



CF Components

Conflat® Compatible Flanges and Fittings



Features

- 304 Stainless Steel
- UHV Compatible to 1×10^{-13} Torr
- Bakeable to 450°C

Specifications

Vacuum Range

UHV, Ultrahigh vacuum	1×10^{-13} Torr
-----------------------	--------------------------

Temperature Range^{1,2}

304 Stainless Steel	450°C
---------------------	-------

Notes

1. Overall assembly ratings must be adjusted to that of its lowest rated component.
 2. Anti-seizing thread lubricants or compounds are recommended when fastening stainless steel components. Silver-plated bolts are an ideal solution for in-vacuum use, while various paint-on thread lubricating solutions for air-service applications are commercially available. Contact factory for more information on thread lubricating solutions.
- § Unless specified otherwise, dimensional units in all sections of this catalog are expressed in inches.

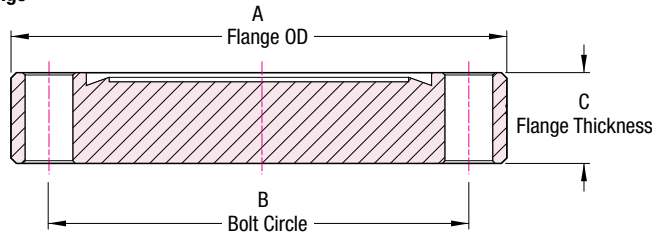
CF Components

Accu-Glass Products' line of Conflat® compatible CF style blank flanges, fittings and hardware are designed to incorporate the industry standard "captured copper gasket" sealing principle. This is the standard ultrahigh vacuum, UHV sealing method used throughout the industrial and scientific vacuum communities.

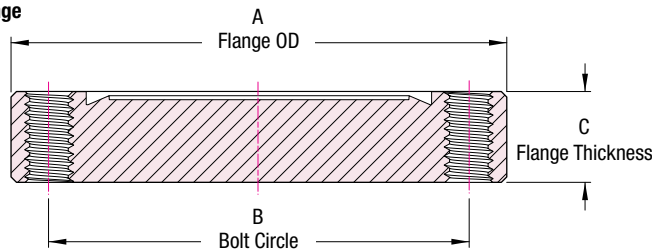
Our range of products include numerous CF flanged parts from conical reducers, zero length reducers, nipples, elbows and couplings to all supporting mounting hardware including copper and Viton® gaskets.



CF, Clearance Hole Flange



CF, Threaded Hole Flange



200000 / 1.33 CF Flange
Clearance Holes



200122 / 4.50 CF Flange
Clearance Holes



200009 / 1.33 CF Flange
Threaded Holes



200126 / 4.50 CF Flange
Threaded Holes

Non-Rotatable¹ — Blank CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

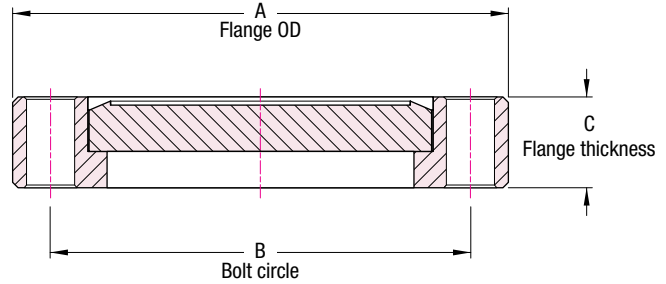
Flange	A Flange OD	B Bolt Circle	Bolt Holes		C Flange Thickness	Model Number	Part Number	Unit Price \$
			Quantity	Diameter				
Clearance — Bolt Hole								
133 CF	1.33	1.062	6	0.17	0.30	CF133-000-N	200000	16
212 CF	2.12	1.625	4	0.26	0.47	CF212-000-N	200040	17
275 CF	2.73	2.312	6	0.26	0.50	CF275-000-N	200060	18
338 CF	3.36	2.850	8	0.33	0.69	CF338-000-N	200110	55
450 CF	4.50	3.628	8	0.33	0.69	CF450-000-N	200122	75
462 CF	4.62	4.030	10	0.33	0.81	CF462-000-N	200138	88
600 CF	6.00	5.128	16	0.33	0.78	CF600-000-N	200150	115
675 CF	6.75	5.969	18	0.33	0.84	CF675-000-N	200158	139
800 CF	8.00	7.128	20	0.33	0.87	CF800-000-N	200170	185
1000 CF	10.00	9.128	24	0.33	0.97	CF1000-000-N	200178	405
1200 CF	12.00	11.180	32	0.33	1.12	CF1200-000-N	200186	655
1325 CF	13.25	12.060	30	0.39	1.12	CF1325-000-N	200194	735
1400 CF	14.00	12.809	30	0.39	1.12	CF1400-000-N	200206	885
1450 CF	14.50	13.311	32	0.39	1.12	CF1450-000-N	200214	1085
1650 CF	16.50	15.310	36	0.39	1.12	CF1650-000-N	200222	1875
Threaded — Bolt Hole								
133 CF	1.33	1.062	6	8-32	0.30	CF133-000-NT	200009	19
212 CF	2.12	1.625	4	1/4-28	0.47	CF212-000-NT	200045	22
275 CF	2.73	2.312	6	1/4-28	0.50	CF275-000-NT	200070	24
450 CF	4.50	3.628	8	5/16-24	0.69	CF450-000-NT	200126	92
600 CF	6.00	5.128	16	5/16-24	0.78	CF600-000-NT	200152	145
675 CF	6.75	5.969	18	5/16-24	0.84	CF675-000-NT	200161	159

