



Features

- Complies with ISO 3669
- UHV rated to 1×10^{-13} mbar
- High temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE Copper or optional Viton® elastomer gaskets
- Tapped or clearance bolt holes
- Compatible with other manufacturers' Conflat® knife-edge flanges

Specifications

Material

Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal or socket head screws
Nut type	Hexagonal or two hole plate nuts
Size	M4
Torque	9 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight 0.1 kg

Dimensions 33.8 OD x 15.9 ID maximum

Elastomer seal temperature range

Sustained: -20°C to 150°C

Intermittent: 200°C

UHV Series

Figure 1

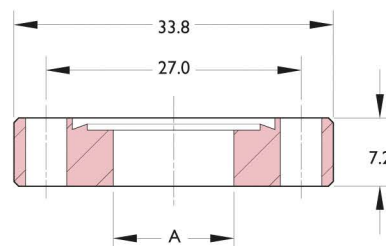


Figure 2

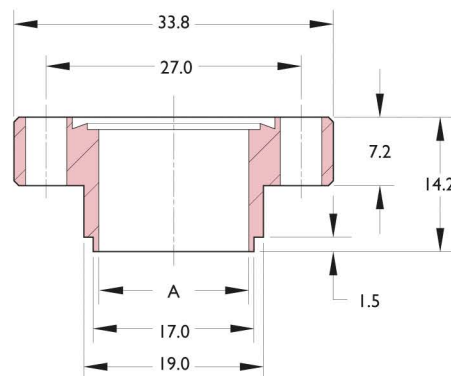


Figure 3

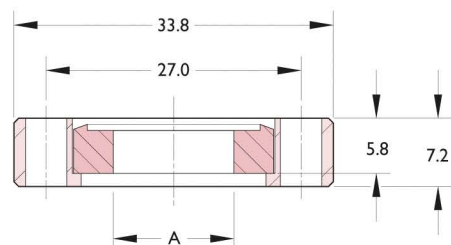
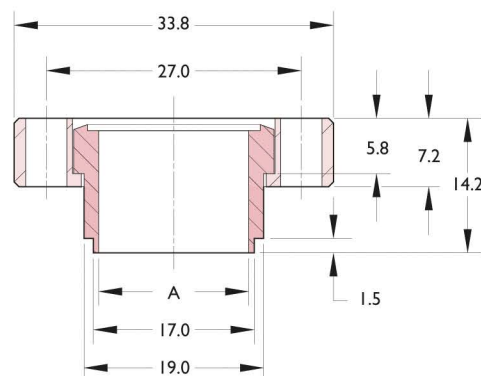


Figure 4



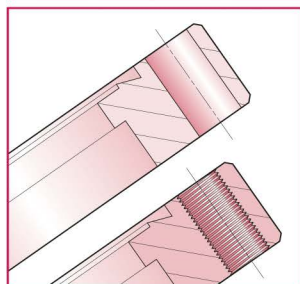
- Through-hole flanges have 6 bolt holes drilled 4.4 diameter
- Tapped flanges have 6 bolt holes threaded M4
- Weld preps shown for small diameter, thin wall tube sizes

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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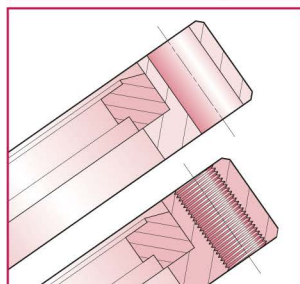


Non-rotatable



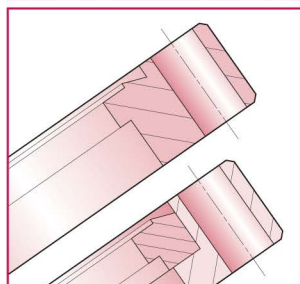
Nominal matching tube OD	Bolt hole	Figure	A	Wt kg	Reference	Part number
304 Stainless steel						
Blank	Clearance	1	–	0.1	CFB34	110000
19.1	Clearance	1	15.9	0.1	CF34-19	110057
19.1	Clearance	2	15.9	0.1	CF34-19-S	110004
Blank	Tapped	1	–	0.1	CFB34T	130043
19.1 ¹	Tapped	2	15.9	0.1	CF34-19T-S	130047

Rotatable



Nominal matching tube OD	Bolt hole	Figure	A	Wt kg	Reference	Part number
304 Stainless steel						
Blank	Clearance	3	–	0.1	CFBR34	100000
19.1	Clearance	3	15.9	0.1	CFR34-19	1116036
19.1	Clearance	4	15.9	0.1	CFR34-19-S	100004
Blank	Tapped	3	–	0.1	CFBR34T	120043
19.1 ¹	Tapped	4	15.9	0.1	CFR34-19T-S	120047

Euro CF Series



Nominal matching tube OD	Bolt hole	Figure	A	Wt kg	Reference	Part number
Non-rotatable: 316LN EFR 1.4429 ESU						
Blank	Clearance	1	–	0.1	CFBL34	1112010
19.1 ¹	Clearance	1	16	0.1	CFL34-19	1112012
Blank	Tapped	1	–	0.1	CFBL34T	1112025
19.1 ¹	Tapped	1	16	0.1	CFL34-19T	1112027
Rotatable: 316LN EFR 1.4429 ESU						
Blank	Clearance	3	–	0.1	CFBRL34	1112040
19.1 ¹	Clearance	3	16	0.1	CFRL34-19	1112042

Note Rotatable outers are standard material

Hardware



- Bolt sets for clearance hole flanges include screws and nuts
- Bolt sets for tapped flanges include screws only
- Gold plated gaskets available on request

Description	Bolt ² hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper, 16 ID	–	–	10	0.1	CCG16	1113240
Gasket, Viton®, 16 ID	–	–	5	0.1	VG16	191001
Gasket, OFE copper annealed, 16 ID	–	–	1	0.1	CGA16	1113220
Gasket, silver plated copper, 16 ID	–	–	1	0.1	CGAG16	1113230
Gasket, nickel	–	–	1	0.1	NG16	191060
Socket head screw M4 ³	C	20	25	0.1	M4-20	1113014
Socket head screw M4 ⁴	T	16	25	0.1	M4-16	1113000
Socket head screw M4 ⁵	T	30	25	0.2	M4-30	1113015
12 Plate nuts/24 screws and washers	C	20	12/24	0.1	PN16-BSET	1113100
Plate nuts, M4	C	–	24	0.04	PN16	1113112
High-temperature thread lubricant (28gm)	–	–	1	0.1	FEL-PRO C-102	1260200
Flange cover, plastic	–	–	1	0.1	FC133	192000

- ¹ Caburn-MDC Euro default size
- ² C = Clearance holes, T = Tapped holes
- ³ For use with standard flanges
- ⁴ For use with tapped flanges
- ⁵ For use with double sided flanges

All dimensions are nominal in millimetres unless specified - Weights given are approximate

Section 1.1

CF Flanges

DN40CF 70mm 2³/₄" OD

CF Flanges



Features

- Complies with ISO 3669
- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE Copper or optional Viton® elastomer gaskets
- Tapped or clearance bolt holes
- Compatible with other manufacturers' Conflat® knife-edge flanges

Specifications

Material

Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal
Nut type	Hexagonal or two-hole plate nuts
Size	M6
Torque	16 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight 0.5 kg

Dimensions 69.3 OD x 41.3 ID maximum

Elastomer seal temperature range

Sustained: -20°C to 150°C

Intermittent: 200°C

UHV Series

Figure 1

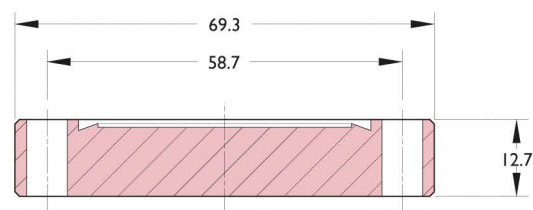


Figure 2

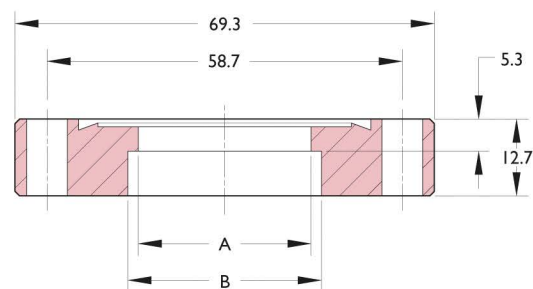


Figure 3

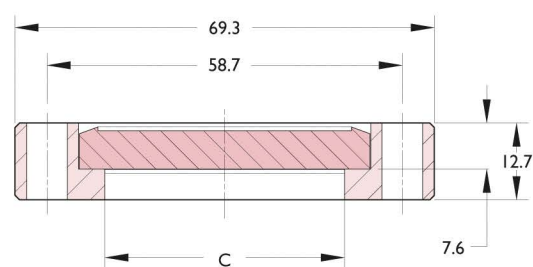
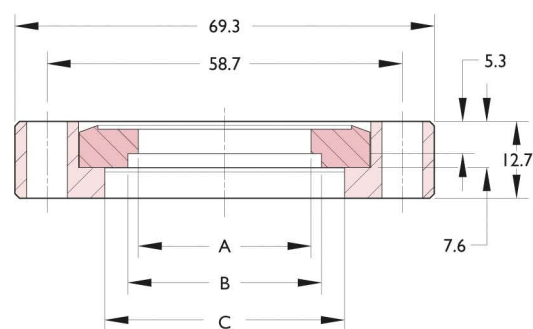


Figure 4



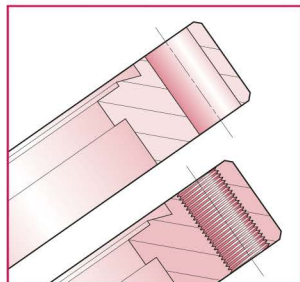
- Through hole flanges have 6 bolt holes drilled 6.7 diameter
- Tapped flanges have 6 bolt holes threaded M6

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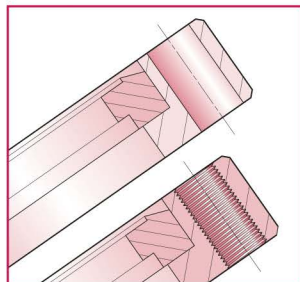


Non-rotatable



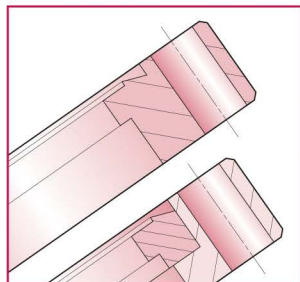
Nominal matching tube OD	Bolt hole	Figure	A	B	C	Wt kg	Reference	Part number
304 Stainless steel								
Blank	Clearance	1	–	–	–	0.45	CFB70	110008
25.4	Clearance	2	22.2	25.7	–	0.34	CF70-25	110012
38.1	Clearance	2	34.9	38.3	–	0.34	CF70-38	110014
41.3 ¹	Clearance	2	38.0	41.5	–	0.34	CF70-41	110051
44.5	Clearance	2	41.3	44.6	–	0.34	CF70-44	110052
Blank	Tapped	1	–	–	–	0.45	CFB70T	130051
38.1	Tapped	2	34.9	38.3	–	0.34	CF70-38T	130057
41.3	Tapped	2	38.0	41.5	–	0.34	CF70-41T	130085

Rotatable



Nominal matching tube OD	Bolt hole	Figure	A	B	C	Wt kg	Reference	Part number
304 Stainless steel								
Blank	Clearance	3	–	–	39.6	0.45	CFBR70	100008
38.1	Clearance	4	34.9	38.3	39.6	0.34	CFR70-38	100014
41.3 ¹	Clearance	4	38.0	41.5	42.1	0.34	CFR70-41	100051
44.5	Clearance	4	41.3	44.6	46.0	0.34	CFR70-44	100043
Blank	Tapped	3	–	–	39.6	0.45	CFBR70T	120051
38.1	Tapped	4	34.9	38.3	39.6	0.34	CFR70-38T	120057
41.3 ¹	Tapped	4	38.0	41.5	42.1	0.34	CFR70-41T	120085

Euro CF Series



Nominal matching tube OD	Bolt hole	Figure	A	B	C	Wt kg	Reference	Part number
Non-rotatable: 316LN EFR 1.4429 ESU								
Blank	Clearance	1	–	–	–	0.45	CFBL70	1112110
38.1	Clearance	2	34.9	38.3	–	0.34	CFL70-38	1112111
41.3 ¹	Clearance	2	38.0	41.5	–	0.34	CFL70-41	1112112
Blank	Tapped	1	–	–	–	0.45	CFBL70T	1112125
38.1	Tapped	2	34.9	38.3	–	0.34	CFL70-38T	1112126
41.3 ¹	Tapped	2	38.0	41.5	–	0.34	CFL70-41T	1112127
Rotatable: 316LN EFR 1.4429 ESU								
Blank	Clearance	3	–	–	39.6	0.45	CFBRL70	1112140
38.1	Clearance	4	34.9	38.3	39.6	0.34	CFRL70-38	1112141
41.3 ¹	Clearance	4	38.0	41.5	42.1	0.34	CFRL70-41	1112142

Note Rotatable outers are standard material

Hardware



- Bolt sets for clearance hole flanges include bolts, flat washers and nuts
- Bolt sets for tapped flanges include bolts and flat washers
- Gold-plated gaskets available on request

Description	Bolt ² hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper, 37 ID	–	–	10	0.3	CCG40	1113241
Gasket, Viton®, 43 ID	–	–	5	0.1	VG40	191005
Gasket, OFE copper annealed, 37 ID	–	–	1	0.1	CGA40	1113221
Gasket, silver-plated copper, 37 ID	–	–	1	0.1	CGAG40	1113231
Gasket, nickel	–	–	1	0.1	NG40	191061
Hex-head bolts M6 ³	C	35	25	0.4	M6-35	1113021
Hex-head bolts M6 ⁴	T	25	25	0.4	M6-25	1113006
Hex-head bolts M6 ⁵	T	55	25	0.4	M6-55	1113022
12 Plate nuts/24 bolts and washers	C	35	12/24	0.4	PN40-BSET	1113101
Plate nuts, M6	C	–	24	0.1	PN-40	1113113
High-temperature thread lubricant (28gm)	–	–	1	0.1	FEL-PRO C-102	1260200
Flange cover, plastic	–	–	1	0.1	FC275	192002

