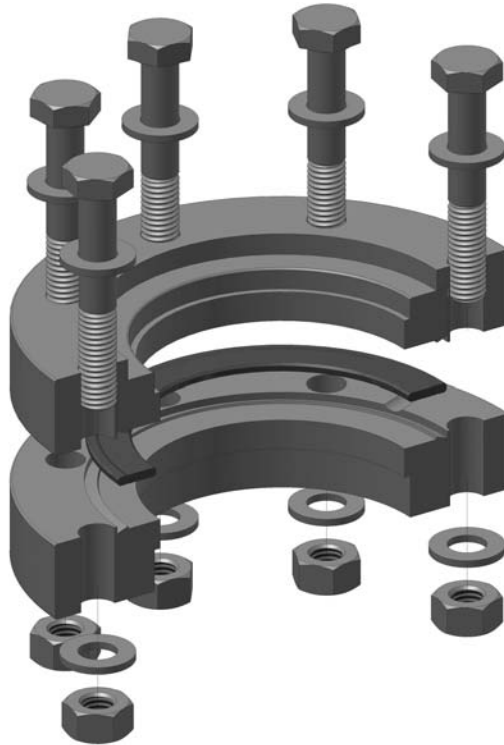
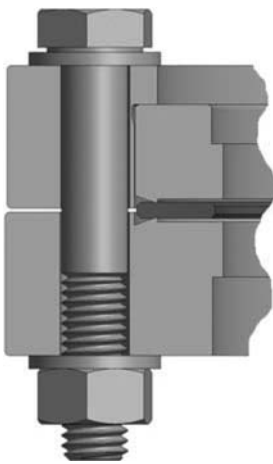


## Introduction

The generation of ultra high vacuum (UHV) makes great demands on the material and connections. Therefore the CF standard was created in the UHV technology (ISO 3669; enhancement ISO/TS 3669-2). The following figure shows the principle construction:



### Functional principle



CF flanges are manufactured from circular blanks of stainless steel on CNC machines. Rotatable flanges are bipartite and consist of an inner part with the seal face and an outer part with the bolt holes. CF flanges have an annular groove on the vacuum side for the reception of the gasket and a knife-edge.

Sealing is achieved by means of a flat gasket of oxygen-free (OFHC) copper because of the low leak rate and high bakeout temperature necessary for UHV technology. This gasket can be used generally only once due to the plastic deformation by the knife-edge.

Fastening is achieved by bolts which must be tightened uniformly crosswise in order to avoid any kind of distortion. Such flange connections have a leak rate of  $< 1.0E-11$  mbar l/s and are bakeable up to 450 °C.

## Introduction

1

### Dimensions

VACOM provides CF flanges and components of the dimensions DN10 to DN250 according to the pre-norm ISO/TS 3669-2. These flanges are fully interchangeable with ConFlat® and CF flanges of other manufacturers. Micro CF flanges of the dimension DN10 are exclusively supplied by VACOM.

Please consider that individual standards of institutions are also available in the market. Please add the auxiliary dimensions (DN25, DN50, DN75, DN125) in case of requests and offers of CF flanges and components. In addition please add the size and the number of required bolts and the necessary copper gasket for dimensions from DN250.

### Dimensions of CF Flanges

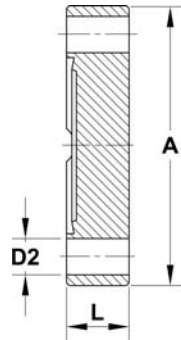
Nominal diameter	AD (mm (inch))	Thickness (mm)	AD CU gasket (mm)	Bolt circle (mm)	Number of holes
DN10	25.4 (1")	6	13.4	18	6 x M3
DN16	34 (1.33")	8	21	27	6 x M4
DN25	54 (2.12")	12	33	41	4 x M4
DN40	70 (2.75")	13	48	59	6 x M6
DN50	86 (3.38")	16	61	72	6 x M6
DN63	114 (4.5")	17	82	92	8 x M8
DN75	117 (4.62")	18	92	102	10 x M8
DN100	154 (6")	20	120	130	16 x M8
DN125	171 (6.75")	21	142	152	18 x M8
DN160	203 (8")	22	171	181	20 x M8
DN200	254 (10")	25	222	232	24 x M8
DN250	305 (12")	25	272.7	284	32 x M8
DN250 "imperial"	305 (12")	27	270	283	32 x M10

### Materials

Seals	Flanges	Components
FKM	stainless steel 304	stainless steel 304
OFHC copper	stainless steel 304L	stainless steel 304L
OFHC copper silver coated	stainless steel 316L	stainless steel 316L
OFHC copper soft annealed	stainless steel 316LN ESR	stainless steel 316Ti

## CF Flanges

### CF Blank flanges, fixed, stainless steel



#### Technical data

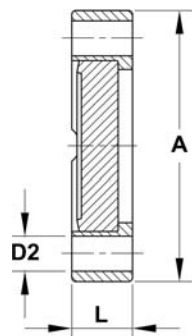
■ Option

with tapped holes

Order code			DN	A	D2	L
Stainless steel 304	Stainless steel 316L	Stainless steel 316LN ESR				
-	F10-316	-	10	25	3.2	6
F16-304	F16-316	F16-316LNS	16	34	4.3	7
F40-304	F40-316	F40-316LNS	40	70	6.7	13
F63-304	F63-316	F63-316LNS	63	114	8.3	17
F100-304	F100-316	F100-316LNS	100	152	8.3	20
F160-304	F160-316	F160-316LNS	160	203	8.3	22
F200-304	F200-316	F200-316LNS	200	254	8.3	24
F250-304	F250-316	F250-316LNS	250	304	8.3	25