1. Gaskets and mounting hardware see pages 230 and 231.

Vacuum Hardware



200018 / CF Flange
Clearance Holes



Rotatable¹ — Blank CF Flange / Clearance / 450°C / UHV to 1x10⁻¹⁰ Torr

Flange	A Flange OD	B Bolt Circle	Bolt Holes		C Flange Thickness	Model Number	Part Number	Unit Price \$
			Quantity	Diameter				

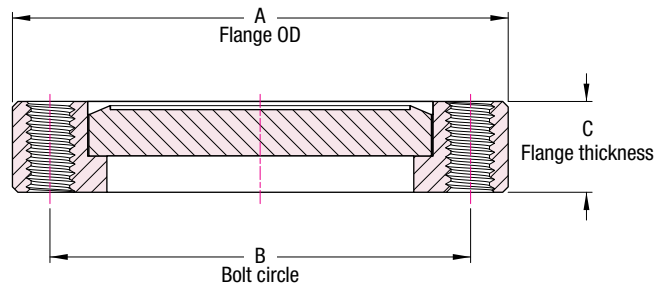
Clearance — Bolt Hole

133 CF	1.33	1.062	6	0.17	0.30	CF133-000-R	200018	19
275 CF	2.73	2.312	6	0.26	0.50	CF275-000-R	200080	30
450 CF	4.50	3.628	8	0.33	0.75	CF450-000-R	200130	89

1. Gaskets and mounting hardware see pages 230 and 231.



200130 / CF Flange
Clearance Holes



Rotatable¹ — Blank CF Flange / Threaded / 450°C / UHV to 1x10⁻¹⁰ Torr

Flange	A Flange OD	B Bolt Circle	Bolt Holes		C Flange Thickness	Model Number	Part Number	Unit Price \$
			Quantity	Thread				

Threaded — Bolt Hole

133 CF	1.33	1.062	6	8-32	0.30	CF133-000-RT	200026	25
275 CF	2.73	2.312	6	1/4-28	0.50	CF275-000-RT	200100	39
450 CF	4.50	3.628	8	5/16-24	0.75	CF450-000-RT	200134	104

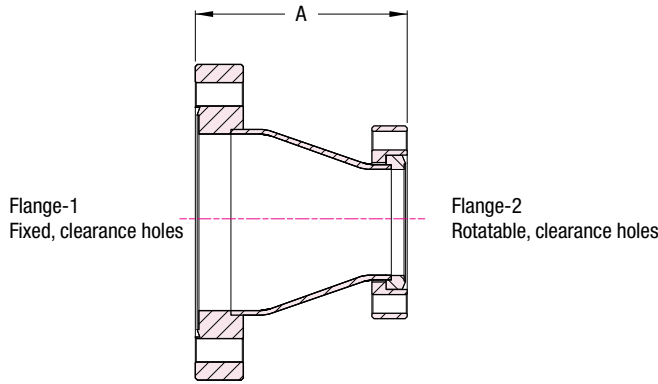
1. Gaskets and mounting hardware see pages 230 and 231.



