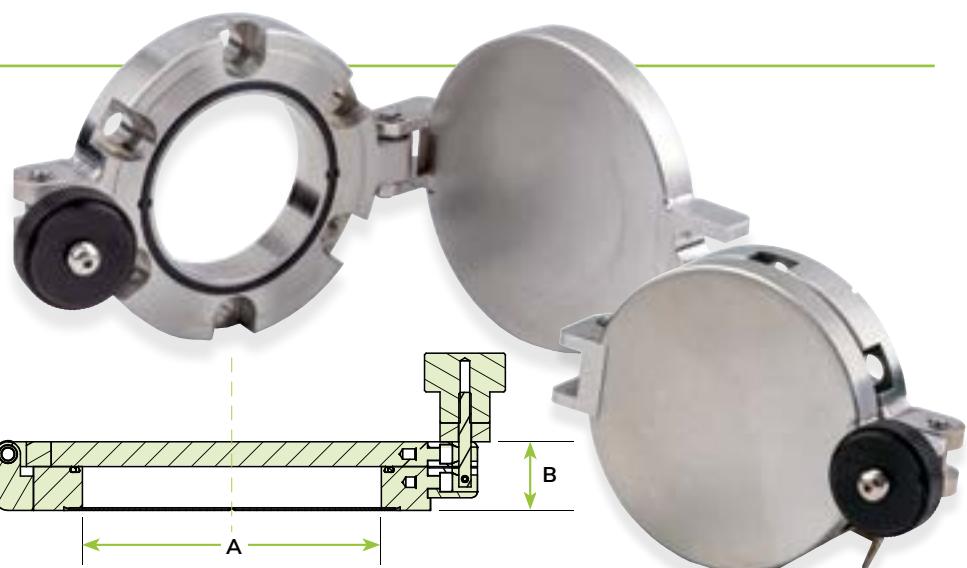
## Add-A-Door

**Materials:**

- Body: 304 stainless steel
- Door: 304 stainless steel
- Seals: Viton®
- Fastening knob:  
Polypropylene plastic (PP)
- Temperature:  
150°C maximum
- Vacuum rating:  $1 \times 10^{-8}$  Torr,  
High Vacuum

**Product Notes:**

- Avoid Thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere
- Larger sizes available



| PART #  | REFERENCE ID    | FLANGE | WINDOW MATERIAL | A (in) | B (in) | VIEWING AREA (in) |
|---------|-----------------|--------|-----------------|--------|--------|-------------------|
| 9110222 | CF600-ADVP-3.8  | CF600  | 7056 Glass      | 4.02   | 2.16   | 3.812             |
| 9110223 | CF450-ADVP-2.5  | CF450  | 7056 Glass      | 2.50   | 1.68   | 2.50              |
| 9110224 | CF800-ADVP-6.0  | CF800  | 7056 Glass      | 6.00   | 2.00   | 6.00              |
| 9110225 | CF1000-ADVP-6.0 | CF1000 | 7056 Glass      | 7.88   | 2.10   | 6.00              |

## ConFlat (CF) UV Grade Fused Silica Viewports

**Description:**

- UV Grade Fused Silica viewport
- Zero-length profile
- ConFlat flange
- Bakeable to 200°C
- Non-magnetic materials
- Excellent transmission for UV to 250nm
- UHV compatible

**Options: Call for price & availability**

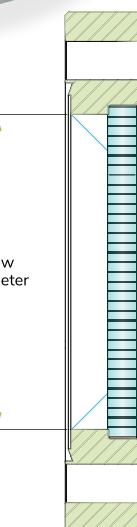
- Custom window sizes
- Alternative Materials: Titanium, 316LN


**Specifications:**

- Flange material:
  - 316L stainless steel (1.33")
  - 304 stainless steel (2.75" to 8.00")
- Window material: Corning HPFS 7980 Fused Silica or equivalent
- TWD < 10 λ @ 632nm (peak to valley)

- Parallelism < 30 arc minutes
- Surface finish: 40/20 scratch-dig
- Thermal range: -100°C to 200°C
- Bake-out ramp rate: 20°C per minute
- Homogeneity grade: F
- Inclusion class: 2
- Leak rate < 1 X 10<sup>-9</sup> atm-cc/sec He

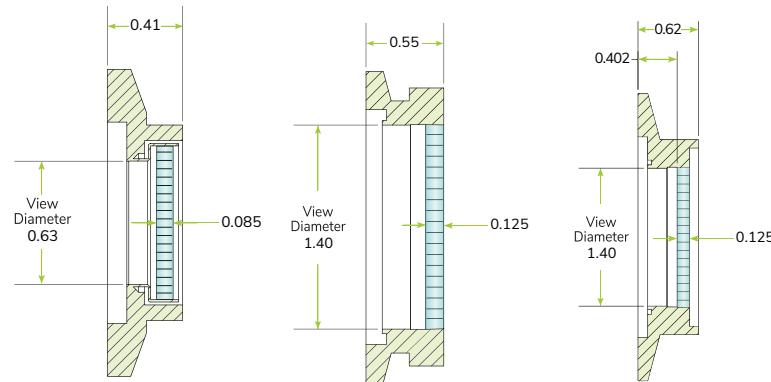
| PART #  | REFERENCE ID         | FLANGE SIZE | VIEW DIAMETER |
|---------|----------------------|-------------|---------------|
| 9118029 | CF133-ZLVP-Q-UV-0.63 | 1.33        | 0.63          |
| 9118030 | CF275-ZLVP-Q-UV-1.40 | 2.75        | 1.40          |
| 9118033 | CF338-ZLVP-Q-UV-1.40 | 3.37        | 1.40          |
| 9118032 | CF450-ZLVP-Q-UV-2.69 | 4.50        | 2.69          |
| 9118031 | CF600-ZLVP-Q-UV-3.88 | 6.00        | 3.88          |
| 9110034 | CF800-ZLVP-Q-UV-5.38 | 8.00        | 5.38          |



## ISO-QF (KF) UV Grade Fused Silica Viewports

**Features:**

- Vacuum rating of 1×10<sup>-9</sup> torr
- Thermal range: -100°C to 200°C
- ISO-QF (KF, NW) flange
- Body is manufactured from 304 stainless steel
- Viewing window is manufactured from UV grade fused silica
- Transition material is Kovar
- Avoid thermal changes in excess of 10°C/minute
- Do not expose to pressure above 1 atmosphere


**Specifications:**

- TWD < 10 λ @ 632nm (peak to valley)
- Parallelism < 30 arc minutes
- Surface finish: 40/20 scratch-dig
- Homogeneity grade: F
- Inclusion class: 2

**Options: Call for price & availability**

- Custom window sizes
- Alternative Materials: Titanium, 316LN

| PART #  | REFERENCE ID        | FLANGE SIZE | VIEW DIAMETER |
|---------|---------------------|-------------|---------------|
| 9110012 | QF25-ZLVP-Q-UV-0.63 | 1.57        | 0.63          |
| 9110013 | QF40-ZLVP-Q-UV-1.40 | 2.16        | 1.40          |
| 9110014 | QF50-ZLVP-Q-UV-1.40 | 2.95        | 1.40          |



## Fused Silica (Quartz) Viewports

## ConFlat (CF) DUV Grade Fused Silica Viewport

### Description:

- DUV grade (laser) fused silica window
- Zero-length profile
- ConFlat flange
- Laser grade fused silica window
- Bakeable to 200°C
- Non-magnetic materials
- Excellent transmission for UV to 248nm
- UHV compatible

### Options:

#### Call for price & availability

- Custom window sizes
- Alternative Materials: Titanium, 316LN
- IR Grade (Low OH)
- EUV Grade (Excimer)

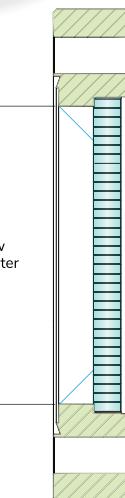


### Specifications:

- Flange material:
  - 316L stainless steel (1.33")
  - 304 stainless steel (2.75" to 6.00")
- Window material: Corning HPFS 7980 fused silica or equivalent
- TWD  $< \lambda / 4$  @ 632nm (peak to valley)
- Parallelism:

- < 30 arc seconds (1.33")
- < 10 arc seconds (2.75" to 6.00")
- Surface finish: 20/10 scratch-dig
- Thermal range: -100°C to 200°C
- Bake-out ramp rate: 20°C per minute
- Homogeneity grade: A
- Inclusion class: 0
- Leak rate  $< 1 \times 10^{-9}$  atm-cc/sec He

| PART #  | REFERENCE ID          | FLANGE SIZE | VIEW DIAMETER |
|---------|-----------------------|-------------|---------------|
| 9118040 | CF133-ZLVP-Q-DUV-0.63 | 1.33        | 0.63          |
| 9118041 | CF275-ZLVP-Q-DUV-1.40 | 2.75        | 1.40          |
| 9118042 | CF450-ZLVP-Q-DUV-2.69 | 4.50        | 2.69          |
| 9118043 | CF600-ZLVP-Q-DUV-3.88 | 6.00        | 3.88          |