- For clean room compatible packaging please add "-CRP" to the order code

### CF Blank flanges, rotatable, stainless steel



#### Technical data

■ Options

with tapped holes

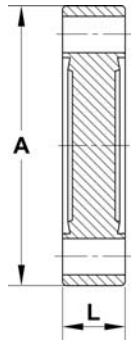
Order code			DN	A	D2	L
Stainless steel 304	Stainless steel 316L	Stainless steel 316LN ESR				
-	F16R-316	F16R-316LNS	16	34	4.3	7
F40R-304	F40R-316	F40R-316LNS	40	70	6.7	13
F63R-304	F63R-316	F63R-316LNS	63	114	8.3	17
F100R-304	F100R-316	F100R-316LNS	100	152	8.3	20
F160R-304	F160R-316	F160R-316LNS	160	203	8.3	22
F200R-304	F200R-316	F200R-316LNS	200	254	8.3	24
F250R-304	F250R-316	F250R-316LNS	250	304	8.3	25

- For clean room compatible packaging please add "-CRP" to the order code

## CF Flanges

1

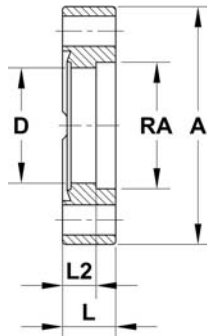
### CF Double sided blank flanges, stainless steel



Order code		DN	A	L
St. steel 304	St. steel 316LN ESR			
F16DB	F16DBLNS	16	34	7
F40DB	F40DBLNS	40	70	13
F63DB	F63DBLNS	63	114	17
F100DB	F100DBLNS	100	152	20
F160DB	F160DBLNS	160	203	22

- For clean room compatible packaging please add "-CRP" to the order code

### CF Bored flanges, fixed, stainless steel



#### Technical data

■ Option

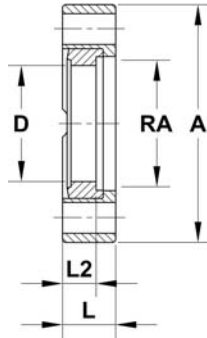
with tapped holes

Order code			DN	A	RA	D	L	L2
Stainless steel 304	Stainless steel 316L	Stainless steel 316LN ESR						
-	F10B10-316	-	10	25	10	9	6	3
F16B19-304	F16B19-316	F16B19-316LNS	16	34	19	16	7	4.8
F40B41-304	F40B41-316	F40B41-316LNS	40	70	41	38	13	4.8
F40B42-304	F40B42-316	F40B42-316LNS	40	70	42	38	13	4.8
F63B63-304	-	-	63	114	63	61	17	7.9
F63B70-304	F63B70-316	F63B70-316LNS	63	114	70	66	17	7.9
F100B101-304	-	-	100	152	101	98	20	9.5
F100B104-304	F100B104-316	F100B104-316LNS	100	152	104	100	20	9.5
F160B152-304	-	F160B152-316LNS	160	203	152	149	22	9.5
F160B154-304	F160B154-316	F160B154-316LNS	160	203	154	154	22	9.5
F200B204-304	F200B204-316	F200B204-316LNS	200	254	204	200	25	9.5
F250B254-304	F250B254-316	F250B254-316LNS	250	304	254	250	25	12.7

- For clean room compatible packaging please add "-CRP" to the order code

## CF Flanges

### CF Bored flanges, rotatable, stainless steel



#### Technical data

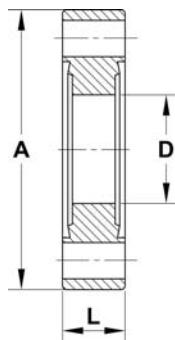
■ Option

with tapped holes

Order code			DN	A	RA	D	L	L2
Stainless steel 304	Stainless steel 316L	Stainless steel 316LN ESR						
F16RB19-304	F16RB19-316	F16RB19-316LNS	16	34	19	16	7	4.8
F40RB41-304	F40RB41-316	F40RB41-316LNS	40	70	41	38	13	4.8
F40RB42-304	F40RB42-316	F40RB42-316LNS	40	70	42	38	13	4.8
F63RB63-304	-	-	63	114	63	61	17	7.9
F63RB70-304	F63RB70-316	F63RB70-316LNS	63	114	70	66	17	7.9
F100RB101-304	-	-	100	152	101	98	20	9.5
F100RB104-304	F100RB104-316	F100RB104-316LNS	100	152	104	100	20	9.5
F160RB152-304	-	F160RB152-316LNS	160	203	152	149	22	9.5
F160RB154-304	F160RB154-316	F160RB154-316LNS	160	203	154	154	22	9.5
F200RB204-304	F200RB204-316	F200RB204-316LNS	200	253	204	200	25	9.5
F250RB254-304	F250RB254-316	F250RB254-316LNS	250	305	254	250	25	12.7

- For clean room compatible packaging please add "-CRP" to the order code

### CF Double sided bored flanges, stainless steel



#### Technical data

■ Option

radial connections

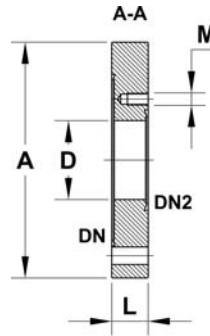
Order code		DN	A	D	L
St. steel 304	St. steel 316LN ESR				
F16D16-304	-	16	34	13	7
-	F16D16LNS	16	34	16	7
F40D38	F40D38LNS	40	70	38	13
F63D63	-	63	114	61	17
-	F63D66LNS	63	114	66	17
F100D100	F100D100LNS	100	152	100	20
F160D150	F160D150LNS	160	203	150	22