200026 / CF Flange
Threaded Holes



200134 / CF Flange
Threaded Holes



200558 / Conical Reducer
Clearance Holes

Conical Reducers¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

CF Flange		Tube OD (ID)			Model Number	Part Number	Unit Price \$
Flange-1	Flange-2	Flange-1	Flange-2	A			

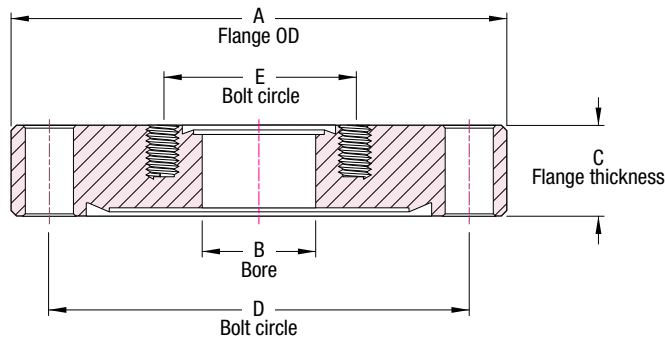
Clearance — Bolt Holes

275 CF	133 CF	1.50 (1.37)	0.75 (0.68)	3.18	CR275-133	200558	125
450 CF	275 CF	2.50 (2.37)	1.50 (1.37)	3.00	CR450-275	200561	210
600 CF	450 CF	4.00 (3.87)	2.50 (2.37)	4.40	CR600-450	200567	355
800 CF	600 CF	6.00 (5.76)	4.00 (3.87)	6.44	CR800-600	200569	775

1. Gaskets and mounting hardware located on pages 230 and 231. Please call factory for larger flange sizes.



200561 / Conical Reducer
Clearance Holes



Zero Length Reducers¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

CF Flange		Bore B	Thickness C	Threaded Holes Side	Large Bolt Circle D	Small Bolt Circle E	Model Number	Part Number	Unit Price \$
A-Large	E-Small								

Clearance / Threaded — Bolt Holes

275 CF	133 CF	0.62	0.500	E	2.312	1.062	CF275-133-063-ST	200301	86
450 CF	133 CF	0.62	0.687	E	3.628	1.062	CF450-133-075-ST	200307	110
450 CF	275 CF	1.50	0.687	E	3.628	2.312	CF450-275-150-ST	200309	140
600 CF	275 CF	1.50	0.781	E	5.128	2.312	CF600-275-150-ST	200317	160
600 CF	450 CF	2.50	0.781	E	5.128	3.628	CF600-450-250-ST	200319	215
600 CF	450 CF	2.50	0.781	A / E	5.128	3.628	CF600-450-250-BT	200320	215
1000 CF	800 CF	6.00	0.960	E	9.128	7.128	CF1000-800-600-ST	200347	455

1. Gaskets and mounting hardware located on pages 230 and 231. Note that reducer side blind threaded holes require shorter bolts. Please call factory for larger flange sizes.