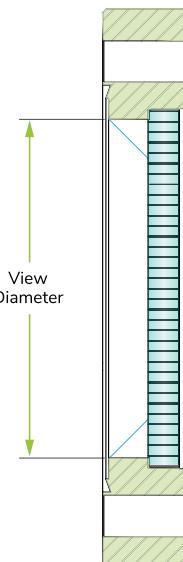
## ConFlat (CF) DUV Grade Fused Silica Viewport, Single AR Coating

### Description:

- DUV grade (laser) fused silica window
- Single AR coating
- Anti-reflective coating for minimized reflectance
- Bakeable to 200°C
- Non-magnetic materials
- Zero-length profile
- UHV compatible

### Specifications:

- Flange Material: 304 stainless steel
- Window Material: Corning HPFS 7980 Fused Silica or equivalent
- TWD  $< \lambda / 4$  @ 632nm (peak to valley)
- Parallelism < 10 arc seconds
- Surface Finish: 20/10 scratch-dig
- Thermal Range: -100°C to 200°C
- Bake-Out Ramp Rate: 20°C per minute
- Homogeneity Grade: A
  - Inclusion Class: 0
- Lead Time: 4 weeks
- AR coated both sides:
  - 780nm, R < 0.25% per surface
  - 1064nm, R < 0.25% per surface



| PART #  | REFERENCE ID                   | FLANGE SIZE | VIEW DIAMETER |
|---------|--------------------------------|-------------|---------------|
| 9118050 | CF275-ZLVP-Q-DUV-SAR-1064-1.40 | 2.75        | 1.40          |
| 9118051 | CF450-ZLVP-Q-DUV-SAR-1064-2.70 | 4.50        | 2.70          |
| 9118052 | CF275-ZLVP-Q-DUV-SAR-780-1.40  | 2.75        | 1.40          |
| 9118053 | CF450-ZLVP-Q-DUV-SAR-780-2.70  | 4.50        | 2.70          |

### Options:

#### Call for price & availability

- Custom sizes
- Materials: Titanium, 316LN
- EUV Grade

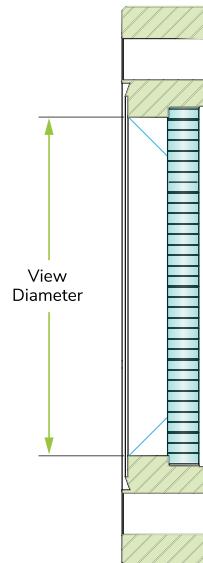
# ConFlat (CF) DUV Grade Fused Silica Viewport, BBAR Coating

**Description:**

- DUV grade (laser) fused silica window
- Broadband anti-reflective coating for optimum performance
- Bakeable to 200°C
- Non-magnetic materials
- Zero-length profile
- UHV compatible

**Specifications:**

- Flange Material: 304 stainless steel
- Window Material: Corning HPFS 7980 Fused Silica or equivalent
- TWD  $< \lambda / 4$  @ 632nm (peak to valley)
- Parallelism  $< 10$  arc seconds
- Surface Finish: 20/10 scratch-dig
- Thermal Range: -100°C to 200°C
- Bake-Out Ramp Rate: 20°C per minute
- Homogeneity Grade: A
  - Inclusion Class: 0
- BBAR coated both sides:
  - 425-760nm, R avg.  $< 0.5\%$  per surface
  - 550-1100nm, R avg.  $< 0.5\%$  per surface
- Laser damage threshold:  
10 J/cm² for 10 ns pulse

**Options: Call for price & availability**

- Custom window sizes
- Alternative Materials: Titanium, 316LN

| PART #  | REFERENCE ID                        | FLANGE SIZE | VIEW DIAMETER |
|---------|-------------------------------------|-------------|---------------|
| 9118054 | CF275-ZLVP-Q-DUV-BBAR-425-760-1.40  | 2.75        | 1.40          |
| 9118055 | CF450-ZLVP-Q-DUV-BBAR-425-760-2.69  | 4.50        | 2.69          |
| 9118056 | CF275-ZLVP-Q-DUV-BBAR-550-1100-1.40 | 2.75        | 1.40          |
| 9118057 | CF450-ZLVP-Q-DUV-BBAR-550-1100-2.69 | 4.50        | 2.69          |

## Fused Silica Viewport Available Options - Call for Price and Availability

- All Titanium Viewports
- Weld Adapters
- Re-entrant Design
- ISO Flanges
- AR Coating for 1550nm
- AR Coating for 808nm
- Dual AR Coatings
- EUV Grade (Excimer) Viewports
- IR Grade (Low OH) Viewports
- Geochronological Viewports
- Custom viewports and coatings



## Fused Silica (Quartz) Viewports

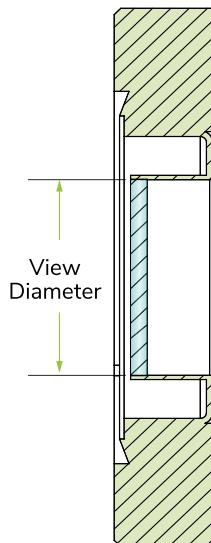
## ConFlat (CF) UV Grade Sapphire Viewport

### Description:

- Single crystal UV grade sapphire window
- ConFlat (CF) Flange
- Bakeable to 450°C
- Excellent Transmission from 250nm to 5 microns
- UHV Compatible

### Options: Call for price & availability

- Custom window sizes
- Alternative Materials: Titanium, 316LN



| PART #  | REFERENCE ID         | FLANGE SIZE | VIEW DIAMETER |
|---------|----------------------|-------------|---------------|
| 9118128 | CF275-ZLVP-S-UV-0.94 | 2.75        | 0.94          |
| 9118127 | 338-ZVP-S-0.943      | 3.38        | 0.94          |
| 9118130 | CF450-ZLVP-S-UV-1.94 | 4.50        | 1.94          |
| 9118132 | CF800-ZLVP-S-2.95    | 8.00        | 1.94          |

## Sapphire Viewports

## ISO-QF (KF) UV Grade Sapphire Viewport

### Description:

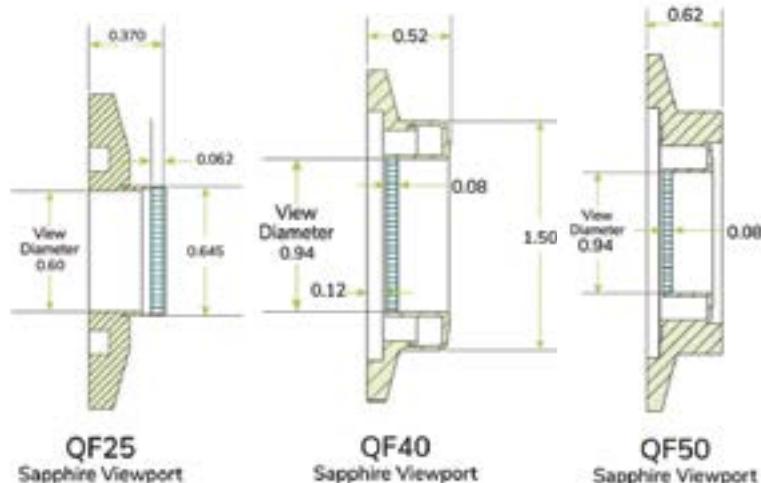
- ISO-QF (KF, NW) flange
- Single crystal UV grade sapphire window
- Bakeable to 450°C
- Excellent transmission from 250nm to 5 microns
- UHV compatible

### Specifications:

- Window material: UV grade sapphire
- TWD < 8 λ @ 632nm (peak to valley)
- Parallelism < 3 arc minutes
- Surface finish: 50/20 scratch-dig
- Thermal range: -100°C to 450°C
- Leak rate < 1 X 10-9 atm-cc/sec He

### Options: Call for price & availability

- Custom window sizes
- Alternative Materials: Titanium, 316LN



| PART #  | REFERENCE ID        | FLANGE SIZE | VIEW DIAMETER |
|---------|---------------------|-------------|---------------|
| 9110059 | QF25-ZLVP-S-UV-0.60 | 1.57        | 0.60          |
| 9110060 | QF40-ZLVP-S-UV-0.94 | 2.16        | 0.94          |
| 9110061 | QF50-ZLVP-S-UV-0.94 | 2.95        | 0.94          |



## ConFlat (CF) Zinc Selenide (ZnSe) Viewport

**Description:**

- Zinc selenide (ZnSe) viewport
- UHV rated vacuum optics
- 0.90" view diameter
- 2.75" ConFlat flange
- Bakeable to 200°C
- Vacuum-optics with zinc selenide window
- Stainless steel housing and flange
- UHV compatible