- For clean room compatible packaging please add "-CRP" to the order code

## CF Flanges

1

### CF Reducer flanges, stainless steel



	Order code	DN	DN2	A	D	M	L
Stainless steel 304	Stainless steel 316LN ESR						
ZL016010-304	-	16	10	34	9	M3	10
ZL040010-304	-	40	10	70	9	M4	13
ZL040016-304	ZL040016-316LNS	40	16	70	16	M4	13
ZL063016-304	ZL063016-316LNS	63	16	114	16	M4	17
ZL063040-304	ZL063040-316LNS	63	40	114	38	M6	17
ZL100040-304	ZL100040-316LNS	100	40	152	38	M6	20
ZL100063-304	ZL100063-316LNS	100	63	152	66	M8	20
ZL160040-304	ZL160040-316LNS	160	40	203	38	M6	22
ZL160063-304	ZL160063-316LNS	160	63	203	66	M8	22
ZL160100-304	ZL160100-316LNS	160	100	203	100	M8	22
ZL200100-304	ZL200100-316LNS	200	100	253	100	M8	25
ZL200160-304	ZL200160-316LNS	200	160	253	150	M8	25

- For clean room compatible packaging please add "-CRP" to the order code

### CF Flange caps, plastics



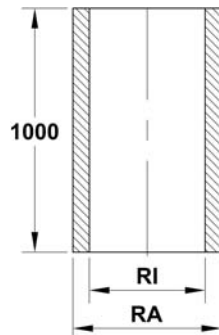
#### Technical data

- Packing unit 10 pieces

Order code	DN
CF16CAP	16
CF40CAP	40
CF63CAP	63
CF100CAP	100
CF160CAP	160

## CF Fittings

### CF Tube, 1 m length, stainless steel

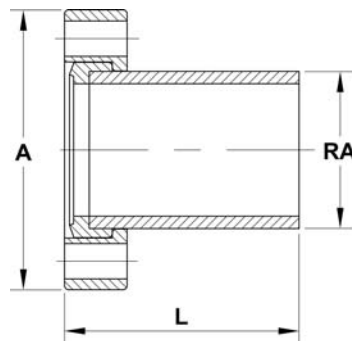


#### Technical data

- Lengthwise welded
- Outside and inside etched
- DIN 11850
- Ra < 0.8 μm
- Ra (welding seam area) < 1.6 μm

Order code		DN	RI	RA
St. steel 304	St. steel 316L			
R304-19x1.5-1	R316-19x1.5-1	16	16	19
R304-41x1.5-1	R316-41x1.5-1	40	38	41
R304-70x2.0-1	R316-70x2.0-1	63	66	70
R304-104x2.0-1	R316-104x2.0-1	100	100	104
R304-154x2.0-1	R316-154x2.0-1	160	150	154
R304-204x2.0-1	R316-204x2.0-1	200	200	204

### CF Tubulations, rotatable, stainless steel



#### Technical data

- Option with tapped holes

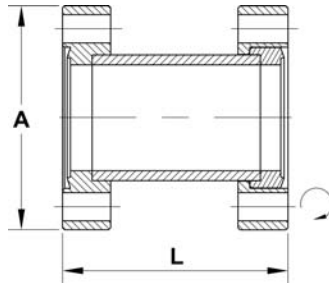
Order code		DN	A	L	RA
Stainless steel 304	Stainless steel 316LN ESR				
TU16R	TU16RLNS	16	34	38	19
TU40R	TU40RLNS	40	70	63	41
TU63R	-	63	114	105	63
TU63R105-70	TU63RLNS	63	114	105	70
TU100R	-	100	152	135	101
TU100R-104	TU100RLNS	100	152	135	104
TU160R	-	160	203	167	152
TU160R-154	TU160RLNS	160	203	167	154
TU200R-204	TU200RLNS	200	254	167	204

- For clean room compatible packaging please add "-CRP" to the order code

## CF Fittings

1

### CF Straight connectors, stainless steel, 1 flange rotatable



#### Technical data

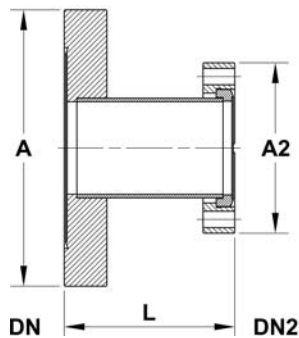
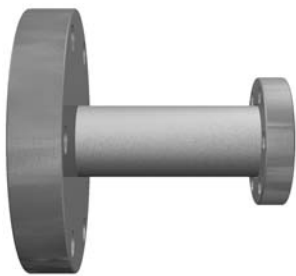
- Option

with tapped holes  
with fixed flanges  
Material 1.4404  
others lengths

Order code	DN	A	L
SC16R	16	34	76
SC40R-304	40	70	126
SC63R	63	114	210
SC100R	100	152	270
SC160R	160	203	334
SC200R	200	254	334

- For clean room compatible packaging please add "-CRP" to the order code

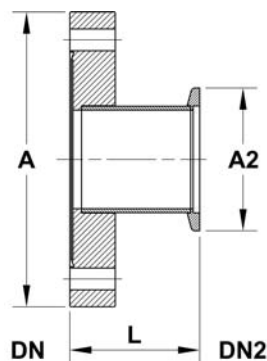
### CF Tubulated reducing adapters, small flange rotatable, stainless steel



Order code	DN	DN2	A	A2	L
TA040016R	40	16	70	34	70
TA063016R	63	16	114	34	70
TA063040R	63	40	114	70	70
TA100040R	100	40	152	70	70
TA100063R	100	63	152	114	70
TA160063R	160	63	203	114	127
TA160100R	160	100	203	152	127