200309 / Zero Length Reducer CF Flange
Clearance/Threaded



200320 / Zero Length Reducer CF Flange
Clearance/Threaded



200500 / Half Nipple
Clearance Holes



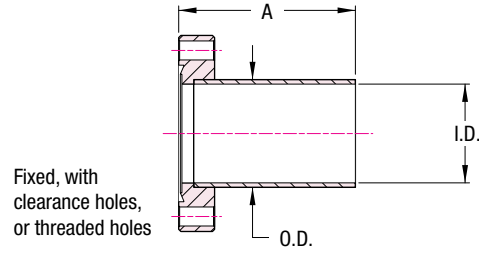
200509 / Half Nipple
Threaded Holes



200538 / Full Nipple
Clearance Holes



200542 / Full Nipple
Clearance Holes



Half Nipples¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

Flange		Tube		A Length	Model Number	Part Number	Unit Price \$
Size	Dia.	OD	ID				

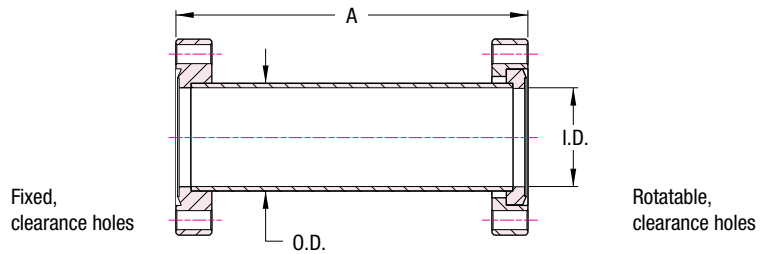
Clearance — Bolt Holes

133 CF	1.33	0.75	0.68	1.50	HN133-075-N	200500	40
212 CF	2.12	1.00	0.87	2.04	HN212-100-N	200504	42
275 CF	2.73	1.50	1.37	2.46	HN275-150-N	200508	50
450 CF	4.50	2.50	2.37	4.12	HN450-250-N	200516	159

Threaded — Bolt Holes

133 CF	1.33	0.75	0.68	1.50	HN133-075-NT	200501	45
212 CF	2.12	1.00	0.87	2.04	HN212-100-NT	200505	50
275 CF	2.73	1.50	1.37	2.46	HN275-150-NT	200509	58
450 CF	4.50	2.50	2.37	4.12	HN450-250-NT	200517	179

1. Gaskets and mounting hardware located on pages 230 and 231. Note that reducer side blind threaded holes require shorter bolts Please call factory for larger flange sizes.



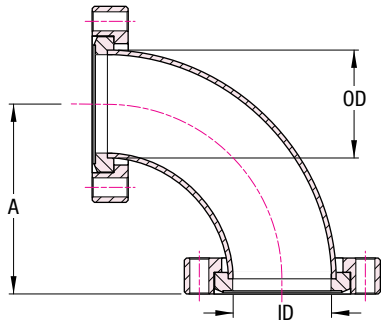
Full Nipples¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

Flange		Tube		A Length	Model Number	Part Number	Unit Price \$
Size	Dia.	OD	ID				

Clearance — Bolt Holes

133 CF	1.33	0.75	0.68	3.00	FN133-075	200538	75
212 CF	2.12	1.00	0.87	4.08	FN212-100	200539	80
275 CF	2.73	1.50	1.37	4.93	FN275-150	200540	90
338 CF	3.38	2.00	1.87	6.45	FN338-200	200541	215
450 CF	4.50	2.50	2.37	8.25	FN450-250	200542	305

1. Gaskets and mounting hardware located on pages 230 and 231. Note that reducer side blind threaded holes require shorter bolts Please call factory for larger flange sizes.



Both flanges rotatable, clearance holes



200577 / 90° Elbow
Clearance Holes

90° Radius Elbows¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

Flange		Tube		A Length	Model Number	Part Number	Unit Price \$
Size	Dia.	OD	ID				

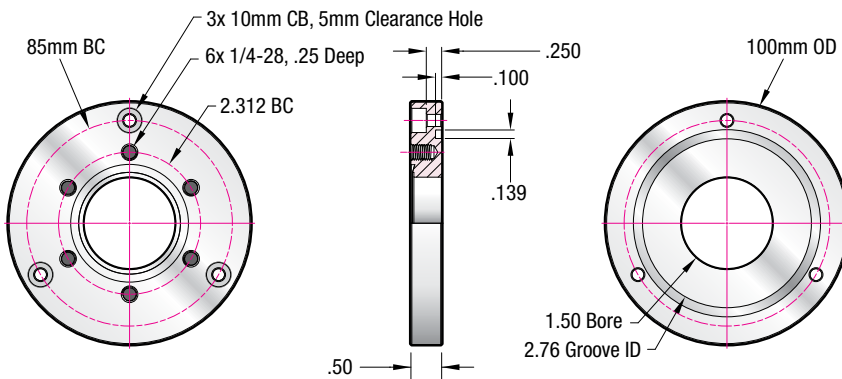
Clearance — Bolt Holes

133 CF	1.33	0.75	0.68	1.6	RL90-133-075	200577	80
212 CF	2.12	1.00	0.87	1.7	RL90-212-100	200578	85
275 CF	2.73	1.50	1.37	2.5	RL90-275-150	200579	90
338 CF	3.38	2.00	1.87	3.2	RL90-338-200	200580	215
450 CF	4.50	2.50	2.37	4.1	RL90-450-250	200581	325