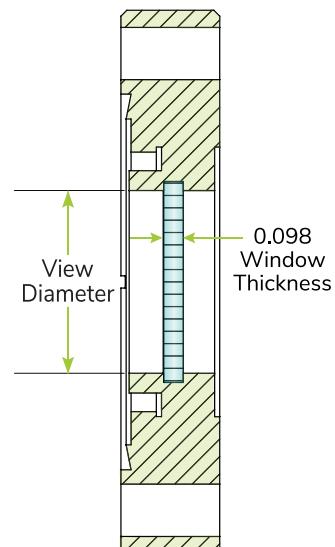
| PART #  | REFERENCE ID         | FLANGE SIZE | VIEW DIAMETER |
|---------|----------------------|-------------|---------------|
| 9118060 | CF275-ZLVP-ZNSE-0.90 | 2.75        | 0.90          |

## ConFlat (CF) Zinc Selenide (ZnSe) Viewport, Broadband AR Coating

**Description:**

- Zinc selenide (ZnSe) viewport
- Broadband AR coating @ 8-12 microns
- UHV rated vacuum optics
- 0.90" view diameter
- 2.75" ConFlat flange
- Vacuum-optics w/ zinc selenide window
- Anti-reflective coating for optimum performance
- Bakeable to 200°C
- UHV compatible
- Stainless steel housing and flange

| PART #  | REFERENCE ID              | FLANGE SIZE | VIEW DIAMETER |
|---------|---------------------------|-------------|---------------|
| 9118061 | CF275-ZLVP-ZNSE-BBAR-0.90 | 2.75        | 0.90          |



## ConFlat (CF) Magnesium Fluoride (MgF2) Viewport


**Options: Call for price & availability**

- Custom window sizes
- Alternative Materials: Titanium, 316LN
- Custom Coatings
- QF (KF) Flanges

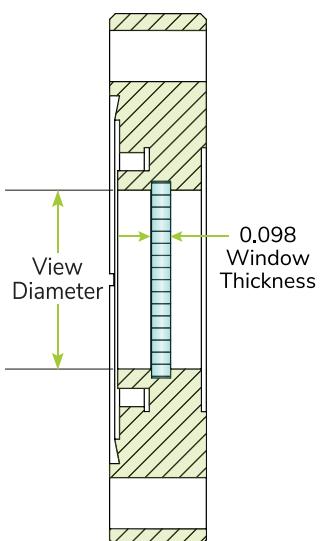
**Description:**

- Magnesium fluoride (MgF2) viewport
- UHV rated vacuum optics
- 2.75" ConFlat flange
- 0.90" view diameter

**Specifications:**

- Flange material: 304 stainless steel
- Window material: Single crystal, 0° Magnesium Fluoride
- TWD <  $\lambda / 4$  @ 632nm (peak to valley)
- Parallelism: < 3 arc minutes
- Surface finish: 20/10 scratch-dig
- Thermal range: -100°C to 200°C
- Bake-out ramp rate: 20°C per minute
- Leak rate <1x10<sup>-9</sup> atm-cc/sec He

| PART #  | REFERENCE ID         | FLANGE SIZE | VIEW DIAMETER |
|---------|----------------------|-------------|---------------|
| 9118062 | CF275-ZLVP-MGF2-0.90 | 2.75        | 0.90          |



## Calcium Fluoride CaF2 UHV Viewport

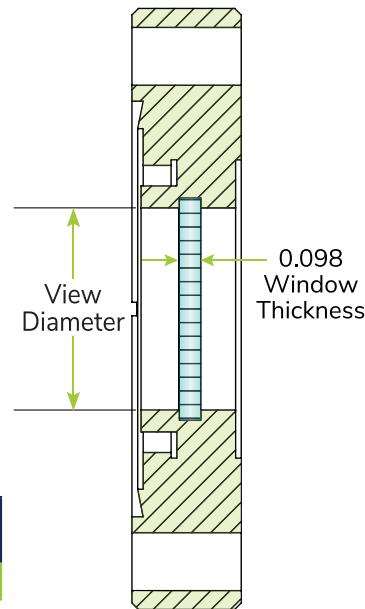

**Description:**

- Calcium Fluoride (CaF<sub>2</sub>) Viewport
- UHV rated vacuum optics,
- 0.90" view diameter
- 2.75" ConFlat flange
- Vacuum-optics with Calcium Fluoride window
- Bakeable to 200°C
- Stainless steel housing and flange
- UHV compatible

| PART #  | REFERENCE ID         | FLANGE SIZE | VIEW DIAMETER |
|---------|----------------------|-------------|---------------|
| 9118063 | CF275-ZLVP-CAF2-0.90 | 2.75        | 0.90          |

**Specifications:**

- Flange material: 304 stainless steel
- Window material: Single crystal calcium fluoride
- TWD <  $\lambda/4$  @ 632nm (peak to valley)
- Parallelism: < 3 arc minutes
- Surface finish: 20/10 scratch-dig
- Thermal range: -100°C to 200°C
- Bake-out ramp rate: 20°C per minute
- Leak rate < 1 X 10<sup>-9</sup> atm-cc/sec He


**Options: Call for price & availability**

- Custom window sizes
- Alternative Materials: Titanium, 316LN
- Custom Coatings
- QF (KF) Flanges



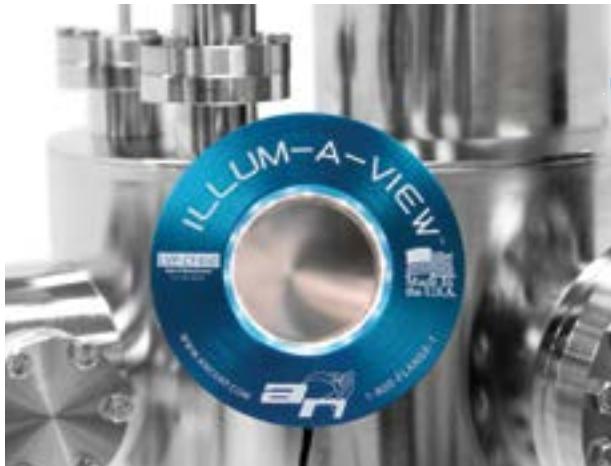
## Replacement Parts

| PART #  | REFERENCE ID | DESCRIPTION  |
|---------|--------------|--|
| 0501085 | 250-PVP      | Replacement Glass Disk                             |
| 0501185 | 250-PVP-Q    | Replacement Quartz Disk                            |
| 9112000 | 250-WVP-RSK  | Replacement fluoroelastomer seals (2) and bolt kit |
| 0501090 | 400-PVP      | Replacement Glass Disk                             |
| 0501190 | 400-PVP-Q    | Replacement Quartz Disk                            |
| 9112001 | 400-WVP-RSK  | Replacement fluoroelastomer seals (2) and bolt kit |
| 0501095 | 600-PVP      | Replacement Glass Disk                             |
| 0501195 | 600-PVP-Q    | Replacement Quartz Disk                            |
| 9112002 | 600-WVP-RSK  | Replacement fluoroelastomer seals (2) and bolt kit |



# Illum-A-View™

THE HANDS-FREE SOLUTION  
TO YOUR DARK CHAMBER PROBLEM



Researchers have been working in the dark—straining to see inside a dimly lit vacuum chamber. You've tried hand-held flashlights or integrated "goose-neck" lamps and have been blinded by the glare on the glass or have had your view blocked by the light source itself.

**ANCORP** developed the Illum-A-View—a lightweight ring fitted with bright natural white LEDs that shine directly into your chamber with minimal viewing obstruction—as a solution.

Illum-A-View easily fits over existing viewports, allowing you to shine a light on your research.

- Slim design machined from lightweight aluminum
- Bright natural white LEDs focus light into your chamber, always stays cool to the touch, and have a lifespan of over 30,000 hours.
- Available in standard viewport sizes:  
CF275 · CF450 · CF600 · CF800 · CF1000
- Mounts securely onto viewport at any angle using 3 small set screws
- Plugs directly into standard AC outlet



| PART #  | REFERENCE ID         | DESCRIPTION                   | A (in) | DIAM. B (in) | C (in) | WIDTH D (in) |
|---------|----------------------|-------------------------------|--------|--------------|--------|--------------|
| 9120020 | LVP-CF275-L120-NW-B  | CF275 Illum-A-View Blue 120V  | 7.49   | 3.10         | 0.52   | 1.38         |
| 9120040 | LVP-CF450-L120-NW-B  | CF450 Illum-A-View Blue 120V  | 8.00   | 4.84         | 0.73   | 1.38         |
| 9120060 | LVP-CF600-L120-NW-B  | CF600 Illum-A-View Blue 120V  | 8.63   | 6.34         | 0.80   | 1.38         |
| 9120080 | LVP-CF800-L120-NW-B  | CF800 Illum-A-View Blue 120V  | 9.38   | 8.38         | 1.00   | 1.38         |
| 9120100 | LVP-CF1000-L120-NW-B | CF1000 Illum-A-View Blue 120V | 9.38   | 10.38        | 2.00   | 1.38         |

To place an order or find out more information about Illum-A-View, contact one of our applications engineers at **1-800-352-6431** or visit us online at [www.ancorp.com](http://www.ancorp.com).

