

Section 02

CF and Wire Seal Flanges & Fittings



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CF and Wire Seal Flanges & Fittings



Quick Tip

Did you know?

ANCORP offers bimetal ConFlat (CF) flanges, allowing the ability to harness the properties of two different flange materials!



02

CF Introduction

Overview

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 commonly used in the vacuum industry and has an extensive standard product offering and fast delivery.

ANCORP CF flanges are manufactured to industry standards and are interchangeable with all other ConFlat® style flanges and fittings. Wire seal flanges are desirable for those applications that require flanges larger than those available with the CF flange system. Wire seal flanges have no standard dimension specifications. Vacuum component manufacturers endeavor to create interchangeable flanges, however, we believe 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 excellent surface finishes. During the manufacturing process, we use water-soluble, non-sulfur-based coolants. We clean the flanges in an ultrasonic deionized water-based cleaning system and vacuum package them free from visible particulates and oils, ready for immediate use in any vacuum application.

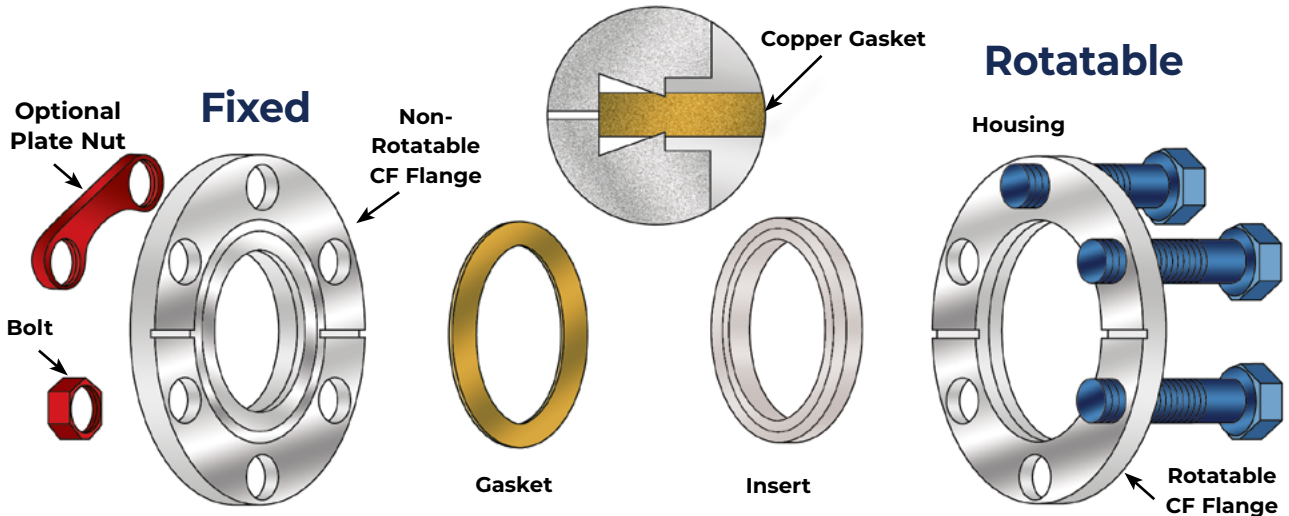
Specifications:

- Vacuum rated to 1×10^{-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 (Oxygen-Free High Thermal Conductivity) copper for ultra-high vacuum (UHV) or FKM 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)

Features:

- Reusable flanges
- 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
- Sexless flanges – CF flange system only
- Rotatable flanges for easier bolt hole alignment – CF flange system only

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 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 bolt hole rotation to ease bolt alignment when mating the two flanges.

The two pieces of the rotatable CF flange are the insert, which features the machined knife-edge, and the housing, with machined bolt holes. During installation, place the housing behind the insert on the tubing before welding the insert to the tubing.

Both fixed and rotatable flanges come with either clearance or tapped bolt holes. Clearance bolt holes allow a bolt to pass unrestricted through the flanges, and you then tighten the bolt with a nut on the back side of the flange assembly. Tapped bolt holes are threaded to receive and tighten the bolt directly without using a nut, offering an excellent space-saving option, especially when fastening a flange to a chamber wall or gate valve.

Manufacturers produce CF gaskets from either OFHC electronic grade copper or FKM elastomer. Copper gaskets, the most commonly used type in the CF flange system, provide a vacuum-tight

seal capable of ultra-high vacuum pressures and temperatures up to 450°C when compressed between the flange knife-edges. However, ANCORP recommends using a CF copper gasket only once. FKM gaskets, capable of withstanding high vacuum pressures and temperatures up to 150°C (205°C for intermittent use), are reusable and can create new vacuum-tight seals multiple times.

Manufacturers produce CF fasteners from high-tensile strength stainless steel, including bolts, nuts, and washers. ANCORP offers bolts with either a standard hex head or a 12-point head, which are silver-plated. ANCORP recommends using either high-temperature anti-seize lubricants or silver-plated bolts in high-temperature applications to prevent the bolt and nut or the threaded bolt hole from galling. Nuts are available in standard or plate nut designs, with plate nuts being the most convenient for fastening CF flanges. Plate nuts allow the tightening of adjacent bolts into one nut, eliminating the need for a second wrench to hold the nut while tightening. This feature is particularly useful when installation access is limited or when there is little 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, suitable for creating a complete vacuum system or pumping line.

Each sealing pair of CF flanges contains an identical flange face with a knife-edge machined into the surface. Place a copper or FKM sealing gasket into the gasket-capturing groove of one of these flanges. As you tighten the fastening bolts, the flanges compress the gasket. This compression forces the knife-edges of both 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 1×10^{-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.

Note: All sealing specifications are measured with the use of copper gaskets unless noted otherwise.

CF Metal Seal Flange

Fig. 1

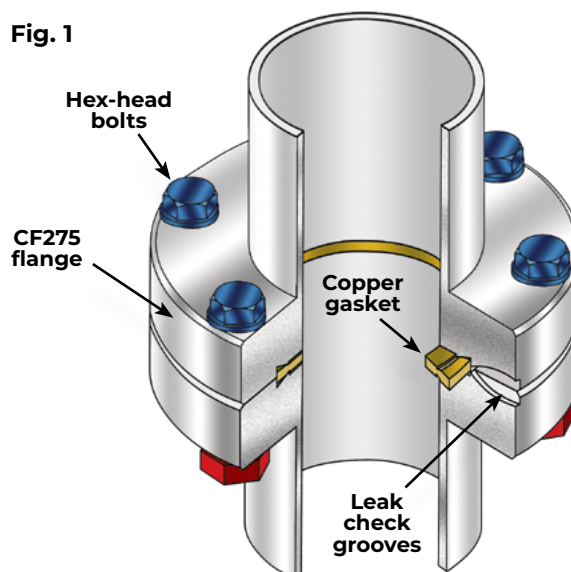
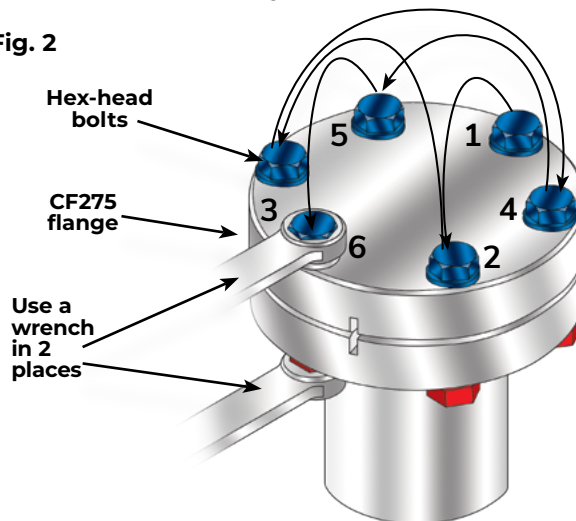


Fig. 2



Flange Size	Maximum Torque	
	Copper Gasket	FKM 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.
CF1450	26 ft. lbs.	7-10 ft. lbs.
CF1650	26 ft. lbs.	7-10 ft. lbs.

U.S. vs. Metric CF Flanges

U.S. manufacturers name CF flanges according to their outer diameter, measuring them in inches. For example, a CF600 flange has an outer diameter of approximately 6 inches.

European manufacturers identify these flanges using several methods, such as measuring the outer diameter, sizing the counterbore of the inner diameter (the region machined to accommodate tubing for welding), and determining the inner diameter of the largest through bore in millimeters. For naming conventions, manufacturers typically round these measurements to the nearest millimeter.

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 provides metric tapped flanges upon request.

Common U.S. to Metric Equivalents

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

These flanges feature the same size CF flange on both sides and are for installation between two flanges of the same size. This product offers a convenient and efficient way to add various vacuum accessories to your system, such as measurement devices, shutters, and valves.



Zero-Length Reducer CF Flanges

These flanges feature different CF flange sizes on either side, enabling direct assembly of two different sizes of CF flanges with minimal impact on the added length to your system for the transition. Zero-length reducers have the width of one standard flange.



Adaptive CF Flanges

These flanges feature various functional designs, including adaptations 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. Adaptive CF flanges are ideal for adding vacuum accessories like measurement devices, shutters, and valves to your system.



Multiport Flanges

These flanges come in three standard configurations: straight-in, angled, and cluster. Multiport flanges convert a large flange port into several smaller ports, making them essential for UHV and XHV systems that require mounting several process components like viewports, pressure gauges, and sputter sources to a single chamber.

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 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 1×10^{-13} Torr. You must carefully specify the bolt hole orientation when assembling chambers and fittings with rotatable wire seal flanges, as there are no standard options for these flanges.

Wire seal gaskets are made of either OFHC electronic grade copper wire or FKM 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 .

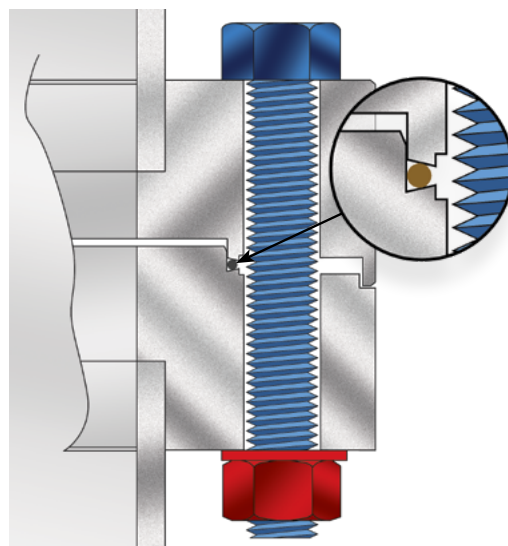
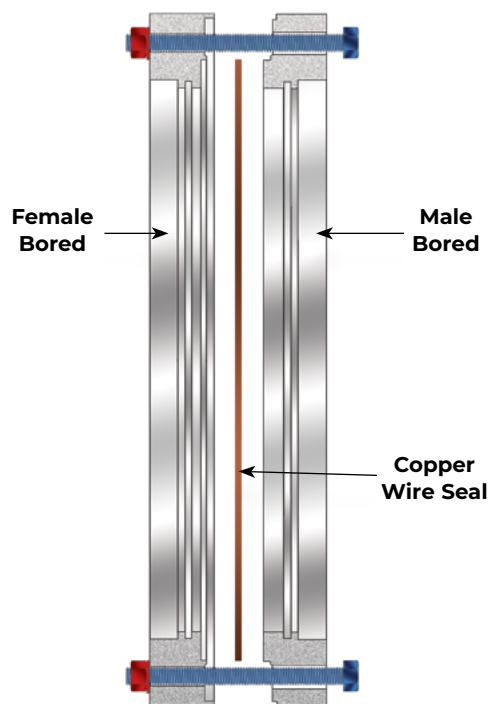
ANCORP recommends using a wire seal copper gasket for only one seal. FKM gaskets, capable of high vacuum pressures and temperatures up to 150°C (205°C for intermittent use), are reusable and can create new vacuum-tight seals multiple times.

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. Examples are bell jar systems, vacuum furnaces, deposition systems, and environmental chambers.

Note: All sealing specifications are measured with the use of copper gaskets unless noted otherwise.

Wire Seal Flange Assembly



Flange Size	Maximum Torque	
	Copper Gasket	FKM 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.

Specifications:

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

Features:

- 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 high thermal conductivity (OFHC) 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

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 for ultra-high vacuum processes with a UHV rating of approximately 1×10^{-13} Torr.



CF & Wire Seal FKM Gaskets

This alternative seal for the CF flange system is a vacuum-grade fluorocarbon elastomer gasket compressed between 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. FKM 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 and wire seal FKM gaskets are reusable, allowing the reinstallation of CF sealing assemblies often. They are the best gasket for high vacuum processes with a vacuum rating of approximately 1×10^{-8} Torr.



CF Copper Gaskets

Materials:

- OFHC Copper

Product Notes:

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



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:

- OFHC Copper

Product Notes:

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



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

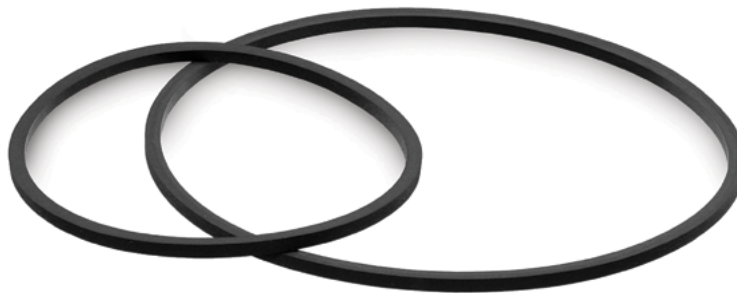
CF FKM Gaskets

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. 1×10^{-8} Torr)



Part #	Reference ID	Use with Flange	Description
0604000	CF133-GA-VT	CF133	(5) FKM Gaskets
0604001	CF212-GA-VT	CF212	(5) FKM Gaskets
0604002	CF275-GA-VT	CF275	(5) FKM Gaskets
0604003	CF338-GA-VT	CF338	(1) FKM Gasket
0604004	CF450-GA-VT	CF450	(1) FKM Gasket
0604005	CF462-GA-VT	CF462	(1) FKM Gasket
0604006	CF600-GA-VT	CF600	(1) FKM Gasket
0604007	CF675-GA-VT	CF675	(1) FKM Gasket
0604008	CF800-GA-VT	CF800	(1) FKM Gasket
0604009	CF1000-GA-VT	CF1000	(1) FKM Gasket
0604010	CF1200-GA-VT	CF1200	(1) FKM Gasket
0604011	CF1325-GA-VT	CF1325	(1) FKM Gasket
0604012	CF1400-GA-VT	CF1400	(1) FKM Gasket
0604013	CF1450-GA-VT	CF1450	(1) FKM Gasket
0604014	CF1650-GA-VT	CF1650	(1) FKM Gasket

Wire Seal FKM 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. 1×10^{-8} Torr)



Part #	Reference ID	Use with Flange	Description
0606521	WF1200-GA-VT	WF1200	(1) FKM Gasket
0606522	WF1400-GA-VT	WF1400	(1) FKM Gasket
0606523	WF1700-GA-VT	WF1700	(1) FKM Gasket
0606524	WF1900-GA-VT	WF1900	(1) FKM Gasket
0606525	WF2200-GA-VT	WF2200	(1) FKM Gasket
0606526	WF2700-GA-VT	WF2700	(1) FKM Gasket

CF and Wire Seal Flanges

02

CF and Wire Seal Flanges



ANCORP manufactures flanges for our own use as we also manufacture modular fittings (tees, elbows, and nipples), valves, feedthroughs, chambers, and other components. We offer these same flanges for customers with in-house welding capabilities and a desire to customize their system or components.

ANCORP manufactures all CF flanges to industry specifications to ensure compatibility with flanges made by other manufacturers.

Specifications:

- Vacuum rated to 1×10^{-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, 316LN stainless steel, Titanium
 - Seals: OFHC copper for ultra-high vacuum (UHV) or FKM 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)

Features:

- 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



CF Weld Flanges

These flanges feature a weld prep and tubing bore for immediate installation on your system with no additional alteration. ANCORP 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 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 tightens 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. ANCORP offers standard CF weld flanges in 304L stainless steel, 316LN stainless steel, and titanium. Bimetal flanges and other materials are available upon request.



CF Blank Flanges

CF Blank flanges have no weld prep and no tubing bore. Customers commonly use blank flanges to close unused ports or alter them with custom machining for special uses. ANCORP offers CF blank flanges in two designs: fixed and rotatable. Fixed flanges feature a set bolt hole orientation, while rotatable flanges have a two-piece design that allows bolt hole rotation for easier bolt alignment during mating.

Fixed and rotatable flanges come with two bolt hole options: clearance or tapped. Clearance bolt holes enable unrestricted passage of a bolt through the flanges, and then you tighten the bolt with a nut on the back side of the flange assembly. Tapped bolt holes have threading to receive and tighten the bolt directly without using a nut. ANCORP offers standard CF blank flanges in 304L stainless steel, 316LN stainless steel, and titanium. Bimetal flanges and other materials are available upon request.



316LN ConFlat Flanges for Sensitive UHV Applications

316LN flanges are ideal for use in magnetically sensitive UHV/XHV systems when mounting instrumentation, gauges, feedthroughs, and other components. Refined through an electroslag remelting (ESR) process, the AISI 316LN (EN 1.4429ESR) stainless steel alloy offers greater grain...



Read more:



Bimetal Flanges

Bimetal ConFlat® flanges offer users the unique ability to harness the properties of two different metal alloys in their UHV or XHV processes. Bimetal flanges utilize the explosion bonding process to join dissimilar metals, resulting in superior metal bonding. Bimetal CF flange options include stainless steel to 6061-T6 aluminum and grade 2 titanium to 6061-T6 aluminum.



Wire Seal Weld Flanges

Wire Seal Weld flanges feature 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. ANCORP offers standard wire seal bored flanges in 304L stainless steel. Other materials are available on request.



Wire Seal Blank Flanges

Wire Seal Blank flanges have no weld prep and no tubing bore. Customers commonly use blank flanges to close unused ports or alter them with custom machining for special uses. ANCORP offers CF blank flanges in two designs: male and female.

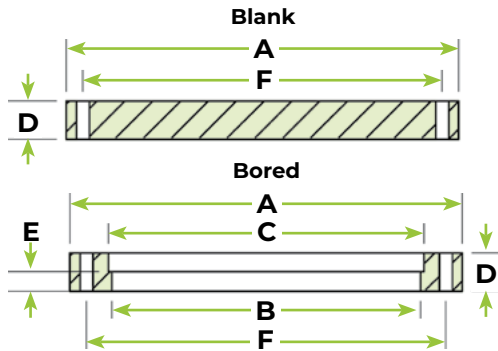
Female flanges accept the sealing gasket, while the male flange has a protruding circular ridge that fits into the gasket groove on the receiving female flange. ANCORP offers standard wire seal blank flanges in 304L stainless steel. Other materials are available on request.



CF Special Purpose Flanges

CF Special Purpose flanges can serve various 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 like measurement devices, shutters, and valves to your system.

