

ADVANTORR

KL[®] KING LAI
GROUP

AdvanTorr[®]

VACUUM PRODUCTS



CF Flanges & Fittings



CF Flanges & Fittings

AdvanTorr offers Conflat flanges in a wide range of sizes from 1.33" to 16.5" in both rotatable and non-rotatable versions. All CF flanges are compatible with other manufacturers' standards and are available in SS304L material as standard, with an option for high-grade SS 316LN ESR.

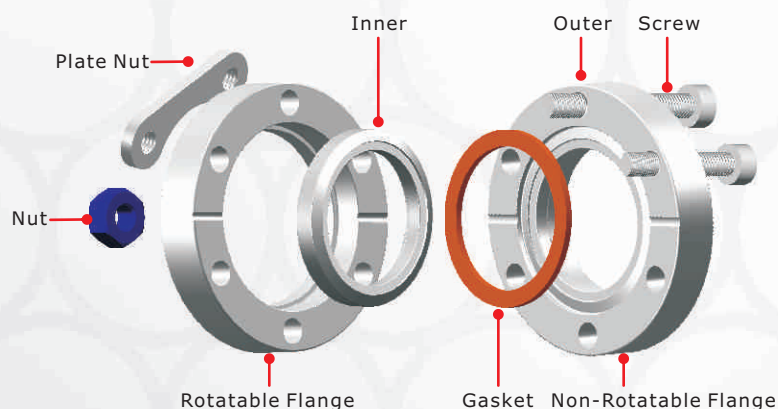
CF flanges utilize an OFHC (Oxygen Free High Conductivity) copper gasket for effective seal up to 1×10^{-10} Torr. Moreover, the copper gasket can sustain a temperature of up to 450°C, but reuse of copper gaskets is not recommended.

For transition from UHV to HV, **AdvanTorr** also offers a complete range of adaptors for CF flange to KF or ISO flange. Please refer to the Adaptor section.

For custom designed flanges, please contact your local representative or **AdvanTorr** direct.

Cleaning and Packaging

All products with weld joints are 100% helium leak tested to assure leak free operation prior to use. In addition, to ensure the cleanliness of **AdvanTorr** products, all parts are ultrasonically cleaned to UHV standards using de-ionized water and packaged in contamination free, class 10,000 clean room conditions. Each bag is affixed with a barcode label identifying the component's part number, heat number and batch number for full traceability.



STANDARD SPECIFICATION

Vacuum Rate:

Ultra High Vacuum

Material:

SS304L, SS316LN

Flange Sizes:

CF 1.33" ~ CF 16.5"

Tube Sizes:

1/2" ~ 14.0"

Vacuum Range:

760 Torr ~ 1×10^{-10} Torr for 304L
760 Torr ~ 1×10^{-12} Torr for 316LN

Gasket Material:

OFHC Copper or Silver Plated

Temperature Range:

-190°C ~ 450°C

CF

Rotatable CF flange – When components of several systems are used which may have different flange orientations, rotatable flanges are recommended.

Non-Rotatable CF Flanges – When mating orientation is of no concern, non-rotatable flanges are recommended and less expensive due to containing both sealing surface and bolt holes in one unit. Double-sided CF flanges are also available upon request.

-All dimensions are in millimeters unless otherwise specified.

CF Hardware & Seals

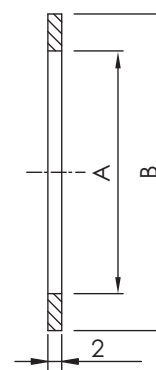
CF

OFHC COPPER GASKETS

*Optional for 10 pcs in 1 pack



Part Number	Size	A	B
CF-CS-133	CF1.33"(DN16)	16.20	21.25
CF-CS-212	CF2.12"(DN25)	25.65	32.77
CF-CS-275	CF2.75"(DN35)	36.80	48.10
CF-CS-275-1	CF2.75"(DN40)	39.00	48.10
CF-CS-338	CF3.38"(DN50)	51.05	61.60
CF-CS-450	CF4.50"(DN63)	63.60	82.35
CF-CS-462	CF4.62"(DN80)	76.45	91.39
CF-CS-600	CF6.00"(DN100)	101.80	120.45
CF-CS-675	CF6.75"(DN130)	127.25	141.40
CF-CS-800	CF8.00"(DN160)	152.60	171.25
CF-CS-1000	CF10.00"(DN200)	203.40	222.05
CF-CS-1200	CF12.00"(DN250)	254.20	272.85
CF-CS-1325	CF13.25"(DN270)	274.00	294.34
CF-CS-1400	CF14.00"(DN300)	300.00	313.00
CF-CS-1650	CF16.50"(DN350)	356.50	376.60

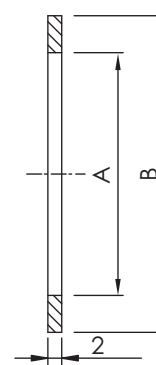


OFHC COPPER GASKETS, SILVER PLATED

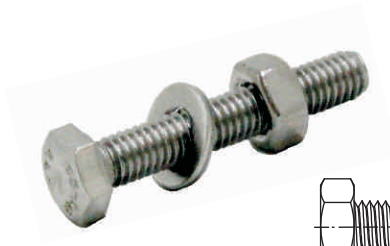
*Optional for 10 pcs in 1 pack



Part Number	Size	A	B
CF-CS-133-S	CF1.33"(DN16)	16.20	21.25
CF-CS-212-S	CF2.12"(DN25)	25.65	32.77
CF-CS-275-S	CF2.75"(DN35)	36.80	48.10
CF-CS-275-1-S	CF2.75"(DN40)	39.00	48.10
CF-CS-338-S	CF3.38"(DN50)	51.05	61.60
CF-CS-450-S	CF4.50"(DN63)	63.60	82.35
CF-CS-462-S	CF4.62"(DN80)	76.45	91.39
CF-CS-600-S	CF6.00"(DN100)	101.80	120.45
CF-CS-675-S	CF6.75"(DN130)	127.25	141.40
CF-CS-800-S	CF8.00"(DN160)	152.60	171.25
CF-CS-1000-S	CF10.00"(DN200)	203.40	222.05
CF-CS-1200-S	CF12.00"(DN250)	254.20	272.85
CF-CS-1325-S	CF13.25"(DN270)	274.00	294.34
CF-CS-1400-S	CF14.00"(DN300)	300.00	313.00
CF-CS-1650-S	CF16.50"(DN350)	356.50	376.60

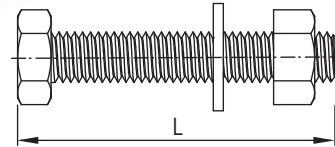


CF Hardware & Seals



HEX HEAD BOLTS - METRIC THREAD

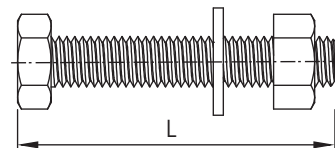
*Material: Stainless Steel
*Set: Bolts, Nuts & Washers



Part Number	Size	Thread	L	No. of Sets
CF-HB-133M	CF1.33"(DN16)	M4xP0.70	20	25
CF-HB-212M	CF2.12"(DN25)	M6xP1.00	35	25
CF-HB-275M	CF2.75"(DN40)	M6xP1.00	35	25
CF-HB-338M	CF3.38"(DN50)	M8xP1.25	45	25
CF-HB-450M	CF4.50"(DN63)	M8xP1.25	45	25
CF-HB-600M	CF6.00"(DN100)	M8xP1.25	50	25
CF-HB-800M	CF8.00"(DN160)	M8xP1.25	60	25
CF-HB-1000M	CF10.0"(DN200)	M8xP1.25	60	25

HEX HEAD BOLTS - INCH THREAD

*Material: Stainless Steel
*Set: Bolts, Nuts & Washers



Part Number	Size	Thread	L	No. of Sets
CF-HB-133	CF1.33"(DN16)	8-32UNC	19.1	25
CF-HB-212	CF2.12"(DN25)	1/4"-28UNF	31.8	25
CF-HB-275	CF2.75"(DN40)	1/4"-28UNF	31.8	25
CF-HB-338	CF3.38"(DN50)	5/16"-24UNF	44.5	25
CF-HB-450	CF4.50"(DN63)	5/16"-24UNF	50.8	25
CF-HB-600	CF6.00"(DN100)	5/16"-24UNF	57.2	25
CF-HB-800	CF8.00"(DN160)	5/16"-24UNF	57.2	25
CF-HB-1000	CF10.0"(DN200)	5/16"-24UNF	63.5	25

CF

PLATE NUTS - METRIC THREAD

*Material: Stainless Steel



CF

Part Number	Size	Diagram	A	B	C	D	F
CF-PN-133M	CF1.33"(DN16)	A	20.30	7.62	13.46	3.20	M4xP0.7
CF-PN-275M	CF2.75"(DN40)	A	41.16	12.70	29.46	5.10	M6xP1.0
CF-PN-338M	CF3.38"(DN50)	B	44.45	12.70	27.69	5.30	M8xP1.25
CF-PN-450M	CF4.50"(DN63)	B	51.56	12.70	35.30	5.30	M8xP1.25
CF-PN-462M	CF4.62"(DN80)	B	45.80	12.70	31.60	5.30	M8xP1.25
CF-PN-600M	CF6.00"(DN100)	B	41.65	12.70	25.40	5.30	M8xP1.25
CF-PN-800M	CF8.00"(DN160)	B	44.45	12.70	28.45	5.30	M8xP1.25
CF-PN-1000M	CF10.00"(DN200)	B	44.45	12.70	30.23	5.30	M8xP1.25

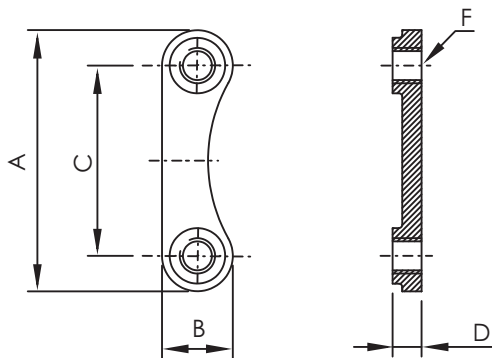


Diagram A

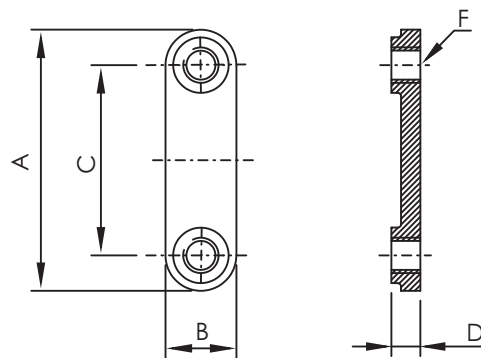


Diagram B

CF Hardware & Seals

PLATE NUTS - INCH THREAD

*Material: Stainless Steel



Part Number	Size	Diagram	A	B	C	D	F
CF-PN-133	CF1.33"(DN16)	A	20.30	7.62	13.46	3.20	8-32
CF-PN-275	CF2.75"(DN40)	A	42.16	12.70	29.46	5.10	1/4-28
CF-PN-338	CF3.38"(DN50)	B	44.45	12.70	27.69	5.30	5/16-24
CF-PN-450	CF4.50"(DN63)	B	51.56	12.70	35.30	5.30	5/16-24
CF-PN-462	CF4.62"(DN80)	B	45.80	12.70	31.60	5.30	5/16-24
CF-PN-600	CF6.00"(DN100)	B	41.65	12.70	25.40	5.30	5/16-24
CF-PN-800	CF8.00"(DN160)	B	44.45	12.70	28.45	5.30	5/16-24
CF-PN-1000	CF10.00"(DN200)	B	44.45	12.70	30.23	5.30	5/16-24

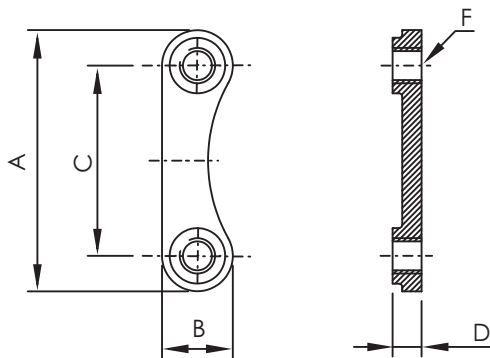


Diagram A

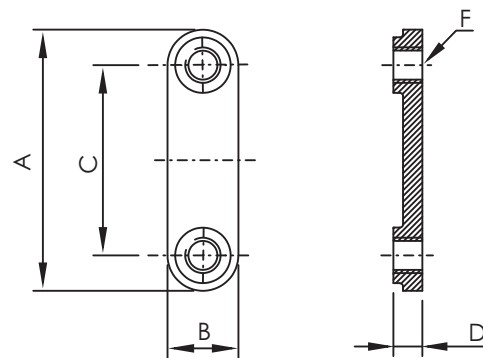


Diagram B

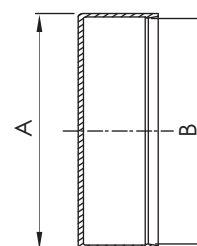
CF



CF FLANGE PLASTIC CAP

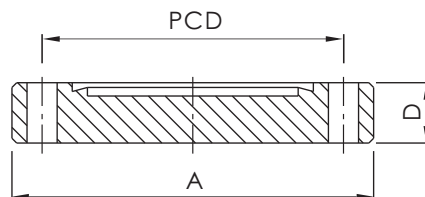
*Material: PE

Part Number	Size	A	B
CF-PC-133	CF1.33"(DN16)	36.20	34.20
CF-PC-212	CF2.12"(DN25)	56.40	54.00
CF-PC-275	CF2.75"(DN40)	72.10	70.10
CF-PC-338	CF3.38"(DN50)	88.50	85.90
CF-PC-450	CF4.50"(DN63)	118.30	113.50
CF-PC-462	CF4.62"(DN80)	120.50	117.60
CF-PC-600	CF6.00"(DN100)	156.40	151.60
CF-PC-675	CF6.75"(DN130)	173.80	171.60
CF-PC-800	CF8.00"(DN160)	206.00	202.00
CF-PC-1000	CF10.00"(DN200)	258.00	254.00
CF-PC-1200	CF12.00"(DN250)	309.00	304.60
CF-PC-1325	CF13.25"(DN270)	341.10	336.70
CF-PC-1400	CF14.00"(DN300)	360.10	355.70



CF

CF Flanges



CF BLANK FLANGE

*Material: SS 304L

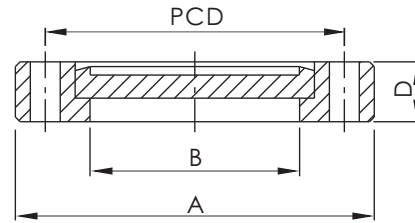
*Tapped and Through Holes

Part Number	Flange Size	A (mm)	D (mm)	PCD (mm)	Bolt Holes	Diameter (mm) / Thread Type
CF-BL-133	CF1.33"(DN16)	33.70	7.60	26.97	6	4.37
CF-BL-133T	CF1.33"(DN16)	33.70	7.60	26.97	6	8-32
CF-BL-133M	CF1.33"(DN16)	33.70	7.60	26.97	6	M4
CF-BL-212	CF2.12"(DN25)	53.80	11.90	41.28	4	6.73
CF-BL-212T	CF2.12"(DN25)	53.80	11.90	41.28	4	1/4-28
CF-BL-212M	CF2.12"(DN25)	53.80	11.90	41.28	4	M6
CF-BL-275	CF2.75"(DN40)	69.30	12.70	58.72	6	6.73
CF-BL-275T	CF2.75"(DN40)	69.30	12.70	58.72	6	1/4-28
CF-BL-275M	CF2.75"(DN40)	69.30	12.70	58.72	6	M6
CF-BL-338	CF3.38"(DN50)	85.30	16.00	72.39	8	8.43
CF-BL-338T	CF3.38"(DN50)	85.30	16.00	72.39	8	5/16-24
CF-BL-338M	CF3.38"(DN50)	85.30	16.00	72.39	8	M8
CF-BL-450	CF4.50"(DN63)	113.50	17.30	92.15	8	8.43
CF-BL-450T	CF4.50"(DN63)	113.50	17.30	92.15	8	5/16-24
CF-BL-450M	CF4.50"(DN63)	113.50	17.30	92.15	8	M8
CF-BL-462	CF4.62"(DN80)	117.00	19.10	102.36	10	8.43
CF-BL-462T	CF4.62"(DN80)	117.00	19.10	102.36	10	5/16-24
CF-BL-462M	CF4.62"(DN80)	117.00	19.10	102.36	10	M8
CF-BL-600	CF6.00"(DN100)	151.60	19.80	130.25	16	8.43
CF-BL-600T	CF6.00"(DN100)	151.60	19.80	130.25	16	5/16-24
CF-BL-600M	CF6.00"(DN100)	151.60	19.80	130.25	16	M8
CF-BL-675	CF6.75"(DN130)	170.69	21.30	151.61	18	8.43
CF-BL-675T	CF6.75"(DN130)	170.69	21.30	151.61	18	5/16-24
CF-BL-675M	CF6.75"(DN130)	170.69	21.30	151.61	18	M8
CF-BL-800	CF8.00"(DN160)	202.44	22.35	181.05	20	8.43
CF-BL-800T	CF8.00"(DN160)	202.44	22.35	181.05	20	5/16-24
CF-BL-800M	CF8.00"(DN160)	202.44	22.35	181.05	20	M8
CF-BL-1000	CF10.00"(DN200)	253.24	24.60	231.85	24	8.43
CF-BL-1000T	CF10.00"(DN200)	253.24	24.60	231.85	24	5/16-24
CF-BL-1000M	CF10.00"(DN200)	253.24	24.60	231.85	24	M8
CF-BL-1200	CF12.00"(DN250)	304.40	25.90	283.97	32	8.43
CF-BL-1200T	CF12.00"(DN250)	304.40	25.90	283.97	32	5/16-24
CF-BL-1200M	CF12.00"(DN250)	304.40	25.90	283.97	32	M8
CF-BL-1325	CF13.25"(DN270)	335.79	28.45	306.32	30	10.49
CF-BL-1325T	CF13.25"(DN270)	335.79	28.45	306.32	30	3/8-24
CF-BL-1325M	CF13.25"(DN270)	335.79	28.45	306.32	30	M10
CF-BL-1400	CF14.00"(DN300)	354.84	28.45	325.37	30	10.49
CF-BL-1400T	CF14.00"(DN300)	354.84	28.45	325.37	30	3/8-24
CF-BL-1400M	CF14.00"(DN300)	354.84	28.45	325.37	30	M10
CF-BL-1650	CF16.50"(DN350)	418.34	28.45	388.87	36	10.49
CF-BL-1650T	CF16.50"(DN350)	418.34	28.45	388.87	36	3/8-24
CF-BL-1650M	CF16.50"(DN350)	418.34	28.45	388.87	36	M10

*Note: SS 316LN Material Available on Request.