¹ Caburn-MDC Euro default size

² C = Clearance holes, T = Tapped holes

³ For use with standard flanges

⁴ For use with tapped flanges

⁵ For use with double-sided flanges

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Features

- Complies with ISO 3669
- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE copper or optional Viton® elastomer gaskets
- Tapped or clearance bolt holes
- Compatible with other manufacturers' Conflat® knife-edge flanges

Specifications

Material

Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal
Nut type	Hexagonal or two-hole plate nuts
Size	M8
Torque	20 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight 1.4 kg maximum

Dimensions 113.5 OD x 66.0 ID maximum

Elastomer seal temperature range

Sustained: -20°C to 150°C

Intermittent: 200°C

UHV Series

Figure 1

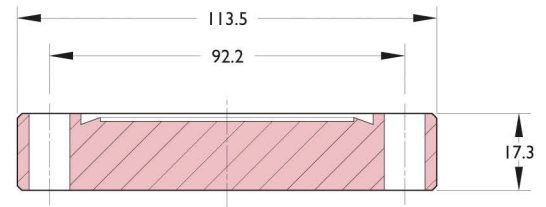


Figure 2

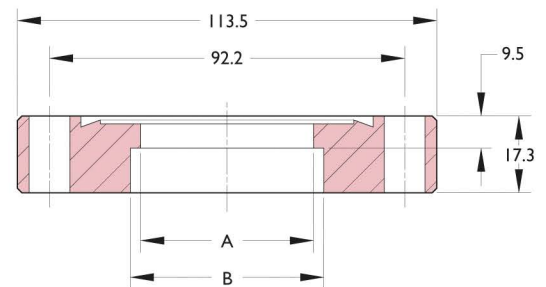


Figure 3

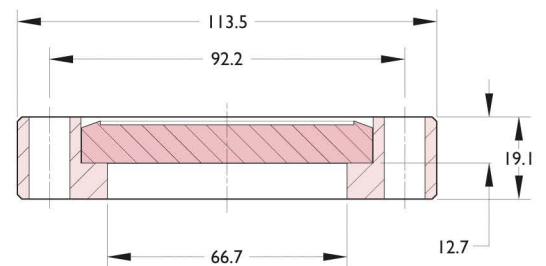
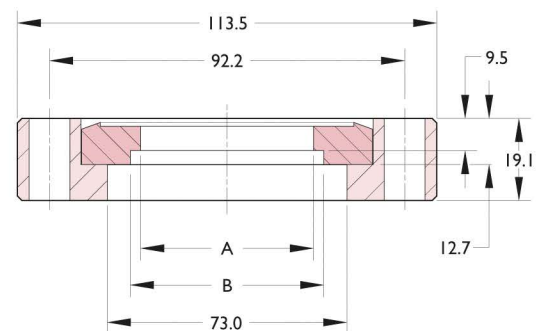


Figure 4



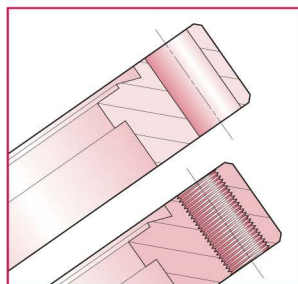
- Through hole flanges have 8 bolt holes drilled 8.4 diameter
- Tapped flanges have 8 bolt holes threaded M8

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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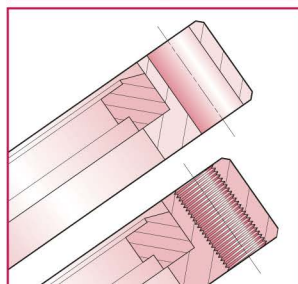


Non-rotatable



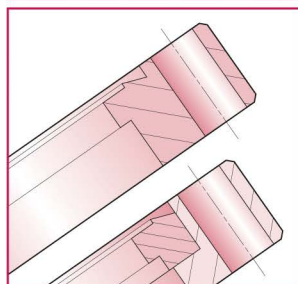
Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	1	–	–	1.4	CFB114	110018
63.5	Clearance	2	60.3	63.8	1.0	CFI14-63	110021
70.0 ⁵	Clearance	2	66.7	70.2	1.0	CFI14-70	110053
Blank	Tapped	1	–	–	1.4	CFB114T	130061
63.5	Tapped	2	60.3	63.8	1.0	CFI14-63T	130064
70.0 ⁵	Tapped	2	66.7	70.2	1.0	CFI14-70T	130087

Rotatable



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	3	–	–	1.4	CFBR114	100018
63.5	Clearance	4	60.3	63.8	1.0	CFR114-63	100021
70.0 ¹	Clearance	4	65.0	70.2	1.0	CFR114-70	100052
Blank	Tapped	3	–	–	1.4	CFBR114T	120061
63.5	Tapped	4	60.3	63.8	1.0	CFR114-63T	120064
70.0 ¹	Tapped	4	65.0	70.2	1.0	CFR114-70T	120086

Euro CF Series



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
Non-rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	1	–	–	1.4	CFBL114	1112210
63.5	Clearance	2	60.3	63.8	1.0	CFL114-63	1112211
70.0 ¹	Clearance	2	66.7	70.2	1.0	CFL114-70	1112212
Blank	Tapped	1	–	–	1.4	CFBL114T	1112225
63.5	Tapped	2	60.3	63.8	1.0	CFL114-63T	1112226
70.0 ¹	Tapped	2	66.7	70.2	1.0	CFL114-70T	1112227
Rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	3	–	–	1.4	CFBRL114	1112240
63.5	Clearance	4	60.3	63.8	1.0	CFRL114-63	1112241
70.0 ¹	Clearance	4	66.7	70.2	1.0	CFRL114-70	1112242

Note Rotatable outers are standard material

Hardware



- Bolt sets for clearance hole flanges include bolts, flat washers and nuts
- Bolt sets for tapped flanges include bolts and flat washers
- Gold-plated gaskets available on request

Description	Bolt ² hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper; 63 ID	–	–	10	0.3	CCG63	1113242
Gasket, Viton®, 77 ID	–	–	1	0.1	VG63	191010
Gasket, OFE copper annealed; 63 ID	–	–	1	0.1	CGA63	1113222
Gasket, silver-plated copper; 63 ID	–	–	1	0.1	CGAG63	1113232
Gasket, nickel	–	–	1	0.1	NG63	191063
Hex-head bolt M8 ³	T	30	25	1.0	M8-30	1113007
Hex-head bolt M8 ⁴	C	50	25	1.0	M8-50	1113026
Hex-head bolt M8 ⁵	C	65	25	1.0	M8-65	1113028
Hex-head bolt/plate nut	C	50	12/24	1.0	PN63-BSET	1113102
Plate nuts, M8	C	–	24	0.3	PN63	1113114
High-temperature thread lubricant (28gm)	–	–	1	0.1	FEL-PRO C-102	1260200
Flange cover, plastic	–	–	1	0.1	FC450	7192004

¹ Caburn-MDC Euro default size

² For use with double-sided flanges

³ C = Clearance holes, T = Tapped holes

⁴ For use with standard flanges

⁵ For use with tapped flanges

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Section I.1

CF Flanges

DN100CF 152mm 6" OD



Features

- Complies with ISO 3669
- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE Copper or optional Viton® elastomer gaskets
- Tapped or clearance bolt holes
- Compatible with other manufacturers' Conflat® knife-edge flanges

Specifications

Material

Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal
Nut type	Hexagonal or two-hole plate nuts
Size	M8
Torque	20 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight 2.5 kg maximum

Dimensions 152 OD × 104 ID maximum

Elastomer seal temperature range

Sustained: -20°C to 150°C

Intermittent: 200°C

UHV Series

Figure 1

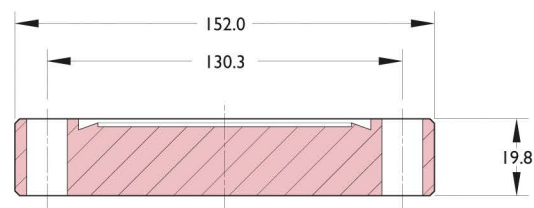


Figure 2

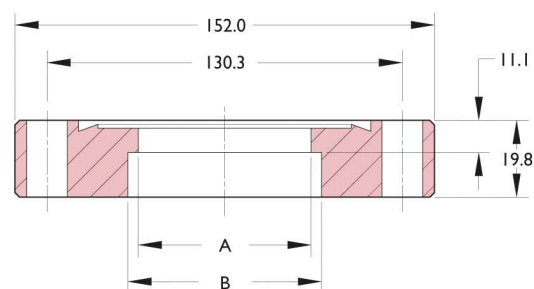


Figure 3

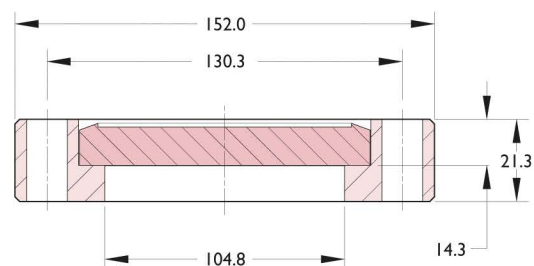
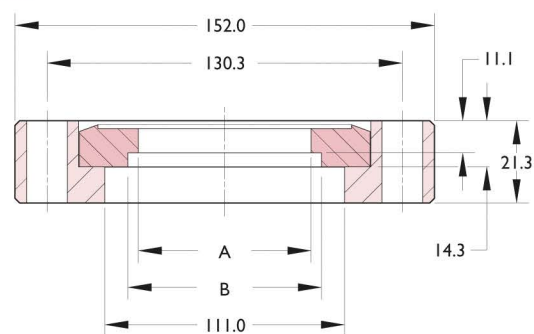


Figure 4



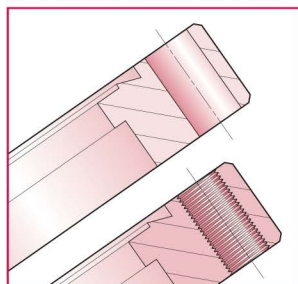
- Through hole flanges have 16 bolt holes drilled 8.4 diameter
- Tapped flanges have 16 bolt holes threaded M8

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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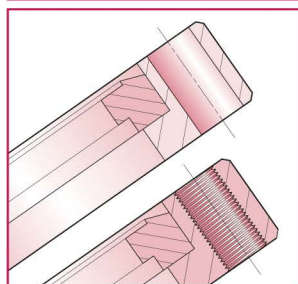


Non-rotatable



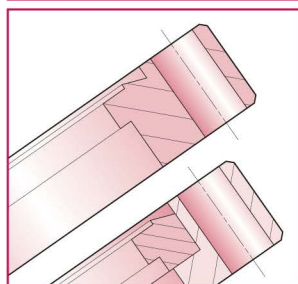
Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	1	–	–	2.5	CFB150	110025
101.6	Clearance	2	96.8	101.9	1.6	CFI50-100	110026
108.0 ¹	Clearance	2	102.0	108.3	1.6	CFI50-108	110054
Blank	Tapped	1	–	–	2.5	CFB150T	130068
101.6	Tapped	2	96.8	101.9	1.6	CFI50-100T	130069
108.0 ¹	Tapped	2	102.0	108.3	1.6	CFI50-108T	130088

Rotatable



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	3	–	–	2.5	CFBR150	100025
101.6	Clearance	4	96.8	101.9	1.6	CFR150-100	100026
108.0 ¹	Clearance	4	101.0	108.3*	1.6	CFR150-108	100053
Blank	Tapped	3	–	–	2.5	CFBR150T	120068
101.6	Tapped	4	96.8	101.9	1.6	CFR150-100T	120069
108.0 ¹	Tapped	4	101.0	108.3*	1.6	CFR150-108T	120087

Euro CF Series



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
Non-rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	1	–	–	2.5	CFBL150	1112310
101.6	Clearance	2	96.8	101.9	1.6	CFL150-100	1112311
108.0 ¹	Clearance	2	101.0	108.3	1.6	CFL150-108	1112312
Blank	Tapped	1	–	–	2.5	CFBL150T	1112325
101.6	Tapped	2	96.8	101.9	1.6	CFL150-100T	1112326
108.0 ¹	Tapped	2	101.0	108.3	1.6	CFL150-108T	1112327
Rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	3	–	–	2.5	CFBRL150	1112340
101.6	Clearance	4	96.8	101.9	1.6	CFRL150-100	1112341
108.0 ¹	Clearance	4	101.0	108.3*	1.6	CFRL150-108	1112342

Note Rotatable outers are standard material

* ID of rotatable outer is 110.0mm (not 108.3mm as shown)

Hardware



- Bolt sets for clearance hole flanges include bolts, flat washers and nuts
- Bolt sets for tapped flanges include bolts and flat washers
- Gold-plated gaskets available on request

Description	Bolt ² hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper, 101 ID	–	–	10	0.7	CCG100	1113243
Gasket, Viton®, 115 ID	–	–	1	0.1	VG100	191014
Gasket, OFE copper annealed, 101 ID	–	–	1	0.1	CGA100	1113223
Gasket, silver-plated copper, 101 ID	–	–	1	0.1	CGAG100	1113233
Gasket, nickel	–	–	1	0.1	NG100	191065
Hex-head bolt, M8 ³	T	35	25	1.0	M8-35	1113008
Hex-head bolt, M8 ⁴	C	50	25	1.0	M8-50	1113026
Hex-head bolt, M8 ⁵	C	70	25	2.0	M8-70	1113029
Hex-head bolt, M8	C	50	12/24	1.0	PN100-BSET	1113103
Plate nuts, M8	C	–	24	0.2	PN100	1113115
High-temperature thread lubricant (28gm)	–	–	1	0.1	FEL-PRO C-102	1260200
Flange cover, plastic	–	–	1	0.1	FC600	7192006

¹ Caburn-MDC Euro default size

² For use with standard flanges

³ C = Clearance holes, T = Tapped holes

⁴ For use with tapped flanges

⁵ For use with double-sided flanges

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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Section I.1

CF Flanges

DNI60CF 203mm 8" OD

CF Flanges



Features

- Complies with ISO 3669
- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE Copper or optional Viton® elastomer gaskets
- Tapped or clearance bolt holes
- Compatible with other manufacturers' Conflat® knife-edge flanges

Specifications

Material	
Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening	
Bolt type	Hexagonal
Nut type	Hexagonal or two-hole plate nuts
Size	M8
Torque	20 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight 5.5 kg maximum