## Up-to-Air Valves

### Up-to-Air Valves

Installation of an **ANCORP** up-to-air valve allows you to vent your chamber to atmosphere or backfill your chamber with the gas of your choice. Up-to-air valves are available in two mounting options: center or side mounting.

Center mounted valves are welded to the flange, side mounted valves are sealed to the side port of a double sided CF flange with an NPT fitting and allow in-line installation of the valve in your system.



#### Features:

- Valve type: 1/4 inch, bellows sealed
- Actuation: manual
- Temperature range:  
CF flange mount: 60°C up to 315°C  
ISO-QF flange mount: -20°C up to 150°C
- Helium leak rated less than  $4 \times 10^{-9}$  Std.cc/s

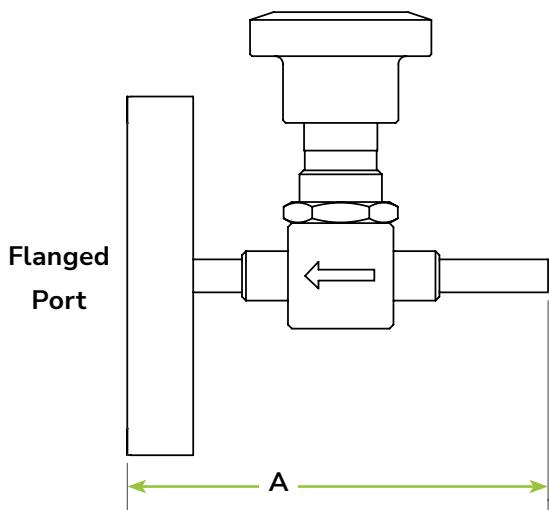
#### Product Notes:

- Vent or back fill your vacuum chamber

#### Options: call for price and availability

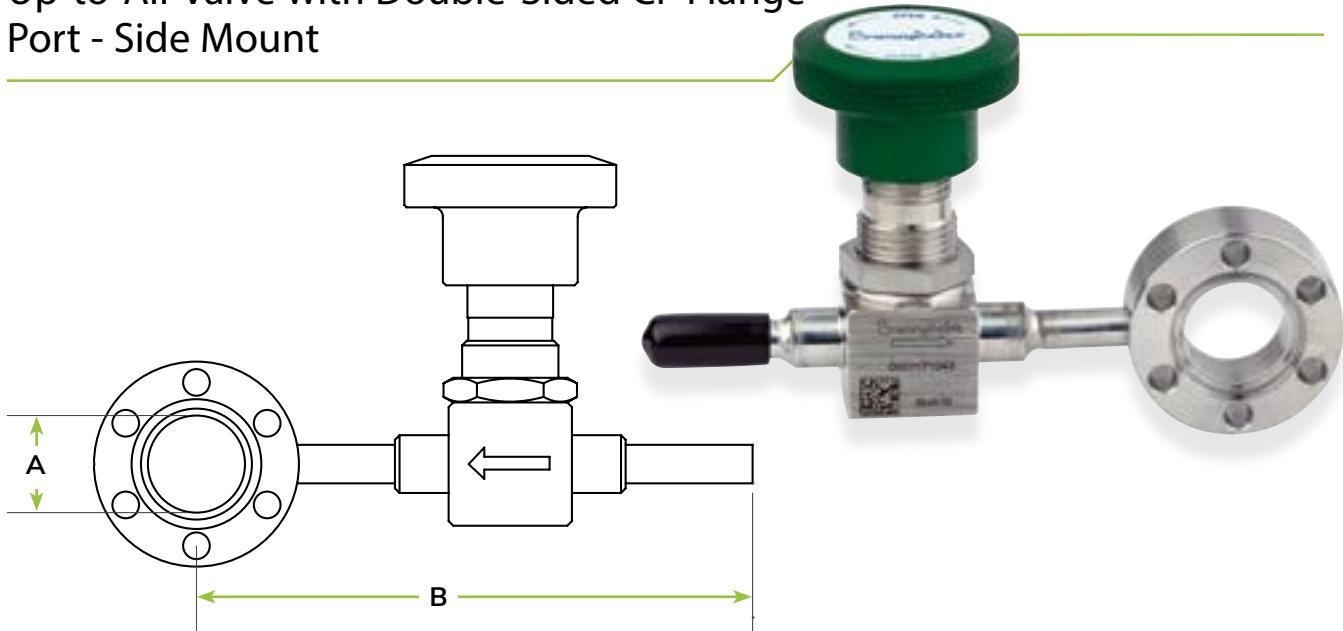
- Optional connections for valve port (VCR®, Swagelok®) standard is 1/4 inch tube end.
- Valves with side mounting to CF flanges can also be provided with a double port CF flange for the addition of a vacuum gauge.

### Up-to-Air Valve with CF Flange Port Center Mount



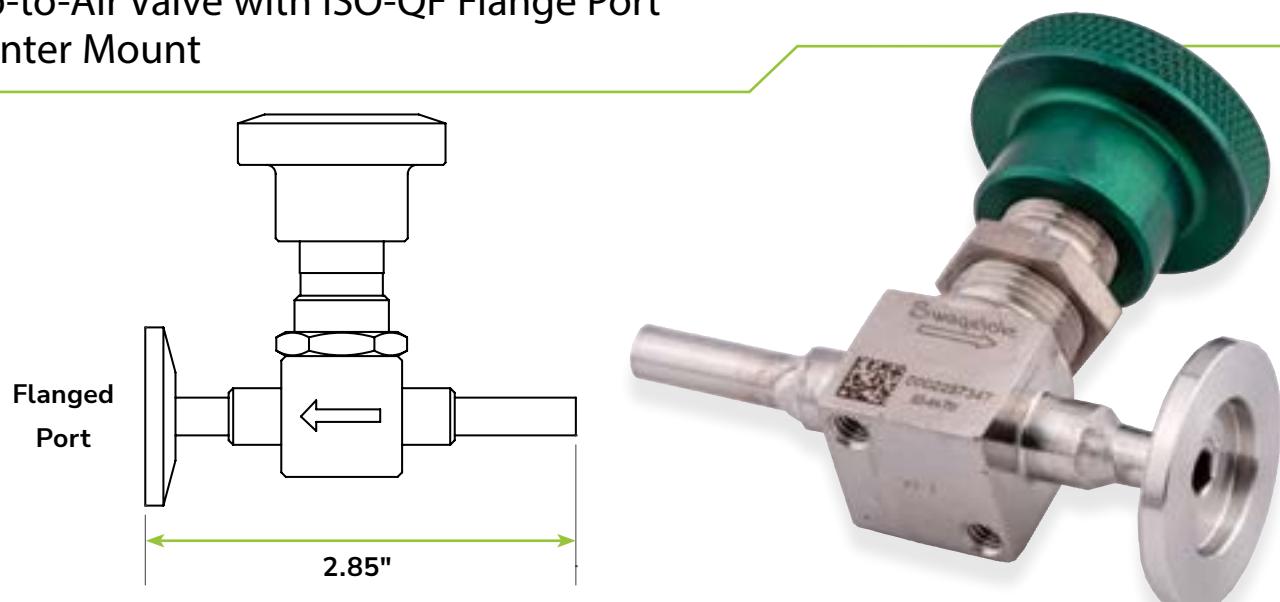
| PART #  | REFERENCE ID        | FLANGED PORT | A (in) | DESCRIPTION                              |
|---------|---------------------|--------------|--------|--|
| 9100105 | CF133-025-UTAV-3.00 | CF133        | 3.00   | Up-to-Air Valve with a CF133 Flange port |
| 9100106 | CF275-025-UTAV-3.19 | CF275        | 3.19   | Up-to-Air Valve with a CF275 Flange port |

## Up-to-Air Valve with Double-Sided CF Flange Port - Side Mount



| PART #  | REFERENCE ID              | FLANGED PORT | A (in) | B (in) | DESCRIPTION                         |
|---------|---------------------------|--------------|--------|--------|-------------------------------------|
| 9100107 | CF133XCF133-075-UTAV-3.60 | CF133D       | 0.625  | 3.60   | Up-to-Air Valve with a CF133 Flange |
| 9100108 | CF275xCF275-150-UTAV-4.00 | CF275D       | 1.50   | 4.00   | Up-to-Air Valve with a CF275 Flange |