- For clean room compatible packaging please add "-CRP" to the order code

### CF to KF adapters, stainless steel



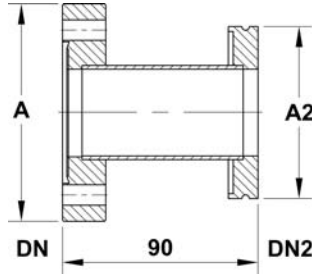
Order code	DN	DN2	A	A2	L
KA016016	16	16	34	30	36
KA040016	40	16	70	30	36
KA040025	40	25	70	40	36
KA040040	40	40	70	55	50
KA063025	63	25	114	40	50
KA063040	63	40	114	55	50
KA063050	63	50	114	75	50
KA100025	100	25	152	40	50
KA100040	100	40	152	55	50

- For clean room compatible packaging please add "-CRP" to the order code



## CF Fittings

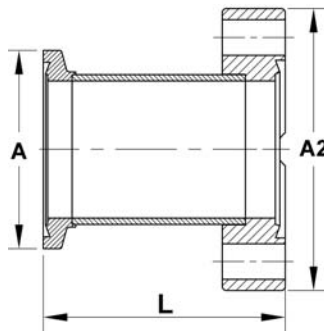
### CF to ISO-K adapters, stainless steel



Order code	DN	DN2	A	A2
SA063063	63	63	114	95
SA100063	100	63	152	95
SA100100	100	100	152	130
SA160100	160	100	203	130
SA160160	160	160	203	180

- For clean room compatible packaging please add "-CRP" to the order code

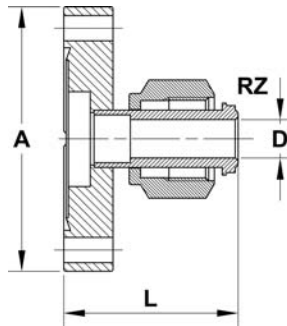
### CF to Quick CF adapters, stainless steel



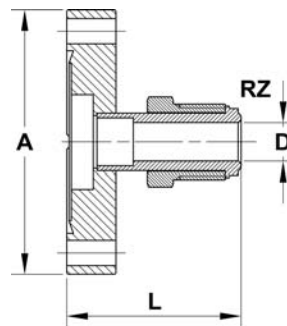
Order code	DN	A	A2	L
QCFA16-304	16	30	34	50
QCFA40-304	40	55	70	50
QCFA63-304	63	87	114	50
QCFA100-304	100	134	152	100

- For clean room compatible packaging please add "-CRP" to the order code

### CF to VCR adapters, stainless steel



female



male

#### Technical data

- Flange material stainless steel 304
- Adapter material stainless steel 316L

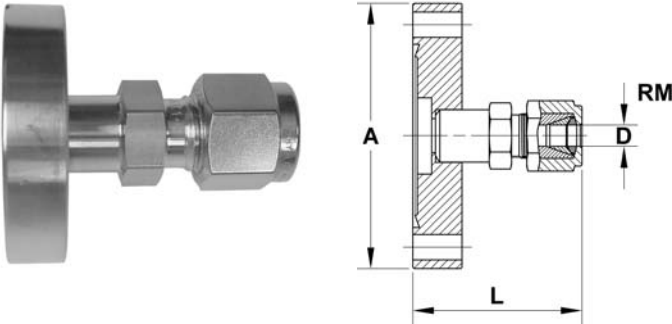
Order code		DN	A	D	L	RZ
Female	Male					
F16VCR6F	F16VCR6M	16	34	4.6	36	1/4"
F16VCR13F	F16VCR13M	16	34	10.1	41	1/2"
F40VCR6F	F40VCR6M	40	70	4.6	41	1/4"
F40VCR9F	F40VCR9M	40	70	7.1	46	3/8"
F40VCR13F	F40VCR13M	40	70	10.1	46	1/2"
F40VCR19F	F40VCR19M	40	70	15.7	53	3/4"
F40VCR25F	F40VCR25M	40	70	22	58	1"

- VCR compatible
- For clean room compatible packaging please add "-CRP" to the order code

## CF Fittings

1

### CF to Swagelok adapters, metric, stainless steel



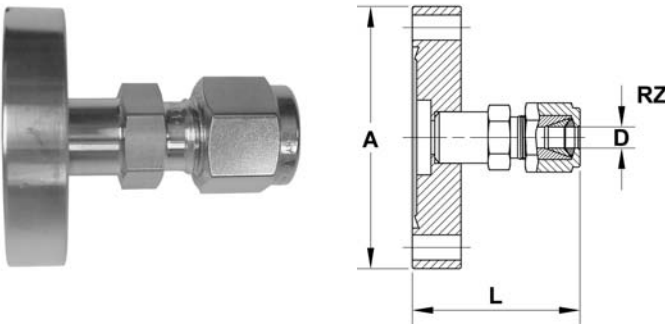
#### Technical data

- Flange material stainless steel 304
- Adapter material stainless steel 316L

Order code	DN	A	D	L	RM
F16SWA6M	16	34	4.8	38	6
F16SWA8M	16	34	7.9	44	8
F16SWA10M	16	34	7.9	44	10
F40SWA6M	40	70	4.8	43	6
F40SWA8M	40	70	6.4	47	8
F40SWA10M	40	70	7.9	49	10

- Swagelok compatible
- For clean room compatible packaging please add "-CRP" to the order code

### CF to Swagelok adapters, imperial, stainless steel



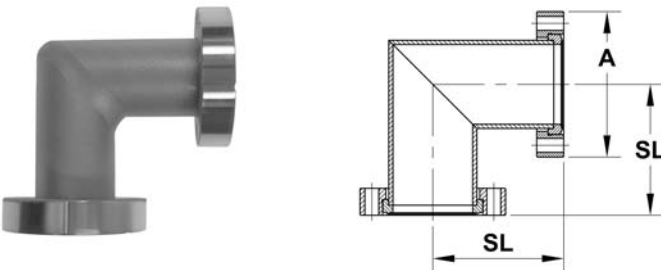
#### Technical data

- Flange material stainless steel 304
- Adapter material stainless steel 316L

Order code	DN	A	D	L	RZ
F16SWA7	16	34	4.8	38	1/4"
F40SWA7	40	70	4.8	43	1/4"
F40SWA9	40	70	7.1	48	3/8"
F40SWA13	40	70	10.4	52	1/2"