Dimensions 202.4 OD x 156.0 ID maximum

Elastomer seal temperature range

Sustained: -20°C to 150°C
Intermittent: 200°C

UHV Series

Figure 1

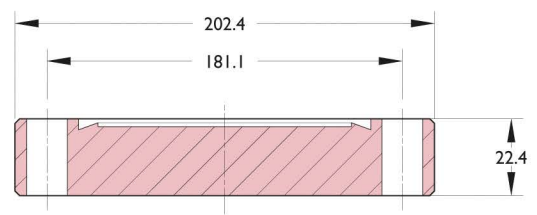


Figure 2

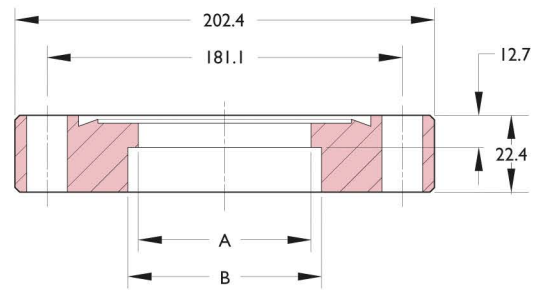


Figure 3

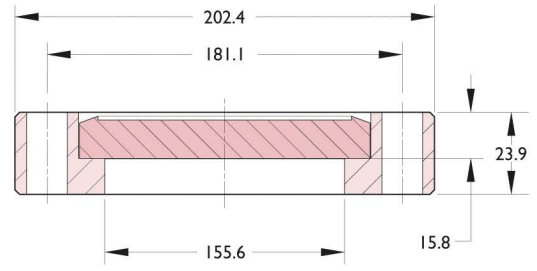
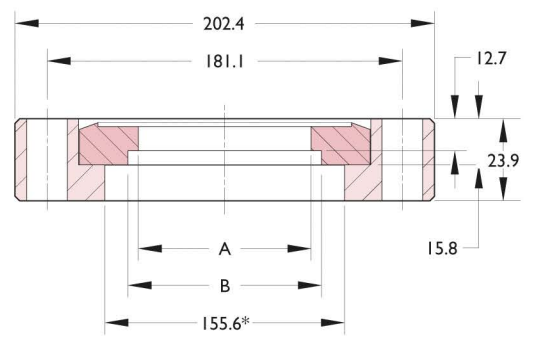


Figure 4



- Through hole flanges have 20 bolt holes drilled 8.4 diameter
- Tapped flanges have 20 bolt holes threaded M8

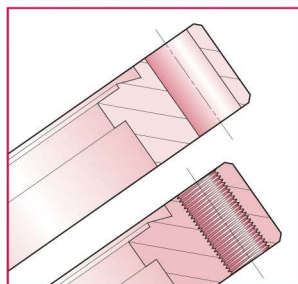
All dimensions are nominal in millimetres unless specified - Weights given are approximate

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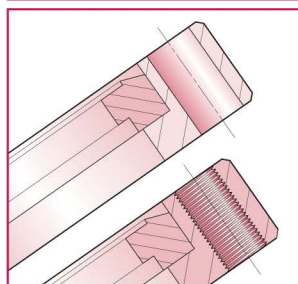


Non-rotatable



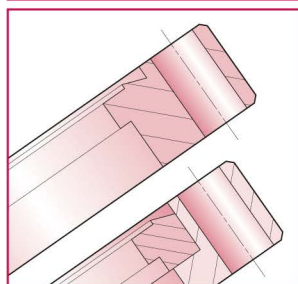
Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	1	–	–	5.5	CFB200	110030
152.4	Clearance	2	147.6	152.9	2.5	CF200-150	110031
156.0 ¹	Clearance	2	150.0	156.5	2.5	CF200-156	110055
Blank	Tapped	1	–	–	5.5	CFB200T	130073
152.4	Tapped	2	147.6	152.9	2.5	CF200-150T	130074
156.0 ¹	Tapped	2	150.0	156.5	2.5	CF200-156T	130089

Rotatable



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	3	–	–	5.5	CFBR200	100030
152.4	Clearance	4	147.6	152.9	2.5	CFR200-150	100031
156.0 ¹	Clearance	4	150.0	156.5*	2.5	CFR200-156	100054
Blank	Tapped	3	–	–	5.5	CFBR200T	120073
152.4	Tapped	4	147.6	152.9	2.5	CFR200-150T	120074
156.0 ¹	Tapped	4	150.0	156.5*	2.5	CFR200-156T	120088

Euro CF Series



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
Non-rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	1	–	–	5.5	CFBL200	1112410
152.4	Clearance	2	147.6	152.9	2.5	CFL200-150	1112411
156.0 ¹	Clearance	2	150.0	156.5	2.5	CFL200-156	1112412
Blank	Tapped	1	–	–	5.5	CFBL200T	1112425
152.4	Tapped	2	147.6	152.9	2.5	CFL200-150T	1112426
156.0 ¹	Tapped	2	150.0	156.5	2.5	CFL200-156T	1112427
Rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	3	–	–	5.5	CFBRL200	1112440
152.4	Clearance	4	147.6	152.9	2.5	CFRL200-150	1112441
156.0 ¹	Clearance	4	150.0	156.5*	2.5	CFRL200-156	1112442

Note Rotatable outers are standard material

* ID of rotatable outer is 159.0mm (not 156.5mm as shown)

Hardware



- Bolt sets for clearance hole flanges include bolts, flat washers and nuts
- Bolt sets for tapped flanges include bolts and flat washers
- Gold-plated gaskets available on request

Description	Bolt ² hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper, 152 ID	–	–	10	1.0	CCG160	1113244
Gasket, Viton®, 153 ID	–	–	1	0.1	VG160	191018
Gasket, OFE copper annealed, 152 ID	–	–	1	0.1	CGA160	1113224
Gasket, silver-plated copper, 152 ID	–	–	1	0.1	CGAG160	1113234
Gasket, nickel	–	–	1	0.1	NG160	191067
Hex-head bolt, M8 ³	T	35	25	1.0	M8-35	1113008
Hex-head bolt, M8 ⁴	C	60	25	1.0	M8-60	1113027
Hex-head bolt, M8 ⁵	C	80	25	1.0	M8-80	1113030
Hex-head bolt/plate nut, M8	C	60	12/24	0.9	PN160-BSET	1113104
Plate nuts, M8	C	–	24	0.1	PN160	1113116
High-temperature thread lubricant (28gm)	–	–	1	0.1	FEL-PRO C-102	1260200
Flange cover, plastic	–	–	1	0.1	FC800	7192007

¹ Caburn-MDC Euro default size

² For use with standard flanges

³ C = Clearance holes, T = Tapped holes

⁴ For use with tapped flanges

⁵ For use with double-sided flanges

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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Features

- Complies with ISO 3669
- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE copper or optional Viton® elastomer gaskets
- Tapped or clearance bolt holes
- Compatible with other manufacturers' Conflat® knife-edge flanges

Specifications

Material

Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal
Nut type	Hexagonal
Size	M8
Torque	20 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight 9 kg maximum

Dimensions 253.3 OD x 204.7 ID maximum

Elastomer seal temperature range

Sustained: -20°C to 150°C
Intermittent: 200°C

UHV Series

Figure 1

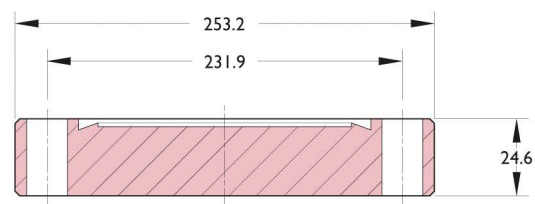


Figure 2

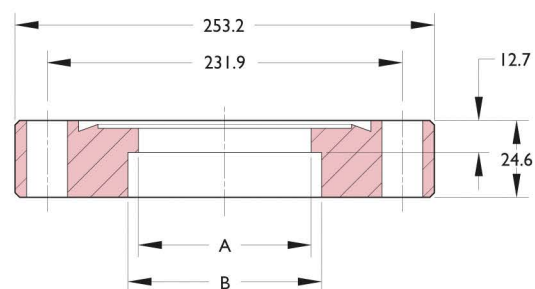


Figure 3

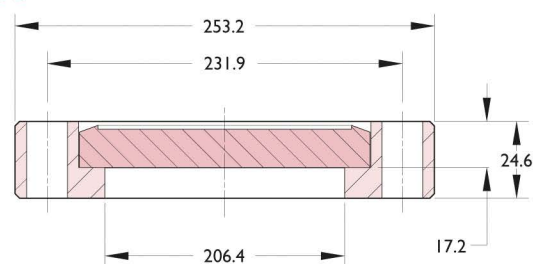
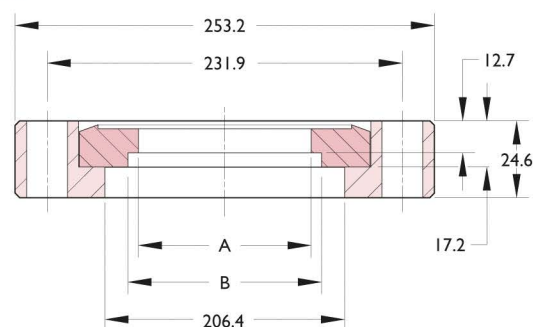


Figure 4



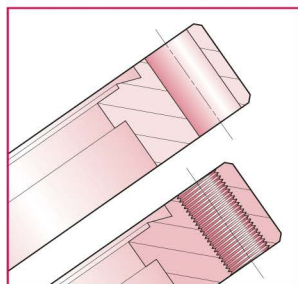
- Through hole flanges have 24 bolt holes drilled 8.4 diameter
- Tapped flanges have 24 bolt holes threaded M8

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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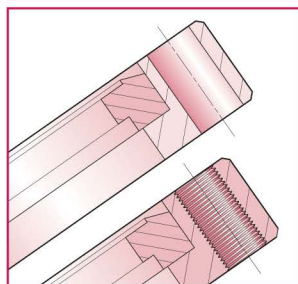


Non-rotatable



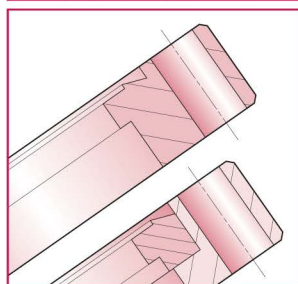
Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	1	–	–	9.0	CFB250	110032
203.2	Clearance	2	198.4	203.7	3.5	CF250-200	110033
209.6 ¹	Clearance	2	204.7	210.0	3.5	CF250-210	110056
Blank	Tapped	1	–	–	9.0	CFB250T	130075
203.2	Tapped	2	198.4	203.7	3.5	CF250-200T	130076
209.6 ¹	Tapped	2	204.7	210.0	3.5	CF250-210T	130090

Rotatable



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	3	–	–	9.0	CFBR250	100032
203.2	Clearance	4	198.4	203.7	3.5	CFR250-200	100033
209.6 ¹	Clearance	4	204.7	210.0*	3.5	CFR250-210	100055
Blank	Tapped	3	–	–	9.0	CFBR250T	120075
203.2	Tapped	4	198.4	203.7	3.5	CFR250-200T	120076
209.6 ¹	Tapped	4	204.7	210.0*	3.5	CFR250-210T	120089

Euro CF Series



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
Non-rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	1	–	–	9.0	CFBL250	1112510
209.6 ¹	Clearance	2	204.7	210.0	3.5	CFL250-205	1112512
Blank	Tapped	1	–	–	9.0	CFBL250T	1112525
209.6 ¹	Tapped	2	204.7	210.0	3.5	CFL250-205T	1112527
Rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	3	–	–	9.0	CFBRL250	1112540
209.6 ¹	Clearance	4	204.7	210.0*	3.5	CFRL250-205	1112542

Note Rotatable outers are standard material

* ID of rotatable outer is 212.0mm (not 210.0mm as shown)

Hardware



- Bolt sets for clearance hole flanges include bolts, flat washers and nuts
- Bolt sets for tapped flanges include bolts and flat washers
- Gold-plated gaskets available on request

Description	Bolt ¹ hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper, 203 ID	–	–	10	1.4	CCG200	1113245
Gasket, Viton®, 203 ID	–	–	1	0.1	VG200	191020
Gasket, OFE copper annealed, 203 ID	–	–	1	0.1	CGA200	1113225
Gasket, silver-plated copper, 203 ID	–	–	1	0.1	CGAG200	1113235
Gasket, nickel	–	–	1	0.1	NG200	7191068
Hex-head bolt, M8 ³	T	50	25	0.8	M8-50	1113026
Hex-head bolt, M8 ⁴	C	60	25	0.8	M8-60	1113027
Hex-head bolt, M8 ⁵	C	90	25	1.0	M8-90	1113031
High-temperature thread lubricant (28gm)	–	–	1	0.1	FEL-PRO C-102	1260200
Flange cover, plastic	–	–	1	0.2	FC1000	7192008

¹ Caburn-MDC Euro default size

² For use with standard flanges

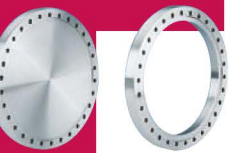
³ C = Clearance holes, T = Tapped holes

⁴ For use with tapped flanges

⁵ For use with double-sided flanges

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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Features

- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE copper or optional Viton® elastomer gaskets
- Tapped or clearance bolt holes
- There is widespread incompatibility between different manufacturers' larger sizes of the CF flange – No DN International Standard notation exists for CF flange sizes 304mm (12") OD and above.