CF

CF Flanges



CF BLANK FLANGE, ROTATABLE

*Material: SS 304L

*Tapped and Through Holes

CF

Part Number	Flange Size	A (mm)	B (mm)	D (mm)	PCD (mm)	Bolt Holes	Diameter (mm) / Thread Type
CF-BL-133R	CF1.33" (DN1 6)	33.70	19.41	7.60	26.97	6	4.37
CF-BL-133RT	CF1.33" (DN1 6)	33.70	19.41	7.60	26.97	6	8-32
CF-BL-133RM	CF1.33" (DN1 6)	33.70	19.41	7.60	26.97	6	M4
CF-BL-212R	CF2.12" (DN2 5)	53.80	27.94	11.90	41.28	4	6.73
CF-BL-212RT	CF2.12" (DN2 5)	53.80	27.94	11.90	41.28	4	1/4-28
CF-BL-212RM	CF2.12" (DN2 5)	53.80	27.94	11.90	41.28	4	M6
CF-BL-275R	CF2.75" (DN4 0)	69.30	48.31	12.70	58.72	6	6.73
CF-BL-275RT	CF2.75" (DN4 0)	69.30	48.31	12.70	58.72	6	1/4-28
CF-BL-275RM	CF2.75" (DN4 0)	69.30	48.31	12.70	58.72	6	M6
CF-BL-338R	CF3.38" (DN5 0)	85.30	54.50	17.40	72.39	8	8.43
CF-BL-338RT	CF3.38" (DN5 0)	85.30	54.50	17.40	72.39	8	5/16-24
CF-BL-338RM	CF3.38" (DN5 0)	85.30	54.50	17.40	72.39	8	M8
CF-BL-450R	CF4.50" (DN6 3)	113.50	72.39	19.10	92.15	8	8.43
CF-BL-450RT	CF4.50" (DN6 3)	113.50	72.39	19.10	92.15	8	5/16-24
CF-BL-450RM	CF4.50" (DN6 3)	113.50	72.39	19.10	92.15	8	M8
CF-BL-462R	CF4.62" (DN8 0)	117.00	79.71	20.60	102.36	10	8.43
CF-BL-462RT	CF4.62" (DN8 0)	117.00	79.71	20.60	102.36	10	5/16-24
CF-BL-462RM	CF4.62" (DN8 0)	117.00	79.71	20.60	102.36	10	M8
CF-BL-600R	CF6.00" (DN1 00)	151.60	106.17	21.30	130.25	16	8.43
CF-BL-600RT	CF6.00" (DN1 00)	151.60	106.17	21.30	130.25	16	5/16-24
CF-BL-600RM	CF6.00" (DN1 00)	151.60	106.17	21.30	130.25	16	M8
CF-BL-675R	CF6.75" (DN1 30)	170.69	129.50	21.30	151.61	18	8.43
CF-BL-675RT	CF6.75" (DN1 30)	170.69	129.50	21.30	151.61	18	5/16-24
CF-BL-675RM	CF6.75" (DN1 30)	170.69	129.50	21.30	151.61	18	M8
CF-BL-800R	CF8.00" (DN1 60)	202.44	155.70	23.90	181.05	20	8.43
CF-BL-800RT	CF8.00" (DN1 60)	202.44	155.70	23.90	181.05	20	5/16-24
CF-BL-800RM	CF8.00" (DN1 60)	202.44	155.70	23.90	181.05	20	M8
CF-BL-1000R	CF10.00" (DN2 00)	253.24	208.28	24.60	231.85	24	8.43
CF-BL-1000RT	CF10.00" (DN2 00)	253.24	208.28	24.60	231.85	24	5/16-24
CF-BL-1000RM	CF10.00" (DN2 00)	253.24	208.28	24.60	231.85	24	M8
CF-BL-1200R	CF12.00" (DN2 50)	304.04	256.03	25.90	283.97	32	8.43
CF-BL-1200RT	CF12.00" (DN2 50)	304.04	256.03	25.90	283.97	32	5/16-24
CF-BL-1200RM	CF12.00" (DN2 50)	304.04	256.03	25.90	283.97	32	M8
CF-BL-1325R	CF13.25" (DN2 70)	335.79	276.30	28.45	306.32	30	10.49
CF-BL-1325RT	CF13.25" (DN2 70)	335.79	276.30	28.45	306.32	30	3/8-24
CF-BL-1325RM	CF13.25" (DN2 70)	335.79	276.30	28.45	306.32	30	M10
CF-BL-1400R	CF14.00" (DN3 00)	354.84	305.82	28.45	325.37	30	10.49
CF-BL-1400RT	CF14.00" (DN3 00)	354.84	305.82	28.45	325.37	30	3/8-24
CF-BL-1400RM	CF14.00" (DN3 00)	354.84	305.82	28.45	325.37	30	M10
CF-BL-1650R	CF16.50" (DN3 50)	418.34	359.61	28.45	388.87	36	10.49
CF-BL-1650RT	CF16.50" (DN3 50)	418.34	359.61	28.45	388.87	36	3/8-24
CF-BL-1650RM	CF16.50" (Dn350)	418.34	359.61	28.45	388.87	36	M10

*Note: SS 316LN Material Available on Request.

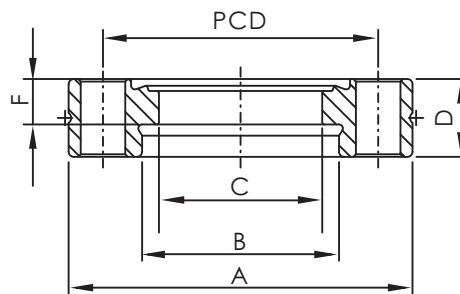
CF Flanges



CF BORED FLANGES

*Material: SS 304L

* Tapped and Through Holes

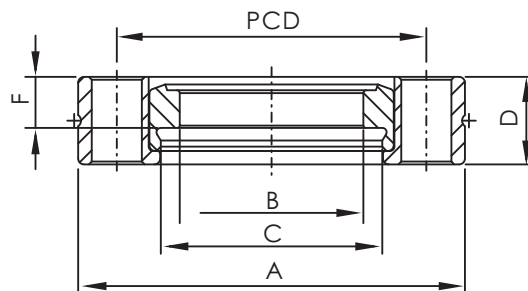


Part Number	Size	A (mm)	B (mm)	C (mm)	D (mm)	F (mm)	PCD (mm)	Bolt Holes	Diameter (mm) / Thread Type
CF-BF-133x038	CF1.33"(DN16)	33.70	9.65	-	7.60	-	26.97	6	4.37
CF-BF-133x038T	CF1.33"(DN16)	33.70	9.65	-	7.60	-	26.97	6	8-32
CF-BF-133x038M	CF1.33"(DN16)	33.70	9.65	-	7.60	-	26.97	6	M4
CF-BF-133x050	CF1.33"(DN16)	33.70	12.83	-	7.60	-	26.97	6	4.37
CF-BF-133x050T	CF1.33"(DN16)	33.70	12.83	-	7.60	-	26.97	6	8-32
CF-BF-133x050M	CF1.33"(DN16)	33.70	12.83	-	7.60	-	26.97	6	M4
CF-BF-133x075	CF1.33"(DN16)	33.70	19.30	16.00	7.60	4.45	26.97	6	4.37
CF-BF-133x075T	CF1.33"(DN16)	33.70	19.30	16.00	7.60	4.45	26.97	6	8-32
CF-BF-133x075M	CF1.33"(DN16)	33.70	19.30	16.00	7.60	4.45	26.97	6	M4
CF-BF-212x100	CF2.12"(DN25)	53.80	25.65	23.90	11.90	4.32	41.28	4	6.73
CF-BF-212x100T	CF2.12"(DN25)	53.80	25.65	23.90	11.90	4.32	41.28	4	1/4-28
CF-BF-212x100M	CF2.12"(DN25)	53.80	25.65	23.90	11.90	4.32	41.28	4	M6
CF-BF-275x075	CF2.75"(DN40)	69.30	19.30	16.00	12.70	5.31	58.72	6	6.73
CF-BF-275x075T	CF2.75"(DN40)	69.30	19.30	16.00	12.70	5.31	58.72	6	1/4-28
CF-BF-275x075M	CF2.75"(DN40)	69.30	19.30	16.00	12.70	5.31	58.72	6	M6
CF-BF-275x100	CF2.75"(DN40)	69.30	25.65	22.10	12.70	5.31	58.72	6	6.73
CF-BF-275x100T	CF2.75"(DN40)	69.30	25.65	22.10	12.70	5.31	58.72	6	1/4-28
CF-BF-275x100M	CF2.75"(DN40)	69.30	25.65	22.10	12.70	5.31	58.72	6	M6
CF-BF-275x150	CF2.75"(DN40)	69.30	38.35	36.60	12.70	5.31	58.72	6	6.73
CF-BF-275x150T	CF2.75"(DN40)	69.30	38.35	36.60	12.70	5.31	58.72	6	1/4-28
CF-BF-275x150M	CF2.75"(DN40)	69.30	38.35	36.60	12.70	5.31	58.72	6	M6
CF-BF-275x175	CF2.75"(DN40)	69.30	44.70	41.20	12.70	5.31	58.72	6	6.73
CF-BF-275x175T	CF2.75"(DN40)	69.30	44.70	41.20	12.70	5.31	58.72	6	1/4-28
CF-BF-275x175M	CF2.75"(DN40)	69.30	44.70	41.20	12.70	5.31	58.72	6	M6
CF-BF-338x200	CF3.38"(DN50)	85.30	51.05	49.30	17.40	5.72	72.39	8	8.43
CF-BF-338x200T	CF3.38"(DN50)	85.30	51.05	49.30	17.40	5.72	72.39	8	5/16-24
CF-BF-338x200M	CF3.38"(DN50)	85.30	51.05	49.30	17.40	5.72	72.39	8	M8
CF-BF-450x250	CF4.50"(DN63)	113.50	63.75	62.00	17.40	9.53	92.15	8	8.43
CF-BF-450x250T	CF4.50"(DN63)	113.50	63.75	62.00	17.40	9.53	92.15	8	5/16-24
CF-BF-450x250M	CF4.50"(DN63)	113.50	63.75	62.00	17.40	9.53	92.15	8	M8
CF-BF-462x300	CF4.62"(DN80)	117.00	76.45	74.70	20.60	9.60	102.36	10	8.43
CF-BF-462x300T	CF4.62"(DN80)	117.00	76.45	74.70	20.60	9.60	102.36	10	5/16-24
CF-BF-462x300M	CF4.62"(DN80)	117.00	76.45	74.70	20.60	9.60	102.36	10	M8
CF-BF-600x400	CF6.00"(DN100)	151.60	101.85	99.60	19.80	11.10	130.25	16	8.43
CF-BF-600x400T	CF6.00"(DN100)	151.60	101.85	99.60	19.80	11.10	130.25	16	5/16-24
CF-BF-600x400M	CF6.00"(DN100)	151.60	101.85	99.60	19.80	11.10	130.25	16	M8
CF-BF-675x500	CF6.75"(DN130)	170.69	127.25	123.83	21.34	11.68	151.61	18	8.43
CF-BF-675x500T	CF6.75"(DN130)	170.69	127.25	123.83	21.34	11.68	151.61	18	5/16-24
CF-BF-675x500M	CF6.75"(DN130)	170.69	127.25	123.83	21.34	11.68	151.61	18	M8
CF-BF-800x600	CF8.00"(DN160)	202.44	152.91	150.40	22.35	12.70	181.05	20	8.43
CF-BF-800x600T	CF8.00"(DN160)	202.44	152.91	150.40	22.35	12.70	181.05	20	5/16-24
CF-BF-800x600M	CF8.00"(DN160)	202.44	152.91	150.40	22.35	12.70	181.05	20	M8
CF-BF-1000x800	CF10.00"(DN200)	253.24	203.71	200.40	24.64	12.70	231.85	24	8.43
CF-BF-1000x800T	CF10.00"(DN200)	253.24	203.71	200.40	24.64	12.70	231.85	24	5/16-24
CF-BF-1000x800M	CF10.00"(DN200)	253.24	203.71	200.40	24.64	12.70	231.85	24	M8
CF-BF-1200x1000	CF12.00"(DN250)	304.04	254.51	250.95	25.90	12.70	283.97	32	8.43
CF-BF-1200x1000T	CF12.00"(DN250)	304.04	254.51	250.95	25.90	12.70	283.97	32	5/16-24
CF-BF-1200x1000M	CF12.00"(DN250)	304.04	254.51	250.95	25.90	12.70	283.97	32	M8
CF-BF-1325x1000	CF13.25"(DN270)	335.79	254.51	250.95	28.45	12.70	306.32	30	10.49
CF-BF-1325x1000T	CF13.25"(DN270)	335.79	254.51	250.95	28.45	12.70	306.32	30	3/8-24
CF-BF-1325x1000M	CF13.25"(DN270)	335.79	254.51	250.95	28.45	12.70	306.32	30	M10
CF-BF-1400x1200	CF14.00"(DN300)	354.84	305.31	301.75	28.45	12.70	325.37	30	10.49
CF-BF-1400x1200T	CF14.00"(DN300)	354.84	305.31	301.75	28.45	12.70	325.37	30	3/8-24
CF-BF-1400x1200M	CF14.00"(DN300)	354.84	305.31	301.75	28.45	12.70	325.37	30	M10
CF-BF-1650x1400	CF16.50"(DN350)	418.34	356.11	352.00	28.45	12.70	388.87	36	10.49
CF-BF-1650x1400T	CF16.50"(DN350)	418.34	356.11	352.00	28.45	12.70	388.87	36	3/8-24
CF-BF-1650x1400M	CF16.50"(DN350)	418.34	356.11	352.00	28.45	12.70	388.87	36	M10

*Note: SS 316LN Material Available on Request.