## Up-to-Air Valve with ISO-QF Flange Port Center Mount



| PART #  | REFERENCE ID       | FLANGED PORT | DESCRIPTION                             |
|---------|--------------------|--------------|---|
| 9100101 | QF16-025-UTAV-2.85 | QF16         | Up-to-Air Valve with a QF16 Flange port |
| 9100102 | QF25-025-UTAV-2.85 | QF25         | Up-to-Air Valve with a QF25 Flange port |
| 9100103 | QF40-025-UTAV-2.85 | QF40         | Up-to-Air Valve with a QF40 Flange port |
| 9100104 | QF50-025-UTAV-2.85 | QF50         | Up-to-Air Valve with a QF50 Flange port |

## General Vacuum Accessories

### Vacuum Grease

**Features:**

- Temperature Range: -40°C up to 260°C
- Size: 5.3 oz tube

**Product Notes:**

- Assist in elastomer gasket sealing
- Low vapor pressure
- Inert



| PART #  | REFERENCE ID | DESCRIPTION                         |
|---------|--------------|-------------------------------------|
| 0600001 | GREASE-DC    | Dow Corning® Vacuum Grease, 5.3 oz. |



### Anti-Seize

| PART #  | REFERENCE ID    | DESCRIPTION  |
|---------|-----------------|--|
| 0605208 | ASTL            | Bolt thread lubricant eliminates galling of bolt and nut or tapped bolt hole |
| 0605113 | 12-POINT WRENCH | Fits CF 12-point bolts   |

### Flange Caps

| PART #  | REFERENCE ID | DESCRIPTION                        |
|---------|--------------|------------------------------------|
| 0600501 | PC-QF16      | 1 Plastic cap for ISO-QF16 flange  |
| 0600502 | PC-QF25      | 1 Plastic cap for ISO-QF25 flange  |
| 0600503 | PC-QF40      | 1 Plastic cap for ISO-QF40 flange  |
| 0600504 | PC-QF50      | 1 Plastic cap for ISO-QF50 flange  |
| 0600505 | PC-LF63      | 1 Plastic cap for ISO-LF63 flange  |
| 0600506 | PC-LF80      | 1 Plastic cap for ISO-LF80 flange  |
| 0600507 | PC-LF100     | 1 Plastic cap for ISO-LF100 flange |
| 0600515 | PC-CF133     | 1 Plastic cap for CF133 flange     |
| 0600516 | PC-CF212     | 1 Plastic cap for CF212 flange     |
| 0600517 | PC-CF275     | 1 Plastic cap for CF275 flange     |
| 0600518 | PC-CF338     | 1 Plastic cap for CF338 flange     |
| 0600519 | PC-CF450     | 1 Plastic cap for CF450 flange     |
| 0600520 | PC-CF462     | 1 Plastic cap for CF462 flange     |
| 0600521 | PC-CF600     | 1 Plastic cap for CF600 flange     |
| 0600522 | PC-CF800     | 1 Plastic cap for CF800 flange     |
| 0600523 | PC-CF1000    | 1 Plastic cap for CF1000 flange    |
| 0600524 | PC-CF1200    | 1 Plastic cap for CF1200 flange    |
| 0600525 | PC-CF1325    | 1 Plastic cap for CF1325 flange    |



## Custom Fabrication & Vacuum Chambers



Custom Fabrication & Vacuum Chambers

For over 50 years, **ANCORP** has fabricated high and ultra-high vacuum components and chambers. Our fabricated chambers range from one-of-a-kind chambers for research applications to production quantity chambers for OEM's.

In 2012, we opened a 6,500 square foot expansion to our factory to meet the growing demand for our Custom Fabrication division. The state-of-the-art facility is equipped with the latest manufacturing technology for CNC mills, lathes, and welding tools.

The expansion includes on-site offices for Engineering and Project Management staff - ensuring you receive the highest quality chamber on schedule. Our welders and Vacuum Welding Program have been certified by AWS and ASME. Our Quality Control procedures include dimensional checks using a Coordinate Measuring Machine (CMM) and leak checks using state-of-the-art helium mass spectrometer leak detectors.

High and ultra-high vacuum chambers are engineered products that require a specialized set of materials and fabrication processes. To help designers and practitioners better understand system specifications, a brief overview of **ANCORP**'s capabilities and practices follows:

## Engineering and Project Support

From your initial inquiry to when your finished chamber ships out of our factory, **ANCORP** engineers and project support staff are working to ensure your custom project meets your highest quality standards and is delivered on schedule. Before manufacturing begins, engineers trained in vacuum technology and chamber design review design drawings. Project support staff ensures the manufacturing schedule is kept and drawing specifications and tolerances are met. **ANCORP** can work with customer-supplied drawings or create drawings from simple, free hand sketches.



## MATERIALS

**Standard Materials:** Because of its high corrosion resistance, low outgassing rates, wide range of applicable temperatures, machinability, weldability, and relative cost, **ANCORP**'s standard material for tube sections,



spheres and roll-ups is 304L stainless steel. **ANCORP** routinely works with 304L and 316L stainless steel as well as 6061 T6 aluminum.

**ANCORP** specifies a magnetic permeability not to exceed  $1.02\mu$  when ordering raw 304 stainless materials. Welding and machining processes may result in heat affected or cold-worked zones that may increase magnetic permeability in these zones. Minimizing seams, joints, and bends in areas of high magnetic sensitivity should be considered during the design process. For applications that require superior magnetic flux shielding, mumetal can also be supplied.

**Flanges:** **ANCORP**'s flanges are made from specially



manufactured raw stock that is designed to maximize the vacuum capabilities of 304 stainless. These processes minimize impurities and inclusions that could adversely impact the steel's ability to maintain vacuum. Grain size, orientation, and density are also engineered to maximize the vacuum performance of the raw stock.

## FABRICATION

**Welding:** ANCOP uses tungsten inert gas (TIG/GTAW) welding techniques with high purity argon as the backfill/purge gas. Both manual and automated orbital welding machines are employed. In accordance with good UHV fabrication practices, non-filler material, internal fusion weld joints are utilized wherever possible.

In those instances where geometries preclude internal welds, 100% full penetration welds are provided. To minimize sources of virtual leaks, external welds are only used when required for structural reinforcement and are limited to stitch, skip, span, or spot weld configurations.

**Machining:** State-of-the-art, multi-axis, CNC machine centers are at the heart of ANCOP's operations. Our work processes are built upon the dual goals of high quality and rapid turnaround. Our machining coolants are sulfur free, biodegradable, and recycled.

**Surface Finishes:** The following finishing techniques are available: Glass Bead Blasted, Machine Polished, and Electropolished. Flanges and machined components (faced, turned or bored) come standard with a 32 micro-inch surface finish and a 16 microinch sealing surface. For a machined finish better than 32 micro-inch speak to one of our design engineers.

## QUALITY CONTROL

All weld joints and sealing surfaces are certified with



state-of-the-art helium mass spectrometer leak detectors to a maximum rate of  $1 \times 10^{-9}$  std. cc helium. Leak testing is typically conducted in an "outside-in" or tracer-probe configuration. Helium (gas) bag tests are conducted as needed.

The highest standards of quality control inform every aspect of our operational practices. We welcome customer audits. Dimensional checks are confirmed with a computer controlled Coordinate Measuring Machine (CMM). Material and CMM certifications can be provided upon request.

## CLEANING AND PACKAGING

Upon final machining, most components are washed in a heated, ultrasonic, detergent bath followed by multiple ultrasonic, deionized water rinses to remove all residual machining lubricants. After final rinse, parts are blown dry with dry, heated, filtered air and packaged.



After cleaning and testing, flanges and small components are hermetically sealed in vacuum board packaging and are ready for UHV installation. Larger flanges are covered with a layer of foil and protective plastic shields. Weldments and assemblies are then bagged, bubble-wrapped, and inserted into a shipping container surrounded by void filling "pillow" wrap. Custom crating is available.

# Vacuum Chamber Tips to Save You Time & Money

Are you in the market for a custom vacuum chamber? If so, you likely understand by now that the process for procuring such an item is not as cut-and-dry as buying off-the-shelf vacuum components. Relative to catalog parts, vacuum chambers are often complex, bespoke, and expensive. Though some drivers of complexity and price are unavoidable when it comes to chambers, there are steps you can take when preparing your Request for Quote (RFQ) to reduce quote turnaround, optimize your design for manufacture, and, ultimately, save time and money.

At **ANCORP**, we're proud to manufacture world-class vacuum chambers right here in the United States. Our cylindrical, spherical, and box chambers serve a variety of industries and applications including ultra-high-vacuum (UHV), and each chamber is made-to-order here in Florida by our team of master machinists, welders, and fabricators.

Read on for 3 Vacuum Chamber RFQ Tips that will help you get faster responses, reduced lead times, and lower prices.

## 1. Eliminate Unnecessary Complexity

CAD software gives engineers and designers the freedom to come up with all manner of complex part geometries. But, when it comes time to actually cut steel, simplicity is a manufacturer's (and therefore a customer's) friend.