- Swagelok compatible
- For clean room compatible packaging please add "-CRP" to the order code

### CF Elbows 90°, 2 flanges rotatable, stainless steel

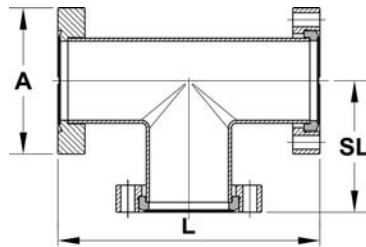


Order code		DN	A	SL
St. steel 304	St. steel 316LNS			
EL16R	EL16R-316LNS	16	34	38
EL40R	EL40R-316LNS	40	70	63
EL63R	EL63R-316LNS	63	114	105
EL100R	EL100R-316LNS	100	152	135
EL160R	EL160R-316LNS	160	203	167
EL200R	EL200R-316LNS	200	254	203

- For clean room compatible packaging please add "-CRP" to the order code

## CF Fittings

### CF Tees, 2 flanges rotatable, stainless steel



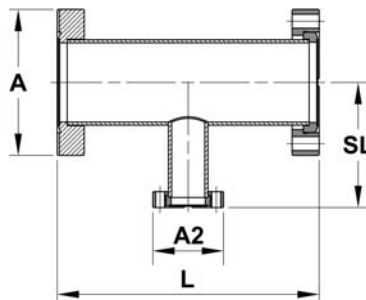
#### Technical data

■ Bolt hole orientation staggered

Order code		DN	A	L	SL
Stainless steel 304	Stainless steel 316LNS				
TE16R	TE16RS-316LNS	16	34	76	38
TE40R	TE40RS-316LNS	40	70	126	63
TE63RS	TE63RS-316LNS	63	114	210	105
TE100R	TE100RS-316LNS	100	152	270	135
TE160R	TE160RS-316LNS	160	203	334	167
TE200R	TE200RS-316LNS	200	254	406	203

- For clean room compatible packaging please add "-CRP" to the order code

### CF Unequal tees, 2 flanges rotatable, stainless steel



#### Technical data

■ Bolt hole orientation staggered

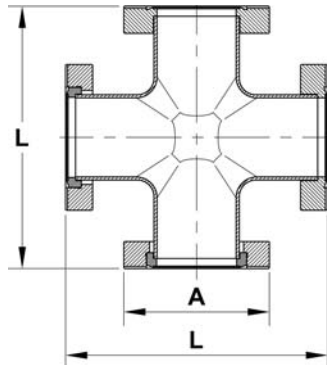
Order code		DN	DN2	A	A2	L	SL
Stainless steel 304	Stainless steel 316LNS						
UTE040016RS	-	40	16	70	34	126	60
UTE063040R	-	63	40	114	70	210	77
UTE100040R	UTE100040R-316LNS	100	40	152	70	270	95
UTE100063R	-	100	63	152	114	270	95
UTE160063R	-	160	63	203	114	334	120
UTE160100R	-	160	100	203	152	334	120

- For clean room compatible packaging please add "-CRP" to the order code

## CF Fittings

1

### CF 4-way crosses, 2 flanges rotatable, stainless steel



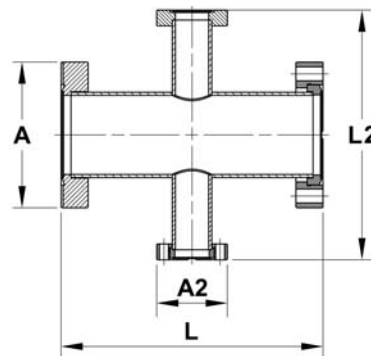
#### Technical data

■ Bolt hole orientation staggered

Order code		DN	A	L
Stainless steel 304	Stainless steel 316LNS			
X16R	X19RS-316LNS	16	34	76
X40R	X40RS-316LNS	40	70	126
X63RS	X63RS-316LNS	63	114	210
X100RS	X100RS-316LNS	100	152	270
X160RS	X160RS-316LNS	160	203	334
X200R	X200RS-316LNS	200	254	406

- For clean room compatible packaging please add "-CRP" to the order code

### CF 4-way reducing crosses, 2 flanges rotatable, stainless steel



#### Technical data

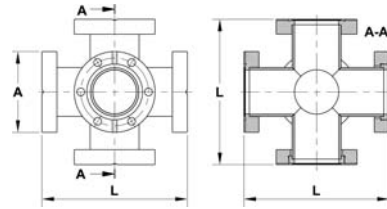
■ Bolt hole orientation staggered

Order code		DN	DN2	A	A2	L	L2
Stainless steel 304	Stainless steel 316LNS						
UX040016R	-	40	16	70	34	126	120
UX063040RS	-	63	40	114	70	210	154
UX100063RS	UX1063RS-316LNS	100	63	152	114	270	190
UX160063R	-	160	63	203	114	334	240
UX200100RS	-	200	100	254	152	406	290

- For clean room compatible packaging please add "-CRP" to the order code

## CF Fittings

### CF 6-way crosses, 3 flanges rotatable, stainless steel



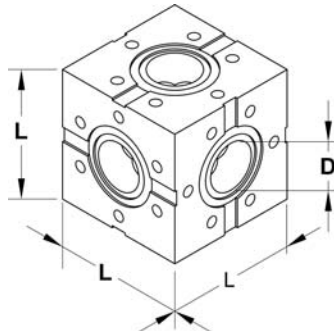
#### Technical data

■ Bolt hole orientation staggered

Order code		DN	A	L
Stainless steel 304	Stainless steel 316LNS			
XX16R	-	16	34	76
XX40RS	XX40RS-316LNS	40	70	126
XX63RS	XX63RS-316LNS	63	114	210
XX100RS	XX100RS-316LNS	100	152	270
XX160R	XX1600RS-316LNS	160	203	334
XX200R	-	200	254	406