CF

CF Flanges



CF BORED FLANGES, ROTABLE

*Material: SS 304L

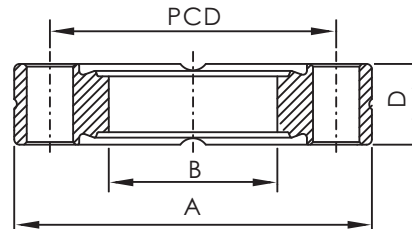
*Tapped and Through Holes

CF

Part Number	Size	A (mm)	B (mm)	C (mm)	D (mm)	F (mm)	PCD (mm)	Bolt Holes	Diameter (mm) / Thread Type
CF-BF-133x050R	CF1.33"(DN16)	33.70	12.83	12.83	7.60	-	26.97	6	4.37
CF-BF-133x050RT	CF1.33"(DN16)	33.70	12.83	12.83	7.60	-	26.97	6	8-32
CF-BF-133x050RM	CF1.33"(DN16)	33.70	12.83	12.83	7.60	-	26.97	6	M4
CF-BF-133x075R	CF1.33"(DN16)	33.70	16.00	19.30	7.60	4.44	26.97	6	4.37
CF-BF-133x075RT	CF1.33"(DN16)	33.70	16.00	19.30	7.60	4.44	26.97	6	8-32
CF-BF-133x075RM	CF1.33"(DN16)	33.70	16.00	19.30	7.60	4.44	26.97	6	M4
CF-BF-212x100R	CF2.12"(DN25)	53.80	23.90	25.91	11.90	4.32	41.28	4	6.73
CF-BF-212x100RT	CF2.12"(DN25)	53.80	23.90	25.91	11.90	4.32	41.28	4	1/4-28
CF-BF-212x100RM	CF2.12"(DN25)	53.80	23.90	25.91	11.90	4.32	41.28	4	M6
CF-BF-275x075R	CF2.75"(DN40)	69.30	16.00	19.30	12.70	5.31	58.72	6	6.73
CF-BF-275x075RT	CF2.75"(DN40)	69.30	16.00	19.30	12.70	5.31	58.72	6	1/4-28
CF-BF-275x075RM	CF2.75"(DN40)	69.30	16.00	19.30	12.70	5.31	58.72	6	M6
CF-BF-275x150R	CF2.75"(DN40)	69.30	36.60	38.61	12.70	5.31	58.72	6	6.73
CF-BF-275x150RT	CF2.75"(DN40)	69.30	36.60	38.61	12.70	5.31	58.72	6	1/4-28
CF-BF-275x150RM	CF2.75"(DN40)	69.30	36.60	38.61	12.70	5.31	58.72	6	M6
CF-BF-338x200R	CF3.38"(DN50)	85.30	49.30	51.31	17.40	5.71	72.39	8	8.43
CF-BF-338x200RT	CF3.38"(DN50)	85.30	49.30	51.31	17.40	5.71	72.39	8	5/16-24
CF-BF-338x200RM	CF3.38"(DN50)	85.30	49.30	51.31	17.40	5.71	72.39	8	M8
CF-BF-450x250R	CF4.50"(DN63)	113.50	62.00	64.01	19.10	9.52	92.15	8	8.43
CF-BF-450x250RT	CF4.50"(DN63)	113.50	62.00	64.01	19.10	9.52	92.15	8	5/16-24
CF-BF-450x250RM	CF4.50"(DN63)	113.50	62.00	64.01	19.10	9.52	92.15	8	M8
CF-BF-462x300R	CF4.62"(DN80)	117.00	74.70	76.71	20.60	9.52	102.36	10	8.43
CF-BF-462x300RT	CF4.62"(DN80)	117.00	74.70	76.71	20.60	9.52	102.36	10	5/16-24
CF-BF-462x300RM	CF4.62"(DN80)	117.00	74.70	76.71	20.60	9.52	102.36	10	M8
CF-BF-600x400R	CF6.00"(DN100)	151.60	99.60	102.11	21.30	11.10	130.25	16	8.43
CF-BF-600x400RT	CF6.00"(DN100)	151.60	99.60	102.11	21.30	11.10	130.25	16	5/16-24
CF-BF-600x400RM	CF6.00"(DN100)	151.60	99.60	102.11	21.30	11.10	130.25	16	M8
CF-BF-675x500R	CF6.75"(DN130)	170.69	125.00	127.51	21.30	11.68	151.61	18	8.43
CF-BF-675x500RT	CF6.75"(DN130)	170.69	125.00	127.51	21.30	11.68	151.61	18	5/16-24
CF-BF-675x500RM	CF6.75"(DN130)	170.69	125.00	127.51	21.30	11.68	151.61	18	M8
CF-BF-800x600R	CF8.00"(DN160)	202.44	150.40	152.91	23.90	12.70	181.05	20	8.43
CF-BF-800x600RT	CF8.00"(DN160)	202.44	150.40	152.91	23.90	12.70	181.05	20	5/16-24
CF-BF-800x600RM	CF8.00"(DN160)	202.44	150.40	152.91	23.90	12.70	181.05	20	M8
CF-BF-1000x800R	CF10.00"(DN200)	253.24	200.40	203.71	24.60	12.70	231.85	24	8.43
CF-BF-1000x800RT	CF10.00"(DN200)	253.24	200.40	203.71	24.60	12.70	231.85	24	5/16-24
CF-BF-1000x800RM	CF10.00"(DN200)	253.24	200.40	203.71	24.60	12.70	231.85	24	M8
CF-BF-1200x1000R	CF12.00"(DN250)	304.04	250.95	254.51	25.90	12.70	283.97	32	8.43
CF-BF-1200x1000RT	CF12.00"(DN250)	304.04	250.95	254.51	25.90	12.70	283.97	32	5/16-24
CF-BF-1200x1000RM	CF12.00"(DN250)	304.04	250.95	254.51	25.90	12.70	283.97	32	M8
CF-BF-1325x1000R	CF13.25"(DN270)	335.79	250.95	254.51	28.45	12.70	306.32	30	10.49
CF-BF-1325x1000RT	CF13.25"(DN270)	335.79	250.95	254.51	28.45	12.70	306.32	30	3/8-24
CF-BF-1325x1000RM	CF13.25"(DN270)	335.79	250.95	254.51	28.45	12.70	306.32	30	M10
CF-BF-1400x1200R	CF14.00"(DN300)	354.84	301.75	305.31	28.45	12.70	325.37	30	10.49
CF-BF-1400x1200RT	CF14.00"(DN300)	354.84	301.75	305.31	28.45	12.70	325.37	30	3/8-24
CF-BF-1400x1200RM	CF14.00"(DN300)	354.84	301.75	305.31	28.45	12.70	325.37	30	M10
CF-BF-1650x1400R	CF16.50"(DN350)	418.34	352.55	356.11	28.45	12.70	388.87	36	10.49
CF-BF-1650x1400RT	CF16.50"(DN350)	418.34	352.55	356.11	28.45	12.70	388.87	36	3/8-24
CF-BF-1650x1400RM	CF16.50"(DN350)	418.34	352.55	356.11	28.45	12.70	388.87	36	M10

*Note: SS 316LN Material Available on Request.

CF Flanges



CF DOUBLE FACE FLANGES

*Material: SS 304L

*Through Holes

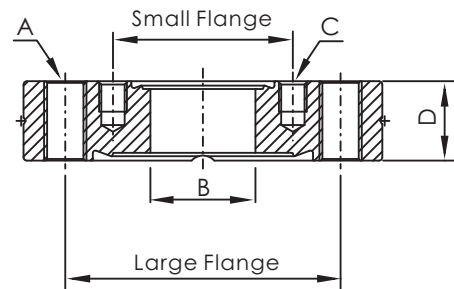
Part Number	Flange Size	A (mm)	B (mm)	D (mm)	PCD (mm)	Bolt Holes	Diameter (mm) / Thread Type
CF-DF-133	CF1.33" (DN16)	33.70	-	7.60	26.97	6	4.37
CF-DF-133x075	CF1.33" (DN16)	33.70	15.88	7.60	26.97	6	4.37
CF-DF-212	CF2.12" (DN25)	53.80	-	11.90	41.28	4	6.73
CF-DF-212x100	CF2.12" (DN25)	53.80	25.65	11.90	41.28	4	6.73
CF-DF-275	CF2.75" (DN40)	69.30	-	12.70	58.72	6	6.73
CF-DF-275x150	CF2.75" (DN40)	69.30	38.35	12.70	58.72	6	6.73
CF-DF-338	CF3.38" (DN50)	85.30	-	16.00	72.39	8	8.43
CF-DF-338x200	CF3.38" (DN50)	85.30	51.05	16.00	72.39	8	8.43
CF-DF-450	CF4.50" (DN63)	113.50	-	17.40	92.15	8	8.43
CF-DF-450x250	CF4.50" (DN63)	113.50	63.75	17.40	92.15	8	8.43
CF-DF-462	CF4.62" (DN80)	117.00	-	19.10	102.36	10	8.43
CF-DF-462x300	CF4.62" (DN80)	117.00	79.71	19.10	102.36	10	8.43
CF-DF-600	CF6.00" (DN100)	151.60	-	19.80	130.25	16	8.43
CF-DF-600x400	CF6.00" (DN100)	151.60	101.85	19.80	130.25	16	8.43
CF-DF-675	CF6.75" (DN130)	170.69	-	21.34	151.61	18	8.43
CF-DF-675x500	CF6.75" (DN130)	170.69	127.25	21.34	151.61	18	8.43
CF-DF-800	CF8.00" (DN160)	202.44	-	22.35	181.05	20	8.43
CF-DF-800x600	CF8.00" (DN160)	202.44	152.65	22.35	181.05	20	8.43
CF-DF-1000	CF10.00" (DN200)	253.24	-	24.60	231.85	24	8.43
CF-DF-1000x800	CF10.00" (DN200)	253.24	203.45	24.60	231.85	24	8.43
CF-DF-1325	CF13.25" (DN270)	335.79	-	28.45	306.32	30	10.49
CF-DF-1325x1000	CF13.25" (Dn270)	335.79	254.50	28.45	306.32	30	10.49

*Note: SS 316LN Material available on Request.

CF Flanges

CF ZERO LENGTH REDUCERS- INCH THREAD

*Material: SS 304L



The last digit of part number means optional thread types shown as follows.

T: Both Small Flange and Large Flange are Inch Tapped holes.

Z: Small Flange(Inch tapped holes)+Large Flange(Thru holes)

CF

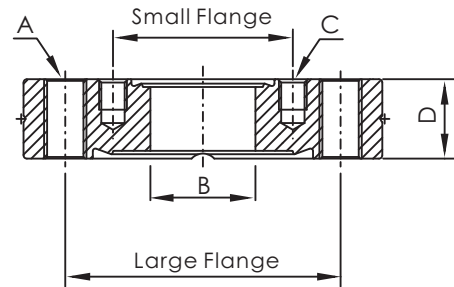
Part Number	Large Flange	Small Flange	A	B (mm)	C	D (mm)
CF-ZL-212x133T	CF2.12"	CF1.33"	1/4-28	15.75	8-32	11.90
CF-ZL-212x133Z	CF2.12"	CF1.33"	6.73	15.75	8-32	11.90
CF-ZL-275x133Z	CF2.75"	CF1.33"	6.73	15.75	8-32	12.70
CF-ZL-275x212T	CF2.75"	CF2.12"	1/4-28	25.40	1/4-28	12.70
CF-ZL-275x212Z	CF2.75"	CF2.12"	6.73	25.40	1/4-28	12.70
CF-ZL-338x133Z	CF3.38"	CF1.33"	8.43	15.75	8-32	16.00
CF-ZL-338x212T	CF3.38"	CF2.12"	5/16-24	25.40	1/4-28	16.00
CF-ZL-338x212Z	CF3.38"	CF2.12"	8.43	25.40	1/4-28	16.00
CF-ZL-338x275T	CF3.38"	CF2.75"	5/16-24	38.10	1/4-28	16.00
CF-ZL-338x275Z	CF3.38"	CF2.75"	8.43	38.10	1/4-28	16.00
CF-ZL-450x133Z	CF4.50"	CF1.33"	8.43	15.75	8-32	17.40
CF-ZL-450x212Z	CF4.50"	CF2.12"	8.43	25.40	1/4-28	17.40
CF-ZL-450x275Z	CF4.50"	CF2.75"	8.43	38.10	1/4-28	17.40
CF-ZL-450x338T	CF4.50"	CF3.38"	5/16-24	50.80	5/16-24	17.40
CF-ZL-450x338Z	CF4.50"	CF3.38"	8.43	50.80	5/16-24	17.40
CF-ZL-462x133Z	CF4.62"	CF1.33"	8.43	15.75	8-32	19.10
CF-ZL-462x212Z	CF4.62"	CF2.12"	8.43	25.40	1/4-28	19.10
CF-ZL-462x275Z	CF4.62"	CF2.75"	8.43	38.10	1/4-28	19.10
CF-ZL-462x338Z	CF4.62"	CF3.38"	8.43	50.80	5/16-24	19.10
CF-ZL-600x133Z	CF6.00"	CF1.33"	8.43	15.75	8-32	19.80
CF-ZL-600x212Z	CF6.00"	CF2.12"	8.43	25.40	1/4-28	19.80
CF-ZL-600x275Z	CF6.00"	CF2.75"	8.43	38.10	1/4-28	19.80
CF-ZL-600x338Z	CF6.00"	CF3.38"	8.43	50.80	5/16-24	19.80
CF-ZL-600x450Z	CF6.00"	CF4.50"	8.43	63.50	5/16-24	19.80
CF-ZL-600x462Z	CF6.00"	CF4.62"	8.43	76.20	5/16-24	19.80
CF-ZL-675x275Z	CF6.75"	CF2.75"	8.43	38.10	1/4-28	21.34
CF-ZL-675x450Z	CF6.75"	CF4.50"	8.43	63.50	5/16-24	21.34
CF-ZL-800x133Z	CF8.00"	CF1.33"	8.43	15.75	8-32	22.35
CF-ZL-800x275Z	CF8.00"	CF2.75"	8.43	38.10	1/4-28	22.35
CF-ZL-800x450Z	CF8.00"	CF4.50"	8.43	63.50	5/16-24	22.35
CF-ZL-800x600Z	CF8.00"	CF6.00"	8.43	101.60	5/16-24	22.35
CF-ZL-1000x133Z	CF10.00"	CF1.33"	8.43	15.75	8-32	24.60
CF-ZL-1000x275Z	CF10.00"	CF2.75"	8.43	38.10	1/4-28	24.60
CF-ZL-1000x450Z	CF10.00"	CF4.50"	8.43	63.50	5/16-24	24.60
CF-ZL-1000x600Z	CF10.00"	CF6.00"	8.43	101.60	5/16-24	24.60
CF-ZL-1000x800Z	CF10.00"	CF8.00"	8.43	152.40	5/16-24	24.60
CF-ZL-1325x133Z	CF13.25"	CF1.33"	10.49	15.75	8-32	28.45
CF-ZL-1325x275Z	CF13.25"	CF2.75"	10.49	38.10	1/4-28	28.45
CF-ZL-1325x450Z	CF13.25"	CF4.50"	10.49	63.50	5/16-24	28.45
CF-ZL-1325x600Z	CF13.25"	CF6.00"	10.49	101.60	5/16-24	28.45
CF-ZL-1325x800Z	CF13.25"	CF8.00"	10.49	152.40	5/16-24	28.45
CF-ZL-1325x1000Z	CF13.25"	CF10.00"	10.49	203.20	5/16-24	28.45

*Note: SS 316LN Material Available on Request.

CF Flanges

CF ZERO LENGTH REDUCERS- METRIC THREAD

*Material: SS 304L



The last digit of part number means optional thread types shown as follows.

M: Both Small Flange and Large Flange are Metric Tapped holes.