CF 133 – 1.33-inch O.D. UHV Flanges - Fixed



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

304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000000	CF133-000	1.33	-	-	0.3	-	1.06	Clearance	6	0.17
5000003	CF133-025	1.33	0.26	-	0.3	-	1.06	Clearance	6	0.17
5000004	CF133-038	1.33	0.38	-	0.3	-	1.06	Clearance	6	0.17
5000005	CF133-050	1.33	0.51	-	0.3	-	1.06	Clearance	6	0.17
5000006	CF133-075	1.33	0.63	0.76	0.3	0.18	1.06	Clearance	6	0.17
5000009	CF133T-000	1.33	-	-	0.3	-	1.06	Tapped	6	8-32
5000012	CF133T-025	1.33	0.26	-	0.3	-	1.06	Tapped	6	8-32
5000013	CF133T-038	1.33	0.38	-	0.3	-	1.06	Tapped	6	8-32
5000014	CF133T-050	1.33	0.51	-	0.3	-	1.06	Tapped	6	8-32
5000015	CF133T-075	1.33	0.63	0.76	0.3	0.18	1.06	Tapped	6	8-32

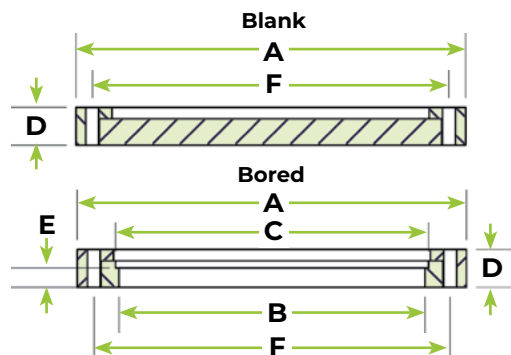
316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5004000	CF133-000-316LN	1.33	-	-	0.3	-	1.06	Clearance	6	0.17
5004007	CF133-075-316LN	1.33	0.63	0.76	0.3	0.18	1.06	Clearance	6	0.17
5004009	CF133TM-000-316LN	1.33	-	-	0.3	-	1.06	Clearance	6	M4 X 0.7
5004015	CF133TM-075-316LN	1.33	0.63	0.76	0.3	0.18	1.06	Clearance	6	M4 X 0.7

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
LOS5023000	CF133-000-TI	1.33	-	-	0.3	-	1.06	Clearance	6	0.17
LOS5023005	CF133T-000-TI	1.33	-	-	0.3	-	1.06	Tapped	6	8-32
LOS5023010	CF133TM-000-TI	1.33	-	-	0.3	-	1.06	Tapped Metric	6	M4 X 0.7

CF 133 – 1.33-inch O.D. UHV Flanges - Rotatable



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000018	CF133R-000	1.33	-	-	0.3	-	1.06	Clearance	6	0.17
5000021	CF133R-025	1.33	0.26	-	0.3	-	1.06	Clearance	6	0.17
5000022	CF133R-038	1.33	0.38	-	0.3	-	1.06	Clearance	6	0.17
5000023	CF133R-050	1.33	0.51	-	0.3	-	1.06	Clearance	6	0.17
5000024	CF133R-075	1.33	0.63	0.76	0.3	0.18	1.06	Clearance	6	0.17
5000027	CF133RT-000	1.33	-	-	0.3	-	1.06	Tapped	6	8-32
5000030	CF133RT-025	1.33	0.26	-	0.3	-	1.06	Tapped	6	8-32
5000031	CF133RT-038	1.33	0.38	-	0.3	-	1.06	Tapped	6	8-32
5000032	CF133RT-050	1.33	0.51	-	0.3	-	1.06	Tapped	6	8-32
5000033	CF133RT-075	1.33	0.63	0.76	0.3	0.18	1.06	Tapped	6	8-32

316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5004018	CF133R-000-316LN	1.33	-	-	0.3	-	1.06	Clearance	6	0.17
5004024	CF133R-075-316LN	1.33	0.63	1.06	0.3	-	1.06	Clearance	6	0.27

CF 133 Flange Hardware

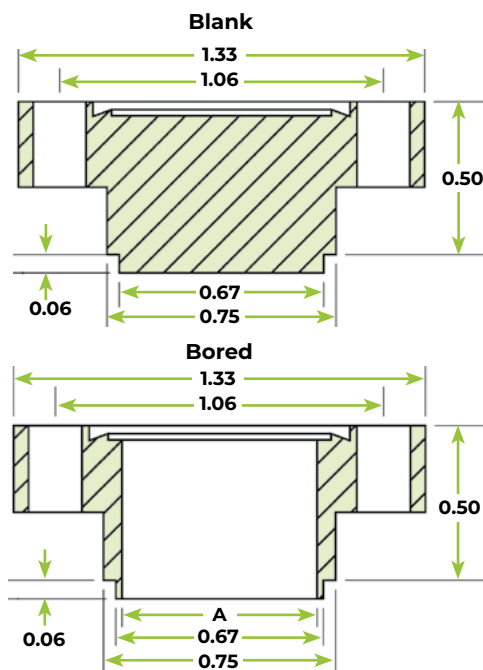
Part #	Reference ID	Description
0604020	CF133-GA-CO	(10) Copper Gaskets
0604000	CF133-GA-VT	(5) FKM Gaskets
0605105	CF133-HBK	(25) Bolt, Nut & Washer Kit 8-32x3/4 in.
0605181	CF133-HBK-SP	(25) Silver Plated Bolt, Nut & Washer Kit; 8-32x3/4 in.
0605106	CF133-HTBK	(25) Bolt & Washer Kit; 8-32x1/2 in.
0605182	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-inch O.D. UHV Flanges with Weld Neck - Fixed



Did you know?

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



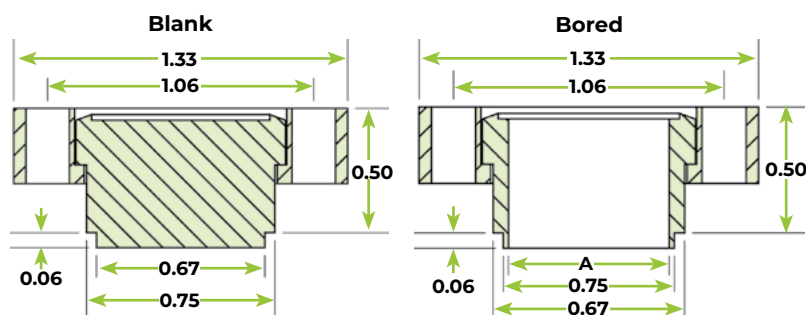
304L Stainless Steel

Part #	Reference ID	A (in)	Thread Type	Bolt Holes	
				#	Diameter
5000001	CF133-000-WN	-	Clearance	6	0.17
5000002	CF133-000-WNB	-	Clearance	6	0.17
5000007	CF133-075-WN	0.63	Clearance	6	0.17
5000008	CF133-075-WNB	0.63	Clearance	6	0.17
5000010	CF133T-000-WN	-	Tapped	6	8-32
5000011	CF133T-000-WNB	-	Tapped	6	8-32
5000016	CF133T-075-WN	0.63	Tapped	6	8-32
5000017	CF133T-075-WNB	0.63	Tapped	6	8-32

Titanium

Part #	Reference ID	A (in)	Thread Type	Bolt Holes	
				#	Diameter
LOS5023003	CF133-050-WN-TI	-	Clearance	6	0.17
LOS5023004	CF133-075-WN-TI	0.63	Clearance	6	0.17
LOS5023008	CF133T-050-WN-TI	-	Tapped	6	8-32
LOS5023009	CF133T-075-WN-TI	0.63	Tapped	6	8-32
LOS5023013	CF133TM-050-WN-TI	-	Tapped Metric	6	M4 X 0.7
LOS5023014	CF133TM-075-WN-TI	0.63	Tapped Metric	6	M4 X 0.7

CF 133 – 1.33-inch O.D. UHV Flanges with Weld Neck - Rotatable



02

CF133 Flanges

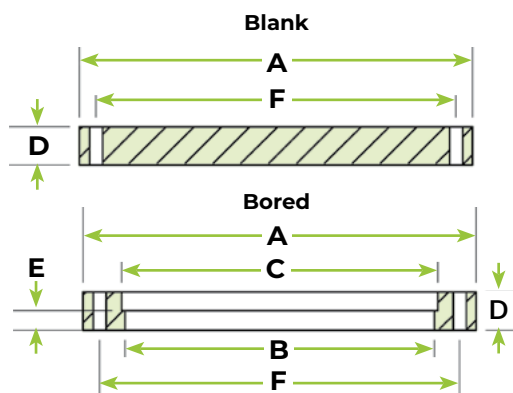
304L Stainless Steel

Part #	Reference ID	Weld Neck Type	A (in)	Thread Type	Bolt Holes	
					#	Diameter
5000019	CF133R-000-WN	Weld Neck	-	Clearance	6	0.17
5000020	CF133R-000-WNB	Weld Neck with Butt Weld	-	Clearance	6	0.17
5000025	CF133R-075-WN	Weld Neck	0.63	Clearance	6	0.17
5000026	CF133R-075-WNB	Weld Neck with Butt Weld	0.63	Clearance	6	0.17
5000028	CF133RT-000-WN	Weld Neck	-	Tapped	6	8-32
5000029	CF133RT-000-WNB	Weld Neck with Butt Weld	-	Tapped	6	8-32
5000034	CF133RT-075-WN	Weld Neck	0.63	Tapped	6	8-32
5000035	CF133RT-075-WNB	Weld Neck with Butt Weld	0.63	Tapped	6	8-32

Titanium

Part #	Reference ID	A (in)	Thread Type	Bolt Holes	
				#	Diameter
LOS5023001	CF133R-050-WN-TI	-	Clearance	6	0.17
LOS5023002	CF133R-075-WN-TI	0.63	Clearance	6	0.17
LOS5023006	CF133RT-050-WN-TI	-	Tapped	6	8-32
LOS5023007	CF133RT-075-WN-TI	0.63	Tapped	6	8-32
LOS5023011	CF133RTM-050-WN-TI	-	Tapped Metric	6	M4 X 0.7
LOS5023012	CF133RTM-075-WN-TI	0.63	Tapped Metric	6	M4 X 0.7

CF 212 – 2.125-inch O.D. UHV Flanges - Fixed



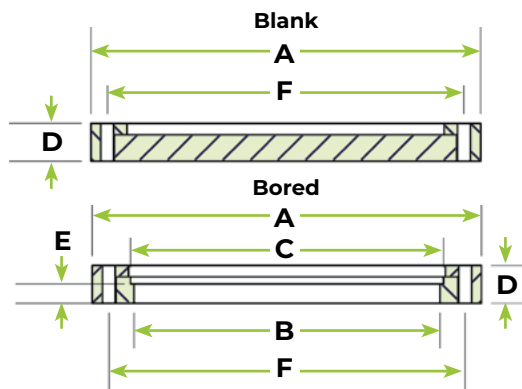
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000036	CF212-000	2.12	-	-	0.47	-	1.63	Clearance	4	0.27
5000037	CF212-025	2.12	0.26	-	0.47	-	1.63	Clearance	4	0.27
5000038	CF212-050	2.12	0.51	-	0.47	-	1.63	Clearance	4	0.27
5000039	CF212-075	2.12	0.63	0.76	0.47	0.17	1.63	Clearance	4	0.27
5000040	CF212-100	2.12	0.94	1.01	0.47	0.17	1.63	Clearance	4	0.27
5000041	CF212T-000	2.12	-	-	0.47	-	1.63	Tapped	4	1/4-28
5000042	CF212T-025	2.12	0.26	-	0.47	-	1.63	Tapped	4	1/4-28
5000043	CF212T-050	2.12	0.51	-	0.47	-	1.63	Tapped	4	1/4-28
5000044	CF212T-075	2.12	0.63	0.76	0.47	0.17	1.63	Tapped	4	1/4-28
5000045	CF212T-100	2.12	0.94	1.01	0.47	0.17	1.63	Tapped	4	1/4-28

CF 212 – 2.125-inch O.D. UHV Flanges - Rotatable

02

CF 212 Flanges



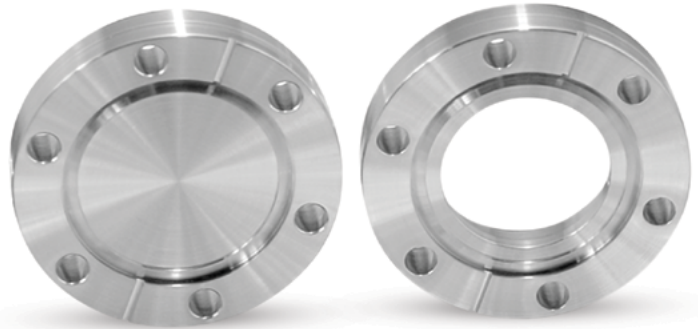
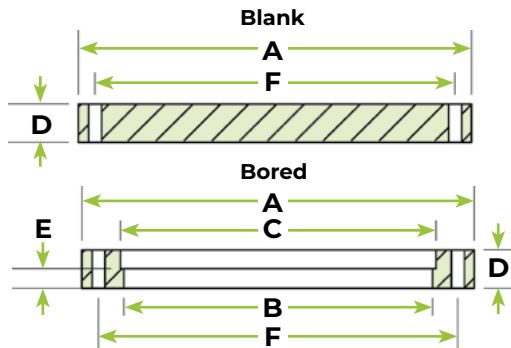
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000046	CF212R-000	2.12	-	-	0.47	-	1.63	Clearance	4	0.27
5000047	CF212R-025	2.12	0.26	-	0.47	-	1.63	Clearance	4	0.27
5000048	CF212R-050	2.12	0.51	-	0.47	-	1.63	Clearance	4	0.27
5000049	CF212R-075	2.12	0.63	0.76	0.47	0.17	1.63	Clearance	4	0.27
5000911	CF212R-100	2.12	0.94	1.01	0.47	0.17	1.63	Clearance	4	0.27
5000050	CF212RT-000	2.12	-	-	0.47	-	1.63	Tapped	4	1/4-28
5000052	CF212RT-025	2.12	0.26	-	0.47	-	1.63	Tapped	4	1/4-28
5000053	CF212RT-050	2.12	0.51	-	0.47	-	1.63	Tapped	4	1/4-28
5000054	CF212RT-075	2.12	0.63	0.76	0.47	0.17	1.63	Tapped	4	1/4-28
5000055	CF212RT-100	2.12	0.94	1.01	0.47	0.17	1.63	Tapped	4	1/4-28

CF 212 Flange Hardware

Part #	Reference ID	Description
0604022	CF212-GA-CO	(10) Copper Gaskets
0604001	CF212-GA-VT	(5) FKM 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-inch O.D. UHV Flanges - Fixed



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000056	CF275-000	2.72	-	-	0.5	-	2.31	Clearance	6	0.27
5000057	CF275-025	2.72	0.26	-	0.5	-	2.31	Clearance	6	0.27
5000058	CF275-050	2.72	0.51	-	0.5	-	2.31	Clearance	6	0.27
5000059	CF275-075	2.72	0.63	0.76	0.5	0.21	2.31	Clearance	6	0.27
5000060	CF275-100	2.72	0.88	1.01	0.5	0.21	2.31	Clearance	6	0.27
5000061	CF275-125	2.72	1.13	1.26	0.5	0.21	2.31	Clearance	6	0.27
5000062	CF275-150	2.72	1.44	1.51	0.5	0.21	2.31	Clearance	6	0.27
5000063	CF275-162	2.72	1.5	1.63	0.5	0.21	2.31	Clearance	6	0.27
5000064	CF275T-000	2.72	-	-	0.5	-	2.31	Tapped	6	1/4-28
5000065	CF275T-025	2.72	0.26	-	0.5	-	2.31	Tapped	6	1/4-28
5000066	CF275T-050	2.72	0.51	-	0.5	-	2.31	Tapped	6	1/4-28
5000067	CF275T-075	2.72	0.63	0.76	0.5	0.21	2.31	Tapped	6	1/4-28
5000068	CF275T-100	2.72	0.88	1.01	0.5	0.21	2.31	Tapped	6	1/4-28
5000069	CF275T-125	2.72	1.13	1.26	0.5	0.21	2.31	Tapped	6	1/4-28
5000070	CF275T-150	2.72	1.44	1.51	0.5	0.21	2.31	Tapped	6	1/4-28
5000071	CF275T-162	2.72	1.5	1.635	0.5	0.21	2.31	Tapped	6	1/4-28

316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5004056	CF275-000-316LN	2.72	-	-	0.5	-	2.31	Clearance	6	0.27
5004063	CF275-150-316LN	2.72	1.4	1.51	0.5	0.21	2.31	Clearance	6	0.27
5004064	CF275TM-000-316LN	2.72	-	-	0.5	-	2.31	Tapped Metric	6	M6 X 1.0
5004071	CF275TM-150-316LN	2.72	1.4	1.51	0.5	0.21	2.31	Tapped Metric	6	M6 X 1.0

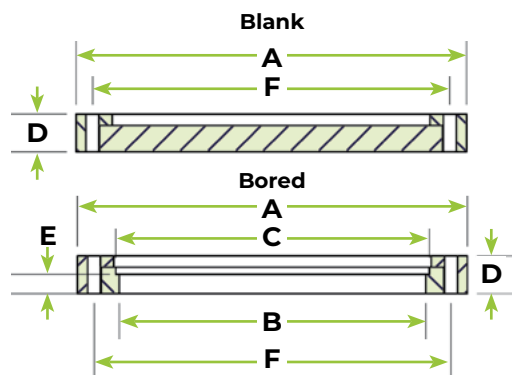
Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
LOS5023015	CF275-000-TI	2.72	-	-	0.5	-	2.31	Clearance	6	0.27
LOS5023018	CF275-125-TI	2.72	1.13	1.26	0.5	0.21	2.31	Clearance	6	0.27
LOS5023019	CF275-150-TI	2.72	1.44	1.51	0.5	0.21	2.31	Clearance	6	0.27
LOS5023020	CF275T-000-TI	2.72	-	-	0.5	-	2.31	Tapped	6	1/4-28
LOS5023023	CF275T-125-TI	2.72	1.13	1.26	0.5	0.21	2.31	Tapped	6	1/4-28
LOS5023024	CF275T-150-TI	2.72	1.44	1.51	0.5	0.21	2.31	Tapped	6	1/4-28
LOS5023025	CF275TM-000-TI	2.72	-	-	0.5	-	2.31	Tapped Metric	6	M6 X 1.0
LOS5023028	CF275TM-125-TI	2.72	1.13	1.26	0.5	0.21	2.31	Tapped Metric	6	M6 X 1.0
LOS5023029	CF275TM-150-TI	2.72	1.44	1.51	0.5	0.21	2.31	Tapped Metric	6	M6 X 1.0

CF 275 – 2.75-inch O.D. UHV Flanges - Rotatable

02

CF 275 Flanges



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000072	CF275R-000	2.72	-	-	0.5	-	2.31	Clearance	6	0.27
5000073	CF275R-025	2.72	0.26	-	0.5	-	2.31	Clearance	6	0.27
5000074	CF275R-050	2.72	0.51	-	0.5	-	2.31	Clearance	6	0.27
5000075	CF275R-075	2.72	0.63	0.76	0.5	0.21	2.31	Clearance	6	0.27
5000076	CF275R-100	2.72	0.88	1.01	0.5	0.21	2.31	Clearance	6	0.27
5000077	CF275R-125	2.72	1.13	1.26	0.5	0.21	2.31	Clearance	6	0.27
5000078	CF275R-150	2.72	1.44	1.51	0.5	0.21	2.31	Clearance	6	0.27
5000079	CF275R-162	2.72	1.5	1.63	0.5	0.21	2.31	Clearance	6	0.27
5000080	CF275RT-000	2.72	-	-	0.5	-	2.31	Tapped	6	1/4-28
5000081	CF275RT-025	2.72	0.26	-	0.5	-	2.31	Tapped	6	1/4-28
5000082	CF275RT-050	2.72	0.51	-	0.5	-	2.31	Tapped	6	1/4-28
5000083	CF275RT-075	2.72	0.63	0.76	0.5	0.21	2.31	Tapped	6	1/4-28
5000084	CF275RT-100	2.72	0.88	1.01	0.5	0.21	2.31	Tapped	6	1/4-28
5000085	CF275RT-125	2.72	1.13	1.26	0.5	0.21	2.31	Tapped	6	1/4-28
5000086	CF275RT-150	2.72	1.44	1.51	0.5	0.21	2.31	Tapped	6	1/4-28
5000087	CF275RT-162	2.72	1.5	1.63	0.5	0.21	2.31	Tapped	6	1/4-28

316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5004072	CF275R-000-316LN	2.72	-	-	0.5	-	2.31	Clearance	6	0.27
5004079	CF275R-162-316LN	2.72	1.4	1.51	0.5	0.21	2.31	Clearance	6	0.27

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
LOS5023016	CF275R-125-TI	2.72	1.13	1.26	0.5	0.21	2.31	Clearance	6	0.27
LOS5023017	CF275R-150-TI	2.72	1.44	1.51	0.5	0.21	2.31	Clearance	6	0.27
LOS5023021	CF275RT-125-TI	2.72	1.13	1.26	0.5	0.21	2.31	Tapped	6	1/4-28
LOS5023022	CF275RT-150-TI	2.72	1.44	1.51	0.5	0.21	2.31	Tapped	6	1/4-28
LOS5023026	CF275RTM-125-TI	2.72	1.13	1.26	0.5	0.21	2.31	Tapped Metric	6	M6 X 1.0
LOS5023027	CF275RTM-150-TI	2.72	1.44	1.51	0.5	0.21	2.31	Tapped Metric	6	M6 X 1.0

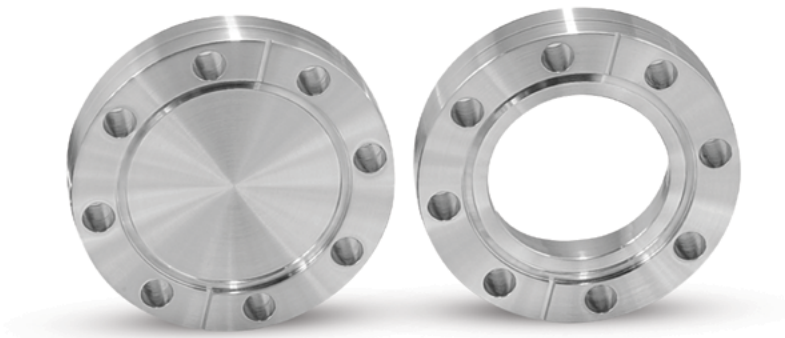
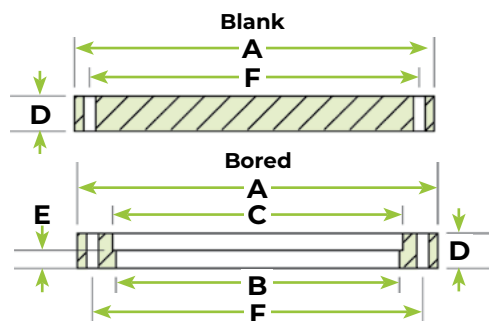
CF 275 - Flange Hardware