1. Please contact factory for larger sizes and threaded hole flanges. Gaskets and mounting hardware located on pages 230 and 231



200581 / 90° Elbow
Clearance Holes



200660 / CF Adapter Flange
2.75 CF — FEI Elastomer Seal

Adapter Flange — CF 2.75 to FEI 100mm Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

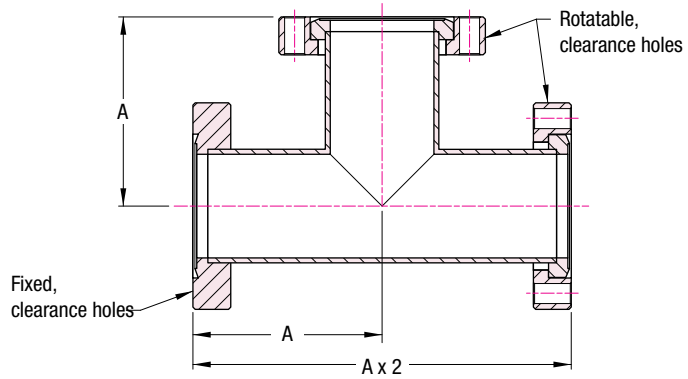
Flange Type Side-1	Flange Type Side-2	Model Number	Part Number	Unit Price \$
-----------------------	-----------------------	-----------------	----------------	---------------------

Adapter Flange — 2.75 CF to FEI-100 / 6x Blind-Threaded Holes / 3x Clearance Holes

275 CF	FEI-100	FEI-275-ADT	200660	178
--------	---------	-------------	---------------	-----



200606 / Tee
Clearance Holes



Tees¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

Flange		Tube		A Length	Model Number	Part Number	Unit Price \$
Size	Dia.	OD	ID				

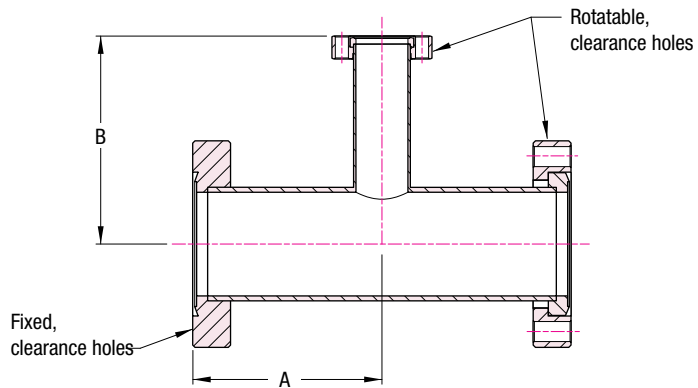
Clearance — Bolt Holes

133 CF	1.33	0.75	0.68	1.5	T133-075	200606	110
212 CF	2.12	1.00	0.87	2	T212-100	200607	120
275 CF	2.73	1.50	1.37	2.5	T275-150	200608	135
338 CF	3.38	2.00	1.87	3.2	T338-200	200609	340
450 CF	4.50	2.50	2.37	3.4	T450-250	200610	395

1. Gaskets and mounting hardware located on pages 230 and 231. Note that reducer side blind threaded holes require shorter bolts Please call factory for larger flange sizes.



200608 / Tee
Clearance Holes



Reducer Tees¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

Flange Size		Bolt Holes				A	B	Model Number	Part Number	Unit Price \$
#1	#2	#1	#2							

Clearance — Bolt Holes

275 CF	133 CF	1.50 (1.37)	0.75 (0.68)	2.5	2.75	RDT275-133	200618	125
450 CF	275 CF	2.50 (2.37)	1.50 (1.37)	3.4	2.50	RDT450-275	200623	380