Y: Small Flange(Metric tapped holes)+Large Flange(Thru holes)

Part Number	Large Flange	Small Flange	A	B (mm)	C	D (mm)
CF-ZL-212x133M	CF2.12"	CF1.33"	M6	15.75	M4	11.90
CF-ZL-212x133Y	CF2.12"	CF1.33"	6.73	15.75	M4	11.90
CF-ZL-275x133Y	CF2.75"	CF1.33"	6.73	15.75	M4	12.70
CF-ZL-275x212M	CF2.75"	CF2.12"	M6	25.40	M6	12.70
CF-ZL-275x212Y	CF2.75"	CF2.12"	6.73	25.40	M6	12.70
CF-ZL-338x133Y	CF3.38"	CF1.33"	8.43	15.75	M4	16.00
CF-ZL-338x212M	CF3.38"	CF2.12"	M8	25.40	M6	16.00
CF-ZL-338x212Y	CF3.38"	CF2.12"	8.43	25.40	M6	16.00
CF-ZL-338x275M	CF3.38"	CF2.75"	M8	38.10	M6	16.00
CF-ZL-338x275Y	CF3.38"	CF2.75"	8.43	38.10	M6	16.00
CF-ZL-450x133Y	CF4.50"	CF1.33"	8.43	15.75	M4	17.40
CF-ZL-450x212Y	CF4.50"	CF2.12"	8.43	25.40	M6	17.40
CF-ZL-450x275Y	CF4.50"	CF2.75"	8.43	38.10	M6	17.40
CF-ZL-450x338M	CF4.50"	CF3.38"	M8	50.80	M8	17.40
CF-ZL-450x338Y	CF4.50"	CF3.38"	8.43	50.80	M8	17.40
CF-ZL-462x133Y	CF4.62"	CF1.33"	8.43	15.75	M4	19.10
CF-ZL-462x212Y	CF4.62"	CF2.12"	8.43	25.40	M6	19.10
CF-ZL-462x275Y	CF4.62"	CF2.75"	8.43	38.10	M6	19.10
CF-ZL-462x338Y	CF4.62"	CF3.38"	8.43	50.80	M8	19.10
CF-ZL-600x133Y	CF6.00"	CF1.33"	8.43	15.75	M4	19.80
CF-ZL-600x212Y	CF6.00"	CF2.12"	8.43	25.40	M6	19.80
CF-ZL-600x275Y	CF6.00"	CF2.75"	8.43	38.10	M6	19.80
CF-ZL-600x338Y	CF6.00"	CF3.38"	8.43	50.80	M8	19.80
CF-ZL-600x450Y	CF6.00"	CF4.50"	8.43	63.50	M8	19.80
CF-ZL-600x462Y	CF6.00"	CF4.62"	8.43	76.20	M8	19.80
CF-ZL-675x275Y	CF6.75"	CF2.75"	8.43	38.10	M6	21.34
CF-ZL-675x450Y	CF6.75"	CF4.50"	8.43	63.50	M8	21.34
CF-ZL-800x133Y	CF8.00"	CF1.33"	8.43	15.75	M4	22.35
CF-ZL-800x275Y	CF8.00"	CF2.75"	8.43	38.10	M6	22.35
CF-ZL-800x450Y	CF8.00"	CF4.50"	8.43	63.50	M8	22.35
CF-ZL-800x600Y	CF8.00"	CF6.00"	8.43	101.60	M8	22.35
CF-ZL-1000x133Y	CF10.00"	CF1.33"	8.43	15.75	M4	24.60
CF-ZL-1000x275Y	CF10.00"	CF2.75"	8.43	38.10	M6	24.60
CF-ZL-1000x450Y	CF10.00"	CF4.50"	8.43	63.50	M8	24.60
CF-ZL-1000x600Y	CF10.00"	CF6.00"	8.43	101.60	M8	24.60
CF-ZL-1000x800Y	CF10.00"	CF8.00"	8.43	152.40	M8	24.60
CF-ZL-1325x133Y	CF13.25"	CF1.33"	10.49	15.75	M4	28.45
CF-ZL-1325x275Y	CF13.25"	CF2.75"	10.49	38.10	M6	28.45
CF-ZL-1325x450Y	CF13.25"	CF4.50"	10.49	63.50	M8	28.45
CF-ZL-1325x600Y	CF13.25"	CF6.00"	10.49	101.60	M8	28.45
CF-ZL-1325x800Y	CF13.25"	CF8.00"	10.49	152.40	M8	28.45
CF-ZL-1325x1000Y	CF13.25"	CF10.00"	10.49	203.20	M8	28.45

*Note: SS 316LN Material Available on Request.

CF

CF Flittings

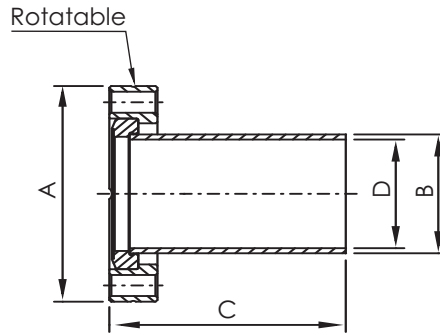


Figure 1

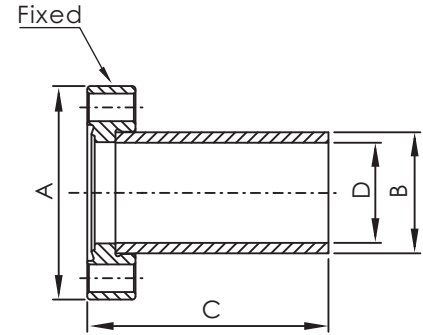


Figure 2

CF FLANGE HALF NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast

CF

Part Number	Size	Figure	A	B	C	D
CF-HN-133	CF1.33"(DN16)	2	1.33"	19.05	38.10	15.75
CF-HN-133R	CF1.33"(DN16)	1	1.33"	19.05	38.10	15.75
CF-HN-212	CF2.12"(DN25)	2	2.12"	25.40	52.07	22.10
CF-HN-275	CF2.75"(DN40)	2	2.75"	38.10	62.48	34.80
CF-HN-275R	CF2.75"(DN40)	1	2.75"	38.10	62.70	34.80
CF-HN-338	CF3.38"(DN50)	2	3.38"	50.80	81.79	47.50
CF-HN-450	CF4.50"(DN63)	2	4.50"	63.50	85.85	60.20
CF-HN-450R	CF4.50"(DN63)	1	4.50"	63.50	104.80	60.20
CF-HN-462	CF4.62"(DN80)	2	4.62"	76.20	89.66	72.90
CF-HN-600	CF6.00"(DN100)	2	6.00"	101.60	109.73	97.40
CF-HN-600R	CF6.00"(DN100)	1	6.00"	101.60	134.90	97.40
CF-HN-675	CF6.75"(DN130)	2	6.75"	127.00	109.70	122.80
CF-HN-800	CF8.00"(DN160)	2	8.00"	152.40	139.70	148.20
CF-HN-800R	CF8.00"(DN160)	1	8.00"	152.40	166.70	148.20
CF-HN-1000	CF10.00"(DN200)	2	10.00"	203.20	203.20	197.20
CF-HN-1000R	CF10.00"(DN200)	1	10.00"	203.20	203.20	199.00

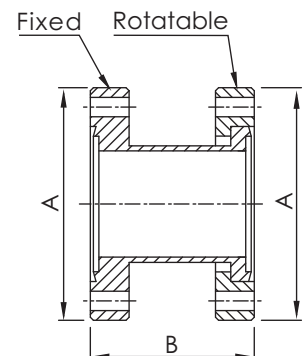
CF FLANGE FULL NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
CF-FN-133	CF1.33"(DN16)	1.33"	76.20
CF-FN-212	CF2.12"(DN25)	2.12"	104.14
CF-FN-275	CF2.75"(DN40)	2.75"	124.97
CF-FN-338	CF3.38"(DN50)	3.38"	163.58
CF-FN-450	CF4.50"(DN63)	4.50"	171.70
CF-FN-462	CF4.62"(DN80)	4.62"	179.32
CF-FN-600	CF6.00"(DN100)	6.00"	219.46
CF-FN-675	CF6.75"(DN130)	6.75"	214.90
CF-FN-800	CF8.00"(DN160)	8.00"	200.00
CF-FN-1000	CF10.00"(DN200)	10.00"	406.40



*Note: SS 316LN (SS 316L Tube+ SS 316LN Flange) Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

CF Flittings

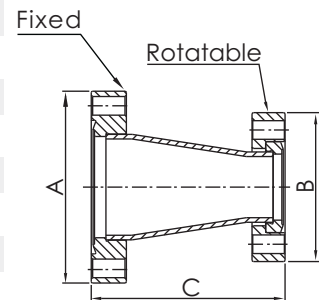


CF CONICAL REDUCING NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A	B	C
CF-CRN-212x133	CF2.12"(DN25)/CF1.33"(DN16)	2.12"	1.33"	51.90
CF-CRN-275x133	CF2.75"(DN40)/CF1.33"(DN16)	2.75"	1.33"	78.30
CF-CRN-275x212	CF2.75"(DN40)/CF2.12"(DN25)	2.75"	2.12"	69.90
CF-CRN-338x212	CF3.38"(DN50)/CF2.12"(DN25)	3.38"	2.12"	70.30
CF-CRN-338x275	CF3.38"(DN50)/CF2.75"(DN40)	3.38"	2.75"	71.30
CF-CRN-450x275	CF4.50"(DN63)/CF2.75"(DN40)	4.50"	2.75"	75.20
CF-CRN-450x338	CF4.50"(DN63)/CF3.38"(DN50)	4.50"	3.38"	75.60
CF-CRN-462x275	CF4.62"(DN80)/CF2.75"(DN40)	4.62"	2.75"	104.50
CF-CRN-462x338	CF4.62"(DN80)/CF3.38"(DN50)	4.62"	3.38"	104.90
CF-CRN-462x450	CF4.62"(DN80)/CF4.50"(DN63)	4.62"	4.50"	108.70
CF-CRN-600x338	CF6.00"(DN100)/CF3.38"(DN50)	6.00"	3.38"	108.90
CF-CRN-600x450	CF6.00"(DN100)/CF4.50"(DN63)	6.00"	4.50"	112.70
CF-CRN-600x462	CF6.00"(DN100)/CF4.62"(DN80)	6.00"	4.62"	110.30



CF

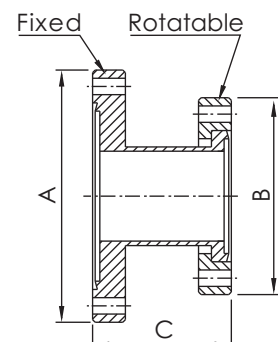


CF STRAIGHT REDUCING NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A	B	C
CF-SRN-275x133	CF2.75"(DN40)/CF1.33"(DN16)	2.75"	1.33"	45.00
CF-SRN-450x133	CF4.50"(DN63)/CF1.33"(DN16)	4.50"	1.33"	70.00
CF-SRN-450x275	CF4.50"(DN63)/CF2.75"(DN40)	4.50"	2.75"	75.00
CF-SRN-600x275	CF6.00"(DN100)/CF2.75"(DN40)	6.00"	2.75"	127.00
CF-SRN-600x450	CF6.00"(DN100)/CF4.50"(DN63)	6.00"	4.50"	95.00
CF-SRN-800x275	CF8.00"(DN160)/CF2.75"(DN40)	8.00"	2.75"	127.00
CF-SRN-800x450	CF8.00"(DN160)/CF4.50"(DN63)	8.00"	4.50"	127.00
CF-SRN-800x600	CF8.00"(DN160)/CF6.00"(DN100)	8.00"	6.00"	127.00
CF-SRN-1000x275	CF10.00"(DN200)/CF2.75"(DN40)	10.00"	2.75"	127.00
CF-SRN-1000x450	CF10.00"(DN200)/CF4.50"(DN63)	10.00"	4.50"	127.00
CF-SRN-1000x600	CF10.00"(DN200)/CF6.00"(DN100)	10.00"	6.00"	127.00
CF-SRN-1000x800	CF10.00"(DN200)/CF8.00"(DN160)	10.00"	8.00"	127.00



*Note: SS 316LN (SS 316L Tube+ SS 316LN Flange) Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

CF Fittings

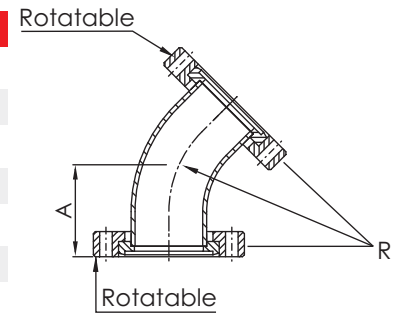
CF 45° ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	R
CF-45EL-133	CF1.33"(DN16)	23.80	25.40
CF-45EL-212	CF2.12"(DN25)	28.90	38.10
CF-45EL-275	CF2.75"(DN40)	44.20	57.20
CF-45EL-338	CF3.38"(DN50)	52.50	76.20
CF-45EL-450	CF4.50"(DN63)	85.60	95.30
CF-45EL-462	CF4.62"(DN80)	100.60	114.30
CF-45EL-600	CF6.00"(DN100)	132.50	152.40



CF

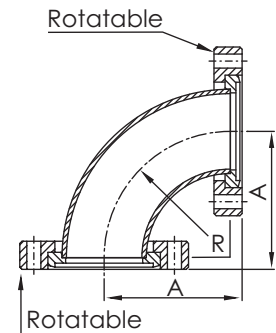
CF 90° ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	R
CF-90EL-133	CF1.33"(DN16)	38.10	28.60
CF-90EL-212	CF2.12"(DN25)	42.40	38.10
CF-90EL-275	CF2.75"(DN40)	62.50	57.15
CF-90EL-338	CF3.38"(DN50)	81.80	76.20
CF-90EL-450	CF4.50"(DN63)	104.60	95.25
CF-90EL-462	CF4.62"(DN80)	121.40	114.30
CF-90EL-600	CF6.00"(DN100)	163.60	152.40



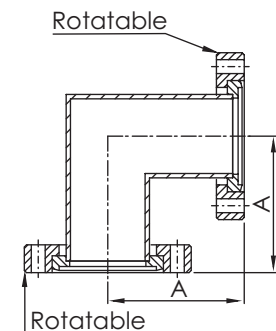
CF 90° MITERED ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A
CF-90MEL-133	CF1.33"(DN16)	38.10
CF-90MEL-212	CF2.12"(DN25)	52.00
CF-90MEL-275	CF2.75"(DN40)	62.50
CF-90MEL-338	CF3.38"(DN50)	81.80
CF-90MEL-450	CF4.50"(DN63)	85.90
CF-90MEL-462	CF4.62"(DN80)	89.70
CF-90MEL-600	CF6.00"(DN100)	109.70



*Note: SS 316LN (SS 316L Tube+ SS 316LN Flange) Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

CF Fittings

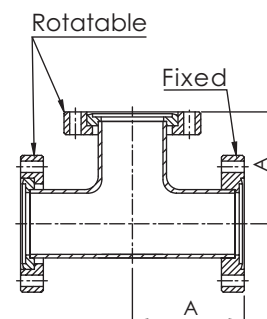
CF EQUAL TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A
CF-ET-133	CF1.33"(DN16)	38.10
CF-ET-212	CF2.12"(DN25)	52.05
CF-ET-275	CF2.75"(DN40)	62.50
CF-ET-338	CF3.38"(DN50)	81.80
CF-ET-450	CF4.50"(DN63)	85.85
CF-ET-450-1	CF4.50"(DN63)	104.65
CF-ET-462	CF4.62"(DN80)	89.70
CF-ET-600	CF6.00"(DN100)	109.70
CF-ET-600-1	CF6.00"(DN100)	134.88



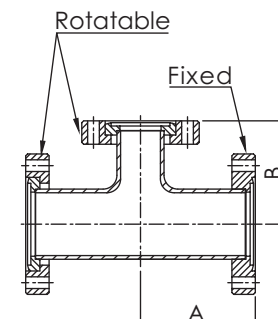
CF REDUCING TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
CF-RT-275x133	CF2.75"(DN40)/CF1.33"(DN16)	62.50	47.50
CF-RT-275x212	CF2.75"(DN40)/CF2.12"(DN25)	62.50	58.20
CF-RT-338x133	CF3.38"(DN50)/CF1.33"(DN16)	81.80	54.10
CF-RT-338x275	CF3.38"(DN50)/CF2.75"(DN40)	81.80	68.80
CF-RT-450x275	CF4.50"(DN63)/CF2.75"(DN40)	85.90	75.20
CF-RT-450x338	CF4.50"(DN63)/CF3.38"(DN50)	85.90	88.40
CF-RT-462x338	CF4.62"(DN80)/CF3.38"(DN50)	89.70	94.70
CF-RT-462x450	CF4.62"(DN80)/CF4.50"(DN63)	89.70	92.20
CF-RT-600x275	CF6.00"(DN100)/CF2.75"(DN40)	109.70	94.20
CF-RT-600x338	CF6.00"(DN100)/CF3.38"(DN50)	109.70	107.40
CF-RT-600x450	CF6.00"(DN100)/CF4.50"(DN63)	109.70	104.90
CF-RT-600x462	CF6.00"(DN100)/CF4.62"(DN80)	109.70	102.40



*Note: SS 316LN (SS 316L Tube+ SS 316LN Flange) Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