Increasingly complex part geometries require increasingly special machining capabilities. The more that specific machinery is required to make your chamber, the higher your price climbs and the longer your lead time becomes. When functionality and practicality allow it, reduce part complexity wherever you can. Even the elimination of something seemingly simple like an angled or offset port can simplify your chamber to the point that the machining options for making it double or triple. When a manufacturer has multiple options for fabricating your chamber, both price and lead time

will drop.

## 2. Avoid Excessive Geometric Dimensioning & Tolerancing (GD&T)

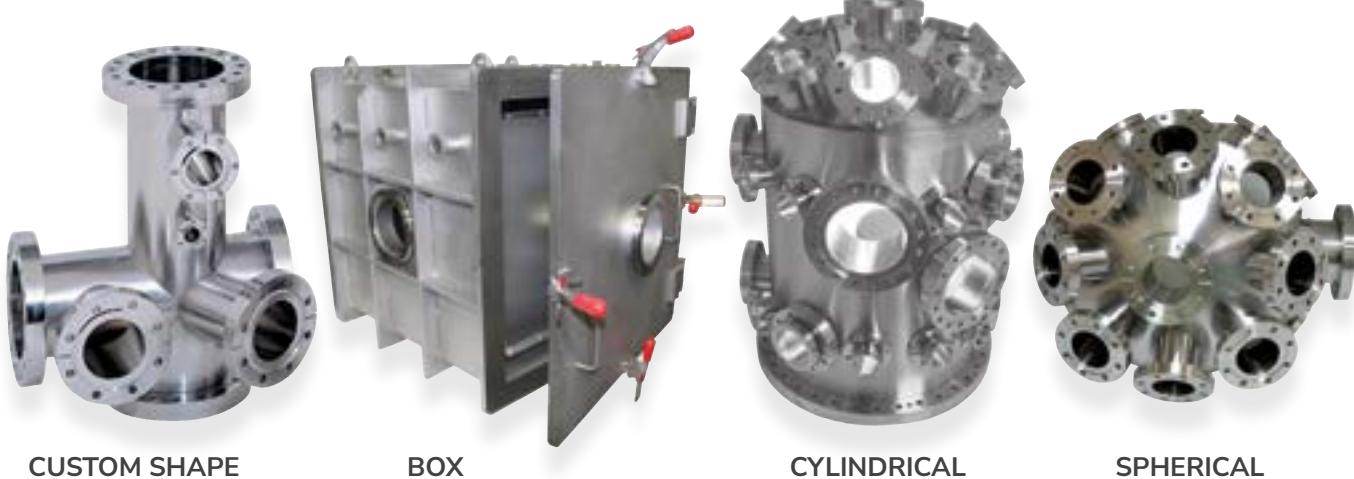
Understanding your true GD&T "must haves" is critical to getting both a price and lead time that are reflective of your needs. Applying unnecessary constraints (or making the magnitude of necessary constraints lower than required) will significantly impact the cost of fabricating a chamber.

For example, let's say a customer has specified a flatness tolerance on their chamber's top flange of 0.005". Practically speaking, they really only need a flatness of 0.020", but they've over-specified to be safe (or, perhaps their CAD software defaulted to 0.005" and they didn't change it). This seemingly small difference on paper could require an entire additional manufacturing step since, to achieve a top flange flatness of 0.005" on most chambers, a post-welding machining pass is required. The result is additional set up and machine time that is ultimately unnecessary to achieve what the customer really wants.

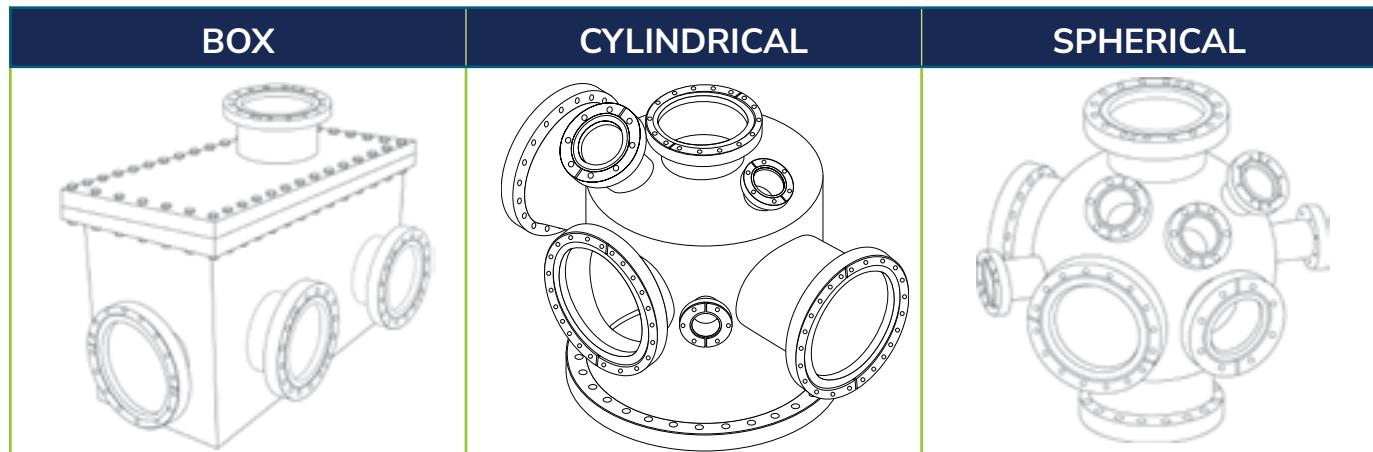
To ensure your quote is reflective of your actual needs, specify only the GD&T constraints that you truly require, and make the magnitudes of those constraints only as small as is functionally necessary.

## 3. Provide a Set of Drawings that Fully Defines the Chamber

Even if your application requires you to keep tight GD&T constraints and complex part geometries, you can save yourself valuable time by providing the manufacturer with a set of RFQ drawings that fully define your chamber (PDFs are



## Three Main Chamber Body Types



typically best).

Drawings that lack critical dimensions, don't specify tolerances, exclude a bill of materials, or don't provide enough views to fully understand the part typically provide more questions than answers to estimators. The process of compiling these questions and communicating back and forth to resolve them delays quote turnaround and costs all parties involved both time and effort. If you don't have the bandwidth to generate a fully defined set of 2D drawings, a fully defined 3D model of your chamber in STP format will usually get the job done.

These 3 simple steps will go a long way in gaining you faster quote turnaround, favorable prices, and shorter lead times.

### Applications:

- Thin Film Deposition
- High Energy Physics
- Mass Spectrometry
- Surface Analysis
- Space Simulation
- Metrology
- and more



# EMPOWERING DISCOVERY

## HIGH PRECISION CUSTOM UHV MANUFACTURING

CHAMBERS | WELDMENTS | MANIFOLDS | FITTINGS | FLANGES

**ANCORP** has been building high and ultra-high vacuum components since 1965. When your research is ready for new discoveries, our UHV chambers, weldments and fittings will help you reach your goal. Call our engineers today for a quote on your next UHV System.



# ANCORP

Empowering Science and Technology Since 1965

[www.ancorp.com](http://www.ancorp.com)

1-800-FLANGE1

# CUSTOM CONFIGURATORS



CUSTOM CONFIGURATORS

# CUSTOM FEEDTHROUGH CONFIGURATOR

Create a customized feedthrough to your tailored specifications.

1

2

3

4

5

6

7

8

9

## 1 Connection 1 Flange Style

Select your flange and flange size for Connection 1 from the chart below.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

## 2 Connection 2 Vacuum Side

Select your flange and flange size for Connection 2 from the chart below.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

## 3 Connection 3 Atmosphere Side

If customizing a hybrid feedthrough, select your flange and flange size for Connection 3 from the chart below.