Part #	Reference ID	Description
0604024	CF275-GA-CO	(10) Copper Gaskets
0604025	CF275-GA-CO-SD	(10) Copper Gaskets; Solid
0604002	CF275-GA-VT	(5) FKM 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-inch O.D. UHV Flanges - Fixed

02

CF 338 Flanges



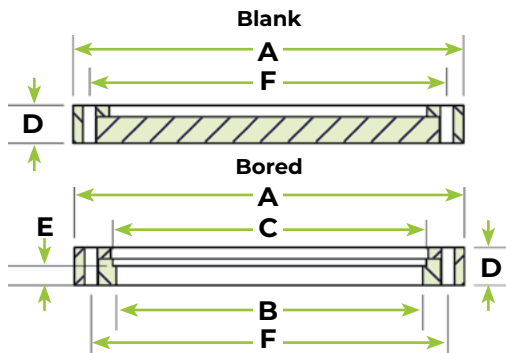
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000088	CF338-000	3.37	-	-	0.625	-	2.85	Clearance	8	0.332
5000089	CF338-150	3.37	1.375	1.51	0.625	0.225	2.85	Clearance	8	0.332
5000090	CF338-200	3.37	1.875	2.01	0.625	0.225	2.85	Clearance	8	0.332
5000091	CF338T-000	3.37	-	-	0.625	-	2.85	Tapped	8	5/16-24
5000092	CF338T-150	3.37	1.375	1.51	0.625	0.225	2.85	Tapped	8	5/16-24
5000093	CF338T-200	3.37	1.875	2.01	0.625	0.225	2.85	Tapped	8	5/16-24

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
LOS5023030	CF338-000-TI	3.37	-	-	0.625	-	2.85	Clearance	8	0.332
LOS5023032	CF338-200-TI	3.37	1.875	2.01	0.625	0.225	2.85	Clearance	8	0.332
LOS5023033	CF338T-000-TI	3.37	-	-	0.625	-	2.85	Tapped	8	5/16-24
LOS5023035	CF338T-200-TI	3.37	1.875	2.01	0.625	0.225	2.85	Tapped	8	5/16-24
LOS5023036	CF338TM-000-TI	3.37	-	-	0.625	-	2.85	Tapped Metric	8	M8 X 1.25
LOS5023038	CF338TM-200-TI	3.37	1.875	2.01	0.625	0.225	2.85	Tapped Metric	8	M8 X 1.25

CF 338 – 3.375-inch O.D. UHV Flanges - Rotatable



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000094	CF338R-000	3.37	-	-	0.68	-	2.85	Clearance	8	0.332
5000095	CF338R-150	3.37	1.375	1.51	0.68	0.225	2.85	Clearance	8	0.332
5000096	CF338R-200	3.37	1.875	2.01	0.68	0.225	2.85	Clearance	8	0.332
5000097	CF338RT-000	3.37	-	-	0.68	-	2.85	Tapped	8	5/16-24
5000098	CF338RT-150	3.37	1.375	1.51	0.68	0.225	2.85	Tapped	8	5/16-24
5000099	CF338RT-200	3.37	1.875	2.01	0.68	0.225	2.85	Tapped	8	5/16-24

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
LOS5023031	CF338R-200-TI	3.37	1.875	2.01	0.68	0.225	2.85	Clearance	8	0.332
LOS5023034	CF338RT-200-TI	3.37	1.875	2.01	0.68	0.225	2.85	Tapped	8	5/16-24
LOS5023037	CF338RTM-200-TI	3.37	1.875	2.01	0.68	0.225	2.85	Tapped Metric	8	M8 X 1.25

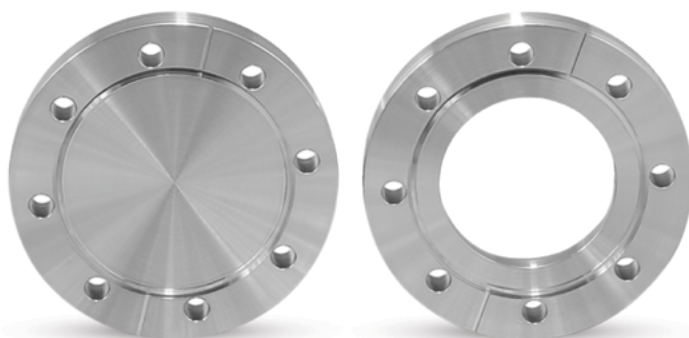
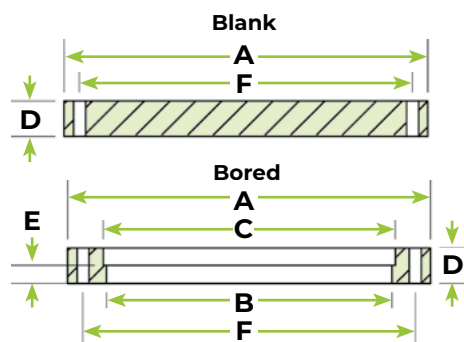
CF 338 Flange Hardware

Part #	Reference ID	Description
0604027	CF338-GA-CO	(10) Copper Gaskets
0604003	CF338-GA-VT	(1) FKM 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-inch O.D. UHV Flanges - Fixed

02

CF 450 Flanges



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000100	CF450-000	4.47	-	-	0.71	-	3.63	Clearance	8	0.332
5000101	CF450-150	4.47	1.38	1.51	0.71	0.37	3.63	Clearance	8	0.332
5000102	CF450-200	4.47	1.94	2.01	0.71	0.37	3.63	Clearance	8	0.332
5000103	CF450-250	4.47	2.44	2.51	0.71	0.37	3.63	Clearance	8	0.332
5000104	CF450T-000	4.47	-	-	0.71	-	3.63	Tapped	8	5/16-24
5000105	CF450T-150	4.47	1.38	1.51	0.71	0.37	3.63	Tapped	8	5/16-24
5000106	CF450T-200	4.47	1.94	2.01	0.71	0.37	3.63	Tapped	8	5/16-24
5000107	CF450T-250	4.47	2.44	2.51	0.71	0.37	3.63	Tapped	8	5/16-24

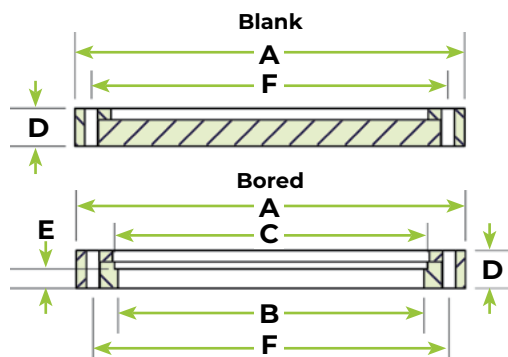
316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5004100	CF450-000-316LN	4.47	-	-	0.71	-	3.63	Clearance	8	0.33
5004103	CF450-250-316LN	4.47	2.38	2.51	0.71	0.37	3.63	Clearance	8	0.33
5004104	CF450TM-000-316LN	4.47	-	-	0.71	-	3.63	Tapped Metric	8	M8 X 1.25
5004107	CF450TM-250-316LN	4.47	2.44	2.51	0.71	0.37	3.63	Tapped Metric	8	M8 X 1.25

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
LOS5023039	CF450-000-TI	4.47	-	-	0.71	-	3.63	Clearance	8	0.332
LOS5023042	CF450-200-TI	4.47	1.94	2.01	0.71	0.37	3.63	Clearance	8	0.332
LOS5023043	CF450-250-TI	4.47	2.44	2.51	0.71	0.37	3.63	Clearance	8	0.332
LOS5023044	CF450T-000-TI	4.47	-	-	0.71	-	3.63	Tapped	8	5/16-24
LOS5023047	CF450T-200-TI	4.47	1.94	2.01	0.71	0.37	3.63	Tapped	8	5/16-24
LOS5023048	CF450T-250-TI	4.47	2.44	2.51	0.71	0.37	3.63	Tapped	8	5/16-24
LOS5023049	CF450TM-000-TI	4.47	-	-	0.71	-	3.63	Tapped Metric	8	M8 X 1.25
LOS5023052	CF450TM-200-TI	4.47	1.94	2.01	0.71	0.37	3.63	Tapped Metric	8	M8 X 1.25
LOS5023053	CF450TM-250-TI	4.47	2.44	2.51	0.71	0.37	3.63	Tapped Metric	8	M8 X 1.25

CF 450 - 4.5-inch O.D. UHV Flanges - Rotatable



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000108	CF450R-000	4.47	-	-	0.75	-	3.63	Clearance	8	0.332
5000109	CF450R-150	4.47	1.38	1.51	0.75	0.37	3.63	Clearance	8	0.332
5000110	CF450R-200	4.47	1.94	2.01	0.75	0.37	3.63	Clearance	8	0.332
5000111	CF450R-250	4.47	2.44	2.51	0.75	0.37	3.63	Clearance	8	0.332
5000112	CF450RT-000	4.47	-	-	0.75	-	3.63	Tapped	8	5/16-24
5000113	CF450RT-150	4.47	1.38	1.51	0.75	0.37	3.63	Tapped	8	5/16-24
5000114	CF450RT-200	4.47	1.94	2.01	0.75	0.37	3.63	Tapped	8	5/16-24
5000115	CF450RT-250	4.47	2.44	2.51	0.75	0.37	3.63	Tapped	8	5/16-24

316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5004108	CF450R-000-316LN	4.47	-	-	0.75	-	3.63	Clearance	8	0.332
5004111	CF450R-250-316LN	4.47	2.58	2.51	0.75	0.37	3.63	Clearance	8	0.332

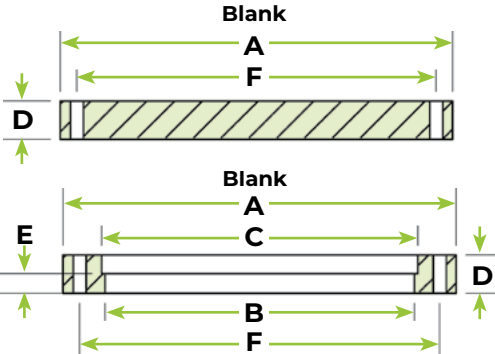
Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
LOS5023040	CF450R-200-TI	4.47	1.94	2.01	0.75	0.37	3.63	Clearance	8	0.332
LOS5023041	CF450R-250-TI	4.47	2.44	2.51	0.75	0.37	3.63	Clearance	8	0.332
LOS5023045	CF450RT-200-TI	4.47	1.94	2.01	0.75	0.37	3.63	Tapped	8	5/16-24
LOS5023046	CF450RT-250-TI	4.47	2.44	2.51	0.75	0.37	3.63	Tapped	8	5/16-24
LOS5023050	CF450RTM-200-TI	4.47	1.94	2.01	0.75	0.37	3.63	Tapped Metric	8	M8 X 1.25
LOS5023051	CF450RTM-250-TI	4.47	2.44	2.51	0.75	0.37	3.63	Tapped Metric	8	M8 X 1.25

CF 450 Flange Hardware

Part #	Reference ID	Description
0604029	CF450-GA-CO	(10) Copper Gaskets
0604004	CF450-GA-VT	(1) FKM 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 - 4.62-inch O.D. UHV Flanges - Fixed



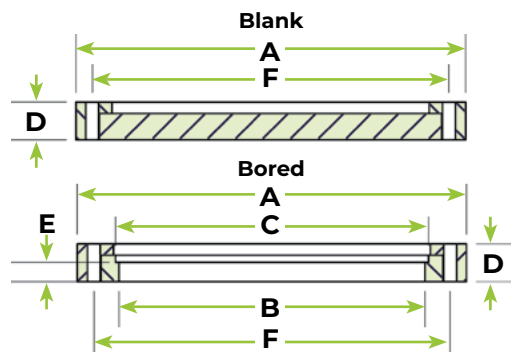
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000116	CF462-000	4.62	-	-	0.75	-	4.03	Clearance	10	0.332
5000117	CF462-250	4.62	2.38	2.51	0.75	0.38	4.03	Clearance	10	0.332
5000118	CF462-300	4.62	2.88	3.01	0.75	0.38	4.03	Clearance	10	0.332
5000119	CF462T-000	4.62	-	-	0.75	-	4.03	Tapped	10	5/16-24
5000120	CF462T-250	4.62	2.38	2.51	0.75	0.38	4.03	Tapped	10	5/16-24
5000121	CF462T-300	4.62	2.88	3.01	0.75	0.38	4.03	Tapped	10	5/16-24

CF 462 - 4.62-inch O.D. UHV Flanges - Rotatable

02

CF 462 Flanges



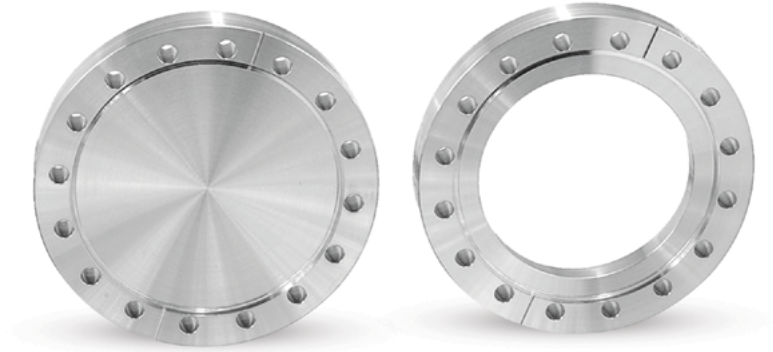
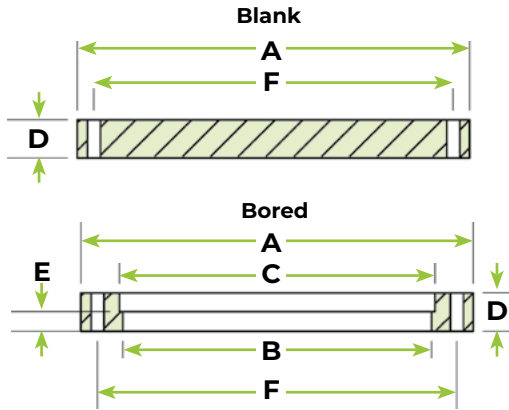
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000122	CF462R-000	4.62	-	-	0.81	-	4.03	Clearance	10	0.332
5000123	CF462R-250	4.62	2.44	2.51	0.81	0.38	4.03	Clearance	10	0.332
5000124	CF462R-300	4.62	2.94	3.01	0.81	0.38	4.03	Clearance	10	0.332
5000125	CF462RT-000	4.62	-	-	0.81	-	4.03	Tapped	10	5/16-24
5000126	CF462RT-250	4.62	2.44	2.51	0.81	0.38	4.03	Tapped	10	5/16-24
5000127	CF462RT-300	4.62	2.94	3.01	0.81	0.38	4.03	Tapped	10	5/16-24

CF 462 Flange Hardware

Part #	Reference ID	Description
0604031	CF462-GA-CO	(10) Copper Gaskets
0604005	CF462-GA-VT	(1) FKM 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-inch O.D. UHV Flanges - Fixed



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000128	CF600-000	5.97	-	-	0.79	-	5.13	Clearance	16	0.332
5000129	CF600-400	5.97	3.87	4.02	0.79	0.44	5.13	Clearance	16	0.332
5000130	CF600T-000	5.97	-	-	0.79	-	5.13	Tapped	16	5/16-24
5000131	CF600T-400	5.97	3.87	4.02	0.79	0.44	5.13	Tapped	16	5/16-24

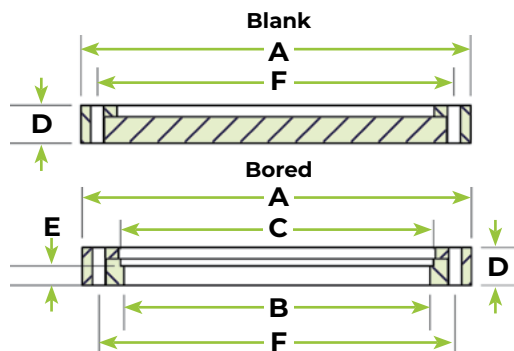
316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5004128	CF600-000-316LN	5.97	-	-	0.79	-	5.13	Clearance	16	0.332
5004129	CF600-400-316LN	5.97	3.87	4.02	0.79	0.44	5.13	Clearance	16	0.332
5004130	CF600TM-000-316LN	5.97	-	-	0.79	-	5.13	Tapped Metric	16	M8 X 1.25
5004131	CF600TM-400-316LN	5.97	3.87	4.02	0.79	0.44	5.13	Tapped Metric	16	M8 X 1.25

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
LOS5023054	CF600-000-TI	5.97	-	-	0.79	-	5.13	Clearance	16	0.332
LOS5023056	CF600-400-TI	5.97	3.87	4.02	0.79	0.44	5.13	Clearance	16	0.332
LOS5023057	CF600T-000-TI	5.97	-	-	0.79	-	5.13	Tapped	16	5/16-24
LOS5023059	CF600T-400-TI	5.97	3.87	4.02	0.79	0.44	5.13	Tapped	16	5/16-24
LOS5023060	CF600TM-000-TI	5.97	-	-	0.79	-	5.13	Tapped Metric	16	M8 X 1.25
LOS5023062	CF600TM-400-TI	5.97	3.87	4.02	0.79	0.44	5.13	Tapped Metric	16	M8 X 1.25

CF 600 - 6-inch O.D. UHV Flanges - Rotatable



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5000132	CF600R-000	5.97	-	-	0.79	-	5.128	Clearance	16	0.332
5000133	CF600R-400	5.97	3.87	4.01	0.79	0.437	5.128	Clearance	16	0.332
5000134	CF600RT-000	5.97	-	-	0.79	-	5.128	Tapped	16	5/16-24
5000135	CF600RT-400	5.97	3.87	4.01	0.79	0.437	5.128	Tapped	16	5/16-24

316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5004132	CF600R-000-316LN	5.97	-	-	0.79	-	5.128	Clearance	16	0.332
5004133	CF600R-400-316LN	5.97	3.87	4.01	0.79	0.437	5.128	Clearance	16	0.332

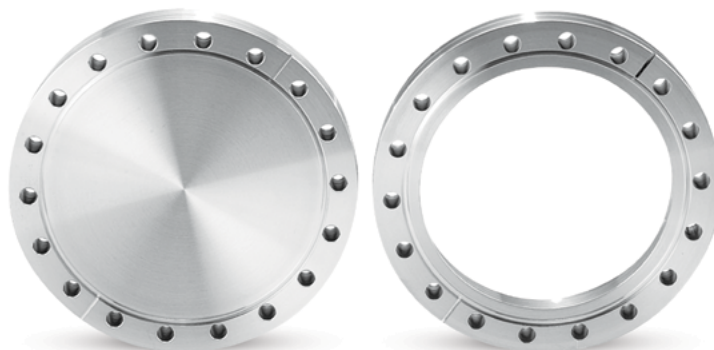
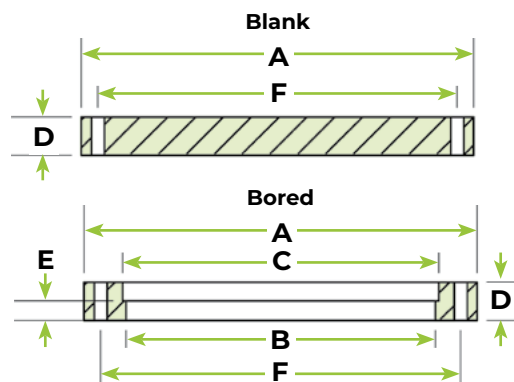
Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5023055	CF600R-400-TI	5.97	3.87	4.01	0.79	0.437	5.128	Clearance	16	0.332
LOS5023058	CF600RT-400-TI	5.97	3.87	4.01	0.79	0.437	5.128	Tapped	16	5/16-24
LOS5023061	CF600RTM-400-TI	5.97	3.87	4.01	0.79	0.437	5.128	Tapped Metric	16	M8 X 1.25

CF 600 Flange Hardware

Part #	Reference ID	Description
0604033	CF600-GA-CO	(10) Copper Gaskets
0604006	CF600-GA-VT	(1) FKM 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-inch O.D. UHV Flanges - Fixed