CF Fittings

CF

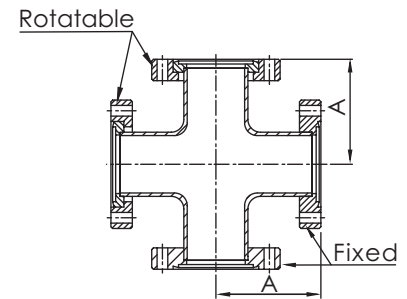


CF 4-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A
CF-4C-133	CF1.33"(DN16)	38.10
CF-4C-212	CF2.12"(DN25)	52.00
CF-4C-275	CF2.75"(DN40)	62.50
CF-4C-338	CF3.38"(DN50)	81.80
CF-4C-450	CF4.50"(DN63)	85.90
CF-4C-462	CF4.62"(DN80)	89.70
CF-4C-600	CF6.00"(DN100)	109.70

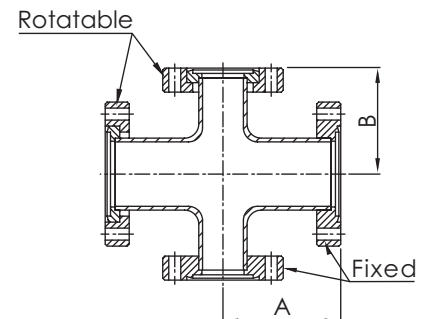


CF 4-WAY REDUCING CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A	B
CF-4RC-275x133	CF2.75"(DN40)/CF1.33"(DN16)	62.50	47.50
CF-4RC-275x212	CF2.75"(DN40)/CF2.12"(DN25)	62.50	58.20
CF-4RC-338x133	CF3.38"(DN50)/CF1.33"(DN16)	81.80	54.10
CF-4RC-338x275	CF3.38"(DN50)/CF2.75"(DN40)	81.80	68.80
CF-4RC-450x275	CF4.50"(DN63)/CF2.75"(DN40)	85.90	75.20
CF-4RC-450x338	CF4.50"(DN63)/CF3.38"(DN50)	85.90	88.40
CF-4RC-462x338	CF4.62"(DN80)/CF3.38"(DN50)	89.70	94.70
CF-4RC-462x450	CF4.62"(DN80)/CF4.50"(DN63)	89.70	92.20
CF-4RC-600x275	CF6.00"(DN100)/CF2.75"(DN40)	109.70	94.20
CF-4RC-600x338	CF6.00"(DN100)/CF3.38"(DN50)	109.70	107.40
CF-4RC-600x450	CF6.00"(DN100)/CF4.50"(DN63)	109.70	104.90
CF-4RC-600x462	CF6.00"(DN100)/CF4.62"(DN80)	109.70	104.90



*Note: SS 316LN (SS 316L Tube+ SS 316LN Flange) Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

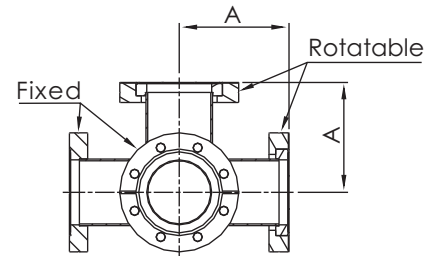
CF Fittings

CF 5-WAY CROSSES

*Material: SS 304L
*Tube Finish: Bead Blast



Part Number	Flange Size	A
CF-5C-133	CF1.33"(DN16)	38.10
CF-5C-212	CF2.12"(DN25)	52.00
CF-5C-275	CF2.75"(DN40)	62.50
CF-5C-338	CF3.38"(DN50)	81.80
CF-5C-450	CF4.50"(DN63)	85.90
CF-5C-462	CF4.62"(DN80)	92.20
CF-5C-600	CF6.00"(DN100)	134.90

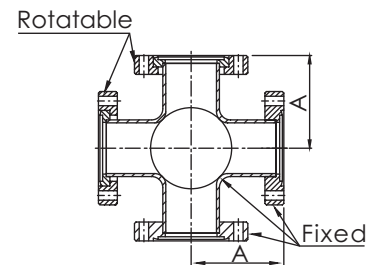


CF 6-WAY CROSSES

*Material: SS 304L
*Tube Finish: Bead Blast



Part Number	Flange Size	A
CF-6C-133	CF1.33"(DN16)	38.10
CF-6C-212	CF2.12"(DN25)	52.07
CF-6C-275	CF2.75"(DN40)	62.48
CF-6C-338	CF3.38"(DN50)	81.79
CF-6C-450	CF4.50"(DN63)	85.85
CF-6C-462	CF4.62"(DN80)	92.20
CF-6C-600	CF6.00"(DN100)	134.90



*Note: SS 316LN (SS 316L Tube+ SS 316LN Flange) Material Available on Request.
*Note: Polished and Electro- Polished Tube Finishes Available on Request.

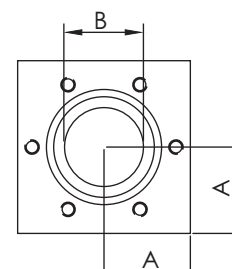
CF 6-WAY CUBES

*Material: SS 304L



Part Number	Flange Size	A	B	Diameter (mm) / Thread Type
CF-6CU-133T	CF1.33"(DN16)	17.00	15.75	8-32
CF-6CU-133M	CF1.33"(DN16)	17.00	15.75	M4
CF-6CU-275T	CF2.75"(DN40)	35.05	38.10	1/4-28
CF-6CU-275M	CF2.75"(DN40)	35.05	38.10	M6
CF-6CU-338T	CF3.38"(DN50)	42.50	50.80	5/16-24
CF-6CU-338M	CF3.38"(DN50)	42.50	50.80	M8
CF-6CU-450T	CF4.50"(DN63)	56.75	63.50	5/16-24
CF-6CU-450M	CF4.50"(DN63)	56.75	63.50	M8
CF-6CU-600T	CF6.00"(DN100)	75.80	101.60	5/16-24
CF-6CU-600M	CF6.00"(DN100)	75.80	101.60	M8

*Note: SS 316LN Material Available on Request.



CF



**KF / DN Flanges &
Fittings**

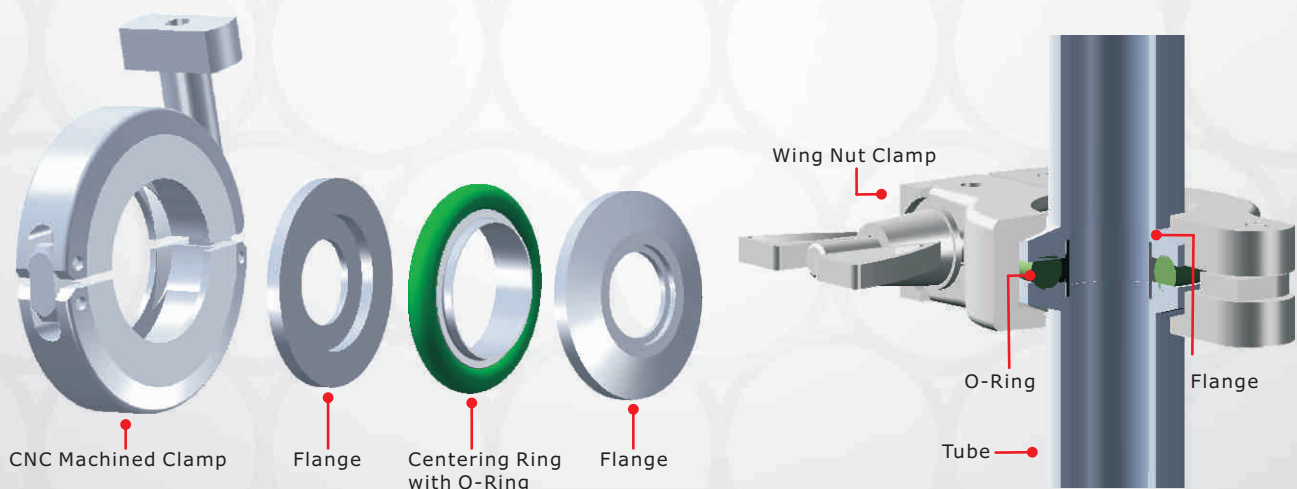
KF Flanges & Fittings

AdvanTorr Clamp flanges are designed in accordance with the International Standards Organization (ISO) specifications and are 100% compatible with other manufacturers' KF- ISO flange design. Standard materials include stainless steel (SS 304L and SS 316L) and Aluminum is also available upon request. KF flanges are a convenient solution for quick assembly and disassembly of vacuum components and flange connections are available in a range of tube sizes from 1/2" to 2.0".

KF flanges utilize an aluminum clamp with a single wing nut allowing frequent assembly and disassembly without the need for any tools. The 15 degree taper surface of the flange allows uniform pressure for compressing an O-ring held in place by a centering ring. The vacuum seal can be applied up to 1×10^{-8} Torr and baked to 200°C. However, sustained baking above 200°C may result in deterioration of the elastomer seal. **AdvanTorr** provides a broad range of KF adaptors for connecting to different types of flanges so please refer to the Adaptor section in this catalogue.

Cleaning and Packaging

All products with weld joints are 100% helium leak tested to assure leak free operation prior to use. In addition, to ensure the cleanliness of **AdvanTorr** products, all parts are ultrasonically cleaned to HV standards using de-ionized water and packaged in contamination free, class 10,000 clean room conditions. Each bag is affixed with a barcode label identifying the component's part number, heat number and batch number for full traceability.



-All dimensions are in millimeters unless otherwise specified.

STANDARD SPECIFICATION

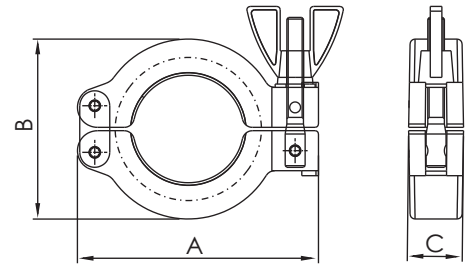
Vacuum Rate:	High Vacuum
Material:	SS 304L, SS 316L and Aluminum
Flange Sizes:	KF10~KF50
Tube Sizes:	1/2"~2.0" Surface Finish: Bead-blast and polished
Vacuum Range:	760 Torr ~ 1×10^{-8} Torr
Seal Material:	FKM, FFKM
Temperature Range:	$\leq 200^{\circ}\text{C}$ (150°C sustained)

**K F
DN**

KF Hardware & Seals

KF WING-NUT CLAMPS TYPE 1

*Die-Casting Aluminum Clamp

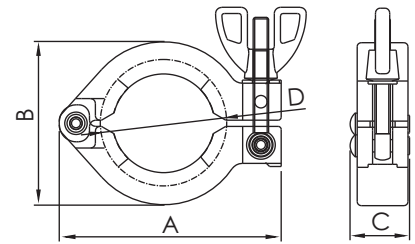


Part Number	Size	A	B	C
KF-WC1-16	KF10/16	62.00	42.00	16.50
KF-WC1-25	KF25	72.00	53.50	16.50
KF-WC1-40	KF40	89.50	69.50	16.50
KF-WC1-50	KF50	113.00	90.00	20.00

**KF
DN**

KF WING-NUT CLAMPS TYPE 2

*Die-Casting Aluminum Clamp

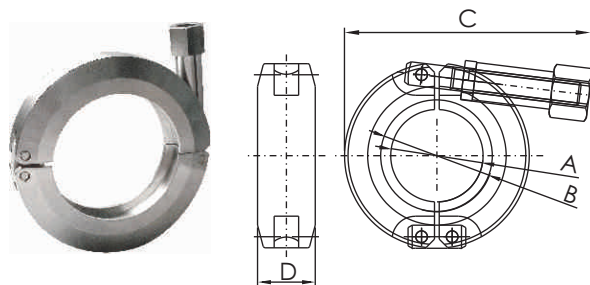


Part Number	Size	A	B	C	D
KF-WC2-16	KF10/16	62.70	41.40	19.30	32.60
KF-WC2-25	KF25	72.00	53.10	19.30	42.00
KF-WC2-40	KF40	90.00	70.20	19.30	58.80
KF-WC2-50	KF50	113.40	93.40	22.80	79.60

KF CNC SS304 CLAMPS

*CNC Machined Clamp Manufactured from SS304 for Extra Rigid Strength and Durability.

*Integral Latching Mechanism can Prevent Unintentional Opening.



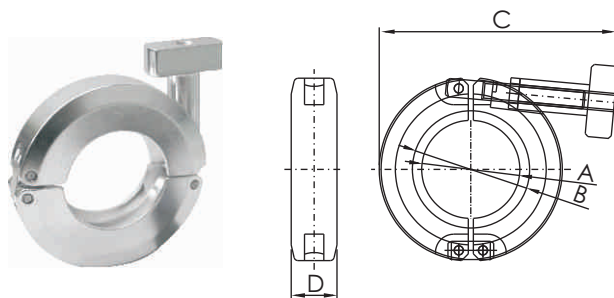
Part Number	Size	A	B	C	D
KF-CC-16	KF10/16	25.40	30.80	68.00	15.90
KF-CC-25	KF25	34.12	40.94	80.63	15.90
KF-CC-40	KF40	49.40	55.70	87.20	15.90
KF-CC-50	KF50	69.00	75.60	109.30	15.90

KF CNC ALUMINUM CLAMPS

*CNC Machined Clamp Manufactured from Aluminum Solid Bar for Extra Rigid Strength and Durability.

*3 Times Tensile Strength than Die-Casting Clamps.

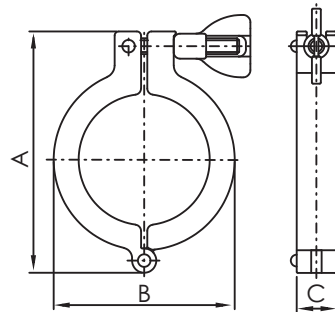
*Integral Latching Mechanism can Prevent Unintentional Opening.



Part Number	Size	A	B	C	D	Max Pressure
KF-CC-16-AL	KF10/16	25.40	30.80	70.20	15.90	300 PSI
KF-CC-25-AL	KF25	34.12	40.94	82.66	15.90	270 PSI
KF-CC-40-AL	KF40	49.40	55.70	90.80	15.90	250 PSI
KF-CC-50-AL	KF50	69.00	75.60	113.00	15.90	-

**KF
DN**

KF Hardware & Seals

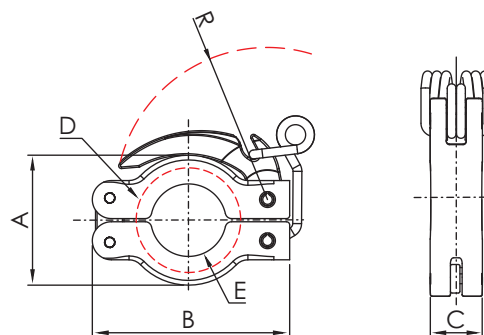


KF NW CLAMPS

*Clamp Material: SS304

Part Number	Size	A	B	C
KF-WC1-16-04	KF10/16	59.5	33.5	16.0
KF-WC1-25-04	KF25	73.0	48.0	16.0
KF-WC1-40-04	KF40	89.0	63.0	16.0
KF-WC1-50-04	KF50	112.5	80.0	20.0

**KF
DN**



KF QUICK CLAMPS

*Clamp Material: Aluminum

Part Number	Size	A	B	C	D	E	R
KF-QC-16	KF10/16	41.00	62.30	16.50	16.50	11.94	48.00
KF-QC-25	KF25	54.00	72.40	16.50	22.00	16.64	56.00
KF-QC-40	KF40	69.00	89.70	16.50	29.00	24.26	72.37

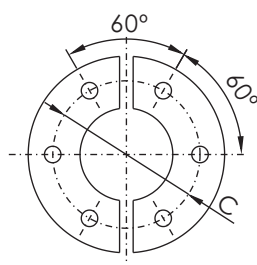


Figure 1

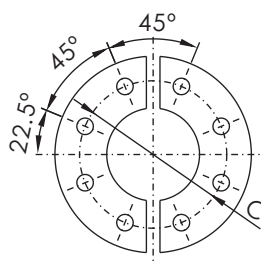
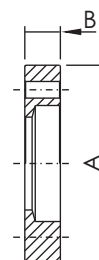