Specifications

Material

Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal
Nut type	Hexagonal
Size	M8
Torque	20 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight 15.5 kg maximum

Dimensions 305.0 OD x 247.7 ID maximum

Elastomer seal temperature range

Sustained: -20°C to 150°C

Intermittent: 200°C

UHV Series

Figure 1



Figure 2

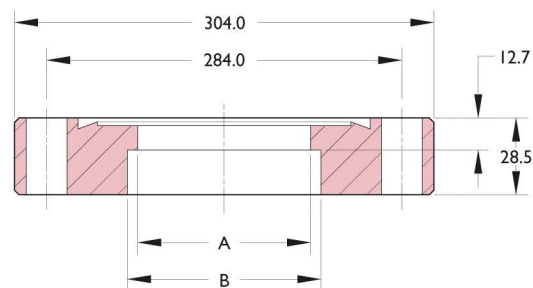


Figure 3

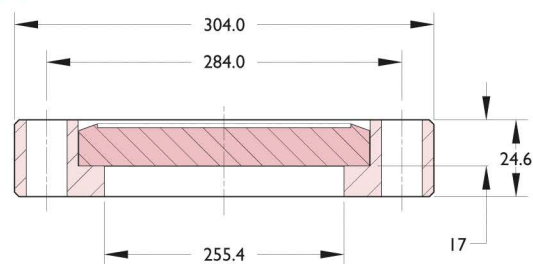
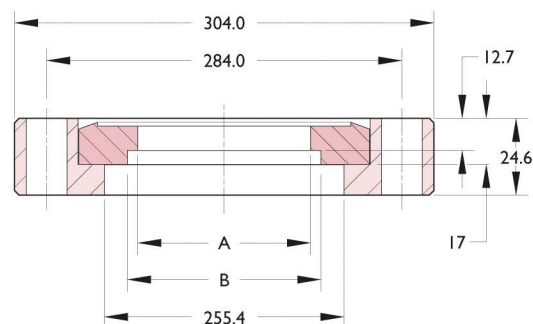


Figure 4



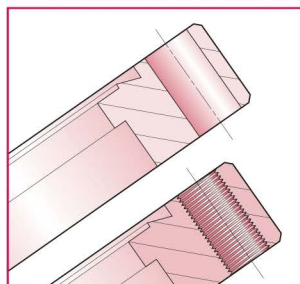
- Through hole flanges have 32 bolt holes drilled 8.4 diameter
- Tapped flanges have 32 bolt holes threaded M8
- Check bolt holes with compatible mating flange

All dimensions are nominal in millimetres unless specified - Weights given are approximate

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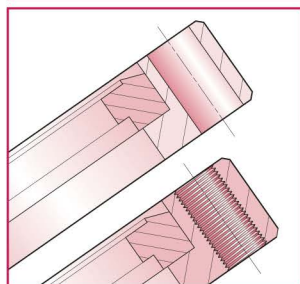


Non-rotatable



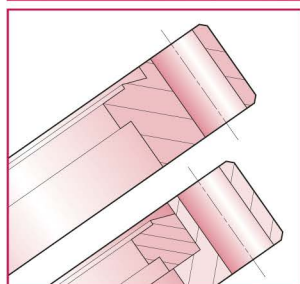
Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	1	–	–	15.5	CFB304	110058
254.0 ¹	Clearance	2	247.7	254.5	4.5	CF304-254	110059
Blank	Tapped	1	–	–	15.5	CFB304T	130058
254.0 ¹	Tapped	2	247.7	254.5	4.5	CF304-254T	130059

Rotatable



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
304 Stainless steel							
Blank	Clearance	3	–	–	15.5	CFBR304	100058
254.0 ¹	Clearance	4	247.7	254.5	4.5	CFR304-254	100059
Blank	Tapped	3	–	–	15.5	CFBR304T	120058
254.0 ¹	Tapped	4	247.7	254.5	4.5	CFR304-254T	120059

Euro CF Series



Nominal matching tube OD	Bolt hole	Figure	A	B	Wt kg	Reference	Part number
Non-rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	1	–	–	15.5	CFBL304	1112610
254.0 ¹	Clearance	2	247.7	254.5	4.5	CFL304-254	1112611
Blank	Tapped	1	–	–	15.5	CFBL304T	1112625
254.0 ¹	Tapped	2	247.7	254.5	4.5	CFL304-254T	1112626
Rotatable: 316LN EFR 1.4429 ESU							
Blank	Clearance	3	–	–	15.5	CFBRL304	1112640
254.0 ¹	Clearance	4	247.7	254.5	4.5	CFRL304-254	1112641

Note Rotatable outers are standard material

Hardware



Description	Bolt ² Hole	Bolt Length	Qty per Pack	Wt kg	Reference	Part number
Gasket, copper	–	–	1	0.1	CCG250 – 2700D	1113248
Gasket, copper	–	–	1	0.1	CCG250 – 2730D	1113247
Gasket, Viton [®]	–	–	1	0.1	VG250B	1113306
Hex-head bolt, M8 ³	C	60	32	0.7	M8-60(32)	1113033
Hex-head bolt, M8 ⁴	T	50	32	0.7	M8-50(32)	1113010
High-temperature thread lubricant (28gm)	–	–	1	0.1	FEL-PRO C-102	1260200

¹ Caburn-MDC Euro default size

² C = Clearance holes, T = Tapped holes

³ For use with standard flanges

⁴ For use with tapped flanges

- Bolt sets for clearance hole flanges include bolts, flat washers and nuts
- Bolt sets for tapped flanges include bolts and flat washers

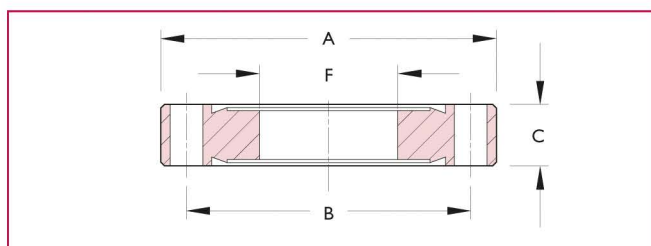
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Section 1.1

CF Flanges

Double sided



Features

- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Non-rotatable geometries
- OFE Copper or optional Viton® elastomer gaskets
- Clearance bolt holes on most flanges
- Conflat®-compatible design complies with ISO 3669

Specifications

Material

Flanges	304ss
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal or socket head
Nut type	Hexagonal
Size / torque	M4/9 Nm, M6/16 Nm, M8/20 Nm, M8/35 Nm

Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight and dimensions See table

Elastomer seal temperature range

Sustained: -20°C to 150°C

Intermittent: 200°C

UHV Series

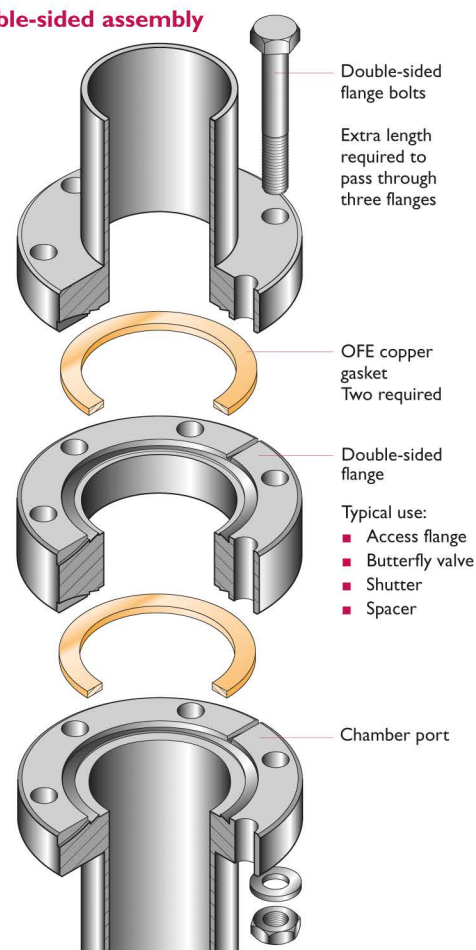
Description

CF double-sided flanges are designed to be inserted between two flanges of the same size. This provides a simple method for adding thermocouple gauge tubes or up-to-air valves to a system with virtually no change in conductance or pumping speed.

All CF double-sided flanges are made of 304ss material. Each assembly requires two gaskets and longer-length bolts.

Caburn-MDC does not recommend stacking more than one double-sided flange in a single assembly.

Typical double-sided assembly



DN63CF to DN100CF

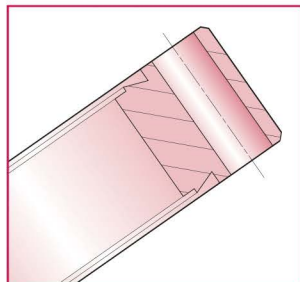
Nominal size	A	B	C	F	No. of holes	Hole size	Wt kg	Reference	Part number
DN63CF									
63	114	92.2	17.3	Blank	8	8.4	1.4	CFDB114	140018
63	114	92.2	17.3	38	8	8.4	1.1	CFD114-38	140019
63	114	92.2	17.3	51	8	8.4	1.0	CFD114-51	140020
63	114	92.2	17.3	63	8	8.4	1.0	CFD114-63	140021
DN100CF									
100	152	130.3	19.8	Blank	16	8.4	2.5	CFDB150	140025
100	152	130.3	19.8	102	16	8.4	1.6	CFD150-100	140026

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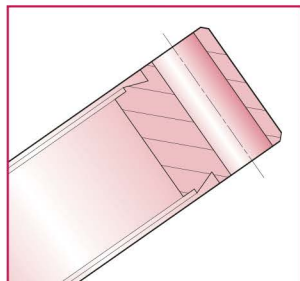
DNI6CF to DN40CF



- 316LN available upon request, but may be subject to longer lead-times

Nominal size	A	B	C	F	No. of holes	Hole size	Wt kg	Reference	Part number
DNI6CF									
16	34	27.0	7.2	Blank	6	4.4	0.2	CFDB34	140000
16	34	27.0	7.2	9.7	6	4.4	0.2	CFD34-09	140002
16	34	27.0	7.2	12.7	6	4.4	0.2	CFD34-13	140003
DN40CF									
40	70	58.7	19.1	Blank	6	6.7	0.3	CFDB70	140007
40	70	58.7	25.4	Blank	6	6.7	0.3	CFDB70-1	140043
40	70	58.7	19.1	7	6	6.7	0.3	CFD70-06	140008
40	70	58.7	19.1	12	6	6.7	0.3	CFD70-12	140009
40	70	58.7	19.1	19	6	6.7	0.3	CFD70-19	140010
40	70	58.7	19.1	25	6	6.7	0.3	CFD70-25	140011
40	70	58.7	19.1	32	6	6.7	0.3	CFD70-32	140012
40	70	58.7	19.1	38	6	6.7	0.3	CFD70-38	140013
40	70	58.7	25.4	38	6	6.7	0.3	CFD70-38/25	140014

DNI60CF to DN200CF



- 316LN available upon request, but may be subject to longer lead-times

Nominal size	A	B	C	F	No. of holes	Hole size	Wt kg	Reference	Part number
DNI60CF									
160	203	181	22.0	Blank	20	8.4	5.5	CFDB200	140030
160	203	181	22.0	150	20	8.4	2.5	CFD200-150	140031
DN200CF									
200	254	232	24.6	Blank	24	8.4	4.0	CFDB250	140032
200	254	232	24.6	203	24	8.4	3.4	CFD250-200	140033

Hardware



- Bolt sets for clearance hole flanges include screws and nuts
- Bolt sets for tapped flanges include screws only
- Gold plated gaskets available on request

Description	Bolt ¹ hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper, 16 ID	–	–	10	0.1	CCG16	1113240
Gasket, Viton®, 16 ID	–	–	5	0.1	VG16	191001
Socket head screw M4 ²	T	30	25	0.2	M4-30	1113015
Gasket, copper, 37 ID	–	–	10	0.3	CCG40	1113241
Gasket, Viton®, 43 ID	–	–	5	0.1	VG40	191005
Hex-head bolts M6 ²	T	55	25	0.4	M6-55	1113022
Gasket, copper, 63 ID	–	–	10	0.3	CCG63	1113242
Gasket, Viton®, 77 ID	–	–	1	0.1	VG63	191010
Hex-head bolt M8 ²	C	65	25	1.0	M8-65	1113028
Gasket, copper, 101 ID	–	–	10	0.7	CCG100	1113243
Gasket, Viton®, 115 ID	–	–	1	0.1	VG100	191014
Hex-head bolt, M8 ²	C	70	25	2.0	M8-70	1113029
Gasket, copper, 152 ID	–	–	10	1.0	CCG160	1113244
Gasket, Viton®, 153 ID	–	–	1	0.1	VG160	191018
Hex-head bolt, M8 ²	C	80	25	1.0	M8-80	1113030
Gasket, copper, 203 ID	–	–	10	1.4	CCG200	1113245
Gasket, Viton®, 203 ID	–	–	1	0.1	VG200	191020
Hex-head bolt, M8 ²	C	90	25	1.0	M8-90	1113031

¹ For use with standard flanges

² For use with double sided flanges

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CF Flanges

Zero-length reducers



UHV Series

Description

Zero length reducers are used for a change in size of flanges within the CF family. "Zero length" means the total thickness of a unit is the thickness of one flange only.