- For clean room compatible packaging please add "-CRP" to the order code

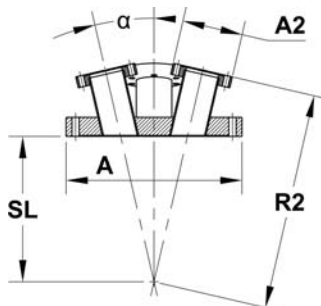
### CF Cubes



Order code	DN	D	L
CUBE16	16	15	35
CUBE40	40	38	70
CUBE63	63	63	114
CUBE100	100	101	152
CUBE160	160	152	203
CUBE200	200	200	254

- For clean room compatible packaging please add "-CRP" to the order code

### CF Cluster flanges, stainless steel



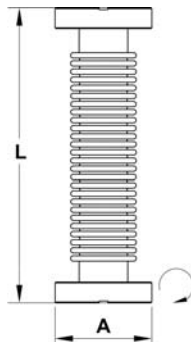
Order code	DN	DN2	No. of ports	A	A2	SL	R2	$\alpha$
CF3P	100	40	3	152	70	135	208	11.9°
CF4P	160	40	4	203	70	167	250	13°

- Other versions on request
- For clean room compatible packaging please add "-CRP" to the order code

## CF Flexible Hoses

1

### CF Flexible hoses, 1 flange rotatable, stainless steel



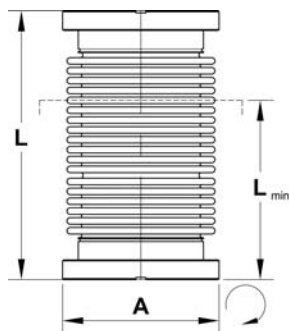
#### Technical data

- Flange material stainless steel 304
- Hose material stainless steel 316L

Order code	DN	A	L
FX16CF25R	16	34	250
FX16CF50R	16	34	500
FX16CF75R	16	34	750
FX16CF100R	16	34	1000
FX40CF25R	40	70	250
FX40CF50R	40	70	500
FX40CF75R	40	70	750
FX40CF100R	40	70	1000
FX63CF25R	63	114	250
FX63CF50R	63	114	500
FX63CF75R	63	114	750
FX63CF100R	63	114	1000
FX100CF25R	100	152	250
FX100CF50R	100	152	500
FX100CF75R	100	152	750
FX100CF100R	100	152	1000

- For clean room compatible packaging please add "-CRP" to the order code

### CF Hydroformed bellows, 1 flange rotatable, stainless steel



#### Technical data

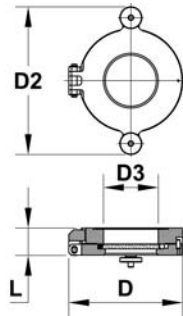
- Flange material stainless steel 304
- Bellows material stainless steel 316Ti

Order code	DN	A	L	Lmin
FXB16R	16	34	110	74
FXB40R	40	70	175	150
FXB63R	63	114	250	230
FXB100R	100	152	250	230
FXB160R	160	203	270	240

- For clean room compatible packaging please add "-CRP" to the order code

## CF Glass-to-Metal Connections and Quick Access Doors

### CF Quick access doors with exchangeable viewport, stainless steel / aluminium



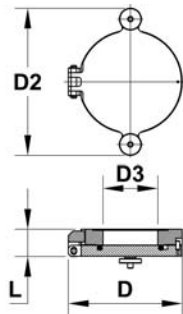
#### Technical data

- Assembly directly at the chamber, by hexagon socket screws
- Bakeout temperature up to 150 °C, up to 200 °C intermittent
- Flange type stainless steel 304
- Door frame aluminium, anodised
- Door sealing FKM
- Viewport Borofloat®
- Leak rate < 1.0E-8 mbar l/s

Order code	DN	D	D2	D3	L
<b>QAD63VP-AL-304</b>	63	152	125	63	30
<b>QAD100VP-AL-304</b>	100	194	164	100	33
<b>QAD160VP-AL-304</b>	160	211	238	150	35

- For clean room compatible packaging please add "-CRP" to the order code

### CF Quick access doors without viewport, stainless steel / aluminium



#### Technical data

- Assembly directly at the chamber, by hexagon socket screws
- Bakeout temperature up to 150 °C, up to 200 °C intermittent
- Flange type stainless steel 304
- Door frame aluminium, anodised
- Door sealing FKM
- Leak rate < 1.0E-9 mbar l/s

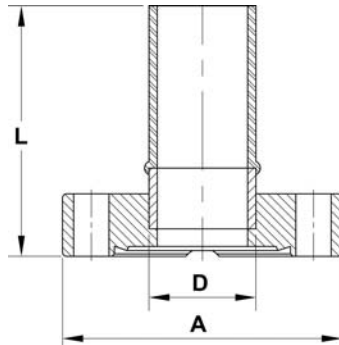
Order code	DN	D	D2	D3	L
<b>QAD40BK-AL-304</b>	40	108	80	38	24
<b>QAD63BK-AL-304</b>	63	152	125	63	30
<b>QAD100BK-AL-304</b>	100	194	164	100	33
<b>QAD160BK-AL-304</b>	160	211	238	150	35