Figure 2



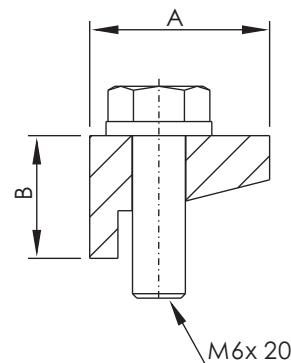
KF BULKHEAD (Clamps) SETS

*Clamp Material: Aluminum

Part Number	Size	Figure	A	B	C	Bolt Hole Size	No of Bolt Holes	Bolt Size
KF-BCS-16	KF10/16	1	50.80	9.20	38.10	4.30	6	10-32UNF-15.9L
KF-BCS-25	KF25	1	60.30	9.90	48.00	5.30	6	10-32UNF-15.9L
KF-BCS-40	KF40	1	74.60	9.30	62.00	5.30	6	10-32UNF-15.9L
KF-BCS-50	KF50	2	95.20	10.30	82.55	5.30	8	10-32UNF-15.9L

KF WALL CLAMPS

*Material: Aluminum

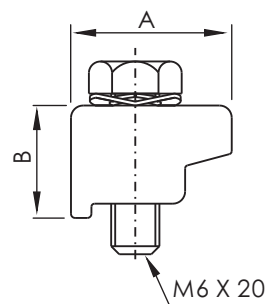


Part Number	Size	A	B
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KF-WC2-1650	KF16~KF50	20.40	13.90
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KF WALL CLAMPS with BOLTS

*Die-Casting Aluminum Clamp



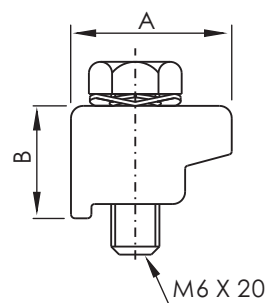
Part Number	Size	A	B
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KF-WC1-1650	KF16~KF50	20.00	15.00
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KF SINGLE CLAW CLAMP KIT

*Material: SS 304

*4pcs in 1 pack



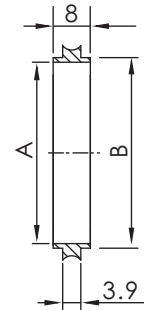
Part Number	Size	A	B
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KF-SC-1650	KF16~KF50	20.00	14.00
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**K F
D N**

KF CENTERING RINGS

*Material: SS 304 / Aluminum



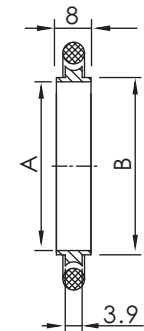
Part Number (SS304)	Part Number (Aluminum)	Size	A	B
KF-CR-10	KF-CR-10-AL	KF10	10.00	12.00
KF-CR-16	KF-CR-16-AL	KF16	16.00	17.00
KF-CR-25	KF-CR-25-AL	KF25	25.00	26.00
KF-CR-40	KF-CR-40-AL	KF40	40.00	41.00
KF-CR-50	KF-CR-50-AL	KF50	50.00	52.00

*Note: SS 316L Material Available on Request.

KF CENTERING RINGS with O-RINGS

* Centering Ring Material: SS 304

* O-Ring Material: FKM / NBR



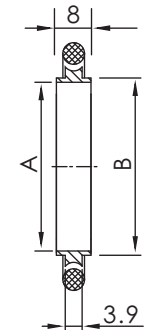
**KF
DN**

Part Number (FKM)	Part Number (NBR)	Size	A	B
KF-CRO-10	KF-CRO-10-NB	KF10	10.00	12.00
KF-CRO-16	KF-CRO-16-NB	KF16	16.00	17.00
KF-CRO-25	KF-CRO-25-NB	KF25	25.00	26.00
KF-CRO-40	KF-CRO-40-NB	KF40	40.00	41.00
KF-CRO-50	KF-CRO-50-NB	KF50	50.00	52.00

KF CENTERING RINGS with O-RINGS, ALUMINUM

* Centering Ring Material: Aluminum

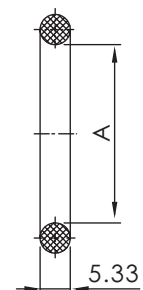
* O-Ring Material: FKM / NBR



Part Number(FKM)	Part Number (NBR)	Size	A	B
KF-CRO-10-AL	KF-CRO-10-AL-NB	KF10	10.00	12.00
KF-CRO-16-AL	KF-CRO-16-AL-NB	KF16	16.00	17.00
KF-CRO-25-AL	KF-CRO-25-AL-NB	KF25	25.00	26.00
KF-CRO-40-AL	KF-CRO-40-AL-NB	KF40	40.00	41.00
KF-CRO-50-AL	KF-CRO-50-AL-NB	KF50	50.00	52.00

KF REPLACEMENT O-RINGS

*Material: FKM / NBR



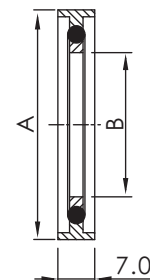
Part Number (FKM)	Part Number (NBR)	Size	A
KF-RO-10	KF-RO-10-NB	KF 10	15.24
KF-RO-16	KF-RO-16-NB	KF 16	18.42
KF-RO-25	KF-RO-25-NB	KF 25	27.94
KF-RO-40	KF-RO-40-NB	KF 40	40.64
KF-RO-50	KF-RO-50-NB	KF 50	53.34

*Note: FFKM O-Ring Material Available on Request.

KF Hardware & Seals

KF CENTERING RINGS with O-RINGS & SPACERS

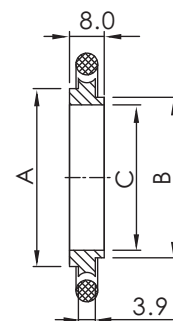
- *Centering Ring Material: SS 304
- *O-Ring Material: FKM
- *Spacer Material: Aluminum



Part Number	Size	A	B
KF-CROS-16	KF16	32.50	16.00
KF-CROS-25	KF25	42.50	25.00
KF-CROS-40	KF40	57.50	40.00
KF-CROS-50	KF50	77.50	50.00

KF ADAPTIVE CENTERING RINGS with O-RINGS

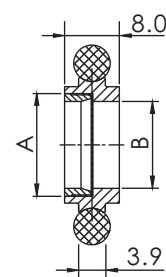
- *Centering Ring Material: SS 304
- *O-Ring Material: FKM



Part Number	Size	A	B	C
KF-CROA-1016	KF10/16	17.00	12.00	10.00
KF-CROA-2025	KF20/25	26.00	22.00	20.00
KF-CROA-3240	KF32/40	41.00	34.00	32.00

KF SCREENED CENTERING RINGS with O-RINGS

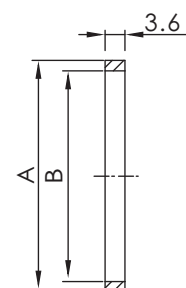
- *Centering Ring Material: SS 304
- *O-Ring Material: FKM
- *70 Mesh Screen
- *Screen Material: SS 304



Part Number	Size	A	B
KF-CROSC-16	KF16	15.00	12.70
KF-CROSC-25	KF25	23.80	21.80
KF-CROSC-40	KF40	38.80	36.80
KF-CROSC-50	KF50	50.00	47.75

KF OVER PRESSURE RINGS

- *Material: SS 304



Part Number	Size	A	B
KF-OR-10	KF 10	31.80	27.70
KF-OR-16	KF 16	31.80	29.90
KF-OR-25	KF 25	41.90	39.10
KF-OR-40	KF 40	57.20	54.50
KF-OR-50	KF 50	69.90	67.60

*Note: FFKM O-Ring Material Available on Request.

**K F
DN**

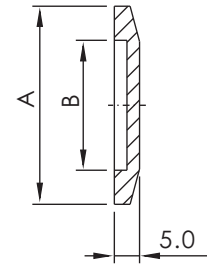
KF Flanges



KF BLANK FLANGES (WITHOUT BOSS)

*Material: SS 304L/ Aluminum

Part Number (SS 304L)	Part Number (Aluminum)	Flange Size	A	B
KF-BL1-10	KF-BL1-10-AL	KF10	29.97	12.27
KF-BL1-16	KF-BL1-16-AL	KF16	29.97	17.27
KF-BL1-25	KF-BL1-25-AL	KF25	39.88	26.16
KF-BL1-40	KF-BL1-40-AL	KF40	54.86	41.15
KF-BL1-50	KF-BL1-50-AL	KF50	74.93	52.32



*Note: SS 316L Material Available on Request.

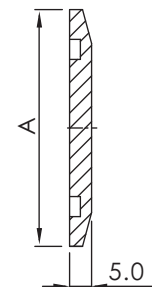
**KF
DN**



KF BLANK FLANGES (WITH BOSS)

*Material: SS 304L/ Aluminum

Part Number (SS 304L)	Part Number (Aluminum)	Flange Size	A
KF-BL2-10	KF-BL2-10-AL	KF10	30.00
KF-BL2-16	KF-BL2-16-AL	KF16	30.00
KF-BL2-25	KF-BL2-25-AL	KF25	40.00
KF-BL2-40	KF-BL2-40-AL	KF40	55.00
KF-BL2-50	KF-BL2-50-AL	KF50	75.00



*Note: SS 316L Material Available on Request.

KF Flanges

KF BORED FLANGES

*Material: SS 304L



Part Number	Size	Figure	A	B	C	D	E
KF-BF-10x038	KF10- $\frac{3}{8}$ "	1	30.00	12.20	-	9.65	5.10
KF-BF-16x025	KF16- $\frac{1}{4}$ "	1	30.00	17.20	-	6.50	5.10
KF-BF-16x038	KF16- $\frac{3}{8}$ "	1	30.00	17.20	-	9.65	5.10
KF-BF-16x050	KF16- $\frac{1}{2}$ "	2	30.00	17.20	10.16	12.95	5.10
KF-BF-16x075	KF16- $\frac{3}{4}$ "	2	30.00	17.20	16.51	19.30	4.40
KF-BF-25x025	KF25- $\frac{1}{4}$ "	1	40.00	26.20	-	6.50	5.10
KF-BF-25x038	KF25- $\frac{3}{8}$ "	1	40.00	26.20	-	9.65	5.10
KF-BF-25x050	KF25- $\frac{1}{2}$ "	2	40.00	26.20	10.16	12.95	5.10
KF-BF-25x075	KF25- $\frac{3}{4}$ "	2	40.00	26.20	16.51	19.30	5.10
KF-BF-25x100	KF25-1"	2	40.00	26.20	22.88	25.65	4.90
KF-BF-40x025	KF40- $\frac{1}{4}$ "	1	55.00	41.20	-	6.50	5.10
KF-BF-40x038	KF40- $\frac{3}{8}$ "	1	55.00	41.20	-	9.65	5.10
KF-BF-40x050	KF40- $\frac{1}{2}$ "	2	55.00	41.20	10.16	12.95	5.10
KF-BF-40x075	KF40- $\frac{3}{4}$ "	2	55.00	41.20	16.51	19.30	5.10
KF-BF-40x100	KF40-1"	2	55.00	41.20	22.88	25.65	5.10
KF-BF-40x150	KF40-1 $\frac{1}{2}$ "	2	55.00	41.20	35.58	38.35	5.10
KF-BF-50x025	KF50- $\frac{1}{4}$ "	1	75.00	52.20	-	6.50	5.10
KF-BF-50x038	KF50- $\frac{3}{8}$ "	1	75.00	52.20	-	9.65	5.10
KF-BF-50x050	KF50- $\frac{1}{2}$ "	2	75.00	52.20	10.16	12.95	5.10
KF-BF-50x075	KF50- $\frac{3}{4}$ "	2	75.00	52.20	16.51	19.30	5.10
KF-BF-50x100	KF50-1"	2	75.00	52.20	22.88	25.65	5.10
KF-BF-50x150	KF50-1 $\frac{1}{2}$ "	2	75.00	52.20	35.58	38.35	5.10
KF-BF-50x200	KF50-2"	2	75.00	52.20	48.26	51.05	5.10

*Note: SS 316L or Aluminum Material Available on Request.

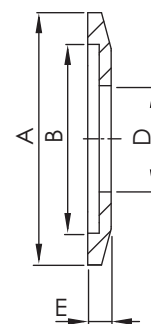


Figure 1

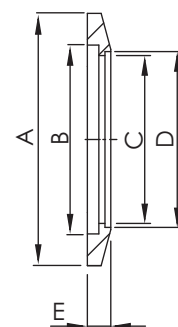


Figure 2

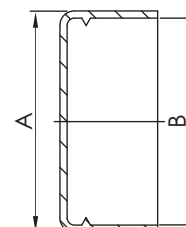
**K F
DN**

KF FLANGE PLASTIC CAP

*Material: PE



Part Number	Size	A	B
KF-PC-16	KF10/ 16	32.00	30.00
KF-PC-25	KF25	42.00	40.00
KF-PC-40	KF40	57.00	55.00
KF-PC-50	KF50	77.00	75.00



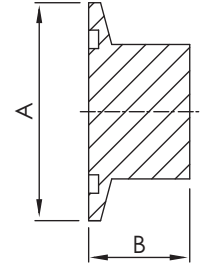
KF Flanges

KF UNBORED STUB FLANGES

*Material: SS 304L



Part Number	Size	A	B
KF-UF-10	KF 10-0.56"L	30.00	14.20
KF-UF-16	KF 16-0.56"L	30.00	14.20
KF-UF-16-1	KF 16-0.75"L	30.00	19.10
KF-UF-25	KF 25-0.47"L	40.00	11.90
KF-UF-25-1	KF 25-0.75"L	40.00	19.10
KF-UF-40	KF 40-0.50"L	55.00	12.70
KF-UF-40-1	KF 40-1.00"L	55.00	25.40
KF-UF-50	KF 50-0.62"L	75.00	15.70
KF-UF-50-1	KF 50-1.00"L	75.00	25.40

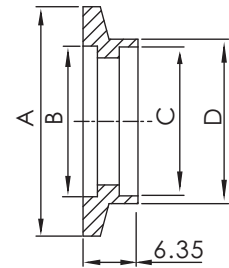


KF SOCKET WELD FLANGES, SHORT

*Material: SS 304L



Part Number	Flange Size	A	B	C	D
KF-SWS-10	KF10	30.00	12.20	12.90	16.00
KF-SWS-16	KF16	30.00	17.20	19.30	22.40
KF-SWS-25	KF25	40.00	26.20	25.70	28.80
KF-SWS-40	KF40	55.00	41.20	38.40	41.50
KF-SWS-50	KF50	75.00	52.20	51.10	54.20

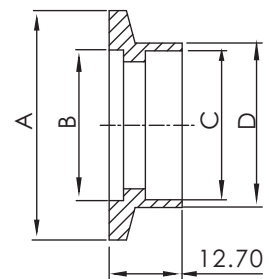


KF SOCKET WELD FLANGES, LONG

*Material: SS 304L



Part Number	Flange Size	A	B	C	D
KF-SWL-10	KF10	30.00	12.20	13.00	15.50
KF-SWL-16	KF16	30.00	17.20	19.30	22.20
KF-SWL-25	KF25	40.00	26.20	25.90	28.60
KF-SWL-40	KF40	55.00	41.20	38.60	44.50
KF-SWL-50	KF50	75.00	52.20	51.30	57.20

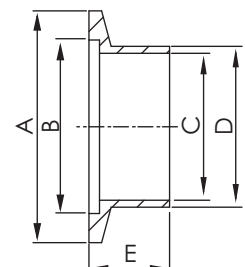


KF BUTT WELD STUB FLANGES, SHORT

*Material: SS 304L



Part Number	Flange Size	A	B	C	D	E
KF-BWS-10	KF10	30.00	12.20	9.40	12.70	12.70
KF-BWS-16	KF16	30.00	17.20	15.70	19.10	12.70
KF-BWS-25	KF25	40.00	26.20	22.10	25.40	12.70
KF-BWS-40	KF40	55.00	41.20	34.80	38.10	19.10
KF-BWS-50	KF50	75.00	52.40	47.50	50.80	19.10



*Note: SS 316L or Aluminum Material Available on Request.