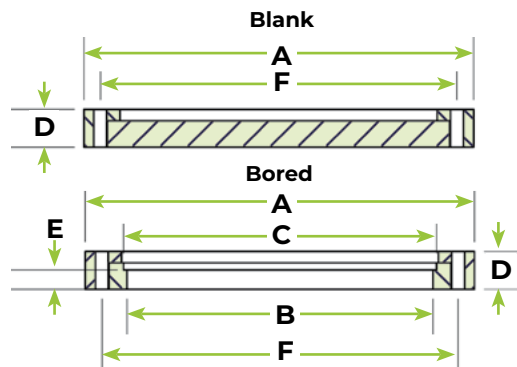
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000136	CF675-000	6.75	-	-	0.84	-	5.97	Clearance	18	0.332
5000137	CF675-400	6.75	3.88	4.01	0.84	0.46	5.97	Clearance	18	0.332
5000138	CF675-500	6.75	4.88	5.02	0.84	0.46	5.97	Clearance	18	0.332
5000139	CF675T-000	6.75	-	-	0.84	-	5.97	Tapped	18	5/16-24
5000140	CF675T-400	6.75	3.88	4.01	0.84	0.46	5.97	Tapped	18	5/16-24
5000141	CF675T-500	6.75	4.88	5.02	0.84	0.46	5.97	Tapped	18	5/16-24

CF 675 - 6.75-inch O.D. UHV Flanges - Rotatable

02

CF 675 Flanges



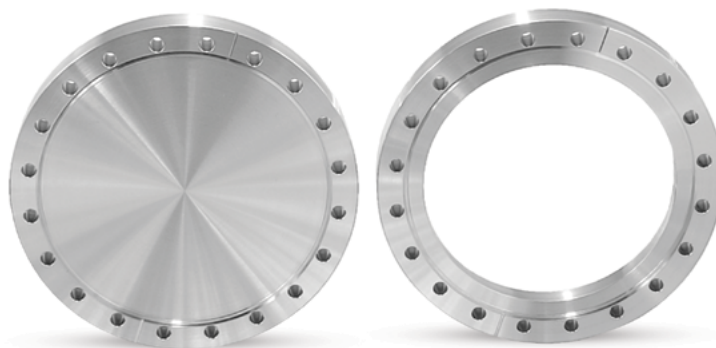
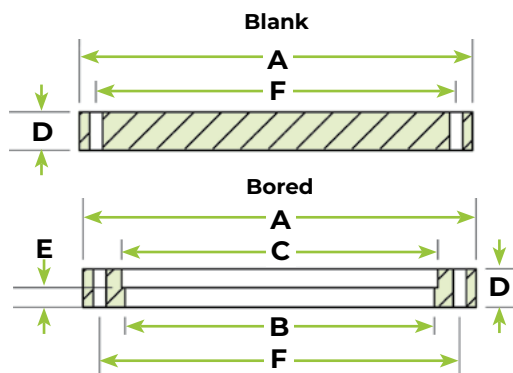
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000142	CF675R-000	6.75	-	-	0.84	-	5.97	Clearance	18	0.332
5000143	CF675R-400	6.75	3.81	4.01	0.84	0.46	5.97	Clearance	18	0.332
5000144	CF675R-500	6.75	4.88	5.01	0.84	0.46	5.97	Clearance	18	0.332
5000145	CF675RT-000	6.75	-	-	0.84	-	5.97	Tapped	18	5/16-24
5000146	CF675RT-400	6.75	3.81	4.01	0.84	0.46	5.97	Tapped	18	5/16-24
5000147	CF675RT-500	6.75	4.88	5.01	0.84	0.46	5.97	Tapped	18	5/16-24

CF 675 Flange Hardware

Part #	Reference ID	Description
0604035	CF675-GA-CO	(10) Copper Gaskets
0604007	CF675-GA-VT	(1) FKM Gasket
0605153	CF675-HBK	(25) Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.
0605155	CF675-12BK	(25) 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.
0605154	CF675-HTBK	(25) Bolt & Washer Kit; 5/16-24x1 1/2
0605196	CF675-12BK-SP	(25) Silver Plated 12-point Bolt, Nut & Washer Kit; 5/16-24x2 1/4 in.
0605156	CF675-12TBK	(25) 12-point Bolt & Washer Kit; 5/16-24x1 1/4 in.
0605195	CF675-12TBK-SP	(25) Silver Plated 12-point Bolt & Washer Kit; 5/16-24x1 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 800 - 8-inch O.D. UHV Flanges - Fixed



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5000148	CF800-000	7.97	-	-	0.88	-	7.13	Clearance	20	0.332
5000149	CF800-600	7.97	5.84	6.02	0.88	0.5	7.13	Clearance	20	0.332
5000150	CF800T-000	7.97	-	-	0.88	-	7.13	Tapped	20	5/16-24
5000151	CF800T-600	7.97	5.84	6.02	0.88	0.5	7.13	Tapped	20	5/16-24

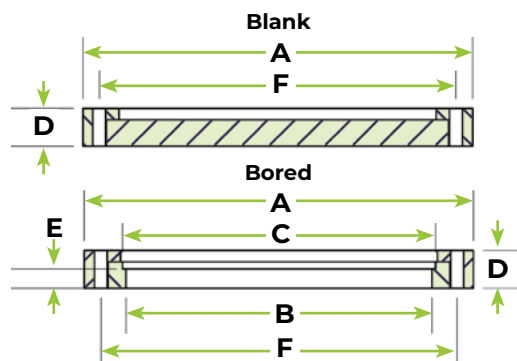
316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5004148	CF800-000-316LN	7.97	-	-	0.88	-	7.13	Clearance	20	0.332
5004149	CF800-600-316LN	7.97	5.84	6.02	0.88	0.5	7.13	Clearance	20	0.332
5004150	CF800TM-000-316LN	7.97	-	-	0.88	-	7.13	Tapped Metric	20	M8 X 1.25
5004151	CF800TM-600-316LN	7.97	5.84	6.02	0.88	0.5	7.13	Tapped Metric	20	M8 X 1.25

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5023063	CF800-000-TI	7.97	-	-	0.88	-	7.13	Clearance	20	0.332
LOS5023065	CF800-600-TI	7.97	5.84	6.02	0.88	0.5	7.13	Clearance	20	0.332
LOS5023066	CF800T-000-TI	7.97	-	-	0.88	-	7.13	Threaded	20	5/16-24
LOS5023068	CF800T-600-TI	7.97	5.84	6.02	0.88	0.5	7.13	Threaded	20	5/16-24
LOS5023069	CF800TM-000-TI	7.97	-	-	0.88	-	7.13	Tapped Metric	20	M8 X 1.25
LOS5023062	CF600TM-400-TI	5.97	3.92	4.02	0.78	0.44	5.13	Tapped Metric	20	M8 X 1.25
LOS5023071	CF800TM-600-TI	7.97	5.84	6.02	0.88	0.5	7.13	Threaded Metric	20	M8 X 1.25

CF 800 - 8-inch O.D. UHV Flanges - Rotatable



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5000132	CF600R-000	5.97	-	-	0.84	-	5.128	Clearance	20	0.332
5000133	CF600R-400	5.97	3.81	4.01	0.84	0.437	5.128	Clearance	20	0.332
5000134	CF600RT-000	5.97	-	-	0.84	-	5.128	Tapped	20	5/16-24
5000135	CF600RT-400	5.97	3.81	4.01	0.84	0.437	5.128	Tapped	20	5/16-24

316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5004152	CF800R-000-316LN	7.97	-	-	0.94	-	7.13	Clearance	20	0.332
5004153	CF800R-600-316LN	7.97	6.13	6.75	0.94	0.5	7.13	Clearance	20	0.332

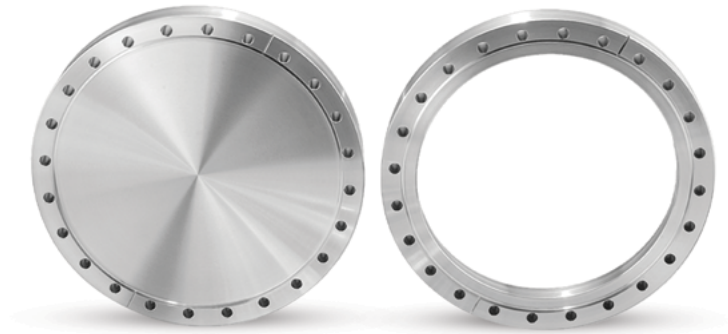
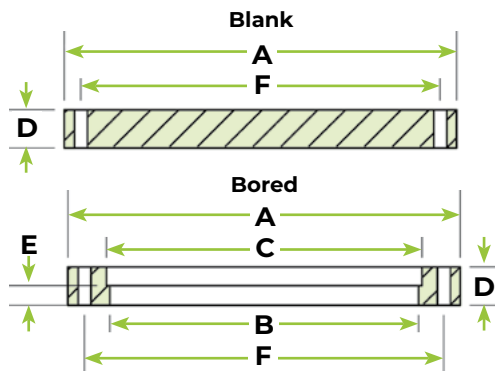
Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5023064	CF800R-600-TI	7.97	6.13	6.75	0.94	0.5	7.13	Clearance	20	0.332
LOS5023067	CF800RT-600-TI	7.97	6.13	6.75	0.94	0.5	7.13	Threaded	20	5/16-24
LOS5023070	CF800RTM-600-TI	7.97	6.13	6.75	0.94	0.5	7.13	Tapped Metric	20	M8 X 1.25

CF 800 Flange Hardware

Part #	Reference ID	Description
0604037	CF800-GA-CO	(10) Copper Gaskets
0604008	CF800-GA-VT	(1) FKM 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-inch O.D. UHV Flanges - Fixed



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5000156	CF1000-000	9.97	-	-	0.97	-	9.13	Clearance	24	0.332
5000157	CF1000-800	9.97	7.83	8.02	0.97	0.5	9.13	Clearance	24	0.332
5000158	CF1000T-000	9.97	-	-	0.97	-	9.13	Tapped	24	5/16-24
5000159	CF1000T-800	9.97	7.83	8.02	0.97	0.5	9.13	Tapped	24	5/16-24

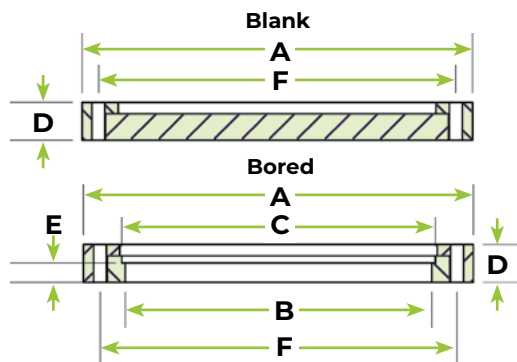
316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5004156	CF1000-000-316LN	9.97	-	-	0.97	-	9.13	Clearance	24	0.332
5004157	CF1000-800-316LN	9.97	7.83	8.02	0.97	0.5	9.13	Clearance	24	0.332
5004158	CF1000TM-000-316LN	9.97	-	-	0.97	-	9.13	Tapped Metric	24	M8 X 1.25
5004159	CF1000TM-800-316LN	9.97	7.83	8.02	0.97	0.5	9.13	Tapped Metric	24	M8 X 1.25

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5023072	CF1000-000-TI	9.97	-	-	0.97	-	9.13	Clearance	24	0.332
LOS5023074	CF1000-800-TI	9.97	7.83	8.02	0.97	0.5	9.13	Clearance	24	0.332
LOS5023075	CF1000T-000-TI	9.97	-	-	0.97	-	9.13	Threaded	24	5/16-24
LOS5023077	CF1000T-800-TI	9.97	7.83	8.02	0.97	0.5	9.13	Threaded Metric	24	M8 X 1.25
LOS5023078	CF1000TM-000-TI	9.97	-	-	0.97	-	9.13	Threaded Metric	24	M8 X 1.25
LOS5023080	CF1000TM-800-TI	9.97	7.83	8.02	0.97	0.5	9.13	Threaded Metric	24	M8 X 1.25

CF 1000 - 10-inch O.D. UHV Flanges - Rotatable



02

CF 1000 Flanges

304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000160	CF1000R-000	9.97	-	-	0.97	-	9.13	Clearance	24	0.332
5000161	CF1000R-800	9.97	7.83	8.02	0.97	0.5	9.13	Clearance	24	0.332
5000162	CF1000RT-000	9.97	-	-	0.97	-	9.13	Tapped	24	5/16-24
5000163	CF1000RT-800	9.97	7.83	8.02	0.97	0.5	9.13	Tapped	24	5/16-24

316LN Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5004160	CF1000R-000-316LN	9.97	-	-	0.97	-	9.13	Clearance	24	0.332
5004161	CF1000R-800-316LN	9.97	7.83	8.02	0.97	0.5	9.13	Clearance	24	0.332

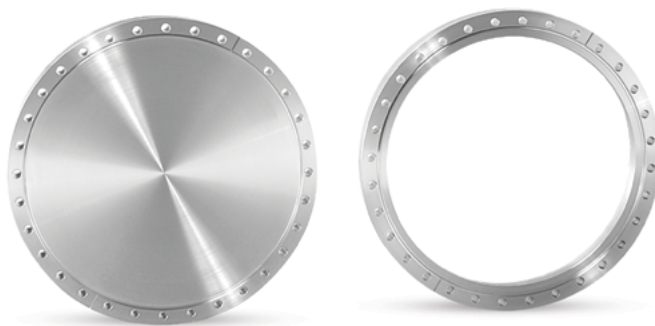
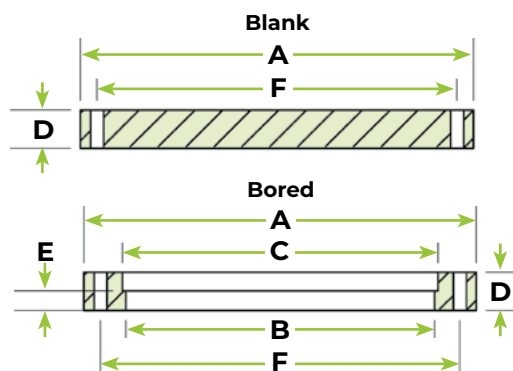
Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
LOS5023064	CF800R-600-TI	7.97	6.13	6.75	0.94	0.5	7.13	Clearance	24	0.332
LOS5023067	CF800RT-600-TI	7.97	6.13	6.75	0.94	0.5	7.13	Threaded	24	5/16-24
LOS5023070	CF800RTM-600-TI	7.97	6.13	6.75	0.94	0.5	7.13	Tapped Metric	24	M8 X 1.25

CF 1000 Flange Hardware

Part #	Reference ID	Description
0604039	CF1000-GA-CO	(10) Copper Gaskets
0604009	CF1000-GA-VT	(1) FKM 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 - 12-inch O.D. UHV Flanges - Fixed



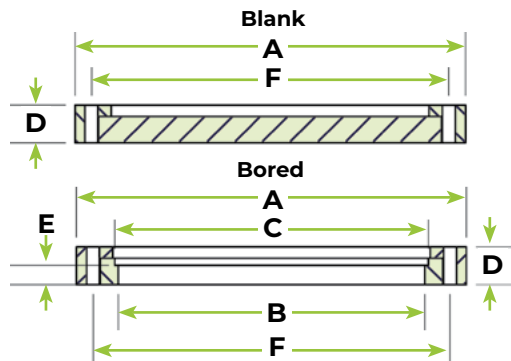
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5000164	CF1200-000	11.97	-	-	1.02	-	11.18	Clearance	32	0.332
5000165	CF1200-1000	11.97	9.88	10.03	1.02	0.5	11.18	Clearance	32	0.332
5000166	CF1200T-000	11.97	-	-	1.02	-	11.18	Tapped	32	5/16-24
5000167	CF1200T-1000	11.97	9.88	10.03	1.02	0.5	11.18	Tapped	32	5/16-24

Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5023081	CF1200-000-TI	11.97	-	-	1.02	-	11.18	Clearance	32	0.332
LOS5023083	CF1200-1000-TI	11.97	9.88	10.03	1.02	0.5	11.18	Clearance	32	0.332
LOS5023084	CF1200T-000-TI	11.97	-	-	1.02	-	11.18	Tapped	32	5/16-24
LOS5023086	CF1200T-1000-TI	11.97	9.88	10.03	1.02	0.5	11.18	Tapped	32	5/16-24
LOS5023087	CF1200TM-000-TI	11.97	-	-	1.02	-	11.18	Tapped Metric	32	M8 X 1.25
LOS5023089	CF1200TM-1000-TI	11.97	9.88	10.03	1.02	0.5	11.18	Tapped Metric	32	M8 X 1.25

CF 1200 - 12-inch O.D. UHV Flanges - Rotatable



02

CF 1200 Flanges

304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5000168	CF1200R-000	11.97	-	-	1.02	-	11.18	Clearance	32	0.332
5000169	CF1200R-1000	11.97	9.88	10.03	1.02	0.5	11.18	Clearance	32	0.332
5000170	CF1200RT-000	11.97	-	-	1.02	-	11.18	Tapped	32	5/16-24
5000171	CF1200RT-1000	11.97	9.88	10.03	1.02	0.5	11.18	Tapped	32	5/16-24

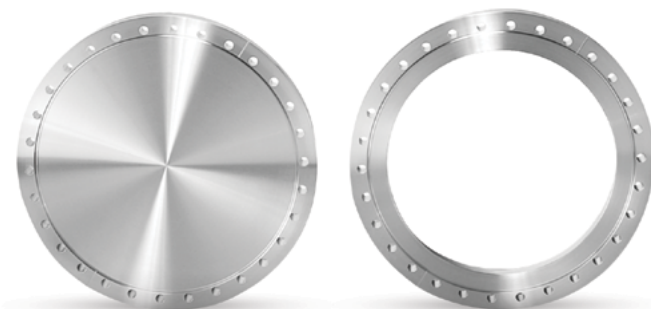
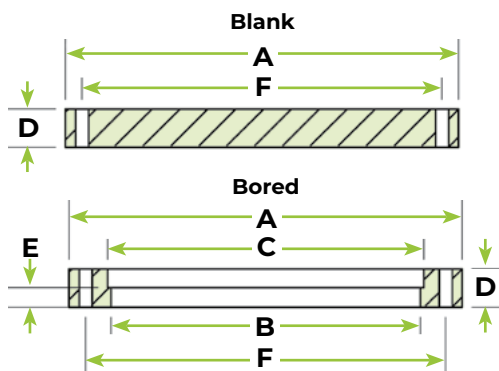
Titanium

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5023082	CF1200R-1000-TI	11.97	9.88	10.03	1.02	0.5	11.18	Clearance	32	0.332
LOS5023085	CF1200RT-1000-TI	11.97	9.88	10.03	1.02	0.5	11.18	Tapped	32	5/16-24
LOS5023088	CF1200RTM-1000-TI	11.97	9.88	10.03	1.02	0.5	11.18	Tapped Metric	32	M8 X 1.25

CF 1200 Flange Hardware

Part #	Reference ID	Description
0604041	CF1200-GA-CO	(1) Copper Gaskets
0604010	CF1200-GA-VT	(1) FKM 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 - 13.25-inch O.D. UHV Flanges - Fixed



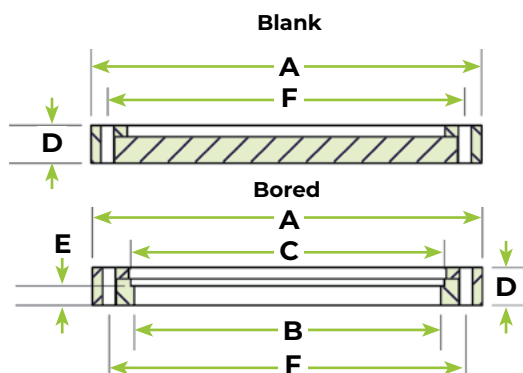
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000172	CF1325-000	13.25	-	-	1.12	-	12.06	Clearance	30	0.39
5000173	CF1325-1000	13.25	9.75	10.02	1.12	0.5	12.06	Clearance	30	0.39
5000174	CF1325-1075	13.25	10.5	10.78	1.12	0.5	12.06	Clearance	30	0.39
5000175	CF1325T-000	13.25	-	-	1.12	-	12.06	Tapped	30	3/8-24
5000176	CF1325T-1000	13.25	9.75	10.02	1.12	0.5	12.06	Tapped	30	3/8-24
5000177	CF1325T-1075	13.25	10.5	10.78	1.12	0.5	12.06	Tapped	30	3/8-24