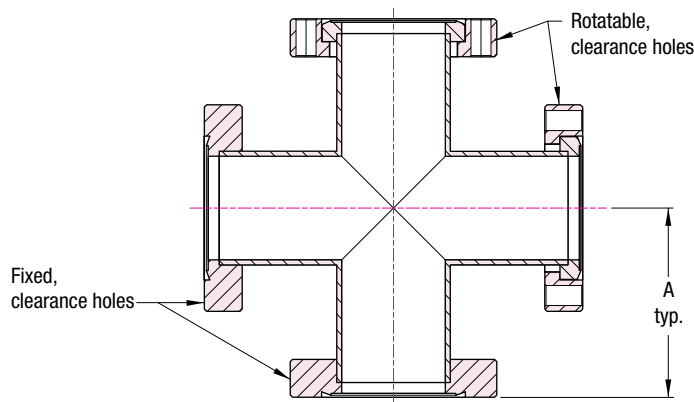
1. Gaskets and mounting hardware located on pages 230 and 231. Please call factory for larger flange sizes.



200618 / Reducer Tee
Clearance Holes



200623 / Reducer Tee
Clearance Holes



4-Way Crosses¹ — CF Flange / 450°C / UHV to 1×10^{-10} Torr

Flange		Tube		A Length	Model Number	Part Number	Unit Price \$
Size	Dia.	OD	ID				

Clearance — Bolt Holes

133 CF	1.33	0.75	0.68	1.5	X4-133-075	200654	155
275 CF	2.73	1.50	1.37	2.5	X4-275-150	200655	185
450 CF	4.50	2.50	2.37	3.4	X4-450-250	200658	555

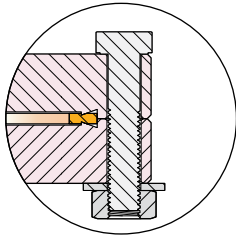
1. Gaskets and mounting hardware located on pages 230 and 231. Please contact factory for prices and lead time on larger 4-way crosses as well as 5- and 6-way crosses and cubes..



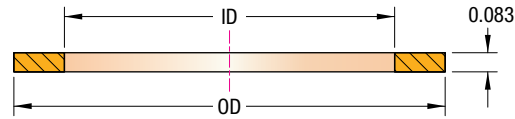
200654 / 4-way Cross
Clearance Holes



200658 / 4-way Cross
Clearance Holes



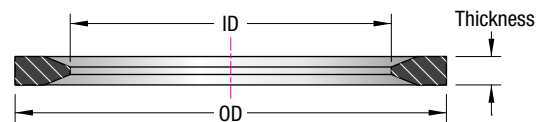
200850 / Copper Gasket



Copper Gaskets¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

CF Flange	Gasket ID	Gasket OD	Package Quantity	Model Number	Part Number	Unit Price \$
133 CF	0.64	0.84	10	CG-064-133	200730	17
212 CF	1.00	1.29	10	CG-100-212	200740	18
275 CF	1.53 ²	1.90	10	CG-153-275	200761	27
275 CF	1.45	1.90	10	CG-145-275	200760	19
338 CF	2.01	2.43	10	CG-201-338	200780	22
450 CF	2.51	3.24	10	CG-251-450	200810	34
450 CF	2.80 ²	3.24	10	CG-280-450	200820	41
462 CF	3.01	3.60	10	CG-301-462	200830	37
600 CF	4.01	4.74	10	CG-401-600	200850	47
600 CF	4.12 ²	4.74	10	CG-4125-600	200851	65
675 CF	5.01	5.57	10	CG-501-675	200870	53
800 CF	6.01	6.74	10	CG-601-800	200880	64
1000 CF	8.00	8.74	10	CG-800-1000	200900	88
1200 CF	10.00	10.74	10	CG-1000-1200	200920	400
1200 CF	10.00	10.74	1	CG-1000-1200-1	200921	46
1325 CF	10.87	11.56	10	CG-1087-1325	200910	420
1325 CF	10.87	11.56	1	CG-1087-1325-1	200911	49
1400 CF	11.56	12.33	10	CG-1156-1400	200930	590
1400 CF	11.56	12.33	1	CG-1156-1400-1	200931	60
1650 CF	14.11	14.82	10	CG-1411-1650	200940	620
1650 CF	14.11	14.82	1	CG-1411-1650-1	200941	64

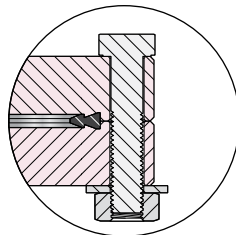
1. Call factory for larger size gaskets. 2. Recommended for flanges with multiple feedthroughs