**KF
DN**

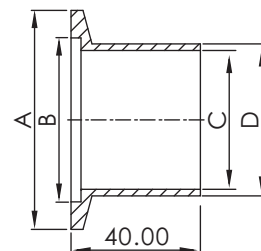
KF Fittings



KF BUTT WELD STUB FLANGES, LONG

*Material: SS 304L

Part Number	Flange Size	A	B	C	D
KF-BWL-10	KF10	30.00	12.20	9.40	12.70
KF-BWL-1016	K10/16	30.00	17.20	9.40	12.70
KF-BWL-16	KF16	30.00	17.20	15.75	19.05
KF-BWL-25	KF25	40.00	26.20	22.10	25.40
KF-BWL-40	KF40	55.00	41.20	34.90	38.10
KF-BWL-50	KF50	75.00	52.20	47.60	50.80



**K F
DN**

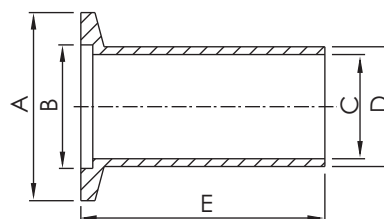


Figure 1
Machined

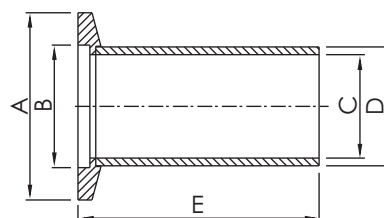


Figure 2
Welded

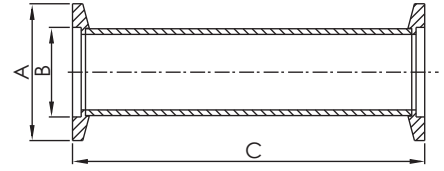
KF HALF NIPPLES

*Material: SS 304L

Part Number	Flange Size	Figure	A	B	C	D	E
KF-HN-10	KF 10	1	30.00	12.20	9.40	12.70	31.75
KF-HN-16	KF 16	1	30.00	17.20	15.80	19.10	29.21
KF-HN-16-1	KF 16	1	30.00	17.20	15.80	19.10	38.10
KF-HN-25	KF 25	2	40.00	26.20	22.10	25.40	51.56
KF-HN-25-1	KF 25	1	40.00	26.20	22.10	25.40	51.80
KF-HN-40	KF40	2	55.00	41.20	34.80	38.10	60.96
KF-HN-40-1	KF40	2	55.00	41.20	34.80	38.10	62.50
KF-HN-50	KF50	2	75.00	52.20	47.50	50.80	80.01
KF-HN-50-1	KF50	2	75.00	52.20	47.50	50.80	81.50

*Note: SS 316L or Aluminum Material Available on Request.

KF Fittings



KF FULL NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast

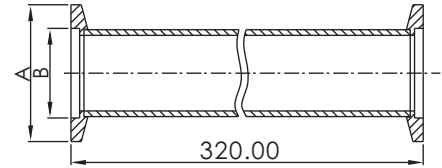
Part Number	Flange Size	A	B	C
KF-FN-10	KF10	30.00	12.20	63.50
KF-FN-16	KF16	30.00	17.20	58.40
KF-FN-25	KF25	40.00	26.20	103.10
KF-FN-40	KF40	55.00	41.20	121.90
KF-FN-50	KF50	75.00	52.20	160.00

**KF
DN**

KF FULL NIPPLES, LONG

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
KF-FNL-16	KF16	30.00	17.20
KF-FNL-25	KF25	40.00	26.20
KF-FNL-40	KF40	55.00	41.20
KF-FNL-50	KF50	75.00	52.20

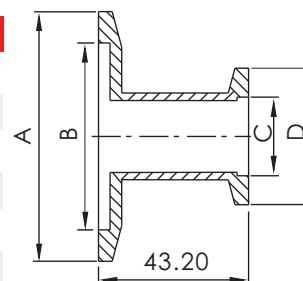
*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

KF Fittings

KF STRAIGHT REDUCING NIPPLES

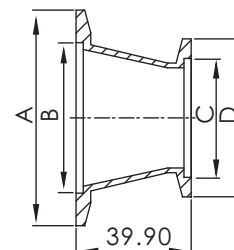
*Material: SS 304L



Part Number	Flange Size	A	B	C	D
KF-SRN-25x16	KF25/KF16	40.00	26.20	17.20	30.00
KF-SRN-40x16	KF40/KF16	55.00	41.20	17.20	30.00
KF-SRN-40x25	KF40/KF25	55.00	41.20	26.20	40.00
KF-SRN-50x16	KF50/KF16	75.00	52.20	17.20	30.00
KF-SRN-50x25	KF50/KF25	75.00	52.20	26.20	40.00
KF-SRN-50x40	KF50/KF40	75.00	52.20	41.20	55.00

KF CONICAL REDUCING NIPPLES

*Material: SS 304L



Part Number	Flange Size	A	B	C	D
KF-CRN-25x16	KF25/KF16	40.00	26.20	17.20	30.00
KF-CRN-40x16	KF40/KF16	55.00	41.20	17.20	30.00
KF-CRN-40x25	KF40/KF25	55.00	41.20	26.20	40.00
KF-CRN-50x16	KF50/KF16	75.00	52.20	17.20	30.00
KF-CRN-50x25	KF50/KF25	75.00	52.20	26.20	40.00
KF-CRN-50x40	KF50/KF40	75.00	52.20	41.20	55.00

**K F
DN**

*Note: SS 316L or Aluminum Material Available on Request.

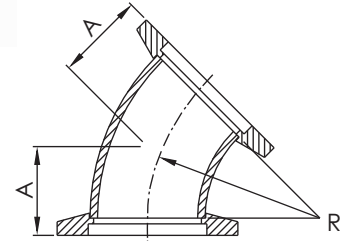
*Note: Polished and Electro- Polished Tube Finishes Available on Request.

KF Fittings

KF 45° ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast



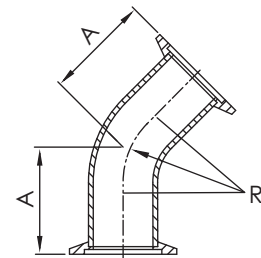
Part Number	Flange Size	A	R
KF-45EL-16	KF16	15.65	28.60
KF-45EL-25	KF25	19.58	38.10
KF-45EL-40	KF40	27.47	57.20
KF-45EL-50	KF50	35.36	76.20

**KF
DN**

KF 45° ELBOWS with TANGENTS

*Material: SS 304L

*Tube Finish: Bead Blast

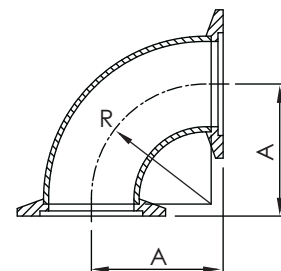


Part Number	Flange Size	A	R
KF-45ELT-16	KF16	23.10	28.60
KF-45ELT-25	KF25	28.45	38.10
KF-45ELT-25-1	KF25	33.88	38.10
KF-45ELT-40	KF40	42.67	57.20
KF-45ELT-40-1	KF40	45.10	57.20
KF-45ELT-50	KF50	50.55	76.20
KF-45ELT-50-1	KF50	62.50	76.20

KF 90° ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	R
KF-90EL-10	KF10	31.80	19.10
KF-90EL-16	KF16	29.20	28.60
KF-90EL-25	KF25	41.90	38.10
KF-90EL-40	KF40	61.00	57.15
KF-90EL-50	KF50	80.00	76.20

*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

KF Fittings

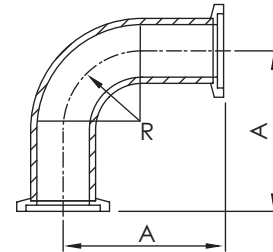


KF 90° ELBOWS with TANGENTS

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A	R
KF-90ELT-16	KF16	68.58	28.60
KF-90ELT-16-1	KF16	40.00	28.60
KF-90ELT-25	KF25	92.46	38.10
KF-90ELT-25-1	KF25	50.00	38.10
KF-90ELT-40	KF40	130.05	57.15
KF-90ELT-40-1	KF40	65.00	57.15
KF-90ELT-50	KF50	139.95	76.20

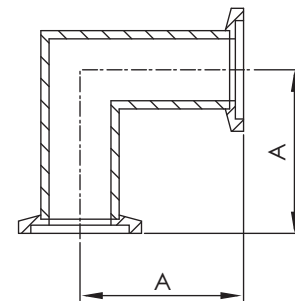


KF 90° MITERED ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A
KF-MEL-16	KF16	29.21
KF-MEL-16-1	KF16	40.00
KF-MEL-25	KF25	50.00
KF-MEL-25-1	KF25	51.56
KF-MEL-40	KF40	60.96
KF-MEL-40-1	KF40	65.00
KF-MEL-50	KF50	69.84
KF-MEL-50-1	Kf50	80.01



**K F
DN**

*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

KF Fittings

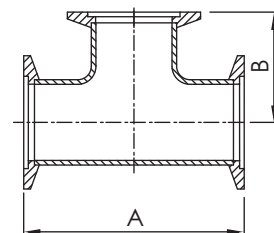
KF EQUAL TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
KF-ET-10	KF10	63.50	31.75
KF-ET-16	KF16	58.40	29.20
KF-ET-16-1	KF16	80.00	40.00
KF-ET-25	KF25	100.00	50.00
KF-ET-25-1	KF25	102.80	51.40
KF-ET-40	KF40	122.00	61.00
KF-ET-40-1	KF40	130.00	65.00
KF-ET-50	KF50	140.00	70.00
KF-ET-50-1	KF50	160.00	80.00



**K F
DN**

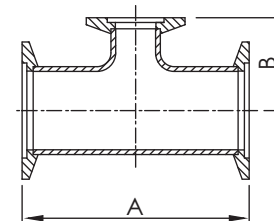
KF REDUCING TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
KF-RT-25x16	KF25/KF16	100.00	27.80
KF-RT-25x16-1	KF25/KF16	100.00	43.20
KF-RT-25x16-2	KF25/KF16	103.10	32.25
KF-RT-40x16	KF40/KF16	121.90	38.85
KF-RT-40x16-1	KF40/KF16	130.00	34.00
KF-RT-40x16-2	KF40/KF16	130.00	49.50
KF-RT-40x25	KF40/KF25	121.90	57.91
KF-RT-40x25-1	KF40/KF25	130.00	56.40
KF-RT-50x16	KF50/KF16	140.00	40.10
KF-RT-50x16-1	KF50/KF16	140.00	55.90
KF-RT-50x16-2	KF50/KF16	160.00	45.20
KF-RT-50x25	KF50/KF25	140.00	62.70
KF-RT-50x40	KF50/KF40	140.00	71.40
KF-RT-50x40-1	KF50/KF40	160.00	67.31



*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

KF Fittings

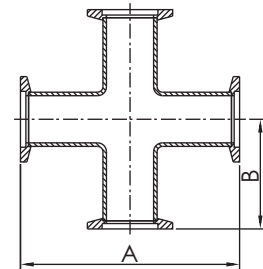
KF 4-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
KF-4C-10	KF10	63.50	31.75
KF-4C-16	KF16	58.40	29.20
KF-4C-16-1	KF16	80.00	40.00
KF-4C-25	KF25	100.00	50.00
KF-4C-25-1	KF25	102.80	51.40
KF-4C-40	KF40	122.00	61.00
KF-4C-40-1	KF40	130.00	65.00
KF-4C-50	KF50	140.00	70.00
KF-4C-50-1	KF50	160.00	80.00



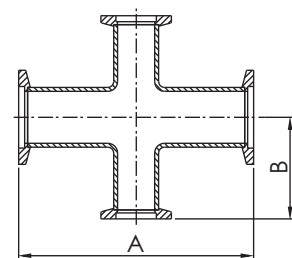
KF REDUCING 4-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
KF-4RC-25x16	KF25/KF16	100.00	43.20
KF-4RC-25x16-1	KF25/KF16	103.12	32.26
KF-4RC-40x16	KF40/KF16	121.92	38.86
KF-4RC-40x16-1	KF40/KF16	130.00	49.50
KF-4RC-40x25	KF40/KF25	121.92	57.91
KF-4RC-40x25-1	KF40/KF25	130.00	56.40
KF-4RC-50x16	KF50/KF16	140.00	55.90
KF-4RC-50x16-1	KF50/KF16	160.02	45.21
KF-4RC-50x25	KF50/KF25	140.00	62.70
KF-4RC-50x40	KF50/KF40	140.00	71.40
KF-4RC-50x40-1	KF50/KF40	160.02	67.31



*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

**K F
DN**

KF Fittings

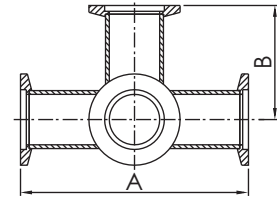


KF 5-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A	B
KF-5C-16	KF16	80.00	40.00
KF-5C-25	KF25	100.00	50.00
KF-5C-40	KF40	130.00	65.00
KF-5C-50	KF50	140.00	70.00



**KF
DN**

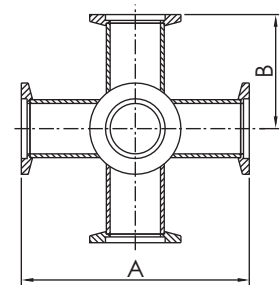


KF 6-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast

Part Number	Flange Size	A	B
KF-6C-16	KF16	80.00	40.00
KF-6C-25	KF25	100.00	50.00
KF-6C-40	KF40	130.00	65.00
KF-6C-50	KF50	140.00	70.00



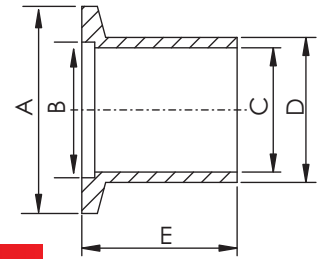
*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

DN Fittings

DN BUTT WELD STUBS, LENGTH 26MM

*Material: SS 304L



Part Number	Flange Size	A	B	C	D	E
DN-BW26-10	DN10	30.00	12.20	10.00	14.00	26.00
DN-BW26-16	DN16	30.00	17.20	16.00	20.00	26.00
DN-BW26-20	DN20	40.00	22.20	21.00	25.00	26.00
DN-BW26-25	DN25	40.00	26.20	24.00	28.00	26.00
DN-BW26-32	DN32	55.00	34.20	34.00	38.00	26.00
DN-BW26-40	DN40	55.00	41.20	40.50	44.50	26.00
DN-BW26-50	DN50	75.00	52.20	50.60	57.00	26.00

DN BUTT WELD STUBS, LENGTH 30MM

*Material: SS 304L

Part Number	Flange Size	A	B	C	D	E
DN-BW30-10	DN10	30.00	12.20	10.00	14.00	30.00
DN-BW30-16	DN16	30.00	17.20	16.00	20.00	30.00
DN-BW30-25	DN25	40.00	26.20	24.00	28.00	30.00
DN-BW30-40	DN40	55.00	41.20	40.50	44.50	30.00
DN-BW30-50	DN50	75.00	52.20	50.60	57.00	30.00

DN BUTT WELD STUBS, LENGTH 55MM

*Material: SS 304L

Part Number	Flange Size	A	B	C	D	E
DN-BW55-10	DN10	30.00	12.20	10.00	14.00	55.00
DN-BW55-16	DN16	30.00	17.20	16.00	20.00	55.00
DN-BW55-25	DN25	40.00	26.20	24.00	28.00	55.00
DN-BW55-40	DN40	55.00	41.20	40.50	44.50	55.00
DN-BW55-50	DN50	75.00	52.20	50.60	57.00	55.00

DN BUTT WELD STUBS, LENGTH 70MM

*Material: SS 304L

Part Number	Flange Size	A	B	C	D	E
DN-BW70-10	DN10	30.00	12.20	10.00	14.00	70.00
DN-BW70-16	DN16	30.00	17.20	16.00	20.00	70.00
DN-BW70-25	DN25	40.00	26.20	24.00	28.00	70.00
DN-BW70-40	DN40	55.00	41.20	40.50	44.50	70.00
DN-BW70-50	DN50	75.00	52.20	50.60	57.00	70.00

*Note: SS 316L Material Available on Request.