**CF133xBP100xTE-025-FTST-3.00-304-304-VT**

| CODE | STYLE            | SIZES   |
|------|------------------|---|
| BP   | Baseplate        | 100   |
| SWG  | Swagelok         | 06, 12, 18, 25, 31, 38, 50, 62, 75, 87, 100                                     |
| TE   | Tube End         | (Leave Size Blank)  |
| MVCR | Male VCR         | 06, 12, 18, 25, 31, 38, 50, 62, 75, 87, 100                                     |
| FVCR | Female VCR       | 06, 12, 18, 25, 31, 38, 50, 62, 75, 87, 100                                     |
| MNPT | Male NPT         | 06, 12, 18, 25, 31, 38, 50, 62, 75, 87, 100                                     |
| FNPT | Female NPT       | 06, 12, 18, 25, 31, 38, 50, 62, 75, 87, 100                                     |
| QD   | Quick Disconnect | 06, 12, 18, 25, 31, 38, 50, 62, 75, 87, 100                                     |
| CF*  | ConFlat          | 133, 212, 275, 338, 450, 462, 600, 675, 800, 1000, 1200, 1325, 1400, 1450, 1650 |
| QF*  | Quick Flange     | 10, 16, 25, 40, 50  |

\*Can only be used for Connection 1

## 4 Shaft/ Connector O.D.

If it exists, select the outer diameter for your shaft/connector.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

| CODE | SIZE        |
|------|-------------|
| 025  | 0.25 inches |
| 038  | 0.38 inches |
| 050  | 0.50 inches |
| 075  | 0.75 inches |

## 5 Feedthrough Type

Select the type of feedthrough. If selecting a baseplate, leave this blank.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

| CODE | SIZE                      |
|------|---------------------------|
| FTHC | High Current              |
| FTRE | Rotary Elastomer          |
| FTRF | Rotary Ferro Sealed       |
| FTST | Non-Cryogenic Single Tube |
| FTDT | Non-Cryogenic Double Tube |
| FTCS | Cryogenic Single Tube     |
| FTCD | Cryogenic Double Tube     |

## 6 Overall Length

Select the overall length for your feedthrough. The default length is 3.00 inches.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

## 7 Material

Select the material for your feedthrough.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

| CODE | MATERIAL                      |
|------|-------------------------------|
| 304  | 304 Stainless Steel (Default) |
| 316  | 316 Stainless Steel           |
| BR   | Buna-N                        |
| AL   | Aluminum                      |

## 8 Voltage/Torque

If needed, select the voltage/torque for your feedthrough. Leave blank if not.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

| CODE | VOLTAGE / TORQUE |
|------|------------------|
| 50   | 50 Torque        |
| 160  | 160 Torque       |
| 400  | 400 Amp          |
| 1000 | 1000 Amp         |

## 9 Elastomer Ring Material

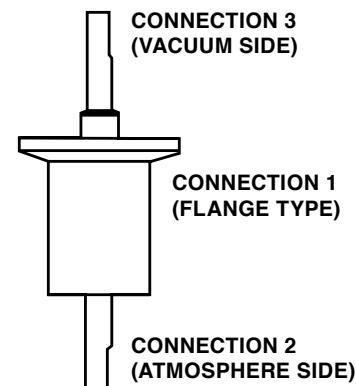
If needed, select the material for your elastomer ring.

**CF133xBP100xTE-025-FTST-3.00-304-50-VT**

| CODE | MATERIAL |
|------|----------|
| VT   | Viton    |
| BN   | Buna-N   |
| SN   | Silicon  |

### PRIORITY/REGULATION

- 1 For general feedthroughs, the flange part is omitted.
- 2 If connection 2 or 3 are identical, only Connection 2 or 3 is denoted.
- 3 Voltage refers to the transferable current (amp) and torque represents the maximum transmission torque.
- 4 Connection 2 goes to atmosphere side, whereas connection 3 stays at atmosphere side. See reference figure.
- 5 If nothing is attached on each side of the connection (just shaft), then Connection 1 and 3 are omitted.
- 6 For double feedthroughs, only one tube's overall length is measured.



### \$\$ MONEY SAVING TIP \$\$

Some options can add significant costs to manufacturing. If you're not sure exactly what you need, call one of our trained technicians for money saving tips.



**NEED ASSISTANCE?** Call one of our trained customer service representatives at 1-800-352-6431

# CUSTOM FLANGE CONFIGURATOR

Create a customized flange tailored to your specifications.

| 1<br>FLANGE<br>STYLE | 2<br>FLANGE<br>SIZE | 3<br>FLANGE<br>ATTRIBUTES | 4<br>TUBE<br>O.D. | 5<br>TYPE | 6<br>MATERIAL | 7<br>THICKNESS<br>(FOR DOUBLE SIDE) | 8<br>POLISH<br>(OPTIONAL) |     |   |      |   |    |
|----------------------|---------------------|---------------------------|-------------------|-----------|---------------|-------------------------------------|---------------------------|-----|---|------|---|----|
| CF                   | 133                 | RT                        | -                 | 075       | -             | SF                                  | -                         | 316 | - | 0.75 | - | EP |

## 1 FLANGE STYLE

Choose a flange style.

CF133RT-075-SF-316-0.75-EP

| CODE | FLANGE STYLE             | VACUUM RATING            | TEMPERATURE RANGE | SEAL(S)                           |
|------|--------------------------|--------------------------|-------------------|-----------------------------------|
| CF   | Conflat                  | 1X10 <sup>-13</sup> Torr | -200°C to 450°C   | OFHC Copper for UHV, Viton®       |
| WF   | Wire-Sealed              | 1X10 <sup>-13</sup> Torr | -200°C to 450°C   | OFHC Copper for Wire Seal, Viton® |
| QF   | ISO-Quick Flange (KF/NW) | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone            |
| LF   | ISO-Large Flange         | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone            |
| LFB  | ISO-Large Flange Bolted  | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone            |
| ASA  | ASA                      | 1X10 <sup>-8</sup> Torr  | -20°C to 200°C    | Viton®                            |

## 2 FLANGE SIZE

Next, select a **Flange Size** based on the **Flange Code** you chose in Step 1.

CF133RT-075-SF-316-0.75- EP

| CODE | FLANGE SIZES  |
|------|---|
| CF   | 133, 212, 275, 338, 450, 462, 600, 675, 800, 1000, 1200, 1325, 1400, 1450, 1650 |
| WF   | 1200, 1400, 1700, 1900, 2200, 2700  |
| QF   | 10, 16, 25, 40, 50, 63, 80, 100, 160, 200                                       |
| LF   | 63, 80, 100, 160, 200, 250, 320, 400, 500                                       |
| LFB  | 63, 80, 100, 150, 200, 250, 320, 400, 500                                       |
| ASA  | 100, 150, 200, 300, 400, 600, 800, 1000   |

## 3 FLANGE ATTRIBUTES

Customize your flange with different attributes.

CF133RT-075-SF-316-0.75-EP

| CODE | ATTRIBUTE           |
|------|---------------------|
|      | Fixed (Default)     |
|      | Clearance (Default) |
| R    | Rotatable           |
| T    | Tapped              |
| TM   | Tapped Metric       |
| BT   | Blind Tapped        |

| CODE | ATTRIBUTE           |
|------|---------------------|
| G    | Grooved (ASA only)  |
| F    | Female (WF only)    |
| M    | Male (WF only)      |
| D    | Dish-Head (WF only) |

## 4 TUBE O.D.

Choose the outer diameter (inches) for your tube.

Add 000 (0.0 in.) if blank.

CF133RT-075-SF-316-0.75-EP

| CODE | O.D. (in) |
|------|-----------|
| 050  | 0.50      |
| 075  | 0.75      |
| 100  | 1.00      |
| 125  | 1.25      |
| 150  | 1.50      |
| 200  | 2.00      |
| 300  | 3.00      |
| 400  | 4.00      |
| 600  | 6.00      |
| 800  | 8.00      |
| 1000 | 10.00     |
| 1200 | 12.00     |

## 5 FLANGE TYPE

Specify the type of flange needed.

**CF133RT-075-SF-316-0.75-EP**

| CODE | FLANGE TYPE                      |
|------|----------------------------------|
| SF   | Socket Weld                      |
| RF   | Weld Ring                        |
| US   | Unbored Stub                     |
| HNM  | Half Nipple Machined (Stub Weld) |
| BW   | Bored Weld                       |
| FNPT | Female National Pipe Thread      |
| MNPT | Male National Pipe Thread        |
| DS   | Double Sided                     |
| WN   | Weld Neck                        |
| WNB  | Weld Neck Butt Weld              |

### TECH TIP

Though a Zero Length Reducer is technically a flange, it follows the format of the nipple configurator.



### \$\$ MONEY SAVING TIP \$\$

Some options can add significant costs to manufacturing. If you're not sure exactly what you need, call one of our trained technicians for money saving tips.



**NEED ASSISTANCE?** Call one of our trained customer service representatives at 1-800-352-6431

## 6 MATERIAL

Choose from one of our different flange materials. The default material is 304, leave blank if default.

**CF133RT-075-SF-316-0.75-EP**

| CODE | TYPE OF MATERIAL              |
|------|-------------------------------|
| 304  | 304 Stainless Steel (Default) |
| 316  | 316 Stainless Steel           |
| AL   | Aluminum                      |

## 7 THICKNESS

If you chose a double-sided flange in Step 3, specify the thickness you would like for your flange here.

**CF133RT-075-SF-316-0.75-EP**

## 8 POLISH

**This is an optional step.** If you would like your flange electro-polished, you can write "EP", otherwise leave this blank.