Viton® Gaskets¹ — CF Flange / 150°C / HV to 1x10⁻⁸ Torr

CF Flange	Gasket ID	Gasket OD	Thickness	Package Quantity	Model Number	Part Number	Unit Price \$
133 CF	0.62	0.84	0.08	5	VG-062-133	200731	15
212 CF	1.02	1.29	0.12	5	VG-102-212	200741	18
275 CF	1.68	1.90	0.12	5	VG-168-275	200763	18
338 CF	2.19	2.43	0.12	1	VG-219-338	200782	14
450 CF	3.02	3.24	0.12	1	VG-302-450	200812	16
462 CF	3.36	3.60	0.12	1	VG-336-462	200832	16
600 CF	4.51	4.74	0.12	1	VG-451-600	200852	18

1. Call factory for larger size gaskets.



200763 / Viton® Gasket



CF Gasket Clip Set — 2x Clips Included in Set

Accu-Glass stainless steel gasket clip set is a simple and convenient way of supporting any size CF gaskets in place during difficult or unusual Conflat® CF flange installations. Ideal for vertical or inverted installations, and when working against gravity.

Gasket Clips — CF Flange / 20°C / Air Service

CF Flange	Description	Model Number	Part Number	Unit Price \$
-----------	-------------	--------------	-------------	---------------

Gasket Clips — Gasket Installation Tool

All Sizes	Set includes 2x Stainless Steel Clips	GC-CF-2	113290	28
-----------	---------------------------------------	---------	---------------	----



113290 / Gasket Clips for use with CF Flanges

CF Fastener Kits — Includes Bolts, Nuts, and Washers

CF Fastener Kits are supplied with 18-8 stainless steel hardware to closely match the linear expansion of standard CF flanges. Listed bolt lengths are for clearance hole CF flanges only.

Caution: Threaded bolt hole flanges require shorter bolt lengths. A small amount of anti-seize lubricant should be applied before assembly.

Kits include bolts, nuts and washers. With exception of 1.33 CF kits, all bolts have hexagonal heads, 133 CF bolts have socket cap heads. Each package includes enough hardware to mount the number of flanges listed in the table below.

Fastener Kits¹ — CF Flange / 450°C / UHV to 1x10⁻¹⁰ Torr

CF Flange	Bolt / Nut Threads	Bolt Length	Package Quantity Each	Mounts number of flanges	Model Number	Part Number	Unit Price \$
-----------	--------------------	-------------	-----------------------	--------------------------	--------------	-------------	---------------

Clearance — Hole CF Flanges / Kit includes bolts, nuts and washers

133 CF ²	8-32	0.75	24	4	CFH-133	200735	23
212 CF	1/4-28	1.25	16	4	CFH-212	200742	29
275 CF	1/4-28	1.25	24	4	CFH-275	200764	33
338 CF	5/16-24	1.75	32	4	CFH-338	200783	44
450 CF	5/16-24	2.00	32	4	CFH-450	200813	47
462 CF ³	5/16-24	2.00	40	4	CFH-462	200833	53
600 CF ³	5/16-24	2.00	32	2	CFH-600	200853	47
675 CF	5/16-24	2.25	36	2	CFH-675	200873	53
800 CF	5/16-24	2.25	40	2	CFH-800	200883	59
1000 CF	5/16-24	2.50	48	2	CFH-1000	200903	72
1200 CF	5/16-24	3.00	32	1	CFH-1200	200923	56
1325 CF	3/8-24	3.00	30	1	CFH-1325	200933	60
1400 CF	3/8-24	3.00	30	1	CFH-1400	200943	60
1450 CF	3/8-24	3.00	32	1	CFH-1450	200953	64
1650 CF	3/8-24	3.00	36	1	CFH-1650	200963	70

1. Anti-seize thread lubricants or compounds are recommended when fastening stainless steel components. Silver-plated bolts are an ideal solution for in-vacuum use, while various paint-on thread lubricating solutions for air-service applications are commercially available. Contact factory for more information on thread lubricating solutions. 2. Supplied with socket head cap screws. 3. For rotatable clearance hole flanges of this size, use part number 200873, as they require slightly longer bolts, 2.25 inch length.



200735 / 133 CF Mounting Hardware



200813 / 450 CF Mounting Hardware