CF 1325 - 13.25-inch O.D. UHV Flanges - Rotatable

02

CF 1325 Flanges



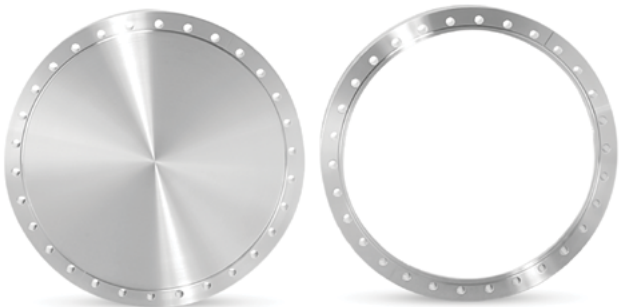
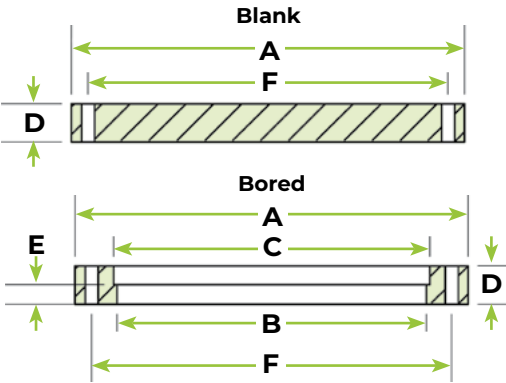
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000178	CF1325R-000	13.25	-	-	1.12	-	12.06	Clearance	30	0.39
5000179	CF1325R-1000	13.25	9.75	10.03	1.12	0.5	12.06	Clearance	30	0.39
5000180	CF1325R-1075	13.25	10.5	10.77	1.12	0.5	12.06	Clearance	30	0.39
5000181	CF1325RT-000	13.25	-	-	1.12	-	12.06	Tapped	30	3/8-24
5000182	CF1325RT-1000	13.25	9.75	10.03	1.12	0.5	12.06	Tapped	30	3/8-24
5000183	CF1325RT-1075	13.25	10.5	10.77	1.12	0.5	12.06	Tapped	30	3/8-24

CF 1325 Flange Hardware

Part #	Reference ID	Description
0604043	CF1325-GA-CO	(1) Copper Gaskets
0604011	CF1325-GA-VT	(1) FKM 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-inch O.D. UHV Flanges - Fixed



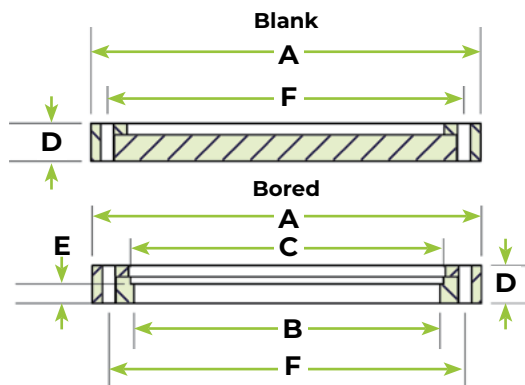
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000184	CF1400-000	14	-	-	1.12	-	12.81	Clearance	30	0.39
5000185	CF1400-1200	14	11.75	12.03	1.12	0.5	12.81	Clearance	30	0.39
5000186	CF1400T-000	14	-	-	1.12	-	12.81	Tapped	30	3/8-24
5000187	CF1400T-1200	14	11.75	12.03	1.12	0.5	12.81	Tapped	30	3/8-24

CF 1400 - 14-inch O.D. UHV Flanges - Rotatable

02

CF 1400 Flanges



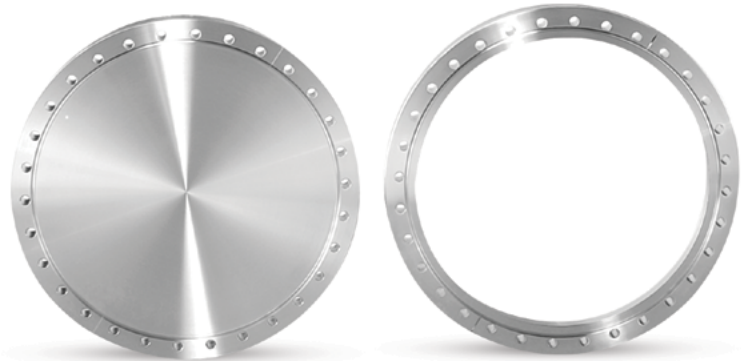
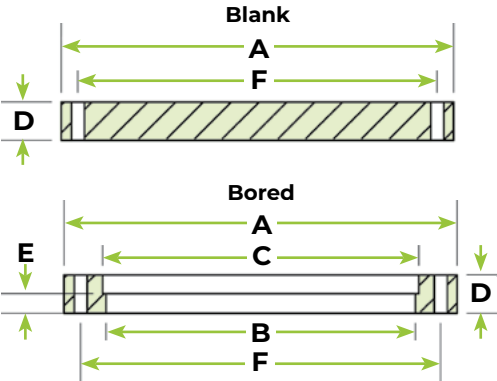
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Diameter
5000188	CF1400R-000	14	-	-	1.12	-	12.81	Clearance	30	0.39
5000189	CF1400R-1200	14	11.75	12.03	1.12	0.5	12.81	Clearance	30	0.39
5000190	CF1400RT-000	14	-	-	1.12	-	12.81	Tapped	30	3/8-24
5000191	CF1400RT-1200	14	11.75	12.03	1.12	0.5	12.81	Tapped	30	3/8-24

CF 1400 Flange Hardware

Part #	Reference ID	Description
0604045	CF1400-GA-CO	(1) Copper Gaskets
0604012	CF1400-GA-VT	(1) FKM 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-inch O.D. UHV Flanges - Fixed



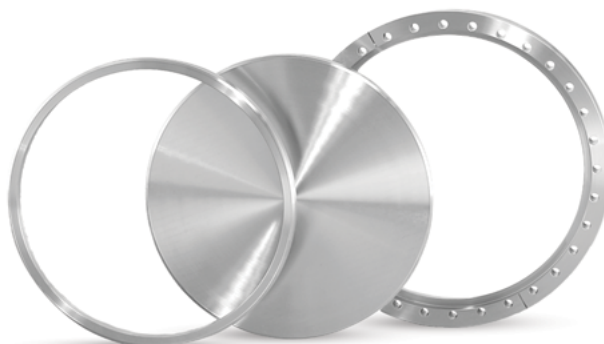
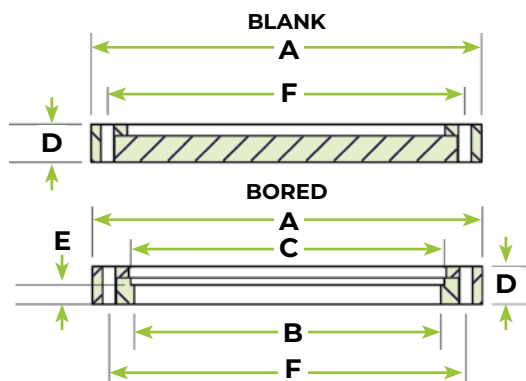
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000192	CF1450-000	14.5	-	-	1.12	-	13.31	Clearance	32	0.39
5000193	CF1450-1200	14.5	11.75	12.03	1.12	0.5	13.31	Clearance	32	0.39
5000194	CF1450T-000	14.5	-	-	1.12	-	13.31	Tapped	32	3/8-24
5000195	CF1450T-1200	14.5	11.75	12.03	1.12	0.5	13.31	Tapped	32	3/8-24

CF 1450 - 14.5-inch O.D. UHV Flanges - Rotatable

02

CF 1450 Flanges



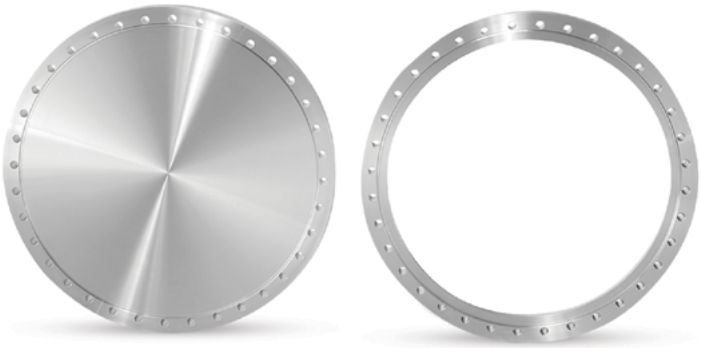
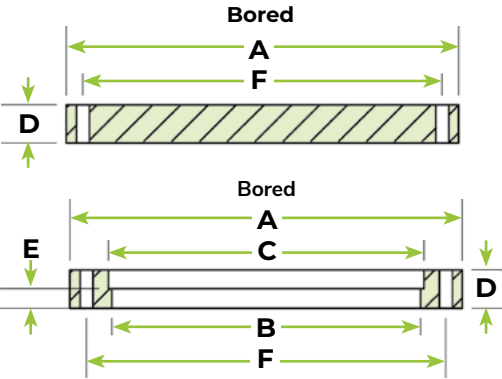
304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000196	CF1450R-000	14.5	-	-	1.12	-	13.31	Clearance	32	0.39
5000197	CF1450R-1200	14.5	11.75	12.03	1.12	0.5	13.31	Clearance	32	0.39
5000198	CF1450RT-000	14.5	-	-	1.12	-	13.31	Tapped	32	3/8-24
5000199	CF1450RT-1200	14.5	11.75	12.03	1.12	0.5	13.31	Tapped	32	3/8-24

CF 1450 Flange Hardware

Part #	Reference ID	Description
0604047	CF1450-GA-CO	(1) Copper Gaskets
0604013	CF1450-GA-VT	(1) FKM 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

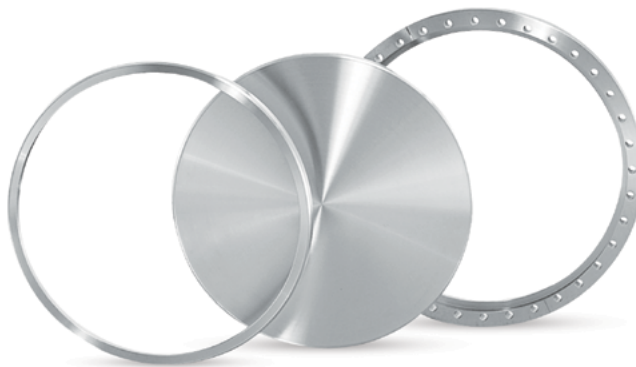
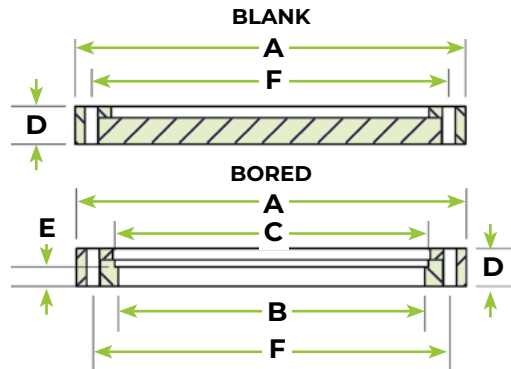
CF 1650 - 16.5-inch O.D. UHV Flanges - Fixed



304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes	
									#	Diameter
5000200	CF1650-000	16.5	-	-	1.12	-	15.31	Clearance	36	0.39
5000201	CF1650-1400	16.5	13.75	14.03	1.12	0.5	15.31	Clearance	36	0.39
5000202	CF1650T-000	16.5	-	-	1.12	-	15.31	Tapped	36	3/8-24
5000203	CF1650T-1400	16.5	13.75	14.03	1.12	0.5	15.31	Tapped	36	3/8-24

CF 1650 - 16.5-inch O.D. UHV Flanges - Rotatable



02

CF 1650 Flanges

304L Stainless Steel

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
5000204	CF1650R-000	16.5	-	-	1.12	-	15.31	Clearance	36	0.39
5000205	CF1650R-1400	16.5	13.75	14.03	1.12	0.5	15.31	Clearance	36	0.39
5000206	CF1650RT-000	16.5	-	-	1.12	-	15.31	Tapped	36	3/8-24
5000207	CF1650RT-1400	16.5	13.75	14.03	1.12	0.5	15.31	Tapped	36	3/8-24

CF 1650 Flange Hardware

Part #	Reference ID	Description
0604049	CF1650-GA-CO	(1) Copper Gaskets
0604014	CF1650-GA-VT	(1) FKM 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

Bimetal ConFlat (CF) Flanges

Bimetal ConFlat® flanges offer users the unique ability to harness the properties of two different metal alloys in their UHV or XHV processes.

Three (3) different bimetal ConFlat® flanges are available:

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

304SS-Al, 316SS-Al, and Ti-Al bimetal CF flanges are available in industry-standard sizes (mini 1.33" to 12.0"), rotatable and fixed geometries, and various bolt hole types.



Specifications:

- UHV/XHV rated to 1×10^{-13} Torr
- Available sizes: 1.33" to 12"
- Rotatable and fixed geometries
- 40% lighter than traditional SS flanges
- Tapped or clearance bolt holes
- ConFlat® compatible design
- Custom flanges also available

Features:

- Materials
 - Flange Body / Weld Interface: 6061-T6 Aluminum
 - Flange Knife-edge: 304SS/316SS/Ti
 - Ti Flange Gaskets: 1100 or 1050 Aluminum
 - Recommended Bolts: Vacuum grade silver plated stainless steel or titanium
- Fastening
 - Bolt Type: Socket head screws
 - Nut Type: Hexagonal or two-hole plate nuts
- Temperature Range: -200°C to 150°C

Bimetal flange users can capitalize on an aluminum system connection while retaining industry-standard 304SS, 316SS, or Ti alloy benefits such as excellent knife-edge retention. Aluminum system connections provide increased vibration damping and greater thermal conductivity and diffusivity.



From Our  Blog



The Explosion Welding Process for Ultra-high vacuum Applications

The history of explosion welding dates back to the first World War, when a series of explosive tests yielded the fusion of two metal disks used for charge positioning. The deeply studied phenomenon has since been refined to produce over 260 metal combinations creating joints strong enough...

Read more:



Benefits of Titanium and Aluminum

Aluminum

- Fast uniform bakeouts
- Lower bakeout temperature at 150° C
- Increased thermal diffusivity
- Lower outgassing rate than stainless steel
- Better vibration damping than stainless steel

Titanium

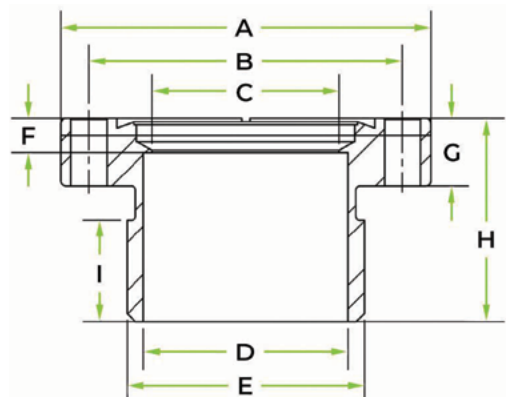
- Low Z attribute
- Negligible magnetic permeability
- 25% higher yield strength than 6061-T6 Al
- Lower outgassing rate than stainless steel
- Better vibration damping than stainless steel

Physical Properties of Titanium, Stainless Steel, and Aluminum Alloy

	Titanium (JIS - 2)	Stainless Steel (SUS304)	Aluminum Alloy (A5052)
Atomic Number	22	FE:26, Cr:24, Ni:28	13
Specific Gravity (10 ³ kg·m ⁻³)	4.5	7.9	2.7
Hardness (Hv)	~150	~190	~60
Young's Modulus (G Pa)	106	200	69
Thermal Expansion Coefficient (10 ⁻⁶ K ⁻¹)	8.4	17	24
Thermal Conductivity (W·m ⁻¹ ·K ⁻¹)	17	16	137
Specific Heat (J·kg ⁻¹ ·K ⁻¹)	520	500	900
Electric Resistance (10 ⁻⁹ Ωm)	480	720	49
Magnetic Permeability	Non-magnetic	Little	Non-magnetic
Cost (USD) (1m x 1m x 1mm)	658	134	77

H Kurisu et al 2008 J. Phys.: Conf. Ser. 100 092002

CF 133 – 1.33-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5020002	CF133-050-WN-304AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5020003	CF133-075-WN-304AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5020006	CF133T-050-WN-304AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5020007	CF133T-075-WN-304AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5020010	CF133TM-050-WN-304AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7
LOS5020011	CF133TM-075-WN-304AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5021002	CF133-050-WN-316AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5021003	CF133-075-WN-316AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5021006	CF133T-050-WN-316AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5021007	CF133T-075-WN-316AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5021010	CF133TM-050-WN-316AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7
LOS5021011	CF133TM-075-WN-316AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7

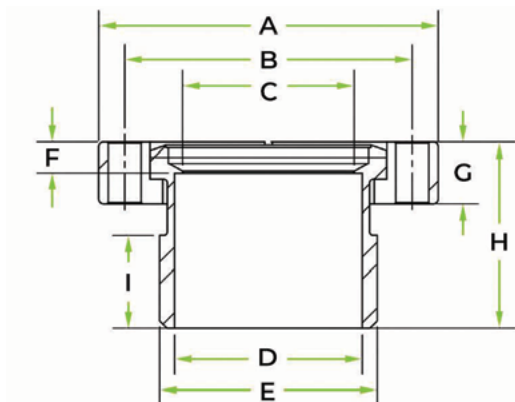
Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5022002	CF133-050-WN-TIAL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5022003	CF133-062-WN-TIAL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5022006	CF133T-050-WN-TIAL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5022007	CF133T-062-WN-TIAL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5022010	CF133TM-050-WN-TIAL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7
LOS5022011	CF133TM-062-WN-TIAL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7

CF 133 – 1.33-inch O.D. Bimetal Flanges - Rotatable

02

CF 133 Bimetal Flanges



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5020000	CF133R-050-WN-304AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5020001	CF133R-075-WN-304AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5020004	CF133RT-050-WN-304AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5020005	CF133RT-075-WN-304AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5020008	CF133RTM-050-WN-304AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7
LOS5020009	CF133RTM-075-WN-304AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7

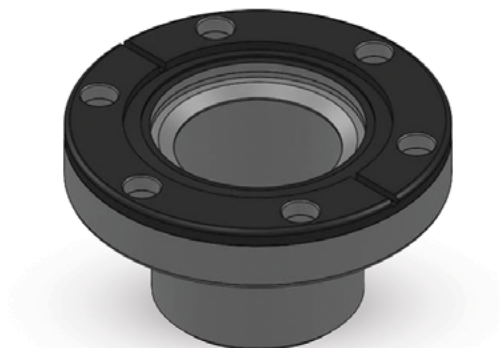
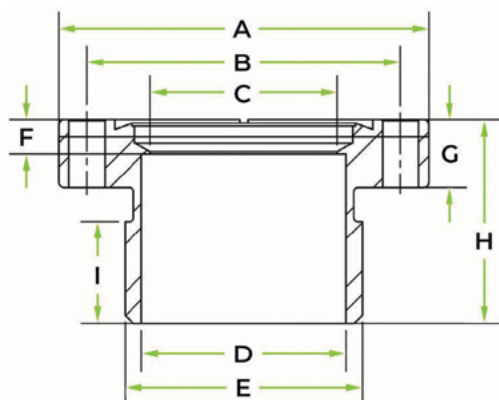
316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5021000	CF133R-050-WN-316AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5021001	CF133R-075-WN-316AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5021004	CF133RT-050-WN-316AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5021005	CF133RT-075-WN-316AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5021008	CF133RTM-050-WN-316AL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7
LOS5021009	CF133RTM-075-WN-316AL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5022000	CF133R-050-WN-TIAL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5022001	CF133R-062-WN-TIAL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Clearance	6	0.172
LOS5022004	CF133RT-050-WN-TIAL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5022005	CF133RT-062-WN-TIAL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped	6	8-32
LOS5022008	CF133RTM-050-WN-TIAL	1.33	1.062	0.46	0.5	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7
LOS5022009	CF133RTM-062-WN-TIAL	1.33	1.062	0.585	0.625	0.87	0.175	0.3	1.3	0.75	Tapped Metric	6	M4 X 0.7

CF 275 – 2.75-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5020014	CF275-125-304AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5020015	CF275-150-304AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5020018	CF275T-125-304AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5020019	CF275T-150-304AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5020022	CF275TM-125-304AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0
LOS5020023	CF275TM-150-304AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5021014	CF275-125-316AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5021015	CF275-150-316AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5021018	CF275T-125-316AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5021019	CF275T-150-316AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5021022	CF275TM-125-316AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0
LOS5021023	CF275TM-150-316AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0

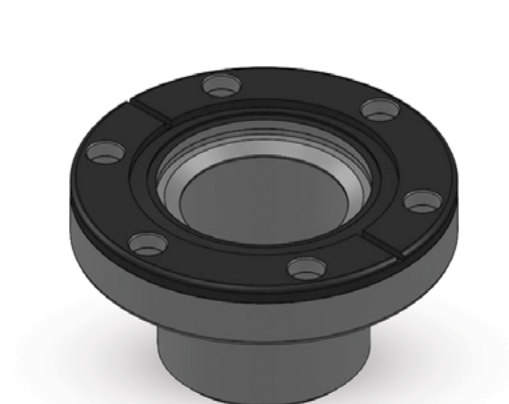
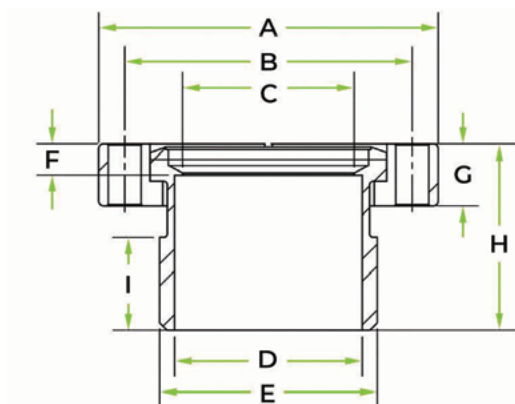
Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5022014	CF275-125-TIAL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5022015	CF275-150-TIAL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5022018	CF275T-125-TIAL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5022019	CF275T-150-TIAL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5022022	CF275TM-125-TIAL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0
LOS5022023	CF275TM-150-TIAL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0