**CF133RT-075-SF-316-0.75-EP**

# CUSTOM NIPPLE CONFIGURATOR

Create a customized nipple to your tailored to your specifications.

| 1<br>FLANGE 1 | 2<br>FLANGE 2 | 3<br>TUBE<br>O.D. | 4<br>TUBE 2 O.D.<br>(IF CONICAL) | 5<br>TYPE | 6<br>LENGTH | 7<br>MATERIAL | 8<br>POLISH<br>(OPTIONAL) |   |   |      |   |     |   |    |
|---------------|---------------|-------------------|----------------------------------|-----------|-------------|---------------|---------------------------|---|---|------|---|-----|---|----|
| CF275         | X             | CF133R            | -                                | 075       | X           | 050           | -                         | N | - | 4.00 | - | 316 | - | EP |

## 1 FLANGE 1

Follow steps **A**, **B**, and **C** to customize flange 1. If flange 1 and flange 2 are different sizes, this will be the larger flange.

**CF275XCF133R-075X050-N-4.00-316-EP**

- A.** Choose from one of our different flange styles.

| CODE | STYLE                    | VACUUM RATING            | TEMPERATURE RANGE | SEAL(S)                    |
|------|--------------------------|--------------------------|-------------------|----------------------------|
| CF   | Conflat                  | 1X10 <sup>-13</sup> Torr | -200°C to 450°C   | OFHC Copper for UHV Viton® |
| QF   | ISO-Quick Flange (KF/NW) | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone     |
| LF   | ISO-Large Flange         | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone     |
| LFB  | ISO-Large Flange Bolted  | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone     |
| ASA  | ASA                      | 1X10 <sup>-8</sup> Torr  | -20°C to 200°C    | Fluoroelastomer            |

- B.** Select a flange size based on the flange style you chose in step **A**.

| STYLE | FLANGE SIZES  |
|-------|---|
| CF    | 133, 212, 275, 338, 450, 462, 600, 675, 800, 1000, 1200, 1325, 1400, 1450, 1650 |
| QF    | 10, 16, 25, 40, 50  |
| LF    | 63, 80, 100, 160, 200, 250, 320, 400, 500                                       |
| LFB   | 63, 80, 100, 150, 200, 250, 320, 400, 500                                       |
| ASA   | 100, 150, 200, 300, 400, 600, 800, 1000   |

- C.** Select a flange attribute based on the flange style and size you chose.

| CODE | ATTRIBUTE           | CODE | ATTRIBUTE           |
|------|---------------------|------|---------------------|
|      | Fixed (Default)     | G    | Grooved (ASA only)  |
|      | Clearance (Default) | F    | Female (WF only)    |
| R    | Rotatable           | M    | Male (WF only)      |
| T    | Tapped              | D    | Dish-Head (WF only) |
| TM   | Tapped Metric       |      |                     |
| BT   | Blind Tapped        |      |                     |

If one flange is rotatable and the other is fixed, it is simply called by the fixed variant.

Example.: CF133-075-N-3.00 is one fixed and one rotatable flange

Example: CF133XCF133-075-N-3.00 is two fixed flanges

**3 TUBE O.D.**

Choose the outer diameter (inches) for your first tube.

**CF275XCF133R-075X050-N-4.00-316-EP**

**4 TUBE 2 O.D.**

If configuring a conical nipple, choose the outer diameter (inches) for your second tube. Leave blank if not.

**CF275XCF133R-075X050-N-4.00-316-EP**

**5 TYPE**

**CF275XCF133R-075X050-N-4.00-316-EP**

| CODE | TYPE                |
|------|---------------------|
| N    | Nipple              |
| HN   | Half Nipple Welded  |
| CR   | Conical Reducer     |
| ZLR  | Zero Length Reducer |

**6 NIPPLE LENGTH**

Specify the overall length (inches) of your nipple.

**CF275XCF133R-075X050-N-4.00-316-EP**

**\$\$ MONEY SAVING TIP \$\$**

Some options can add significant costs to manufacturing. If you're not sure exactly what you need, call one of our trained technicians for money saving tips.

**7 MATERIAL**

Choose from one of our different nipple materials.

**CF275XCF133R-075X050-N-4.00-316-EP**

| CODE | TYPE                          |
|------|-------------------------------|
| 304  | 304 Stainless Steel (Default) |
| 316  | 316 Stainless Steel           |

**8 POLISH (optional)**

This is an optional step. If you would like your flange electropolished, you can write "EP", otherwise leave blank.

**CF275XCF133R-075X050-N-4.00-316-EP**



**NEED ASSISTANCE:** Call one of our trained customer service representatives at 1-800-352-6431

# METAL HOSE & BELLows CONFIGURATOR

Create a customized metal hose to your specifications.

| 1        | 2        | 3         | 4    | 5      |
|----------|----------|-----------|------|--------|
| FLANGE 1 | FLANGE 2 | TUBE O.D. | TYPE | LENGTH |
| CF275    | CF133R   | - 075 -   | MH   | - 3.00 |



## 1 FLANGE 1

Follow steps **A**, **B**, and **C** to customize flange 1. If flange 1 and flange 2 are different sizes, this will be the larger flange.

### A.

First, choose from one of five different **Flange Styles**.

Example: "CF"

| FAMILY CODE | FLANGE FAMILY            | VACUUM RATING            | TEMPERATURE RANGE | SEAL(S)                              |
|-------------|--------------------------|--------------------------|-------------------|--------------------------------------|
| CF          | Conflat                  | 1X10 <sup>-13</sup> Torr | -200°C to 450°C   | OFHC Copper for UHV or Viton® gasket |
| QF          | ISO-Quick Flange (KF/NW) | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone               |
| LF          | ISO-Large Flange         | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone               |
| LFB         | ISO-Large Flange Bolted  | 1X10 <sup>-8</sup> Torr  | -50°C to 200°C    | Viton®, Buna, silicone               |
| ASA         | ASA                      | 1X10 <sup>-8</sup> Torr  | -20°C to 200°C    | Fluoroelastomer                      |
| TE          | Tube Ends                | -                        | -                 | Plain Cut Tube Ends                  |

### B.

Next, select a **Flange Size** based on the **Flange Family Code** you chose in Step **A**.

Example: "CF133"

| FAMILY CODE | FLANGE SIZES   |
|-------------|--|
| CF          | 133, 212, 275, 338, 450, 462, 600, 675, 800, 1000, 1200, 1325, 1400, 1450, 1650    |
| QF          | 10 ,16, 25, 40, 50   |
| LF          | 63, 80, 100, 160, 200, 250, 320, 400, 500  |
| LFB         | 63, 80, 100, 160, 200, 250, 320, 400, 500  |
| ASA         | 100(4.2), 150(5.0), 200(6.0), 300(7.5), 400(9.0), 600(11.0), 800(13.5), 1000(16.0) |

### C.

Finally, select a **Flange Attribute** based on the **Flange Family Code** and **Flange Size** chosen in Step **A** and **B**.

Example: "CF133T"

| CODE | ATTRIBUTE           |
|------|---------------------|
|      | Fixed (Default)     |
|      | Clearance (Default) |
| R    | Rotatable           |
| T    | Tapped              |
| TM   | Tapped Metric       |
| G    | Grooved             |

If one flange is rotatable and the other is fixed, it is simply called by the fixed variant.

Example:

CF133-075-N-3.00 is one fixed and one rotatable flange

Example:

CF133XCF133-075-N-3.00 is two fixed flanges

### 3 TUBE O.D.

Choose the outer Diameter of your hose or bellows.

Example: "CF133TXCF133R-075"

| CODE | O.D. (in) |
|------|-----------|
| 050  | 0.50      |
| 075  | 0.75      |
| 100  | 1.00      |
| 125  | 1.25      |
| 150  | 1.50      |
| 200  | 2.00      |

| CODE | O.D. (in) |
|------|-----------|
| 300  | 3.00      |
| 400  | 4.00      |
| 600  | 6.00      |
| 800  | 8.00      |
| 1000 | 10.00     |
| 1200 | 12.00     |

### 4 TYPE

Choose a Hose Type

Example: "CF133TXCF133R-075-MH"

| CODE | HOSE TYPE  | DESCRIPTION |
|------|------------|-------------|
| MH   | Metal Hose | Medium Wall |
| B    | Bellows    | Thin Wall   |

### Standard Thicknesses for Tube O.D.'s

Custom thicknesses available.

| O.D. (in) | BELLows THIN WALL | METAL HOSE MEDIUM WALL |
|-----------|-------------------|------------------------|
| 075       | 0.006             | 0.008                  |
| 100       | 0.006             | 0.008                  |
| 150       | 0.006             | 0.010                  |
| 200       | 0.006             | 0.012                  |
| 250       | 0.006             | 0.012                  |
| 300       | 0.008             | 0.016                  |
| 400       | 0.008             | 0.016                  |
| 600       | 0.010             | 0.016                  |

### \$\$ MONEY SAVING TIP \$\$

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### 5 LENGTH

Specify the length of your metal hose or bellows in inches.

Example: "CF133TXCF133R-075-MH-4.00"

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