Features

- UHV rated to 1×10^{-13} mbar
- High-temperature rated to 450°C
- Non-rotatable geometry
- OFE Copper or optional Viton® elastomer gaskets
- Clearance and blind-tapped bolt holes
- Conflat®-compatible with other manufacturers' knife edge flanges and complies with ISO 3669

Specifications

Material

Flanges	304ss
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

Bolt type	Hexagonal or socket head
Nut type	Hexagonal
Size/torque	M4/9 Nm, M6/16 Nm, M8/20 Nm

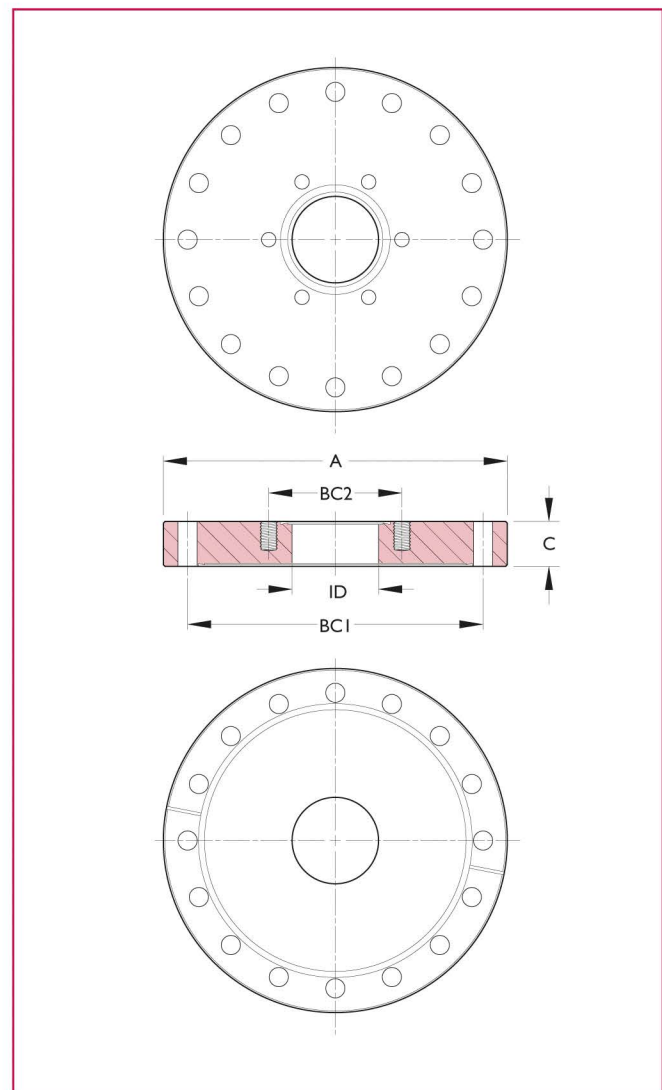
Vacuum range to below 10^{-13} mbar

Temperature range -200°C to 450°C

Weight and dimensions See table

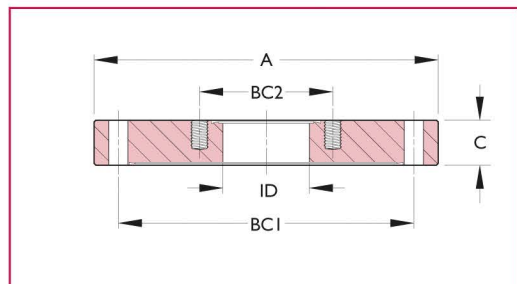
Elastomer seal temperature range

Sustained: -20°C to 150°C
Intermittent: 200°C



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CF to CF Zero-length reducers

Information

- Custom designs available on request
- 316LN material available on request, a longer lead time may apply

Connects flanges	Mating flange side		Smaller flange side				Wt kg	Reference	Part number	
	Nominal OD-A	BCI	Nominal OD	ID	BC2	Thread BC2				C
304 Stainless steel										
DN40CF-16CF	70	58.7	34	15.7	26.9	M4	12.7	0.2	CFZ40-16	150055
DN63CF-16CF	114	92.2	34	15.7	26.9	M4	17.3	1.4	CFZ63-16	150060
DN63CF-40CF	114	92.2	70	38.1	58.7	M6	17.3	1.1	CFZ63-40	150062
DN100CF-16CF	150	130.3	34	15.7	26.9	M4	19.8	2.7	CFZ100-16	150068
DN100CF-40CF	150	130.3	70	38.1	58.7	M6	19.8	2.5	CFZ100-40	150070
DN100CF-63CF	150	130.3	114	63.5	92.2	M8	19.8	2.0	CFZ100-63	150072
DN160CF-40CF	200	181.1	70	38.1	58.7	M6	22.4	5.4	CFZ160-40	150083
DN160CF-63CF	200	181.1	114	63.5	92.2	M8	22.4	4.8	CFZ160-63	150085
DN160CF-100CF	200	181.1	150	101.6	130.3	M8	22.4	3.9	CFZ160-100	150087
DN200CF-40CF	250	231.9	70	38.1	58.7	M6	24.6	9.0	CFZ200-40	150091
DN200CF-63CF	250	231.9	114	63.5	92.2	M8	24.6	9.0	CFZ200-63	150093
DN200CF-100CF	250	231.9	150	101.6	130.3	M8	24.6	8.4	CFZ200-100	150095
DN200CF-160CF	250	231.9	200	152.4	181.1	M8	24.6	7.7	CFZ200-160	150097
DN250CF-63CF	304	284	114	63.5	92.2	M8	28.5	18.0	CFZ250-63	1114020
DN250CF-100CF	304	284	150	101.6	130.3	M8	28.5	17.3	CFZ250-100	1114023
DN250CF-160CF	304	284	200	152.4	181.1	M8	28.5	16.8	CFZ250-160	1114024
DN250CF-200CF	304	284	254	204.7	231.9	M8	28.5	15.5	CFZ250-200	1114025

Hardware



- Bolt sets for clearance hole flanges include screws and nuts
- Bolt sets for tapped flanges include screws only
- Gold plated gaskets available on request

Description	Bolt ¹ hole	Bolt length	Qty per pack	Wt kg	Reference	Part number
Gasket, copper, 16 ID	–	–	10	0.1	CCG16	1113240
Gasket, Viton®, 16 ID	–	–	5	0.1	VG16	191001
Socket head screw M4 ²	T	30	25	0.2	M4-30	1113015
Gasket, copper, 37 ID	–	–	10	0.3	CCG40	1113241
Gasket, Viton®, 43 ID	–	–	5	0.1	VG40	191005
Hex-head bolts M6 ²	T	55	25	0.4	M6-55	1113022
Gasket, copper, 63 ID	–	–	10	0.3	CCG63	1113242
Gasket, Viton®, 77 ID	–	–	1	0.1	VG63	191010
Hex-head bolt M8 ²	C	65	25	1.0	M8-65	1113023
Gasket, copper, 101 ID	–	–	10	0.7	CCG100	1113243
Gasket, Viton®, 115 ID	–	–	1	0.1	VG100	191014
Hex-head bolt, M8 ²	C	70	25	2.0	M8-70	1113029
Gasket, copper, 152 ID	–	–	10	1.0	CCG160	1113244
Gasket, Viton®, 153 ID	–	–	1	0.1	VG160	191018
Hex-head bolt, M8 ²	C	80	25	1.0	M8-80	1113030
Gasket, copper, 203 ID	–	–	10	1.4	CCG200	1113245
Gasket, Viton®, 203 ID	–	–	1	0.1	VG200	191020
Hex-head bolt, M8 ²	C	90	25	1.0	M8-90	1113031

¹ For use with standard flanges

² For use with double sided flanges

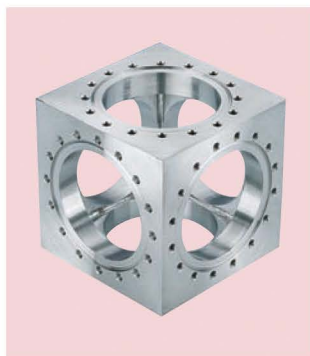
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CF Flanges and fittings

Introduction



UHV Series

Description

Caburn-MDC CF tube fittings are convenient building-block components. They offer great flexibility in the design and construction of high and ultra-high vacuum systems. All fittings are fabricated from stainless steel drawn and welded vacuum tubing.

To facilitate assembly alignment, a rotatable flange is supplied opposite a non-rotatable flange on each axis. Elbows are supplied with two rotatable flanges.

In general, reducers are used for a change in size of flanges within a single method of sealing, such as CF to CF. Reducers may be either zero-length or include a section of tubing between flanges.

Non-zero-length reducers are also called nipple reducers and have either a straight tube or a conical section between flanges.

In general, hybrid adaptors provide a transition between two different methods of creating a vacuum seal, such as metal seal CF to elastomer seal ISO.

Reducing tees and crosses have a single main tube with main flanges and a smaller diameter reducer tube with a reducer flange or flanges.

Features

- UHV rated to 1×10^{-13} mbar
- High temperature rated to 450°C
- Rotatable and non-rotatable geometries
- OFE Copper or optional Viton® elastomer gaskets
- Conflat® compatible design to ISO 3669

Specifications

Material

Flanges	304 (1.4301) or 316EFR (1.4429 ESU)
Tube	304ss or 316Ss
Gaskets	OFE Copper
Bolts	Stainless steel

Fastening

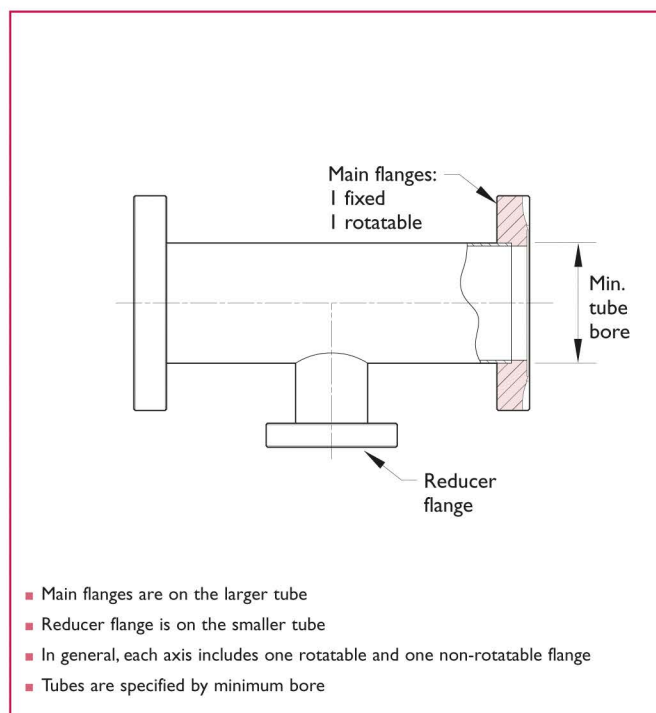
Bolt type	Hexagonal
Nut type	Hexagonal or two-hole plate nuts
Size / torque	See individual flange specs

Vacuum

Range	to below 10^{-13} mbar
Leak test	2×10^{-10} l/sec of He

Temperature range	-200°C to 450°C
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Weight and dimensions	See table
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Caburn-MDC reserves the right to substitute a larger-bore tube according to availability

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CF Flanges and fittings

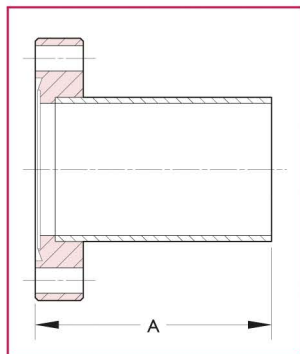
Tubulated CF flanges



Tubulated CF flanges Half nipple

Features

- Weldable fitting
- Fixed or rotatable CF flanges
- Custom lengths available on request



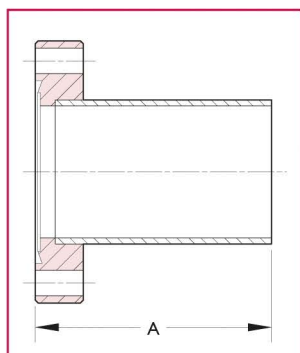
Nominal flange	Flange OD	Flange config ¹	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel							
DN16CF	34	F	15.8	38	0.2	CST16-T	401000
DN16CF	34	R	15.8	38	0.2	CRST16-T	401020
DN40CF	70	F	34.8	63	0.5	CST40-T	401002
DN40CF	70	F	38.0	63	0.6	E-CST40-T	1115061
DN40CF	70	R	34.8	63	0.5	CRST40-T	401022
DN63CF	114	F	60.3	105	1.4	CST63-T	401004
DN63CF	114	R	60.3	105	1.4	CRST63-T	401024
DN100CF	152	F	97.8	135	1.8	CST100-T	401006
DN100CF	152	R	97.8	135	1.8	CRST100-T	401026
DN160CF	203	F	147.0	167	3.4	CST160-T	401008
DN160CF	203	R	147.0	167	3.4	CRST160-T	401045
DN200CF	254	F	197.0	203	5.0	CST200-T	401009

¹ R = Rotatable
F = Fixed

Tubulated CF flanges Half nipple

Features

- 316LN flanges
- Use for low-magnetic-field environments
- Increased conductance over standard fittings
- Custom lengths available on request



Nominal flange	Flange OD	Flange config ¹	Min. tube bore	A	Wt kg	Reference	Part number
EURO-CF Series 316LN Larger-bore tube							
DN16CF	34	F	17.2	38	0.2	EST16-T	1116000
DN40CF	70	F	38.0	63	0.5	EST40-T	1116001
DN63CF	114	F	66.0	105	1.4	EST63-T	1116002
DN100CF	152	F	102.0	135	1.8	EST100-T	1116003
DN160CF	203	F	150.0	167	3.4	EST160-T	1116004
DN200CF	254	F	203.0	203	5.0	EST200-T	1116005
DN250CF	304	F	248.0	254	12.7	EST250-T	1116006

¹ F = Fixed

Caburn-MDC reserves the right to substitute a larger-bore tube according to availability

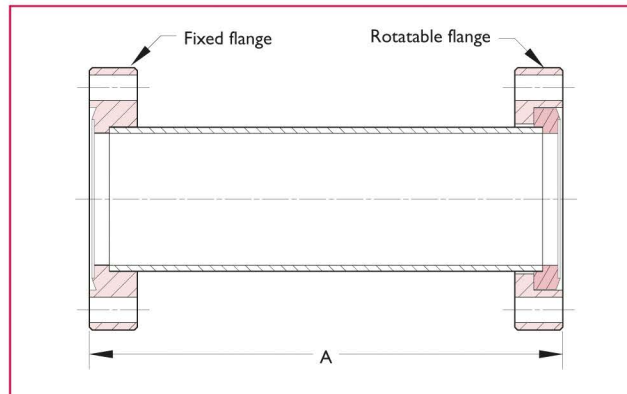
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CF Flanges and fittings

Straight connectors

Straight connectors Full nipple

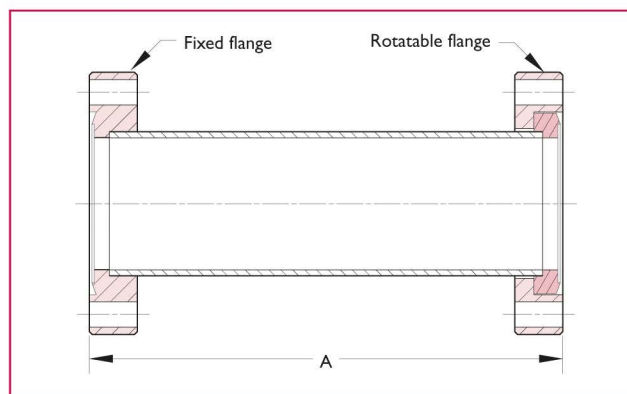


Features

- Coupling to mate two identical size CF flanges
- Includes one rotatable and one non-rotatable CF flanges
- Custom lengths available on request

Nominal flange	Flange OD	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel						
DN16CF	34	15.8	76	0.2	CST16	402000
DN40CF	70	34.8	125	0.7	CST40	402002
DN40CF	70	38.0	125	0.8	E-CST40	1115011
DN63CF	114	60.3	210	1.4	CST63	402004
DN100CF	152	97.8	270	4.3	CST100	402006
DN160CF	203	147.0	333	7.3	CST160	402008
DN200CF	254	197.0	406	12.5	CST200	402009