- For clean room compatible packaging please add "-CRP" to the order code

## CF Glass-to-Metal Connections and Quick Access Doors

1

### CF Glass-to-metal connections, Pyrex®

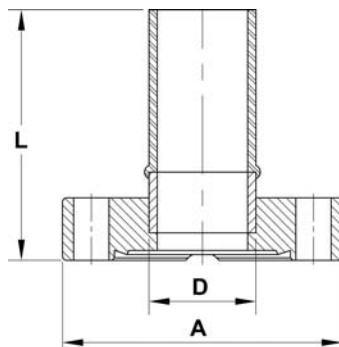


#### Technical data

- Flange material stainless steel 304
- Tolerances RA ±1 mm, L ±3 mm
- Bakeout temperature max. 200 °C
- Bakeout rate 2 - 3 °C/min
- Seal OFHC copper, vacuum annealed

Order code	DN	A	D	L
T13P	16	34	13	104
T25P	40	70	25	104
T38P	40	70	38	104
T64P	63	114	64	190

### CF Glass-to-metal connections, quartz



#### Technical data

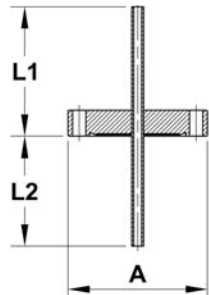
- Flange material stainless steel 304
- Tolerances RA ±1 mm, L ±3 mm
- Bakeout temperature max. 200 °C
- Bakeout rate 2 - 3 °C/min
- Seal OFHC copper, vacuum annealed
- Construction metal-to-quartz transition using intermediate glass layers

Order code	DN	A	D	L
T13Q	16	34	13	143
T25Q	40	70	25	165
T38Q	40	70	38	165

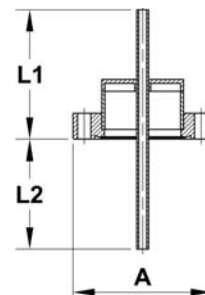


## CF Liquid Feedthroughs

### CF 1-way liquid feedthroughs, stainless steel



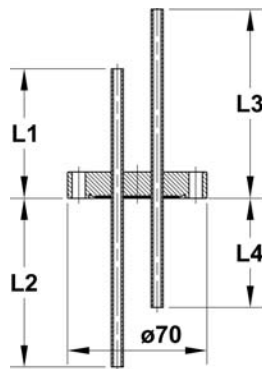
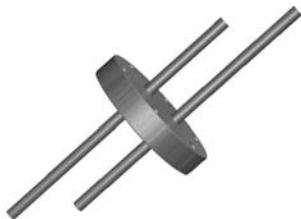
for liquid nitrogen



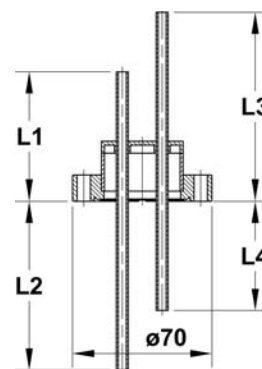
for liquid nitrogen

Order code		DN	A	L1	L2	Vacuum side	Atmosphere side
Liquid	Liquid nitrogen						
LF16PP	LNF16PP	16	34	75	45	tube 6 mm	tube 6 mm
LF16PS	LNF16PS	16	34	103	45	tube 6 mm	Swagelok 6 mm
LF40PP	LNF40PP	40	70	75	45	tube 6 mm	tube 6 mm
LF40PS	LNF40PS	40	70	65	70	tube 6 mm	Swagelok 6 mm
LF40PPL	LNF40PPL	40	70	75	65	tube 12 mm	tube 12 mm
LF40PSL	LNF40PSL	40	70	75	85	tube 12 mm	Swagelok 12 mm

### CF 2-way liquid feedthroughs, stainless steel



for liquid nitrogen



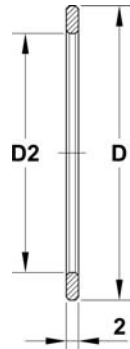
for liquid nitrogen

Order code		L1	L2	L3	L4	Vacuum side	Atmosphere side
Liquid	Liquid nitrogen						
LF402PP	LNF402PP	75	45	45	75	tube 6 mm	tube 6 mm
LF402PS	LNF402PS	75	73	45	103	tube 6 mm	Swagelok 6 mm
LF402SP	LNF402SP	103	45	73	75	Swagelok 6 mm	tube 6 mm
LF402SS	LNF402SS	103	73	73	103	Swagelok 6 mm	Swagelok 6 mm

## CF Copper Gaskets

1

### CF Copper gaskets



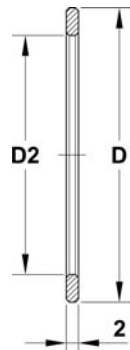
#### Technical data

- Material OFHC copper
- Hardness approx. 85 Brinell
- Bakeout temperature to 450 °C

Order code	DN	D	D2	Pack size
CU10	10	13.4	8.5	10
CU16	16	21	16	10
CU40	40	48	39	10
CU63	63	82	63	10
CU100	100	120	101	10
CU160	160	171	152	5
CU200	200	222	203	5
SPCU250	250	272.7	254	5

- For clean room compatible packaging please add "-CRP" to the order code

### CF Copper gaskets, annealed



#### Technical data

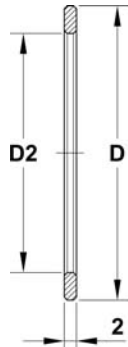
- Material OFHC copper
- Hardness approx. 45 Brinell
- Bakeout temperature to 450 °C
- Application feedthroughs, viewports, glass-to-metal connections
- Packing unit 5 pieces

Order code	DN	D	D2
CUA16	16	21	16
CUA40	40	48	39
CUA63	63	82	63
CUA100	100	120	101
CUA160	160	171	152
CUA200	200	222	203
SPCUA250	250	272.7	254