CF 2.75 – 2.75-inch O.D. Bimetal Flanges - Rotatable

02

CF 275 Bimetal Flanges



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5020012	CF275R-125-304AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5020013	CF275R-150-304AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5020016	CF275RT-125-304AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5020017	CF275RT-150-304AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5020020	CF275RTM-125-304AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped Metric	6	M6x1.0
LOS5020021	CF275RTM-150-304AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped Metric	6	M6x1.0

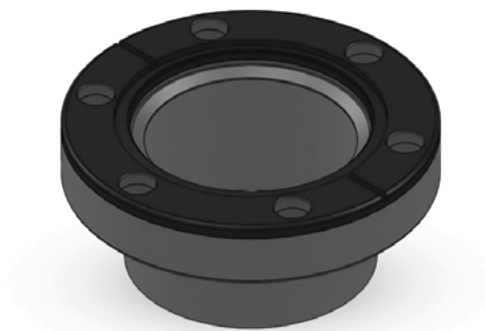
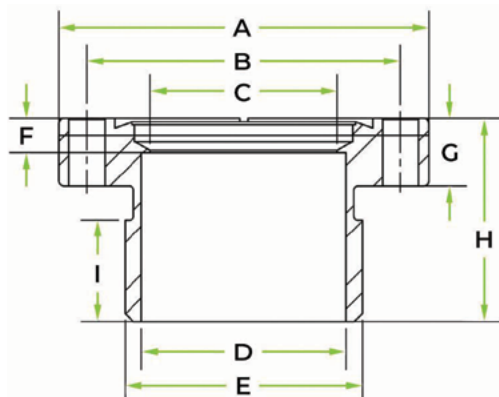
316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5021012	CF275R-125-316AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5021013	CF275R-150-316AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5021016	CF275RT-125-316AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5021017	CF275RT-150-316AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5021020	CF275RTM-125-316AL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0
LOS5021021	CF275RTM-150-316AL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5022012	CF275R-125-TIAL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5022013	CF275R-150-TIAL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Clearance	6	0.265
LOS5022016	CF275RT-125-TIAL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5022017	CF275RT-150-TIAL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped	6	1/4-28
LOS5022020	CF275RTM-125-TIAL	2.73	2.312	1.19	1.25	1.5	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0
LOS5022021	CF275RTM-150-TIAL	2.73	2.312	1.38	1.5	1.75	0.25	0.5	1.5	0.75	Tapped Metric	6	M6 x 1.0

CF 338 – 3.38-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5020026	CF338-150-304AL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5020027	CF338-200-304AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5020030	CF338T-150-304AL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5020031	CF338T-200-304AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5020034	CF338TM-150-304AL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25
LOS5020035	CF338TM-200-304AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5021026	CF338-150-316AL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5021027	CF338-200-316AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5021030	CF338T-150-316AL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5021031	CF338T-200-316AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5021034	CF338TM-150-316AL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25
LOS5021035	CF338TM-200-316AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25

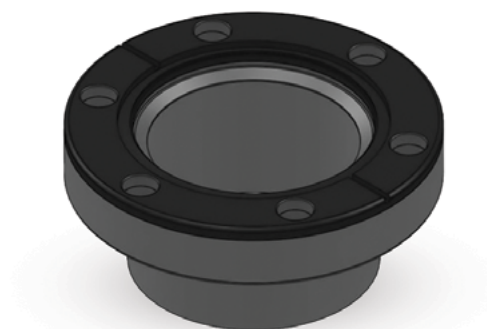
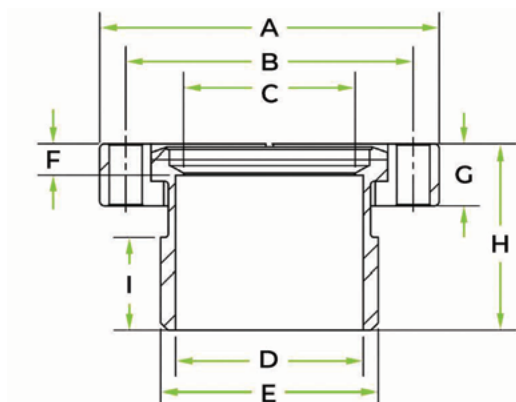
Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5022026	CF338-150-TIAL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5022027	CF338-200-TIAL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5022030	CF338T-150-TIAL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5022031	CF338T-200-TIAL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5022034	CF338TM-150-TIAL	3.38	2.85	1.38	1.5	1.58	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25
LOS5022035	CF338TM-200-TIAL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25

CF 3.38 – 3.38-inch O.D. Bimetal Flanges - Rotatable

02

CF 338 Bimetal Flanges



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5020024	CF338R-150-304AL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5020025	CF338R-200-304AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5020028	CF338RT-150-304AL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5020029	CF338RT-200-304AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5020032	CF338RTM-150-304AL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25
LOS5020033	CF338RTM-200-304AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5021024	CF338R-150-316AL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5021025	CF338R-200-316AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5021028	CF338RT-150-316AL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5021029	CF338RT-200-316AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5021032	CF338RTM-150-316AL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25
LOS5021033	CF338RTM-200-316AL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	I (in)	Thread Type	Bolt Holes #	Diameter
LOS5022024	CF338R-150-TIAL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5022025	CF338R-200-TIAL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Clearance	6	0.332
LOS5022028	CF338RT-150-TIAL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5022029	CF338RT-200-TIAL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped	6	5/16-24
LOS5022032	CF338RTM-150-TIAL	3.38	2.85	1.38	1.5	1.75	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25
LOS5022033	CF338RTM-200-TIAL	3.38	2.85	1.9	2	2.25	0.25	0.625	1.5	0.5	Tapped Metric	6	M8 x 1.25

CF 450 – 4.50-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020038	CF450-200-304AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Clearance	8	0.332
LOS5020039	CF450-250-304AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Clearance	8	0.332
LOS5020042	CF450T-200-304AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5020043	CF450T-250-304AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5020046	CF450TM-200-304AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25
LOS5020047	CF450TM-250-304AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25

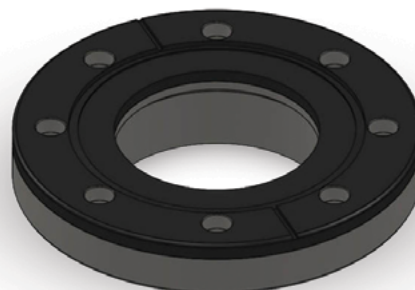
316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021038	CF450-200-316AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Clearance	8	0.332
LOS5021039	CF450-250-316AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Clearance	8	0.332
LOS5021042	CF450T-200-316AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5021043	CF450T-250-316AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5021046	CF450TM-200-316AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25
LOS5021047	CF450TM-250-316AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022038	CF450-200-TIAL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Clearance	8	0.332
LOS5022039	CF450-250-TIAL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Clearance	8	0.332
LOS5022042	CF450T-200-TIAL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5022043	CF450T-250-TIAL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5022046	CF450TM-200-TIAL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25
LOS5022047	CF450TM-250-TIAL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25

CF 450 – 4.50-inch O.D. Bimetal Flanges - Rotatable



02

CF 450 Bimetal Flanges

304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020036	CF450R-200-304AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Clearance	8	0.332
LOS5020037	CF450R-250-304AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Clearance	8	0.332
LOS5020040	CF450RT-200-304AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5020041	CF450RT-250-304AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5020044	CF450RTM-200-304AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25
LOS5020045	CF450RTM-250-304AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021036	CF450R-200-316AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Clearance	8	0.332
LOS5021037	CF450R-250-316AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Clearance	8	0.332
LOS5021040	CF450RT-200-316AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5021041	CF450RT-250-316AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5021044	CF450RTM-200-316AL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25
LOS5021045	CF450RTM-250-316AL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022036	CF450R-200-TIAL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Clearance	8	0.332
LOS5022037	CF450R-250-TIAL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Clearance	8	0.332
LOS5022040	CF450RT-200-TIAL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5022041	CF450RT-250-TIAL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped	8	5/16-24
LOS5022044	CF450RTM-200-TIAL	4.47	3.63	1.75	2	2.25	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25
LOS5022045	CF450RTM-250-TIAL	4.47	3.63	2.25	2.5	2.75	0.375	0.67	1.5	Tapped Metric	8	M8 x 1.25

CF 600 – 6-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020049	CF600-400-304AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Clearance	16	0.332
LOS5020051	CF600T-400-304AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped	16	5/16-24
LOS5020053	CF600TM-400-304AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped Metric	16	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021049	CF600-400-316AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Clearance	16	0.332
LOS5021051	CF600T-400-316AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped	16	5/16-24
LOS5021053	CF600TM-400-316AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped Metric	16	M8 x 1.25

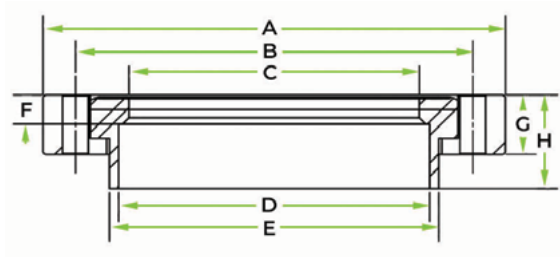
Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022049	CF600-400-TIAL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Clearance	16	0.332
LOS5022051	CF600T-400-TIAL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped	16	5/16-24
LOS5022053	CF600TM-400-TIAL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped Metric	16	M8 x 1.25

CF 600 – 6-inch O.D. Bimetal Flanges - Rotatable

02

CF 600 Bimetal Flanges



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020048	CF600R-400-304AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Clearance	16	0.332
LOS5020050	CF600RT-400-304AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped	16	5/16-24
LOS5020052	CF600RTM-400-304AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped Metric	16	M8 x 1.25

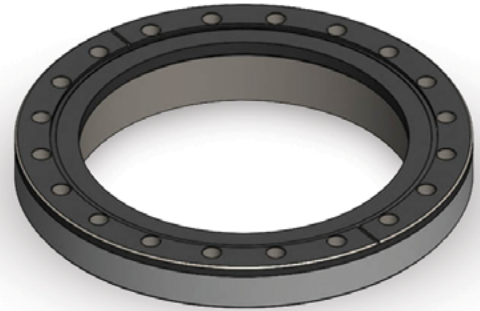
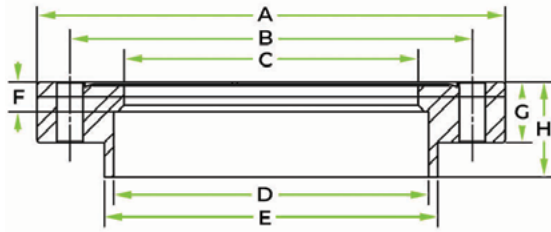
316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021048	CF600R-400-316AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Clearance	16	0.332
LOS5021050	CF600RT-400-316AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped	16	5/16-24
LOS5021052	CF600RTM-400-316AL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped Metric	16	M8 x 1.25

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022048	CF600R-400-TIAL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Clearance	16	0.332
LOS5022050	CF600RT-400-TIAL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped	16	5/16-24
LOS5022052	CF600RTM-400-TIAL	5.97	5.13	3.75	4	4.25	0.375	0.77	1.5	Tapped Metric	16	M8 x 1.25

CF 800 – 8-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020061	CF800-600-304AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Clearance	20	0.332
LOS5020063	CF800T-600-304AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped	20	5/16-24
LOS5020065	CF800TM-600-304AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped Metric	20	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021061	CF800-600-316AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Clearance	20	0.332
LOS5021063	CF800T-600-316AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped	20	5/16-24
LOS5021065	CF800TM-600-316AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped Metric	20	M8 x 1.25

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022061	CF800-600-TIAL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Clearance	20	0.332
LOS5022063	CF800T-600-TIAL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped	20	5/16-24
LOS5022065	CF800TM-600-TIAL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped Metric	20	M8 x 1.25

CF 800 – 8-inch O.D. Bimetal Flanges - Rotatable

02

CF 800 Bimetal Flanges



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020060	CF800R-600-304AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Clearance	20	0.332
LOS5020062	CF800RT-600-304AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped	20	5/16-24
LOS5020064	CF800RTM-600-304AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped Metric	20	M8 x 1.25

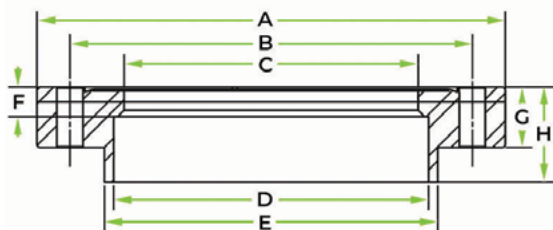
316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021060	CF800R-600-316AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Clearance	20	0.332
LOS5021062	CF800RT-600-316AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped	20	5/16-24
LOS5021064	CF800RTM-600-316AL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped Metric	20	M8 x 1.25

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022060	CF800R-600-TIAL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Clearance	20	0.332
LOS5022062	CF800RT-600-TIAL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped	20	5/16-24
LOS5022064	CF800RTM-600-TIAL	7.97	7.125	5.75	6	6.25	0.375	0.875	1.5	Tapped Metric	20	M8 x 1.25

CF 1000 – 10-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020067	CF1000-800-304AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Clearance	24	0.332
LOS5020069	CF1000T-800-304AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped	24	5/16-24
LOS5020071	CF1000TM-800-304AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped Metric	24	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021067	CF1000-800-316AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Clearance	24	0.332
LOS5021069	CF1000T-800-316AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped	24	5/16-24
LOS5021071	CF1000TM-800-316AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped Metric	24	M8 x 1.25

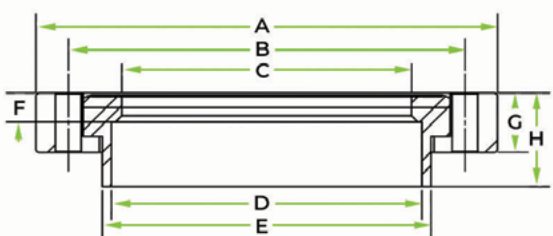
Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022067	CF1000-800-TIAL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Clearance	24	0.332
LOS5022069	CF1000T-800-TIAL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped	24	5/16-24
LOS5022071	CF1000TM-800-TIAL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped Metric	24	M8 x 1.25

CF 1000 – 10-inch O.D. Bimetal Flanges - Rotatable

02

CF 1000 Bimetal Flanges



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020066	CF1000R-800-304AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Clearance	24	0.332
LOS5020068	CF1000RT-800-304AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped	24	5/16-24
LOS5020070	CF1000RTM-800-304AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped Metric	24	M8 x 1.25

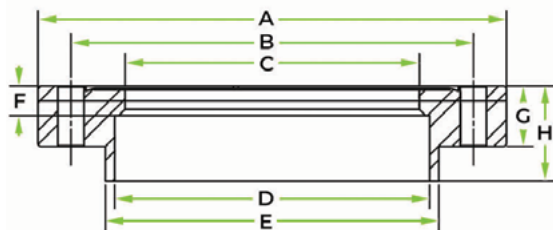
316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021066	CF1000R-800-316AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Clearance	24	0.332
LOS5021068	CF1000RT-800-316AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped	24	5/16-24
LOS5021070	CF1000RTM-800-316AL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped Metric	24	M8 x 1.25

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022066	CF1000R-800-TIAL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Clearance	24	0.332
LOS5022068	CF1000RT-800-TIAL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped	24	5/16-24
LOS5022070	CF1000RTM-800-TIAL	9.97	9.125	7.75	8	8.25	0.375	0.945	1.5	Tapped Metric	24	M8 x 1.25

CF 1200 – 12-inch O.D. Bimetal Flanges - Fixed



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020073	CF1200-1000-304AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Clearance	32	0.332
LOS5020075	CF1200T-1000-304AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped	32	5/16-24
LOS5020077	CF1200TM-1000-304AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped Metric	32	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021073	CF1200-1000-316AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Clearance	32	0.332
LOS5021075	CF1200T-1000-316AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped	32	5/16-24
LOS5021077	CF1200TM-1000-316AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped Metric	32	M8 x 1.25

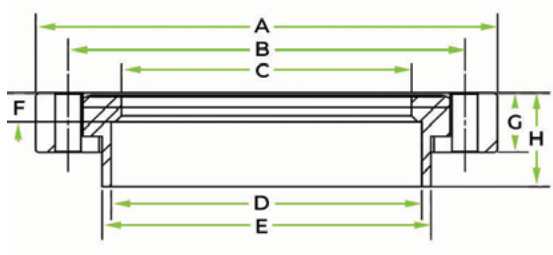
Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022073	CF1200-1000-TIAL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Clearance	32	0.332
LOS5022075	CF1200T-1000-TIAL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped	32	5/16-24
LOS5022077	CF1200TM-1000-TIAL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped Metric	32	M8 x 1.25

CF 1200 – 12-inch O.D. Bimetal Flanges - Rotatable

02

CF 1200 Bimetal Flanges



304 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5020072	CF1200R-1000-304AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Clearance	32	0.332
LOS5020074	CF1200RT-1000-304AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped	32	5/16-24
LOS5020076	CF1200RTM-1000-304AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped Metric	32	M8 x 1.25

316 SS - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5021072	CF1200R-1000-316AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Clearance	32	0.332
LOS5021074	CF1200RT-1000-316AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped	32	5/16-24
LOS5021076	CF1200RTM-1000-316AL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped Metric	32	M8 x 1.25

Titanium - Aluminum

Part #	Reference ID	A (in)	B (in)	C (in)	D (in)	E (in)	F (in)	G (in)	H (in)	Thread Type	Bolt Holes #	Bolt Holes Diameter
LOS5022072	CF1200R-1000-TIAL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Clearance	32	0.332
LOS5022074	CF1200RT-1000-TIAL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped	32	5/16-24
LOS5022076	CF1200RTM-1000-TIAL	12	11.18	9.75	10	10.25	0.375	0.945	1.5	Tapped Metric	32	M8 x 1.25

Wire Seal Flanges

Wire Seal Weld flanges are manufactured from 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. ANCORP offers standard wire seal bored flanges in 304L stainless steel.



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. 1×10^{-13} Torr)
- Temperature range: -200 °C up to 450 °C
- Standard materials: 304L stainless steel.
- Other materials available on request

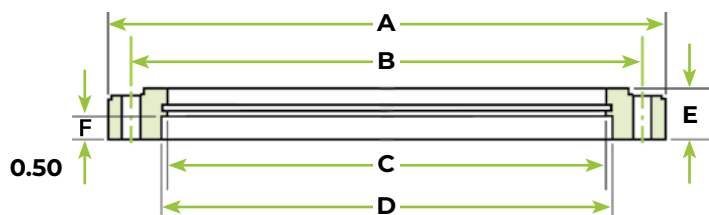
Features:

- 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

Ordering Note:

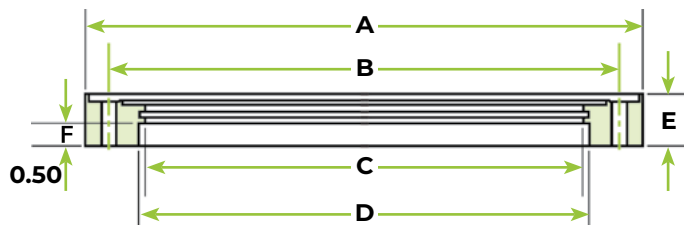
Wire seal gaskets can be found on pages 2.09 - 2.10. Wire seal flange bolt fasteners can be found on page 2.67.