Straight connectors Full nipple



Features

- 316LN flanges
- Use for low magnetic field environments
- Increased conductance over standard fittings
- Custom lengths available on request

Nominal flange	Flange OD	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel						
DN16CF	34	17.2	76	0.2	EST16	1116010
DN40CF	70	38.0	125	0.7	EST40	1116011
DN63CF	114	66.0	210	1.4	EST63	1116012
DN100CF	152	102.0	270	4.3	EST100	1116013
DN160CF	203	150.0	333	7.3	EST160	1116014
DN200CF	254	203.0	406	12.5	EST200	1116015

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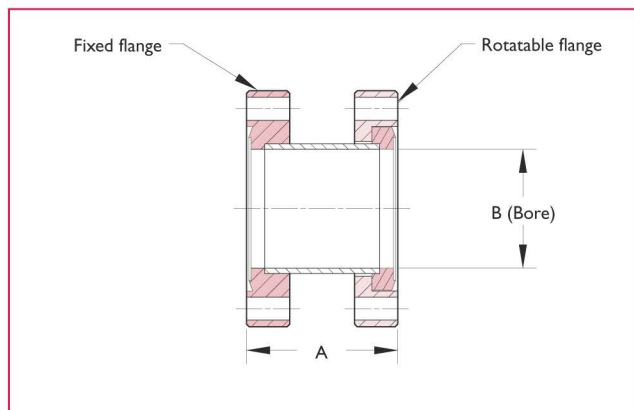
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CF Flanges and fittings

Straight connectors and flexible couplings



Minimum length



Features

- Special nipple to mate two tapped flanges
- CF-flanged nipple mounts between two tapped flanges with minimum spacing
- Includes metric threaded studs, nuts and washers

The tapped flange adaptor is a nipple with a minimum length for mating two tapped flanges. Studs must be screwed into each tapped flange prior to installing the adaptor. The tapped flange adaptor has clearance holes on each flange which slip over the studs. Nuts are then fixed to the studs to complete installation. Studs, nuts and washers are provided with the adaptor.

Main flange nominal	A	Min. B	Wt kg	Reference	Part number
DN16CF	44.5	16	0.2	TFA-16	1115149
DN40CF	58.5	38	1.0	TFA-40	1115150
DN63CF	67.2	66	2.0	TFA-63	1115151
DN100CF	76.5	102	3.8	TFA-100	1115152

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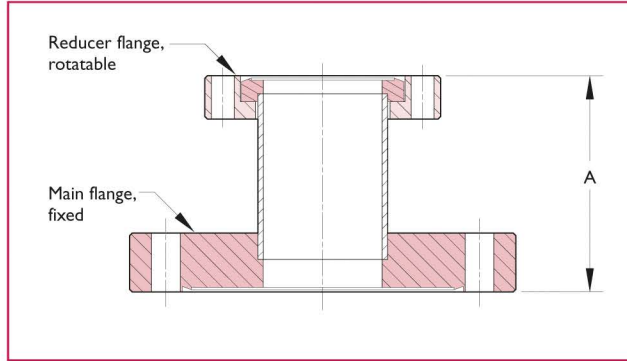
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CF Flanges and fittings

Nipple reducers

Straight tube

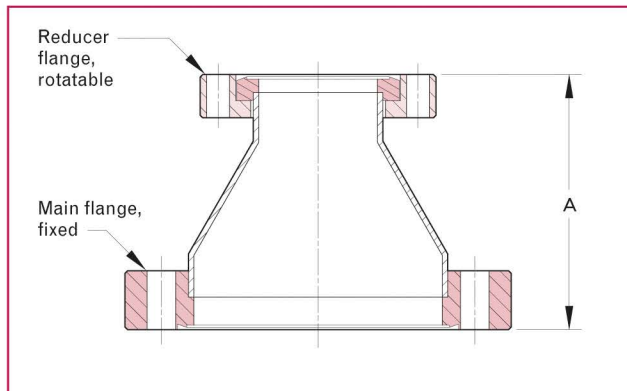


Features

- For CF-to-CF connections of different size flanges
- Smaller flange is rotatable
- Custom lengths available on request
- Also available in Euro-CF Series 316LN on request

Main flange nominal	OD	Reducer nominal	Flange OD	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel								
DN40CF	70	DN16CF	34	17.2	50	0.5	E-CST40-16	1115035
DN63CF	114	DN40CF	70	38.0	60	1.6	E-CST63-40	1115036
DN100CF	152	DN40CF	70	38.0	75	2.0	E-CST100-40	1115037
DN100CF	152	DN63CF	114	66.0	95	2.5	E-CST100-63	1115038
DN160CF	203	DN40CF	70	38.0	75	3.0	E-CST160-40	1115039
DN160CF	203	DN63CF	114	66.0	95	3.5	E-CST160-63	1115040
DN160CF	203	DN100CF	152	102.0	120	4.0	E-CST160-100	1115041
DN200CF	254	DN40CF	70	38.0	120	4.3	E-CST200-40	1115042
DN200CF	254	DN63CF	114	66.0	120	4.5	E-CST200-63	1115043
DN200CF	254	DN100CF	152	102.0	160	5.0	E-CST200-100	1115044
DN200CF	254	DN160CF	203	150.0	160	7.2	E-CST200-160	1115045
DN250CF	304	DN63CF	114	66.0	160	10.0	E-CST250-63	1115046
DN250CF	304	DN100CF	152	102.0	160	12.0	E-CST250-100	1115047
DN250CF	304	DN200CF	254	203.0	160	15.0	E-CST250-200	1115048

Conical



Features

- For CF-to-CF connections of different size flanges
- Smaller flange is rotatable

Main flange nominal	OD	Reducer nominal	Flange OD	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel								
DN40CF	70	DN16CF	34	34.8 - 17.2	78	0.7	FCR275133	402030
DN63CF	114	DN40CF	70	60.3 - 34.8	75	1.8	FCR450275	402032
DN100CF	152	DN63CF	114	97.8 - 60.3	113	2.5	FCR600450	402038
DN160CF	203	DN100CF	152	149.2 - 98.4	252	6.8	FCR800600	402040

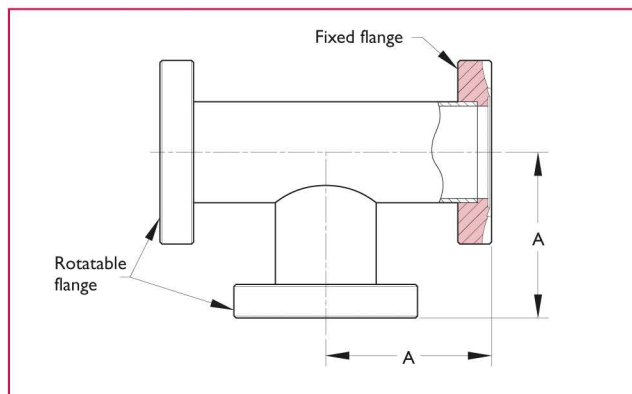
Caburn-MDC reserves the right to substitute a larger-bore tube according to availability

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Tee

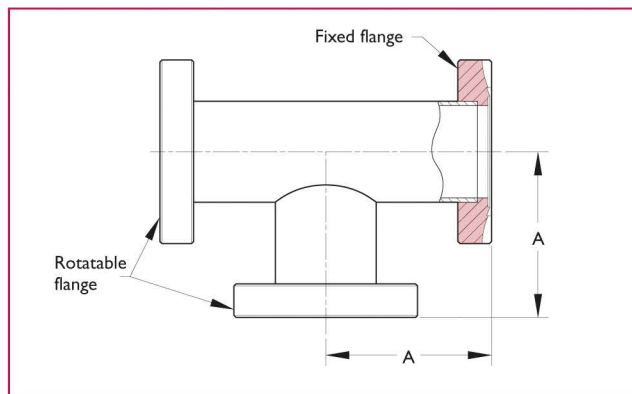


Features

- Each axis has one rotatable flange
- Custom lengths available on request

Nominal flange	Flange OD	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel						
DN16CF	34	15.8	38	0.4	CFT16	404000
DN40CF	70	38.0	63	1.2	CFT40	404002
DN63CF	114	60.3	86	3.6	CFT63-X	404038
DN63CF	114	60.3	105	3.6	CFT63	7404038
DN100CF	152	97.8	135	6.8	CFT100-X	404040
DN160CF	203	147.0	167	11.4	CFT160-X	404041
DN200CF	254	197.0	203	23.3	CFT200-X	404042

Tee



Features

- 316LN flanges
- Use for low magnetic field environments
- Large tube bores
- Custom lengths available on request

Nominal flange	Flange OD	Min. tube bore	A	Wt kg	Reference	Part number
Euro-CF Series 316LN Larger-bore tube						
DN16CF	34	17.2	38	0.4	ET16	1116060
DN40CF	70	38.0	63	1.2	ET40	1116061
DN63CF	114	66.0	105	3.6	ET63	1116062
DN100CF	152	102.0	135	6.8	ET100	1116063
DN160CF	203	150.0	167	11.4	ET160	1116064
DN200CF	254	203.0	203	23.3	ET200	1116065

Caburn-MDC reserves the right to substitute a larger-bore tube according to availability

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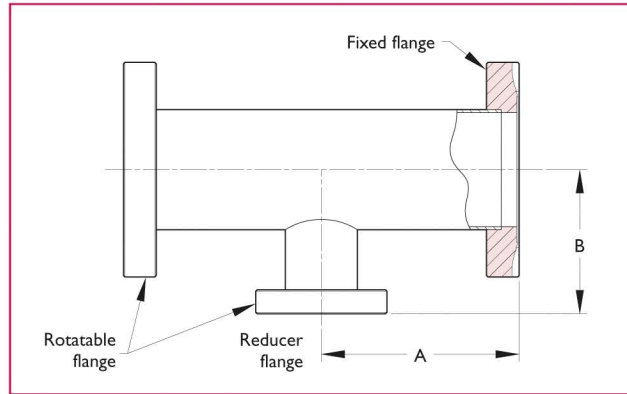
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CF Flanges and fittings

Reducing tees

Reducing tees



Features

- CF-to-CF connections of different size flanges
- Each axis has one rotatable flange
- Custom lengths available on request
- Also available in Euro-CF Series 316LN on request

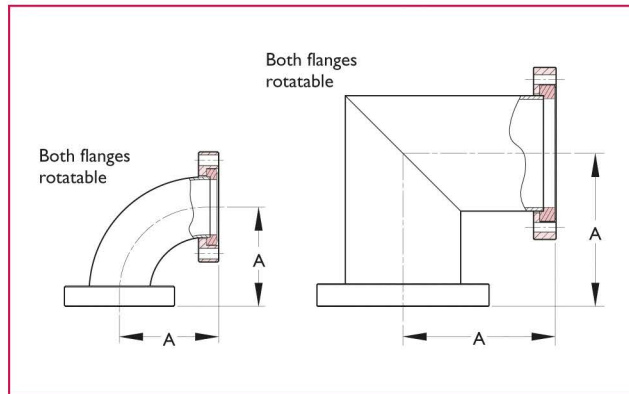
Main flanges nominal	Min. tube bore	A	Reducer flange nominal	Min. tube bore	B	Wt kg	Reference	Part number
304 Stainless steel								
DN40CF	38.0	63	DN16CF	17.2	60	1.0	E-CRT40-16	1115070
DN63CF	66.0	105	DN40CF	38.0	77	1.6	E-CRT63-40	1115071
DN100CF	102.0	135	DN40CF	38.0	95	4.0	E-CRT100-40	1115072
DN100CF	102.0	135	DN63CF	66.0	95	5.0	E-CRT100-63	1115073
DN160CF	150.0	167	DN63CF	66.0	120	8.0	E-CRT160-63	1115074
DN160CF	150.0	167	DN100CF	102.0	120	9.0	E-CRT160-100	1115075
DN200CF	202.5	203	DN100CF	102.0	145	12.7	E-CRT200-100	1115076
DN200CF	202.5	203	DN160CF	150.0	145	14.2	E-CRT200-160	1115077

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90°

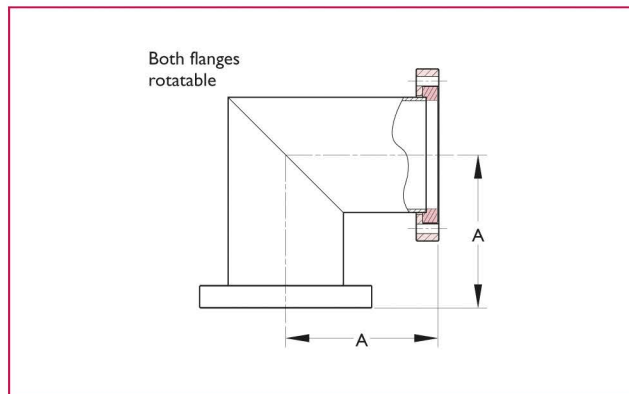


Features

- Radial or mitred tube

Nominal flange	Flange OD	Bend type	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel							
DN16CF	34	Radius	15.8	38.1	0.2	CFL16	403000
DN40CF	70	Radius	34.8	62.5	0.7	CFL40	403002
DN63CF	114	Radius	60.3	105	2.3	CFL63	403004
DN100CF	152	Radius	97.8	163	5.0	CFL100-X	403038
DN160CF	203	Radius	147.0	241	8.8	CFL160-X	403039
DN160CF	203	Mitre	147.0	167	8.8	CFL160	403008
DN200CF	254	Mitre	197.0	203	12.3	CFL200	403009

90°



Features

- 316LN flanges
- Use for low magnetic field environments
- Increased conductance over standard fittings

Nominal flange	Flange OD	Bend type	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel							
DN16CF	34	Mitre	15.8	38	0.2	EL16	1116050
DN40CF	70	Mitre	38.0	63	0.7	EL40	1116051
DN63CF	114	Mitre	66.0	105	2.3	EL63	1116052
DN100CF	152	Mitre	102.0	135	4.0	EL100	1116053
DN160CF	203	Mitre	150.0	167	8.8	EL160	1116054
DN200CF	254	Mitre	203.0	203	12.3	EL200	1116055