- For clean room compatible packaging please add "-CRP" to the order code

## CF Copper Gaskets

### CF Copper gaskets, silver plated



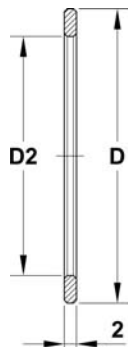
#### Technical data

- Material OFHC copper, silver plated
- Hardness approx. 85 Brinell
- Bakeout temperature to 450 °C
- Packing unit 5 pieces

Order code	DN	D	D2
CU16SP	16	21	16
CU40SP	40	48	39
CU63SP	63	82	63
CU100SP	100	120	101
CU160SP	160	171	152
CU200SP	200	222	203
SPCU250SP	250	272.7	254

- For clean room compatible packaging please add "-CRP" to the order code

### CF Copper gaskets, silver plated, annealed



#### Technical data

- Material OFHC copper
- Hardness approx. 85 Brinell
- Bakeout temperature to 450 °C
- Packing unit 5 pieces

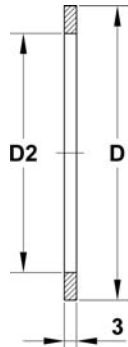
Order code	DN	D	D2
CUA16SP	16	21	16
CUA40SP	40	48	39
CUA63SP	63	82	63
CUA100SP	100	120	101
CUA160SP	160	171	152
CUA200SP	200	222	203
SPCUA250SP	250	272.7	254

- For clean room compatible packaging please add "-CRP" to the order code

## CF Copper Gaskets

1

### CF Gaskets, FKM



#### Technical data

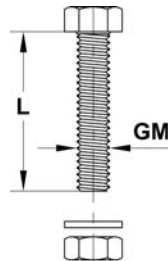
- Temperature range -10 °C to 150 °C  
(intermittent 200 °C)
- Application multiple use possible

Order code	DN	D	D2
<b>VGf10</b>	10	13.4	7
<b>VGf16</b>	16	21	16
<b>VGf40</b>	40	48	37
<b>VGf63</b>	63	82	63
<b>VGf100</b>	100	120	101
<b>VGf160</b>	160	171	152
<b>VGf200</b>	200	222	202
<b>VGf250-BA</b>	250	272.7	254

- For clean room compatible packaging please add "-CRP" to the order code

## CF Connecting Elements

### CF Hexagonal bolt sets, stainless steel



#### Technical data

- Bolt ISO 4014, 4017, A2
- Nut ISO 4032, A2
- Washer ISO 7089, A2
- Packing unit 25 pieces

Order code	DN	GM	L
<b>NBW316</b>	10	M3	16
<b>NBW420</b>	16	M4	20
<b>NBW635</b>	40	M6	35
<b>NBW845</b>	63	M8	45
<b>NBW850</b>	100	M8	50
<b>NBW860</b>	160 - 200	M8	60
<b>NBW865</b>	250	M8	65

## CF Connecting Elements

### CF Hexagonal bolt sets for double sided flanges, stainless steel



#### Technical data

■ Bolt	ISO 4014, 4017, A2
■ Nut	ISO 4032, A2
■ Washer	ISO 7089, A2
■ Packing unit	25 pieces

Order code	DN	GM	L
NBW435	16	M4	35
NBW650	40	M6	50
NBW860D	63	M8	60
NBW870	100	M8	70
NBW880	160	M8	80
NBW890	200	M8	90

### CF Hexagonal bolt sets for tapped flanges, stainless steel



#### Technical data

■ Bolt	ISO 4014, 4017, A2
■ Washer	ISO 7089, A2
■ Packing unit	25 pieces

Order code	DN	GM	L
BW312	10	M3	12
BW416	16	M4	16
BW625	40	M6	25
BW830	63	M8	30
BW835	100 - 160	M8	35
BW845	200	M8	45

### CF Allen head bolt sets for tapped flanges, stainless steel



#### Technical data

■ Bolt	ISO 4762, A2
■ Washer	ISO 7089, A2
■ Packing unit	25 pieces

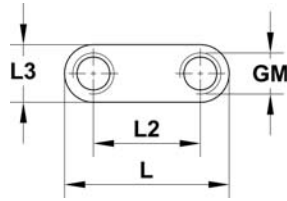
Order code	DN	GM	L
CW416	16	M4	16
CW625	40	M6	25
CW830	63	M8	30
CW835	100 - 160	M8	35
CW845	200	M8	45

Please see our range of vented bolts, nuts and washers for constructions in high and ultra high vacuum in chapter 15.

## CF Connecting Elements

1

### CF Plate nuts, stainless steel



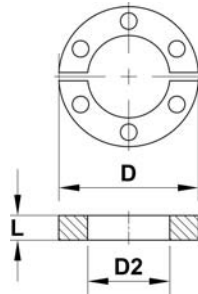
#### Technical data

■ Packing unit 25 pieces

Order code	DN	L	L2	L3	GM	Gravure
PN16	16	20	13	7	M4	M
PN40	40	41	29	11	M6	2.75
PN63	63	51	35	12	M8	114
PN100	100	44	25	12	M8	150
PN160	160	44	28	12	M8	200
PN200	200	45	30	13	M8	250

- For clean room compatible packaging please add "-CRP" to the order code

### CF Horse shoe plate nuts, stainless steel



#### Technical data

■ Scope of delivery with screws and washers

Order code	DN	D	D2	L
PN16HS	16	34	20	6
PN40HS	40	70	43	9
PN63HS	63	113	65	12
PN100HS	100	151	103	12
PN160HS	160	202	154	12

- For clean room compatible packaging please add "-CRP" to the order code

### CF Thread lubricant



#### Technical data

■ Application loosening of screws after bakeout

Order code	Material
TL100	MoS <sub>2</sub>