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



02

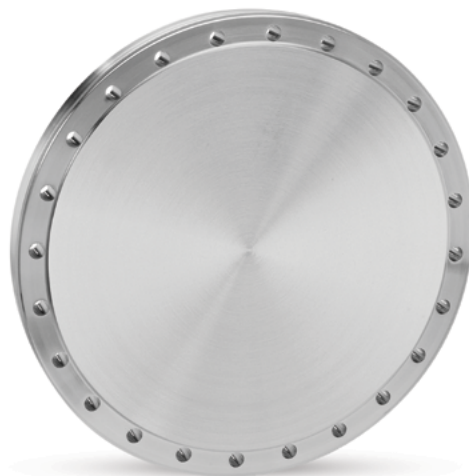
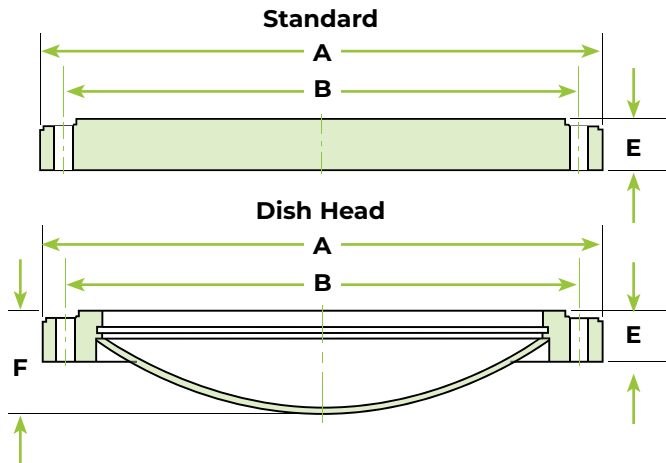
Wire Seal Flanges

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.

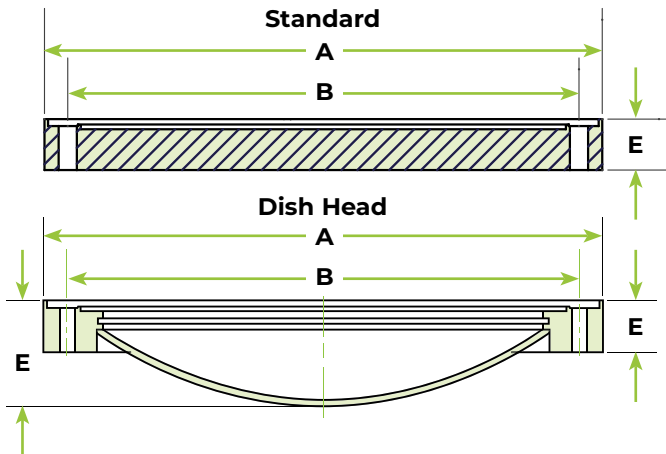
Wire Seal, Blank Male Flanges



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

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 Reference ID.

Wire Seal, Blank Female Flanges



02

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

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 Reference ID.

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.



Specifications:

- Vacuum rated to 1×10^{-13} Torr (approx. 1×10^{-8} Torr for flanges featuring NPT fittings)
- 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 FKM 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)

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

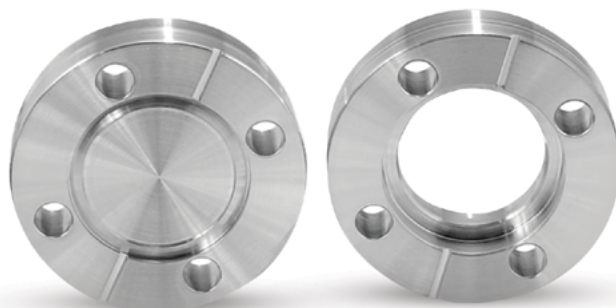
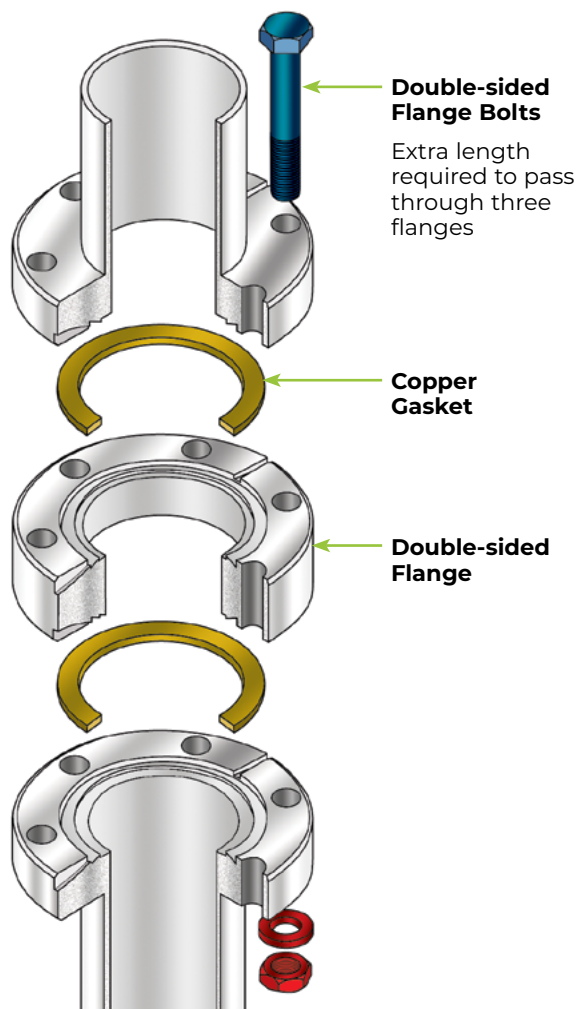
Double-Sided CF Flanges

These flanges feature the same size CF flange on both sides and are for the installation between two flanges of the same size. This product offers a convenient and efficient way to add various vacuum accessories to your system, such as measurement devices, shutters, and valves.

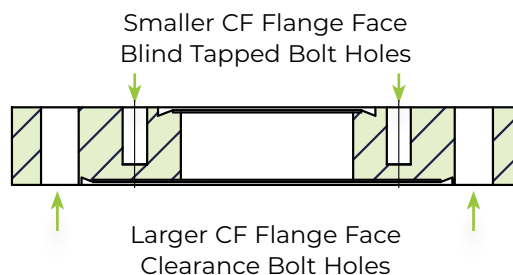
Double-sided CF flanges have special hardware to accommodate the width of three CF flanges for this seal assembly.



Double-sided CF Diagram



Zero-Length Reducer



CF double-sided flanges 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.

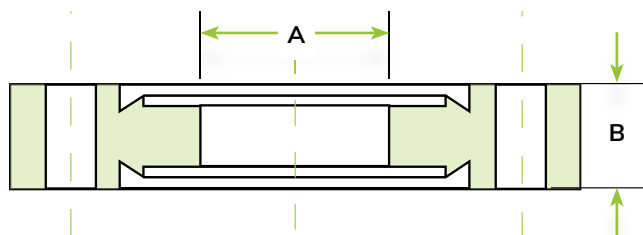
Adaptive CF Assemblies

These flanges feature various functional designs, including adaptations 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.

Adaptive CF flanges are ideal for adding vacuum accessories like measurement devices, shutters, and valves to your system.



CF Double-Sided Flanges

**Specifications:**

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

Options:

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

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

Part #	Reference ID	Flange O.D. (in)	A (in)	B (in)	Bolt Holes #	Diameter
5000245	CF133-000-DS-0.300	1.33	-	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	-	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	-	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	-	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	-	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	-	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	-	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	-	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

Part #	Reference ID	Flange O.D. (in)	A (in)	B (in)	Bolt Holes	
					#	Diameter
5000269	CF450-250-DS-0.680	4.47	2.51	0.68	8	0.33
5000270	CF462-000-DS-0.750	4.62	-	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	-	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	-	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	-	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	-	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	-	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	-	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	-	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

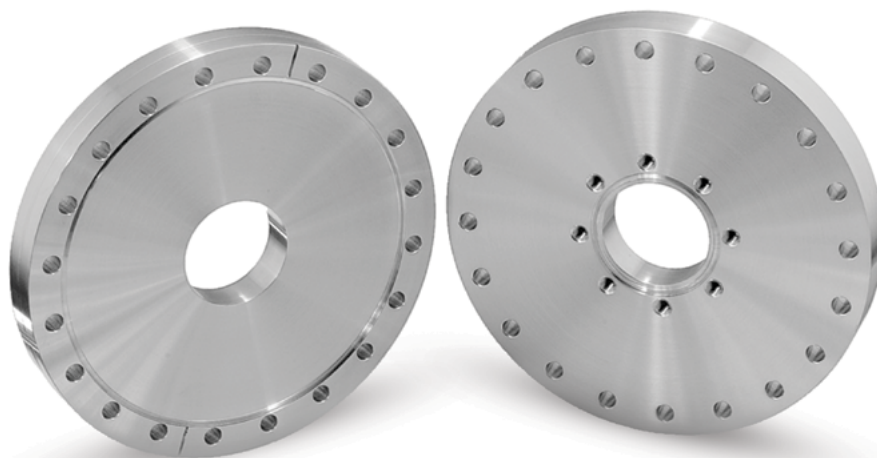
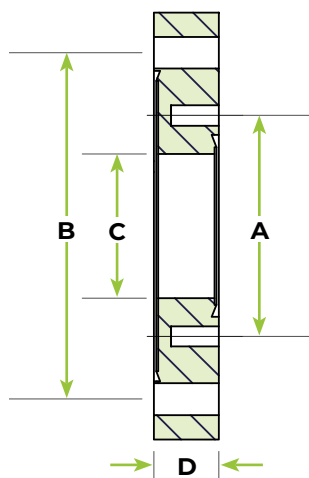
Product Notes:

- 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

**Specifications:**

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

Options:

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

Features:

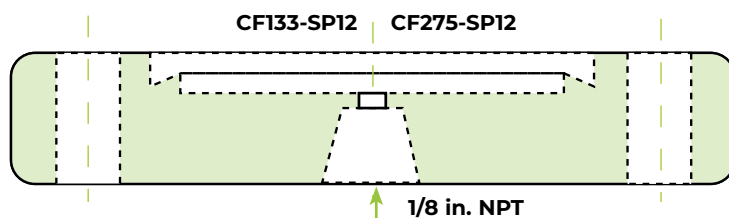
- Different size CF flange on both sides
- Enable direct assembly of two different size CF flanges with minimal impact to space needed within your vacuum system.
- At least one and when necessary both flanges have tapped bolt holes – see line item descriptions for details
- Use standard CF gaskets to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

Part #	Reference ID	Side A	Side B	C (in)	D (in)
5000286	CF212TXCF133BT-075-ZLR-0.470	CF212T-075	CF133BT-075	0.62	0.47
5000287	CF275XCF133BT-075-ZLR-0.500	CF275T-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	CF338T-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	CF450T-075	CF133BT-075	0.62	0.68
5000293	CF450XCF212BT-100-ZLR-0.680	CF450T-100	CF212BT-100	1.00	0.68
5000294	CF450XCF275BT-150-ZLR-0.680	CF450T-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	CF462T-075	CF133BT-075	0.62	0.75
5000297	CF462XCF212BT-100-ZLR-0.750	CF462T-100	CF212BT-100	1.00	0.75
5000298	CF462XCF275BT-150-ZLR-0.750	CF462T-150	CF275BT-150	1.50	0.75
5000299	CF462XCF338BT-200-ZLR-0.750	CF462T-200	CF338BT-200	2.00	0.75

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.

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 – Front Port

**Specifications:**

- Pressure range: HV (approx. 1×10^{-8} Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

Options:

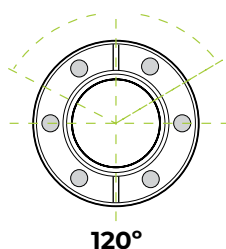
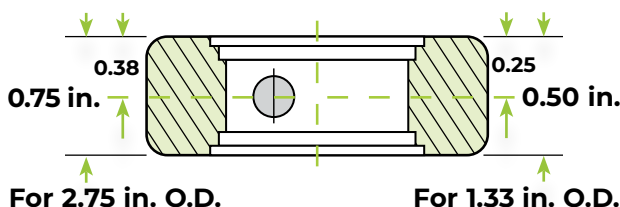
- Tapped bolt holes
- Alternative materials: 316L stainless steel, aluminum, etc.

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

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)

**Specifications:**

- Pressure range: HV (approx. 1×10^{-8} Torr)
- Temperature range: -200°C up to 450°C
- Standard materials: 304L stainless steel

Options:

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

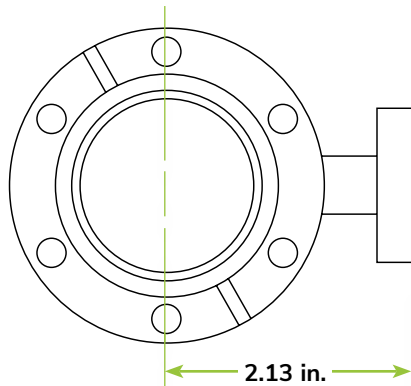
Features:

- 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

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

Note: NPT and other similar threaded fittings are not suitable for achieving Ultra-high vacuum (UHV) conditions.

CF Double-Sided Flange to CF133 Flange – Side Port



Specifications:

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

Options:

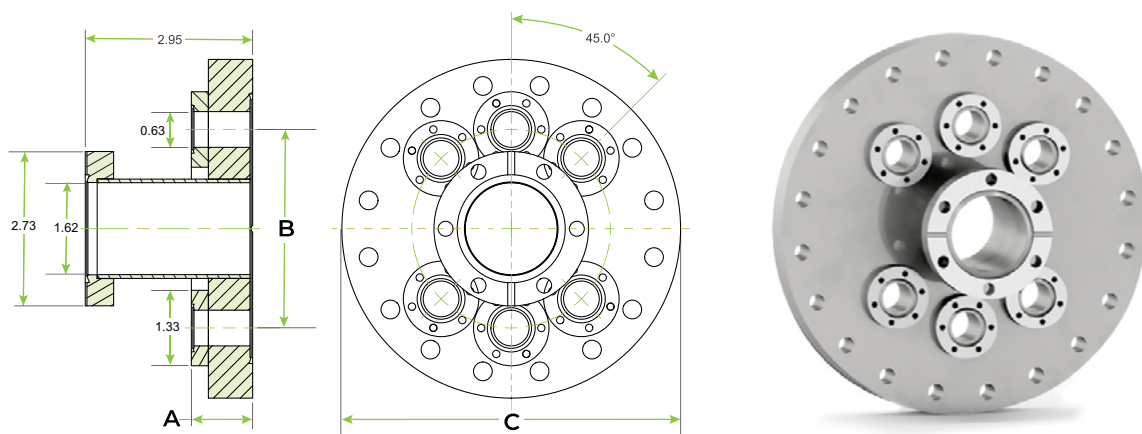
- Tapped bolt holes
- Alternative materials: 316L stainless steel, aluminum, etc.

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

Part #	Reference ID	Description
5000244	CF275DSXCF133-SPC	CF275 SS Double with 1.33 Flange Port

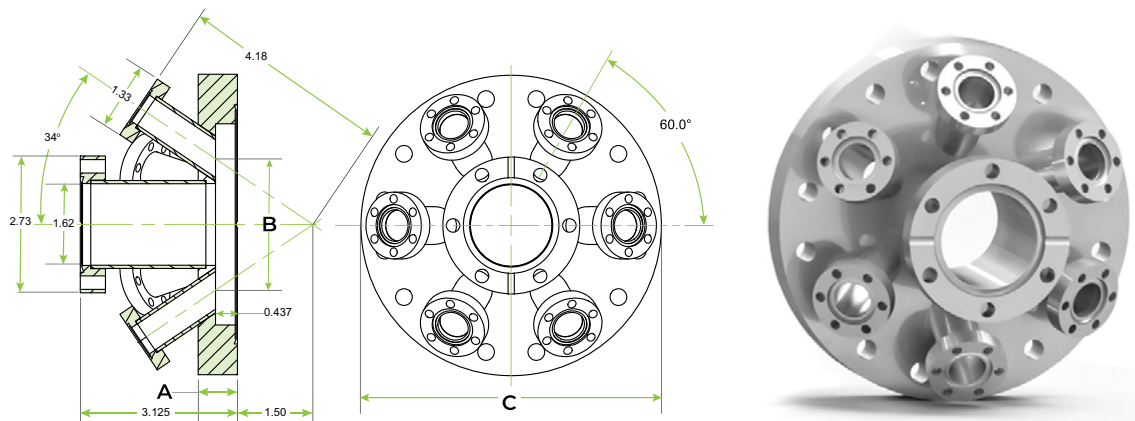
Multiport Flanges, Straight-In



CF600 (6") or CF800 (8") O.D. multiport flange with (1) CF275 (2.75") fixed center flange on tube extension and (6) CF133T (1.33", tapped bolt holes) fixed mini flanges, flush-mounted.

Part ID	Reference Number	Description	A (in)	B (in)	C (in)
5005000	CF600XCF275X6CF133T-MCF	CF600 6" OD Multiport Flange, Straight-In, (1) CF275-175 Center Flange, (6) Flush-Mounted CF133T-075	1.08	3.50	6.00
5005001	CF800XCF275X6CF133T-MCF	CF800 8" OD Multiport Flange, Straight-In, (1) CF275-175 Center Flange, (6) Flush-Mounted CF133T-075	1.18	4.25	8.00

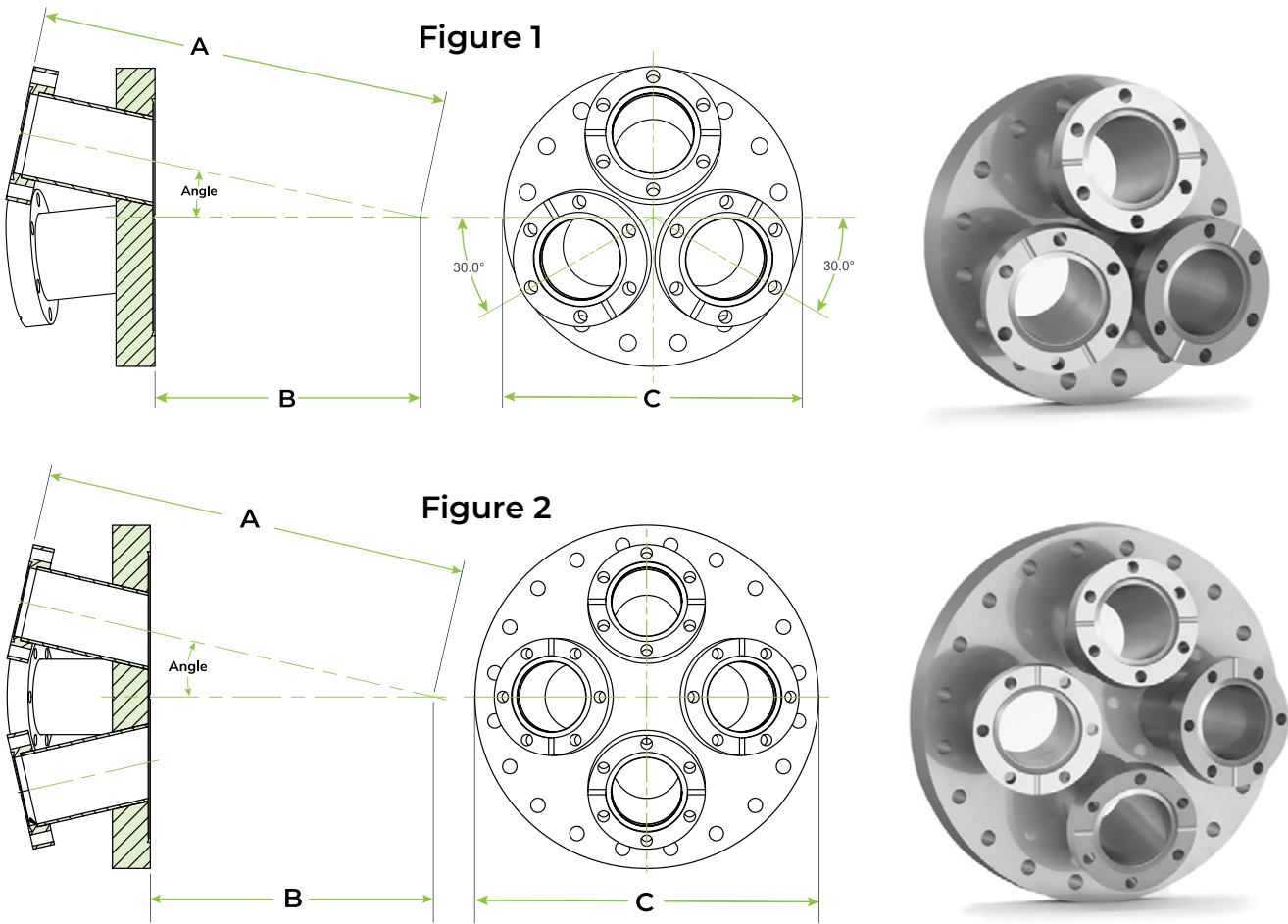
Multiport Flanges, Angled-In



CF600 (6") or CF800 (8") O.D. multiport flange with (1) CF275 (2.75") fixed center flange on tube extension and (6) CF133 (1.33") fixed mini flanges angled-in on tube extensions, focused on a target point.