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CF Flanges and fittings

Elbows

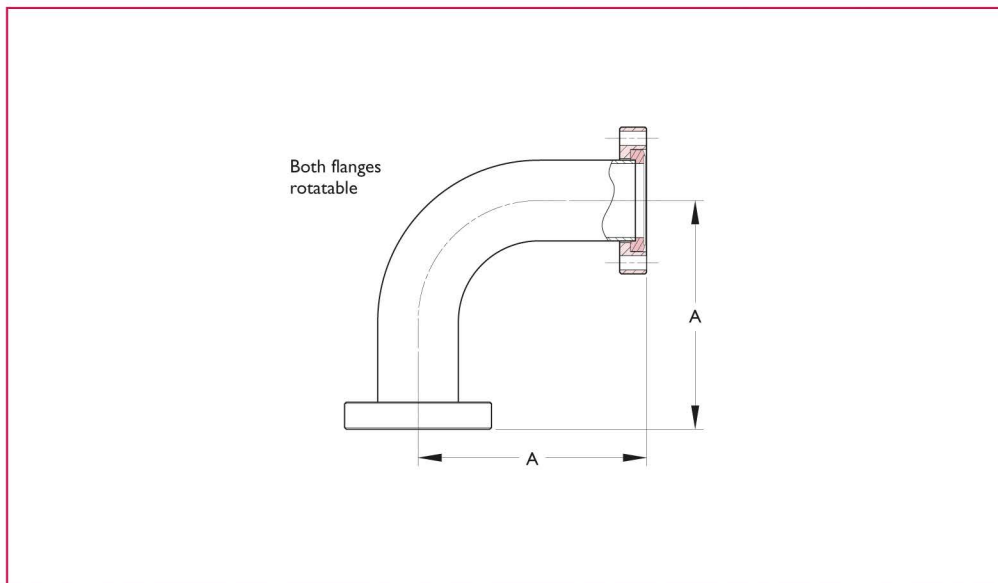


90° with tangents



Features

- Radial tube



Description	Flange OD	Min. tube bore	A	Wt kg	Reference	Part number
304 Stainless steel						
DN16CF	34	17.2	49	0.3	CFLL16	403040
DN40CF	70	34.8	80	1.1	CFLL40	403042
DN63CF	114	60.2	141	2.3	CFLL63	403044
DN100CF	152	97.3	222	5.5	CFLL100	403046

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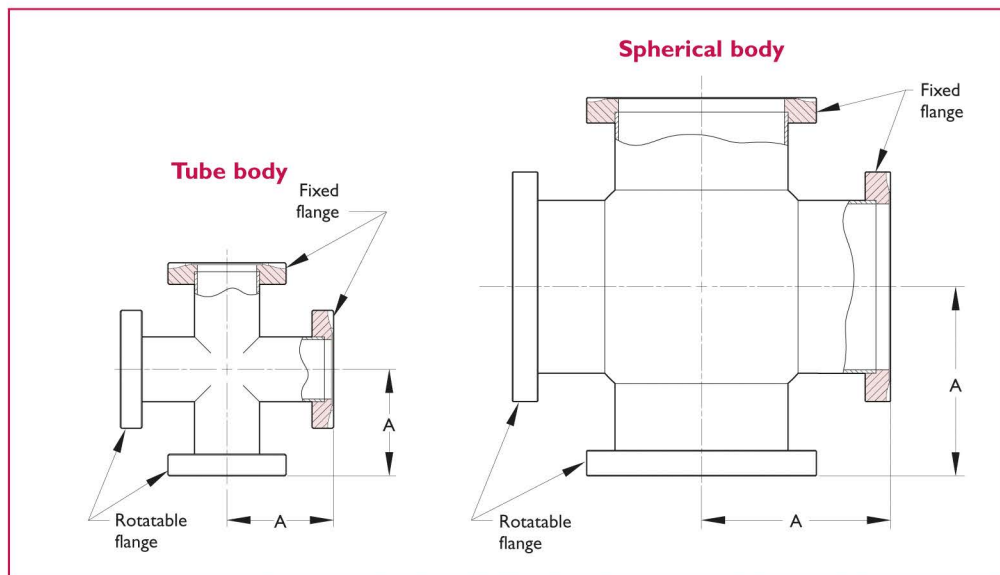


Four-way crosses



Features

- Each axis has one rotatable flange
- Body type dependent on tube size
- Custom lengths available with larger, Euro-size tubes on request



Nominal flange	Flange OD	Tube min. ID	Body type	Sphere min. ID	A	Wt kg	Reference	Part number
304 Stainless steel								
DN16CF	34	17.3	Tube	–	38.1	0.1	CX4-16	405000
DN40CF	70	34.9	Tube	–	63.0	0.3	CX4-40	405002
DN63CF	114	60.3	Tube	–	105	1.4	CX4-63T	405031
DN100CF	152	97.6	Sphere	165	135.0	2.7	CX4-100S	405006
DN160CF	203	146.4	Tube	–	155.4	4.8	CX4-160T	405034
DN160CF	203	146.4	Sphere	229	167.0	4.8	CX4-160S	405008
DN200CF	254	197.2	Tube	–	190.5	7.6	CX4-200T	405035
DN200CF	254	197.2	Sphere	305	203.2	7.6	CX4-200S	405009

Four-way crosses



Features

- 316LN flanges with larger Euro size tube
- Use for low magnetic field environments
- Increased conductance over standard fittings

Nominal flange	Flange OD	Tube min. ID	Body type	Sphere min. ID	A	Wt kg	Reference	Part number
Euro-CF Series 316LN Larger-bore tube								
DN16CF	34	17.3	Tube	–	38.1	0.1	EX4-16	1116090
DN40CF	70	38.0	Tube	–	63.0	0.3	EX4-40	1116091
DN63CF	114	66.0	Tube	–	105.0	1.4	EX4-63	1116092
DN100CF	152	102.0	Sphere	165	135.0	2.7	EX4-100S	1116093
DN160CF	203	150.0	Sphere	229	167.0	4.8	EX4-160S	1116094
DN200CF	254	203.5	Sphere	305	203.2	7.6	EX4-200S	1116095

Caburn reserves the right to substitute a larger-bore tube according to availability

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CF Flanges and fittings

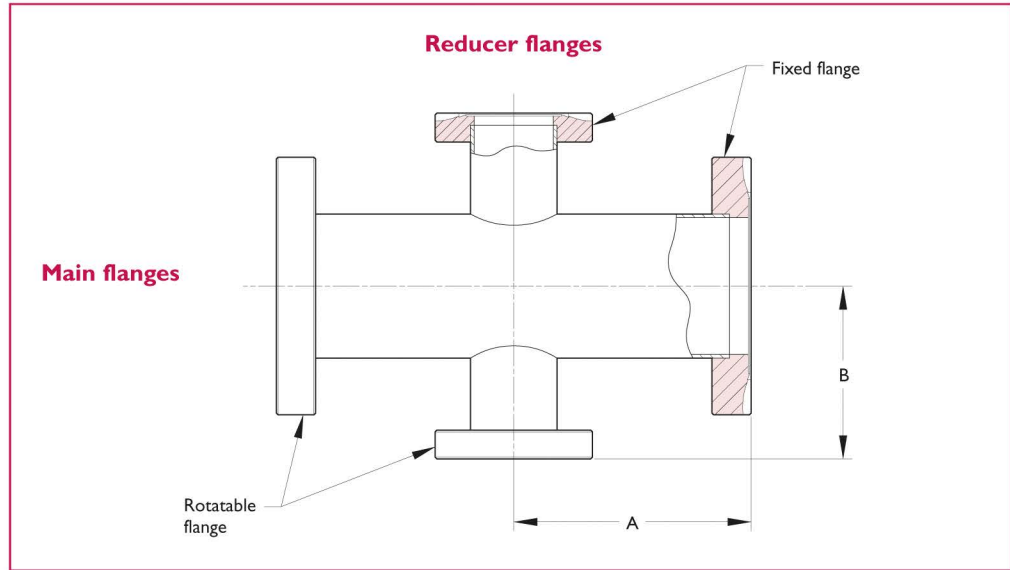
Reducing crosses

Reducing crosses



Features

- CF-to-CF connections of different size flanges
- Each axis has one rotatable flange
- Custom lengths available on request
- Also available in Euro CF Series 316LN on request



Long axis flanges	Short axis flanges	Min. main bore	A	B	Min. reducer bore	Wt kg	Reference	Part number
304 Stainless steel								
DN40CF	DN16CF	38	63	60	15.8	1.4	E-CRX40-16	1115100
DN63CF	DN40CF	66	105	77	38	3.5	E-CRX63-40	1115101
DN100CF	DN40CF	102	135	95	38	6.1	E-CRX100-40	1115102
DN100CF	DN63CF	102	135	95	66	7.7	E-CRX100-63	1115103
DN160CF	DN40CF	150	167	120	38	9.7	E-CRX160-40	1115104
DN160CF	DN63CF	150	167	120	66	10.8	E-CRX160-63	1115105
DN160CF	DN100CF	150	167	120	102	10.9	E-CRX160-100	1115106
DN200CF	DN63CF	203	203	145	66	17.4	E-CRX200-63	1115107
DN200CF	DN100CF	203	203	145	102	15.2	E-CRX200-100	1115108
DN200CF	DN160CF	203	203	145	150	21.4	E-CRX200-160	1115109
DN250CF	DN160CF	248	250	230	150	26.1	E-CRX250-160	1115110
DN250CF	DN200CF	248	250	230	203	29.9	E-CRX250-200	1115111

Caburn-MDC reserves the right to substitute a larger-bore tube according to availability

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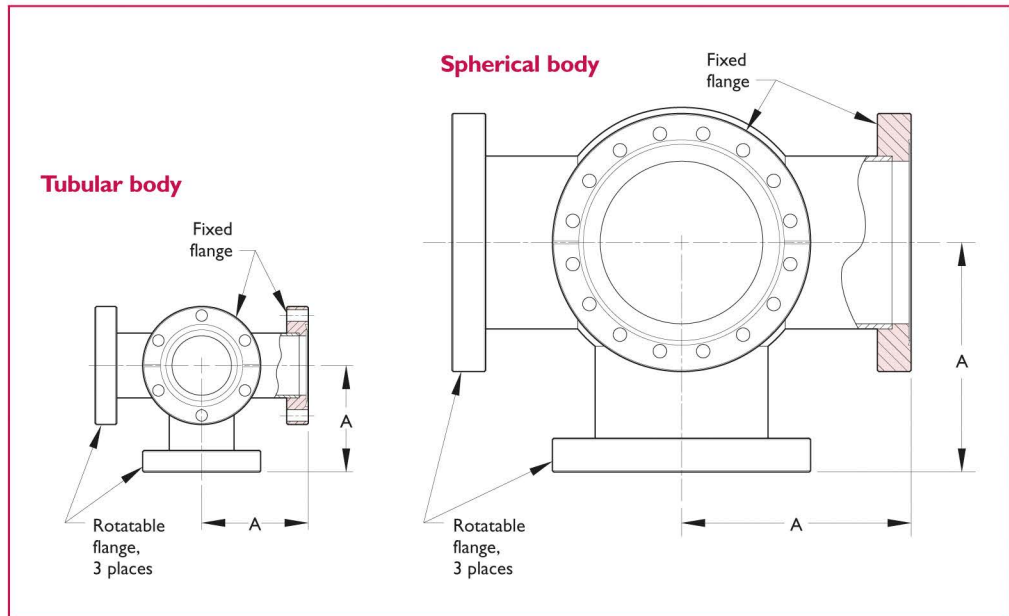


Five-way crosses



Features

- Each axis has one rotatable flange
- Body type dependent on tube size
- Custom lengths available with larger, Euro-size tubes on request
- Also available in CF Series 316LN on request

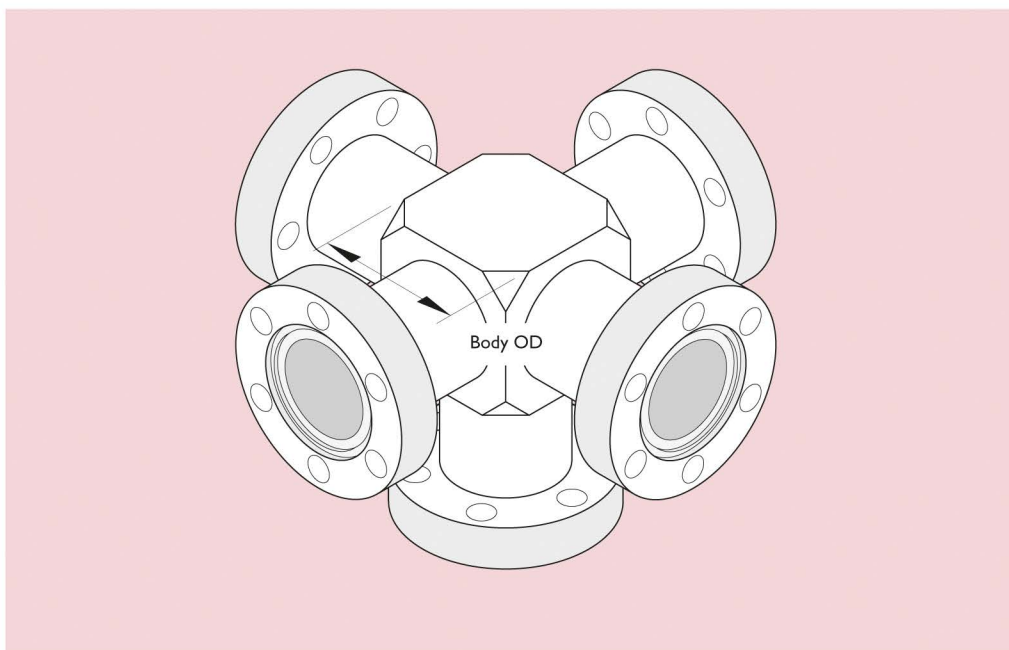


Flange nominal	Flange OD	Min. tube ID	Body type	Body dimen. min. ID	Wall	A	Wt kg	Reference	Part number
304 Stainless steel									
DN16CF	34	15.8	Cube	25	–	38.0	0.2	CX5-16	406000
DN40CF	70	34.8	Tube	–	–	62.5	1.6	CX5-40	406002
DN63CF	114	57.5	Tube	–	–	104.6	6.0	CX5-63	406004
DN100CF	152	95.6	Sphere	153	3	135.0	10.0	CX5-100S	406006
DN160CF	203	146.4	Sphere	223	3	166.6	17.3	CX5-160S	406008
DN200CF	254	197.0	Sphere	299	3	203.0	27.2	CX5-200S	406009

Cube body

Five-way crosses with 19mm tubes have one-piece cubes for the main body.

The outer dimension is given in the table.



Caburn-MDC reserves the right to substitute a larger bore tube according to availability

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CF Flanges and fittings

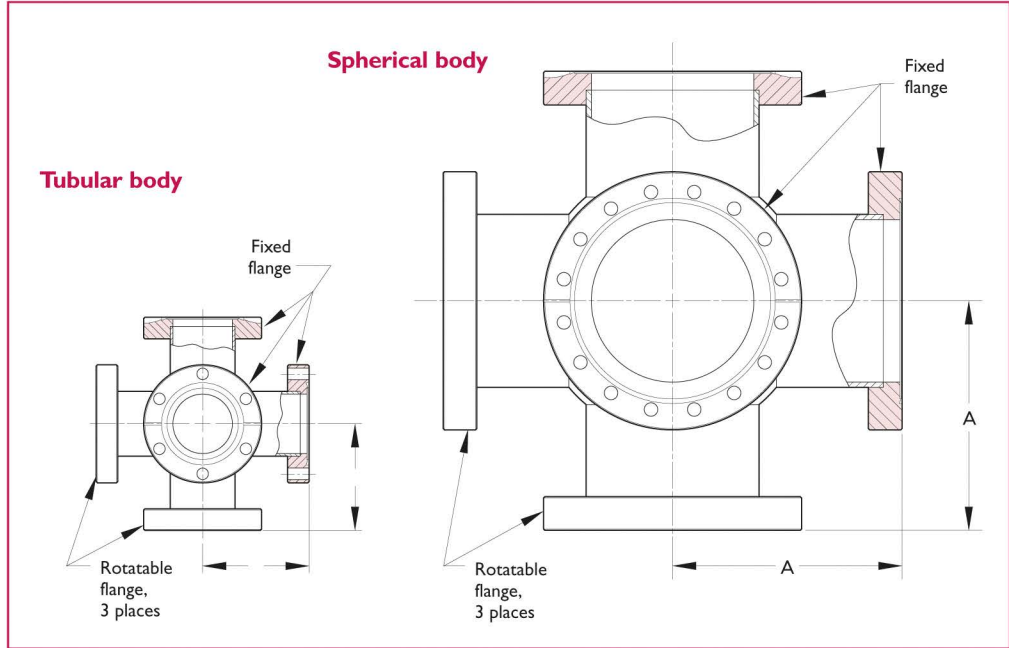
Six-way crosses

Six-way crosses



Features

- Each axis has one rotatable flange
- Body type dependent on tube size
- Custom lengths available with larger, Euro-size tubes on request



Flange nominal	Flange OD	Min. tube ID	Body type	Body dimen. min. ID	A	Wt kg	Reference	Part number
304 Stainless steel								
DN16CF	34	15.8	Tube	–	38	0.3	CX6-16	407000
DN40CF	70	34.9	Tube	–	63	1.6	CX6-40	407002
DN63CF	114	57.5	Tube	–	105	8.0	CX6-63	407004
DN100CF	152	96.0	Sphere	153	135	12.0	CX6-100S	407006
DN160CF	203	146.0	Sphere	223	167	20.0	CX6-160S	407008
DN200CF	250	197.0	Sphere	299	203	33.0	CX6-200S	407009

Six-way crosses



Flange nominal	Flange OD	Min. tube ID	Body type	Body dimen. min. ID	A	Wt kg	Reference	Part number
Euro-CF Series 316LN Larger-bore tube								
DN16CF	34	17.2	Tube	–	38	0.3	EX6-16	116130
DN40CF	70	38.0	Tube	–	63	1.6	EX6-40	116131
DN63CF	114	66.0	Tube	–	105	8.0	EX6-63	116132
DN100CF	152	102	Sphere	153	135	12.0	EX6-100S	116133
DN160CF	203	150	Sphere	273	167	20.0	EX6-160S	116134
DN200CF	250	200	Sphere	299	203	33.0	EX6-200S	116135

Caburn-MDC reserves the right to substitute a larger-bore tube according to availability

Features

- 316LN flanges with larger, Euro-size tube
- Use for low magnetic field environments
- Increased conductance over standard fittings

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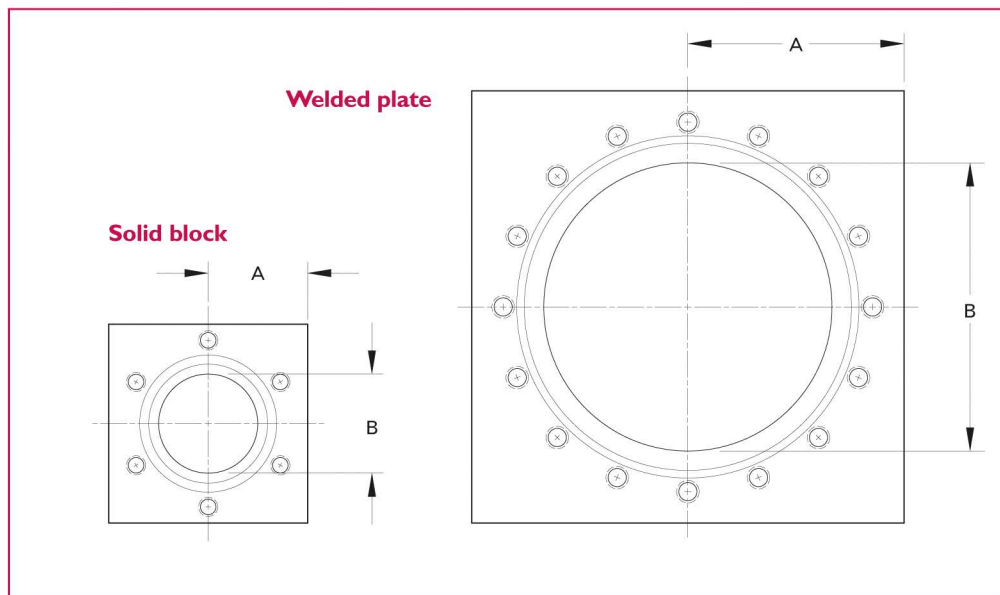


Cubes



Features

- Requires special length bolts – refer to hardware listing for each individual flange size
- Solid block or welded plate fabrication



Nominal flange	A	B	Thread	Bolt length	Wt kg	Reference	Part number
304 Stainless steel							
DN16CF	17.3	15.8	M4	6.4	2	E-CU075-6	408007
DN40CF	35.1	38.0	M6	6.4	3	E-CU150-6	408008
DN63CF	57.2	63.5	M8	12.7	8	E-CU250-6	408010

Hardware



- Bolt sets for clearance hole flanges include screws and nuts
- Bolt sets for tapped flanges include screws only
- Gold plated gaskets available on request

Description	Bolt ¹ hole	Bolt length	Quantity per pack	Wt kg	Reference	Part number
Gasket, copper, 16 ID	–	–	10	0.1	CCG16	1113240
Socket head screw M4 ²	T	16	25	0.1	PN16-BSET	1113100
Gasket, copper, 37 ID	–	–	10	0.3	CCG40	1113241
Hex-head bolts M6 ²	T	25	25	0.4	M6-25	1113006
Gasket, copper, 63 ID	–	–	10	0.3	CCG63	1113242
Hex-head bolt M8 ³	T	30	25	1.0	M8-30	1113007

¹ C = Clearance holes, T = Tapped holes

² For use with tapped flanges

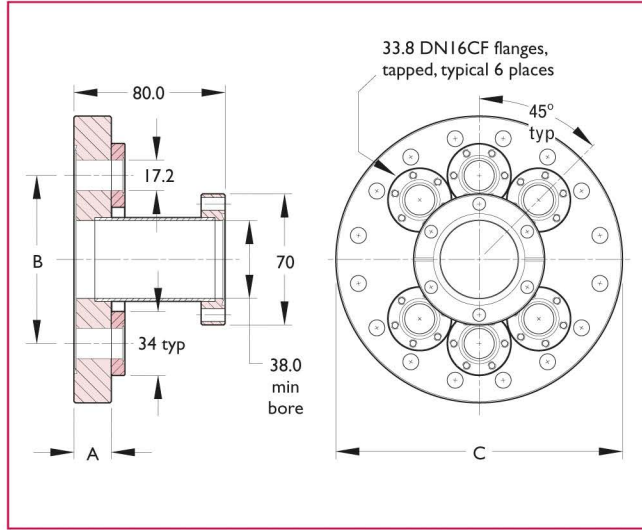
³ For use with tapped flanges

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Straight



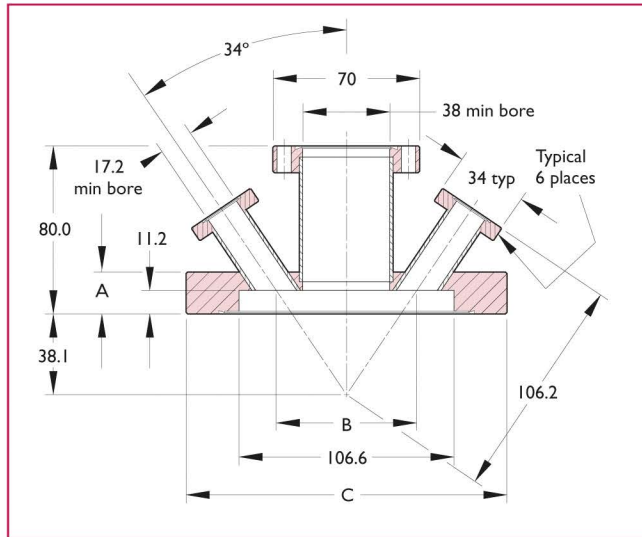
Features

- Includes six straight-intapped mini flanges around a DN40CF port
- Custom configurations available on request

Description	A	B	C	Wt kg	Reference	Part number
304 Stainless steel						
DN100CF ¹	19.8	88.9	152	3.2	MPFT100-16	1601100
DN160CF	22.4	108.0	203	5.5	MPFT160-16	1601101

¹ Must be used with gasket MCG100 Part No. 1113237 and bolt set M8-50 cap Part No. 1113025

Angled



Features

- Includes six angled clearance hole mini flanges equally spaced around a DN40CF port
- Use for electrical or liquid nitrogen feedthroughs
- Ideal for use with Z-only, X-Y or X-Y-Z manipulators
- Custom configurations available on request

Description	A	B	C	Wt kg	Reference	Part number
304 Stainless steel						
DN100CF	19.8	66	152	3.2	MAF600-6-133A	7409005
DN160CF	22.4	66	203	5.5	MAF800-6-133A	7409011

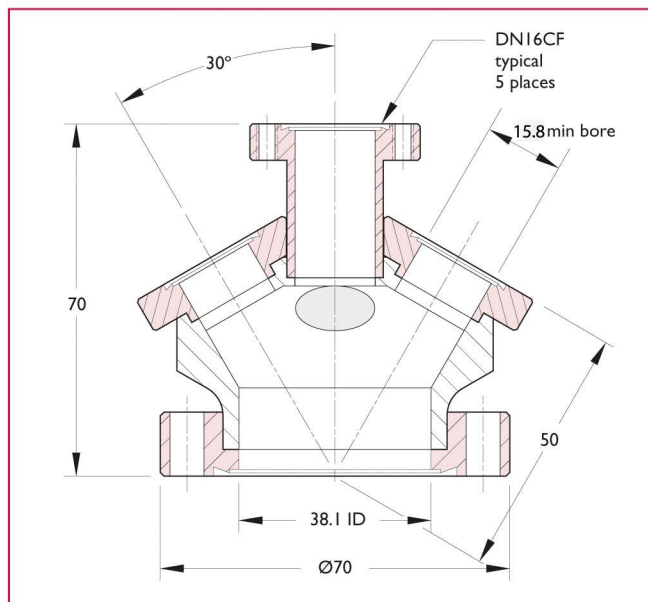
Caburn-MDC reserves the right to substitute a larger-bore tube according to availability

CF Flanges and fittings

Multi-mini and cluster flanges



Multi-mini flange

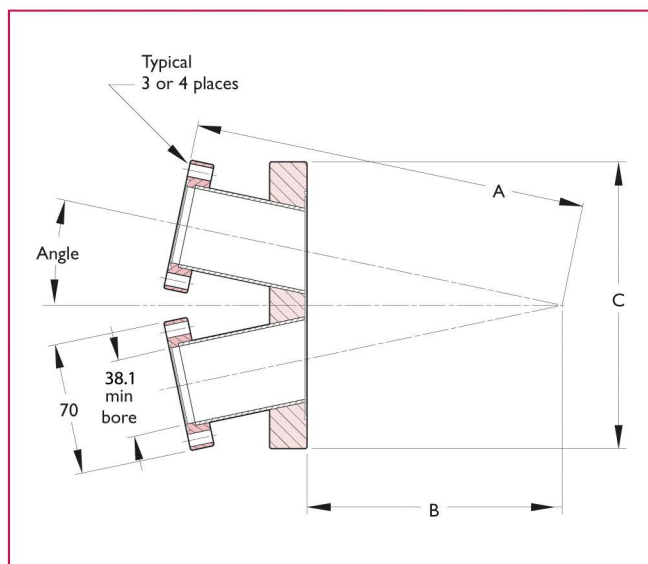


Features

- Provides five tapped mini flanges mounted on a DN40CF port
- Requires use of studs on main flange

Description	Wt kg	Reference	Part number
304 Stainless steel			
DN40CF Flange with five tapped mini flanges	0.6	E-MMF275-5-133	409014
M6-35 Stud kit	0.3	M6-STUD35	1113064

Cluster flange



Features

- Angled ports are configured to focus three or four DN40CF ports at a specified flange-to-sample distance
- Ports are directed towards the centre of a standard flanged CF six-way cross

Description	No. of ports	Angle	A	B	C	Wt kg	Reference	Part number
304 Stainless steel								
DN100CF Flange	3	12.5°	208	135	152	12	CF100-40-3	1115160
DN160CF Flange	3	13.0°	250	167	202	12	CF160-40-3	1115161
DN160CF Flange	4	13.0°	250	167	202	13	CF160-40-4	1115162

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