Part ID	Reference Number	Description	A (in)	B (in)	C (in)
5005002	CF600XCF275X6CF133-MCF	CF600 6" OD Multiport Flange, Angled-In, (1) CF275-175 Center Flange, (6) CF133-075	0.78	2.61	6.00
5005003	CF800XCF275X6CF133-MCF	CF800 8" OD Multiport Flange, Angled-In, (1) CF275-175 Center Flange, (6) CF133-075	0.88	2.61	8.00

Cluster Flanges, Angled-In



CF600 (6") or CF800 (8") O.D. multiport flange with (3) or (4) CF275 (2.75") fixed flanges angled-in on tube extensions, focused on a target point.

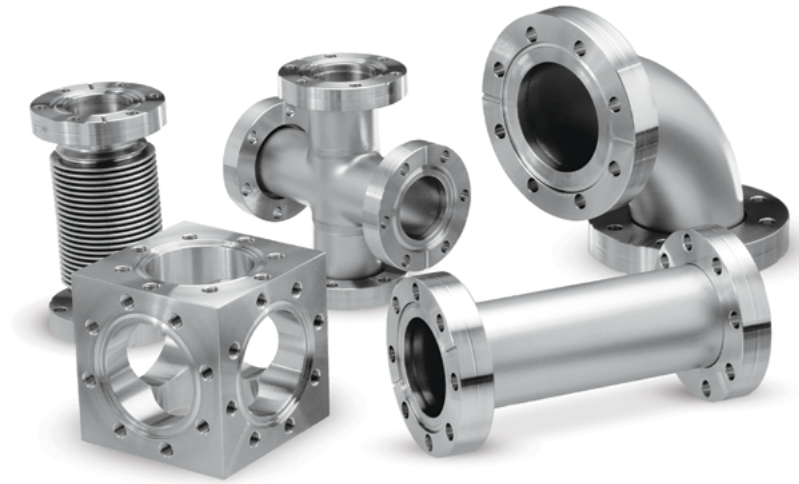
Part ID	Reference Number	Description	Figure	Angle	A (In)	B (in)	C (in)
5005004	CF600X3CF275-AMCF	CF600 6" OD Cluster Flange, (3) CF275-175 Flanges	1	11.9°	8.19	5.31	6.00
5005005	CF800X3CF275-AMCF	CF800 8" OD Cluster Flange, (3) CF275-175 Flanges	1	13°	9.84	6.57	8.00
5005006	CF800X4CF275-AMCF	CF800 8" OD Cluster Flange, (4) CF275-175 Flanges	2	13°	9.84	6.57	8.00

All multiport configurations are customizable for: number of ports, angles of ports, flange sizes, tube lengths, materials, and more. Contact one of our applications engineers at **1-800-352-6431** or visit us online at www.ancorp.com for more information.

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



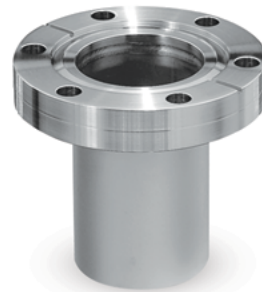
Features:

- Ideal for adding vacuum accessories (vacuum measurement, valves, etc.) or gas lines to your system.
- Use standard CF gaskets to seal
- Self-aligning
- Interchangeable with other ConFlat® style flanges
- Compatible with U.S. Standard (imperial) and metric measurements
- 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
- Interchangeable with other ConFlat® style flanges made to industry standards



Nipples

Nipples feature a flange on each end of a straight section of tubing. They create a weld-free, straight connection within a vacuum system and can serve as straight adapters between different tubing sizes or flange types. These fittings are available in all CF sizes and flange types. ANCORP offers standard nipples in 304L stainless steel. Other materials are available upon request.



Half Nipples

Half Nipples feature 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. ANCORP offers standard half nipples in 304L stainless steel. Other materials are available upon request.



Elbows

Elbows feature a flange on each end of a curved section of tubing. Elbows accommodate turns or alignment considerations for vacuum system design. ANCORP offers elbows 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 offers standard elbows in 304L stainless steel. Other materials are available upon request.



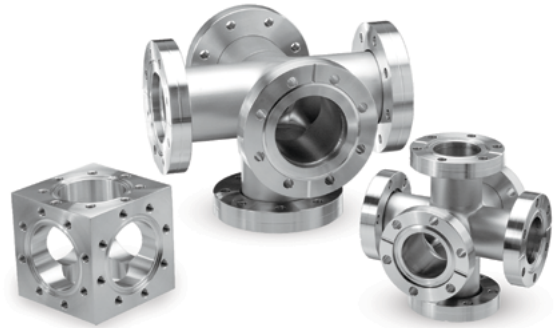
Tees

Tees feature a flange on each end of a “T” shaped section of tubing. Tees accommodate junctions or alignment considerations for vacuum system design. Tees also serve as junction adapters between different tubing sizes or flange types. ANCORP offers standard tees in 304L stainless steel. Other materials are available upon request.



Crosses

Crosses feature a flange on each end of an “X” shaped section of tubing. Crosses accommodate junctions or alignment considerations for vacuum system design. Crosses also serve as junction adapters between different tubing sizes or flange types. ANCORP offers standard crosses in 304L stainless steel. Other materials are available upon request.



5-Way and 6-Way Crosses and Tubes

5-Way and 6-Way crosses feature a flange on each end of a five or 6-sided tubing junction. These crosses accommodate complex junctions or alignment considerations for vacuum system design. Larger sizes can also serve as the starting point of a simple vacuum chamber design. ANCORP offers standard five and 6-way crosses and cubes in 304L stainless steel. Other materials are available on request. ANCORP machines cubes from solid pieces of material.

CF Half Nipples - Fixed Flange

Materials:

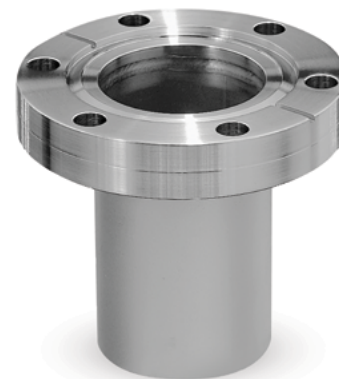
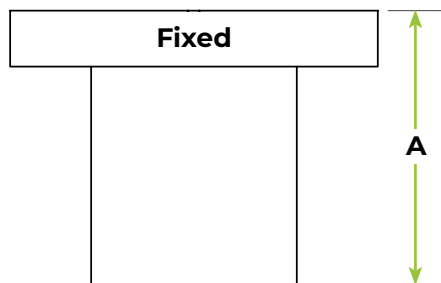
- 304L stainless steel

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

CF Half Nipples – Rotatable Flange

Materials:

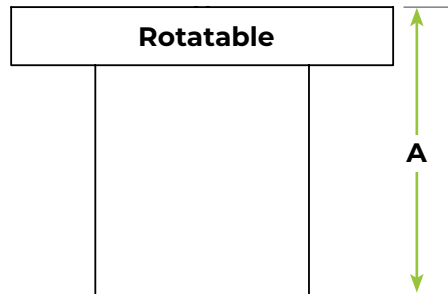
- 304L stainless steel

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



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 Nipples

Materials:

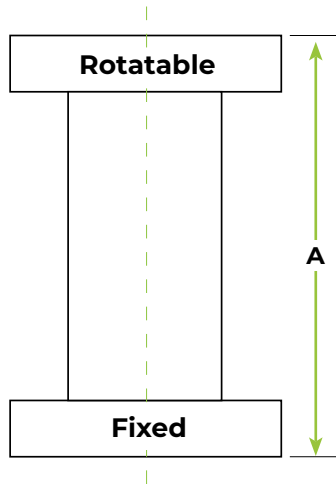
- 304L stainless steel

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 Nipples

Materials:

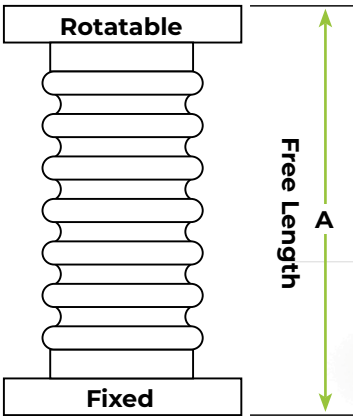
- Flanges: 304 stainless steel
- Flexible hose: 321 Stainless steel formed bellows

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



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 Straight Reducer Nipples

Materials:

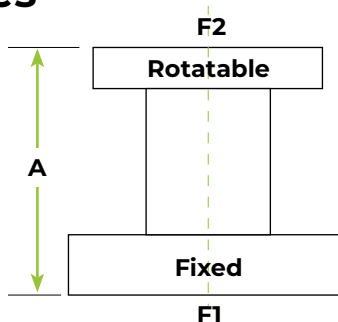
- 304L stainless steel

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 Nipples

Materials:

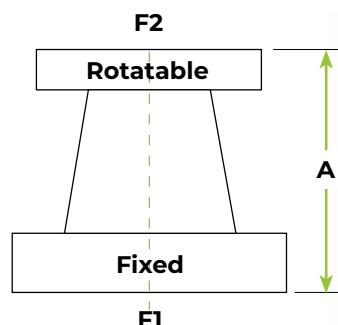
- 304L stainless steel

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

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 45° Elbows

Materials:

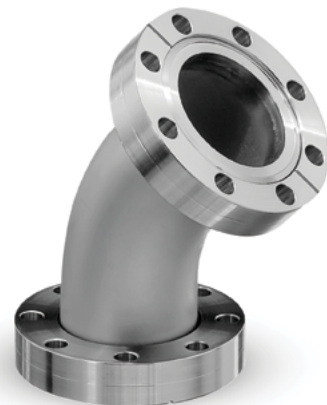
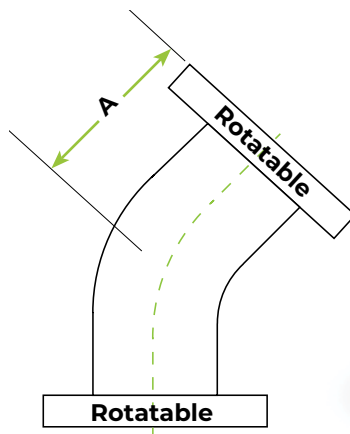
- 304L stainless steel

Product Notes:

- Radius elbow design

Options: Call for price and availability

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



02

CF 45° & 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° Elbows

Materials:

- 304L stainless steel

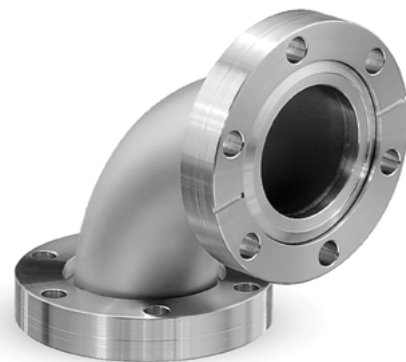
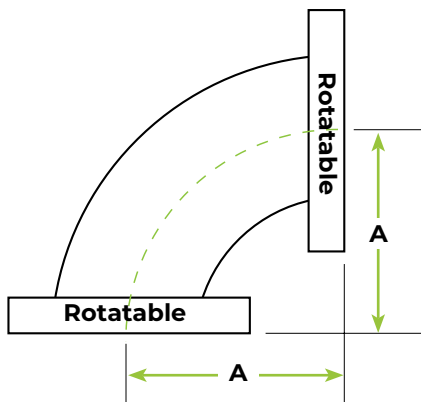
Product Notes:

- 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

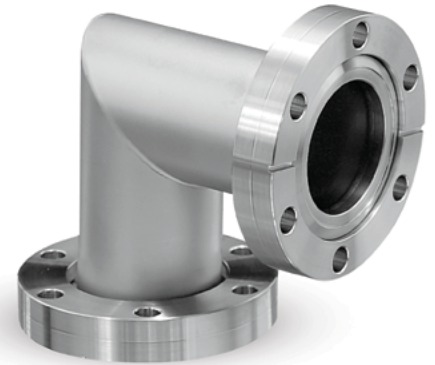
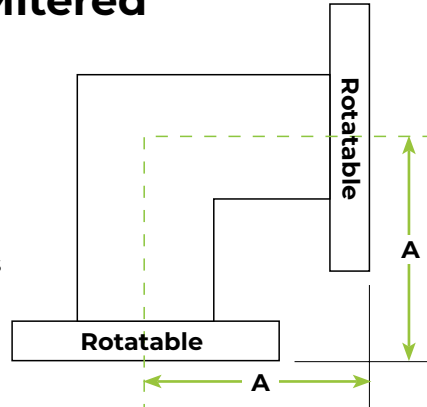
CF 90° Elbow - Mitered

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

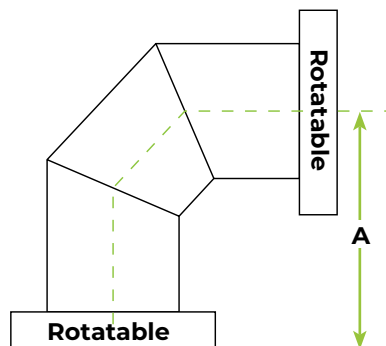
Product Notes:

- 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:

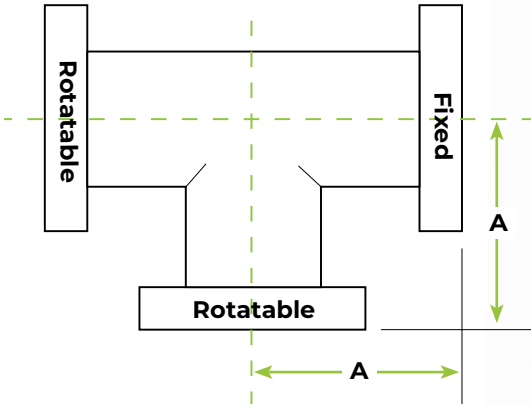
- 304L stainless steel

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.



02
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

Materials:

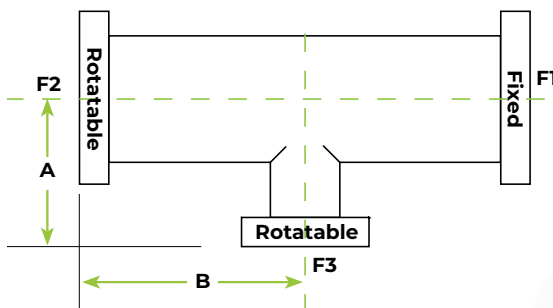
- 304L stainless steel

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:

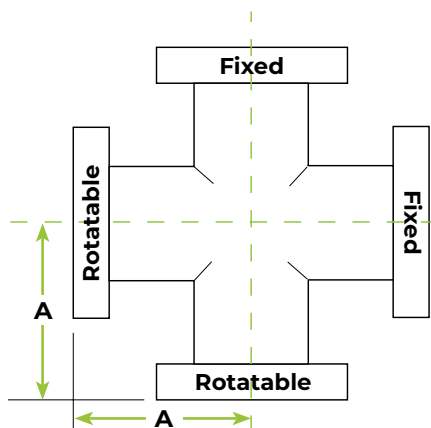
- 304L stainless steel

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.



02

CF Cross

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

Materials:

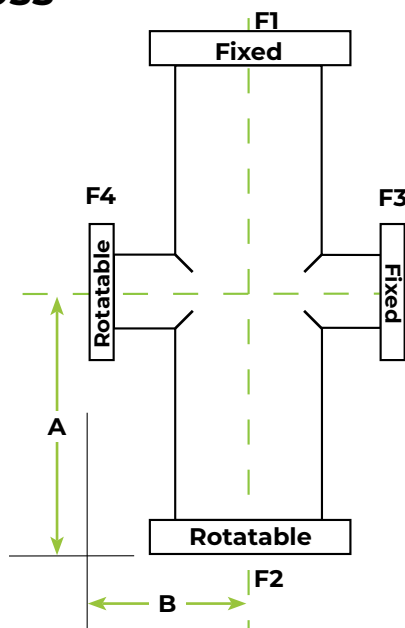
- 304L stainless steel

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-2.46X1.87	2.72	1.50	1.33	0.75	2.46	1.88
5000534	CF275XCF212-150X100-R4X-2.46X2.29	2.72	1.50	2.12	1.00	2.46	2.30
5000535	CF338XCF133-200X075-R4X-3.22X2.13	3.37	2.00	1.33	0.75	3.23	2.13
5000536	CF338XCF275-200X150-R4X-3.22X2.71	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	CF450XCF338-250X200-R4X-3.38X3.48	4.47	2.50	3.37	2.00	3.38	3.48
5000539	CF462XCF338-300X200-R4X-3.63X3.73	4.62	3.00	3.37	2.00	3.63	3.73
5000540	CF462XCF450-300X250-R4X-3.63X3.63	4.62	3.00	4.47	2.50	3.63	3.63
5000541	CF600XCF275-500X150-R4X-4.32X3.71	5.97	4.00	2.72	1.50	4.32	3.71
5000542	CF600XCF338-400X200-R4X-4.32X4.23	5.97	4.00	3.37	2.00	4.32	4.23
5000543	CF600XCF450-400X250-R4X-4.32X4.13	5.97	4.00	4.47	2.50	4.32	4.13
5000544	CF600XCF462-400X300-R4X-4.32X4.13	5.97	4.00	4.62	3.00	4.32	4.13
5000545	CF675XCF600-500X400-R4X-4.71X4.82	6.75	5.00	5.97	4.00	4.71	4.82
5000546	CF800XCF275-600X150-R4X-5.50X4.71	7.97	6.00	2.72	1.50	5.50	4.71
5000547	CF800XCF338-600X200-R4X-5.50X5.23	7.97	6.00	3.37	2.00	5.50	5.23
5000548	CF800XCF450-600X250-R4X-5.50X5.13	7.97	6.00	4.47	2.50	5.50	5.13
5000549	CF800XCF600-600X400-R4X-5.50X5.32	7.97	6.00	5.97	4.00	5.50	5.32
5000550	CF1000XCF800-800X600-R4X-7.50X6.50	9.97	8.00	7.97	6.00	7.50	6.50

CF 5-Way Cross

Materials:

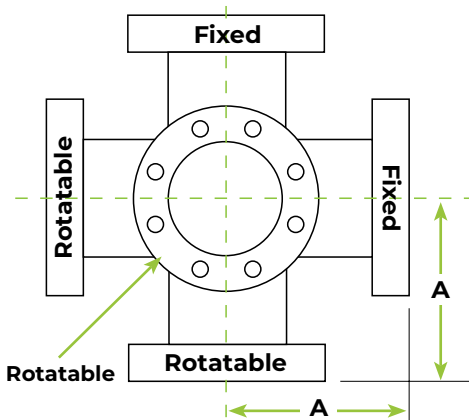
- 304L stainless steel

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.



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-3.23	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

Materials:

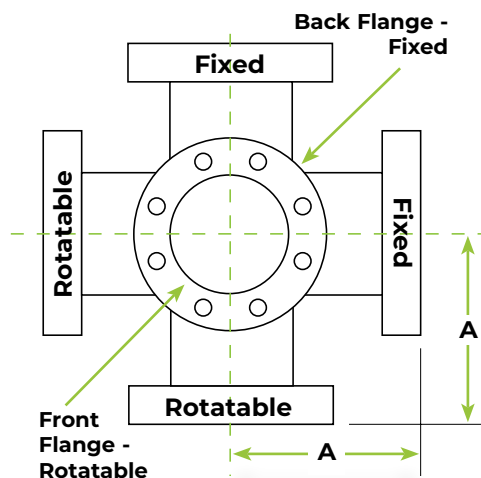
- 304L stainless steel

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:

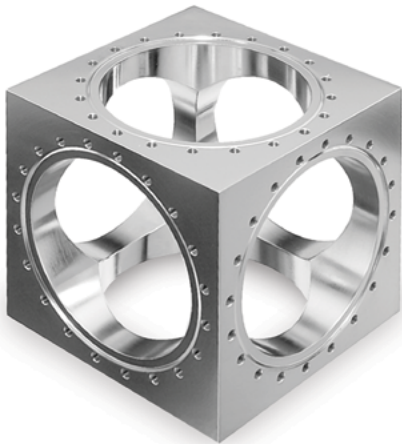
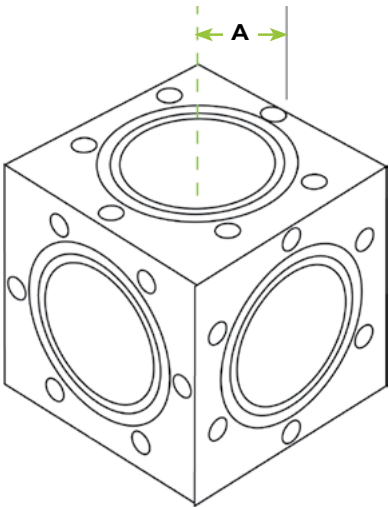
- 304L stainless steel

Product Notes:

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

Options: Call for price and availability

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



02
CF 6-Way Cube

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

This image shows a full page of blank handwriting practice paper. It features approximately 20 evenly spaced horizontal green lines across the entire page, providing a guide for letter height and placement. The background is plain white, and there are no margins, text, or other markings present.