**K F
DN**

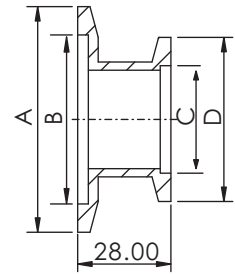
DN Fittings



DN STRAIGHT REDUCING NIPPLES, SHORT

*Material: SS 304L

Part Number	Flange Size	A	B	C	D
DN-SRNS-16x10	DN16/DN10	30.00	17.20	12.20	30.00
DN-SRNS-25x10	DN25/DN10	40.00	26.20	12.20	30.00
DN-SRNS-25x16	DN25/DN16	40.00	26.20	17.20	30.00
DN-SRNS-40x10	DN40/DN10	55.00	41.20	12.20	30.00
DN-SRNS-40x16	DN40/DN16	55.00	41.20	17.20	30.00
DN-SRNS-40x25	DN40/DN25	55.00	41.20	26.20	40.00
DN-SRNS-50x16	DN50/DN16	75.00	52.20	17.20	30.00
DN-SRNS-50x25	DN50/DN25	75.00	52.20	26.20	40.00
DN-SRNS-50x40	DN50/DN40	75.00	52.20	41.20	55.00



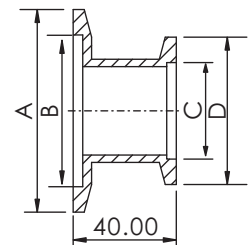
**K F
DN**



DN STRAIGHT REDUCING NIPPLES, LONG

*Material: SS 304L

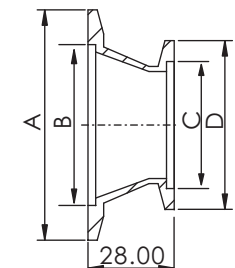
Part Number	Flange Size	A	B	C	D
DN-SRNL-25x16	DN25/DN16	40.00	26.20	17.20	30.00
DN-SRNL-40x16	DN40/DN16	55.00	41.20	17.20	30.00
DN-SRNL-40x25	DN40/DN25	55.00	41.20	26.20	40.00
DN-SRNL-50x16	DN50/DN16	75.00	52.20	17.20	30.00
DN-SRNL-50x25	DN50/DN25	75.00	52.20	26.20	40.00
DN-SRNL-50x40	DN50/DN40	75.00	52.20	41.20	55.00



DN CONICAL REDUCING NIPPLES

*Material: SS 304L

Part Number	Flange Size	A	B	C	D
DN-CRN-25x16	DN25/DN16	40.00	26.20	17.20	30.00
DN-CRN-40x16	DN40/DN16	55.00	41.20	17.20	30.00
DN-CRN-40x25	DN40/DN25	55.00	41.20	26.20	40.00
DN-CRN-50x16	DN50/DN16	75.00	52.40	17.20	30.00
DN-CRN-50x25	DN50/DN25	75.00	52.40	26.20	40.00
DN-CRN-50x40	DN50/DN40	75.00	52.40	41.20	55.00



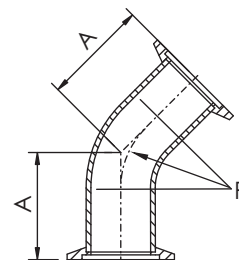
*Note: SS 316L Material Available on Request.

DN Fittings

DN 45° ELBOWS WITH TANGENTS

*Material: SS 304L

*Tube Finish: Bead Blast

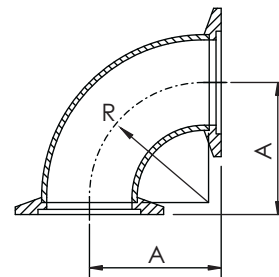


Part Number	Flange Size	A	R	Tube Size
DN-45ELT-10	DN10	30.00	26.50	14.0 X 2.0mmt
DN-45ELT-16	DN16	26.00	37.00	20.0 X 1.5mmt
DN-45ELT-25	DN25	32.00	42.00	28.0 X 1.5mmt
DN-45ELT-40	DN40	40.00	62.00	44.5 X 2.0mmt
DN-45ELT-50	DN50	51.00	66.50	54.0 X 2.0mmt

DN 90° ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	R	Tube Size
DN-90EL-10	DN10	30.00	26.50	14.0 x 2.0mmt
DN-90EL-16	DN16	40.00	37.00	20.0 x 1.5mmt
DN-90EL-25	DN25	50.00	42.00	28.0 x 1.5mmt
DN-90EL-40	DN40	65.00	62.00	44.5 x 2.0mmt
DN-90EL-50	DN50	70.00	66.50	54.0 x 2.0mmt

*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

**K F
DN**

DN Fittings

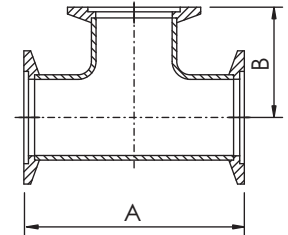
DN EQUAL TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B	Tube Size
DN-ET-10	DN10	60.00	30.00	14.0 x 2.0mmt
DN-ET-16	DN16	80.00	40.00	20.0 x 1.5mmt
DN-ET-25	DN25	100.00	50.00	28.0 x 1.5mmt
DN-ET-40	DN40	130.00	65.00	44.5 x 2.0mmt
DN-ET-50	DN50	140.00	70.00	54.0 x 2.0mmt
DN-ET-57	DN57	140.00	70.00	57.0 x 3.0mmt



**K F
DN**

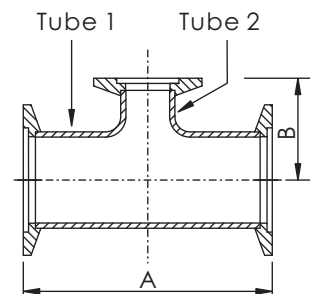
DN REDUCING TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B	Tube 1	Tube 2
DN-RT-25x10	DN25/DN10	100.00	40.00	28.0 x 1.5mmt	14.0 x 2.0mmt
DN-RT-25x16	DN25/DN16	100.00	40.00	28.0 x 1.5mmt	20.0 x 1.5mmt
DN-RT-40x16	DN40/DN16	130.00	40.00	44.5 x 2.0mmt	20.0 x 1.5mmt
DN-RT-40x25	DN40/DN25	130.00	50.00	44.5 x 2.0mmt	28.0 x 1.5mmt
DN-RT-50x16	DN50/DN16	140.00	50.00	20.0 x 1.5mmt	20.0 x 1.5mmt
DN-RT-50x25	DN50/DN25	140.00	65.00	54.0 x 2.0mmt	28.0 x 1.5mmt
DN-RT-50x40	DN50/DN40	140.00	65.00	54.2 x 2.0mmt	44.5 x 2.0mmt
DN-RT-57x16	DN57/DN16	140.00	50.00	57.0 x 3.0mmt	20.0 x 1.5mmt
DN-RT-57x25	DN57/DN25	140.00	65.00	57.0 x 3.0mmt	28.0 x 1.5mmt
DN-RT-57x40	DN57/DN40	140.00	65.00	57.0 x 3.0mmt	44.5 x 2.0mmt



Note: SS 316L Material Available on Request.

Note: Polished and Electro- Polished Tube Finishes Available on Request.

DN Fittings

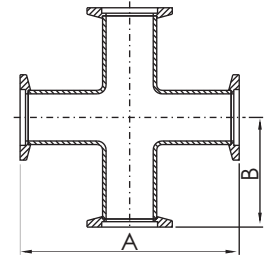
DN 4-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B	Tube Size
DN-4C-10	DN10	60.00	30.00	14.0 x 2.0mmt
DN-4C-16	DN16	80.00	40.00	20.0 x 1.5mmt
DN-4C-25	DN25	100.00	50.00	28.0 x 1.5mmt
DN-4C-40	DN40	130.00	65.00	44.5 x 2.0mmt
DN-4C-50	DN50	140.00	70.00	54.0 x 2.0mmt
DN-4C-57	DN57	140.00	70.00	57.0 x 3.0mmt



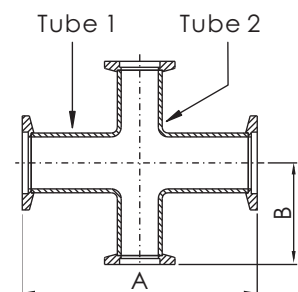
DN REDUCING 4-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B	Tube 1	Tube 2
DN-4RC-25x10	DN25/DN10	100.00	40.00	28.0 x 1.5mmt	14.0 x 2.0mmt
DN-4RC-25x16	DN25/DN16	100.00	40.00	28.0 x 1.5mmt	20.0 x 1.5mmt
DN-4RC-40x10	DN40/DN10	130.00	40.00	44.5 x 2.0mmt	14.0 x 2.0mmt
DN-4RC-40x16	DN40/DN16	130.00	40.00	44.5 x 2.0mmt	20.0 x 1.5mmt
DN-4RC-40x25	DN40/DN25	130.00	50.00	44.5 x 2.0mmt	28.0 x 1.5mmt
DN-4RC-50x16	DN50/DN16	140.00	50.00	54.0 x 2.0mmt	20.0 x 1.5mmt
DN-4RC-50x25	DN50/DN25	140.00	50.00	54.0 x 2.0mmt	28.0 x 1.5mmt
DN-4RC-50x40	DN50/DN40	140.00	65.00	54.0 x 2.0mmt	44.5 x 2.0mmt
DN-4RC-57x16	DN57/DN16	140.00	50.00	57.0 x 3.0mmt	20.0 x 1.5mmt
DN-4RC-57x25	DN57/DN25	140.00	50.00	57.0 x 3.0mmt	28.0 x 1.5mmt
DN-4RC-57x40	DN57/DN40	140.00	65.00	57.0 x 3.0mmt	44.5 x 2.0mmt



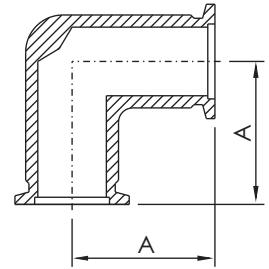
*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

DN Machined Fittings

DN 90° ELBOW, MACHINED

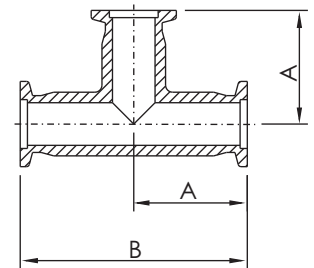
*Material: Aluminum



Part Number	Flange Size	A
DN-90ELMA-16-AL	DN16	40.00
DN-90ELMA-25-AL	DN25	50.00
DN-90ELMA-40-AL	DN40	65.00

DN EQUAL TEES, MACHINED

*Material: Aluminum

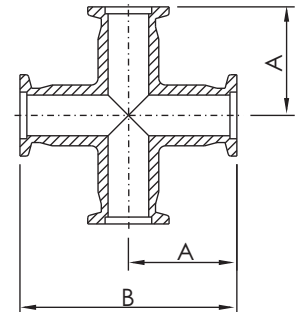


**K F
DN**

Part Number	Flange Size	A	B
DN-ETMA-16-AL	DN16	40.00	80.00
DN-ETMA-25-AL	DN25	50.00	100.00
DN-ETMA-40-AL	DN40	65.00	130.00

DN 4-WAY CROSSES, MACHINED

*Material: Aluminum



Part Number	Flange Size	A	B
DN-4CMA-16-AL	DN16	40.00	80.00
DN-4CMA-25-AL	DN25	50.00	100.00
DN-4CMA-40-AL	DN40	65.00	130.00

ISO & NW Flanges & Fittings



ISO Flanges & Fittings

AdvanTorr ISO flanges are designed to fit tubes sizes with an OD above 2 inches and comply with the International Standards Organization specifications so are 100% compatible with other manufacturers' flange design. There are two types of flange assemblies, claw clamp type and bolt flange type and both utilize an O-ring which is held in place by a centering ring to achieve a vacuum seal up to 1×10^{-8} Torr.

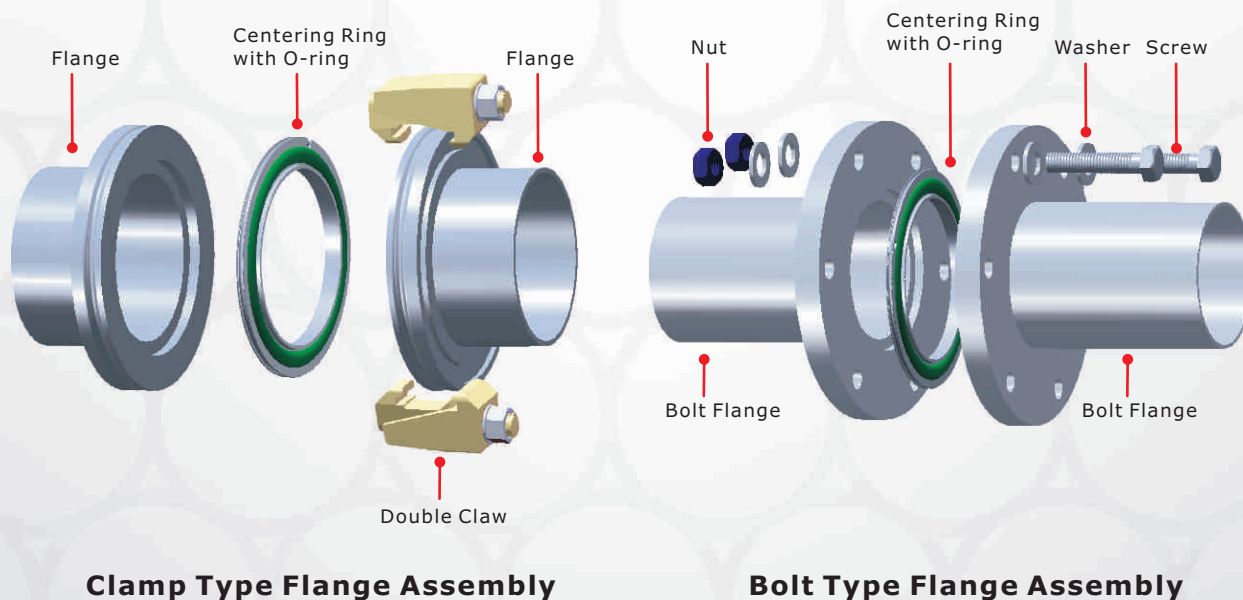
The bolt type flanges are assembled by using a set of bolts to fix the position of the mating flanges, whereas the claw clamp flanges use double claw clamps to hold two flanges together. In addition, the use of the claw clamps means that mating flanges can be connected together in any orientation. A wide range of adaptors for connection to CF or KF flanges can be found in the Adaptor section.

STANDARD SPECIFICATION

Vacuum Rate:	High Vacuum
Material:	SS 304L, SS 316L or Aluminum
Flange Sizes:	ISO63~ISO630
Tube Sizes:	2.5" ~ 26.0" Surface Finish: Bead-blast and Polished.
Vacuum Range:	760 Torr ~ 1×10^{-8} Torr
Gasket Material:	FKM, FFKM
Temperature Range:	$\leq 200^{\circ}\text{C}$ (150°C sustained)

Cleaning and Packaging

All products with weld joints are 100% helium leak tested to assure leak free operation prior to use. In addition, to ensure the cleanliness of **AdvanTorr** products, all parts are ultrasonically cleaned to HV standards using de-ionized water and packaged in contamination free, class 10,000 clean room conditions. Each bag is affixed with a barcode label identifying the component's part number, heat number and batch number for full traceability.

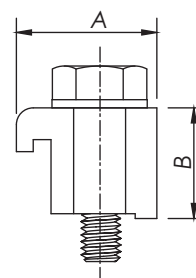


-All dimensions are in millimeters unless otherwise specified.

ISO-K SINGLE CLAW

*Material: SS 304

*Bolt Thread: Metric

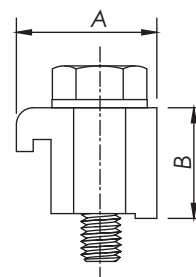


Part Number	Size	A	B	Thread Size
ISOK-SC-63100M	ISO63-ISO100	24.10	22.50	M8 x 35L
ISOK-SC-160250M	ISO160-ISO250	29.20	23.00	M10 x 35L
ISOK-SC-320500M	ISO320-ISO500	30.00	30.00	M12 x 50L
ISOK-SC-630M	ISO630	37.00	41.50	M12 x 50L

ISO-K SINGLE CLAW

*Material: Aluminum

*Bolt Thread: Metric or Inch size

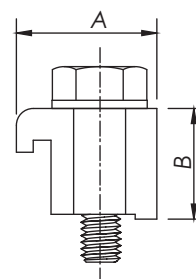


Part Number	Size	A	B	Thread Size
ISOK-SC-63100M-AL	ISO63-ISO100	24.10	22.50	M8 x 35L
ISOK-SC-63100-AL	ISO63-ISO100	24.10	22.50	5/16-18x38L
ISOK-SC-160250M-AL	ISO160-ISO250	27.50	23.50	M10 x 35L
ISOK-SC-160250-AL	ISO160-ISO250	27.50	23.50	5/16-18x38L
ISOK-SC-320500M-AL	ISO320-ISO500	30.00	30.00	M12x50L
ISOK-SC-320500-AL	ISO320-ISO500	30.00	30.00	7/16-14x50L

ISO-K SINGLE CLAW

*Bolt Thread: Metric

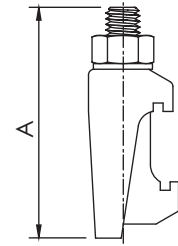
*Material: Zinc Plated Steel



Part Number	Size	A	B	Thread Size
ISOK-SC-63100M-ZP	ISO63-ISO100	24.10	22.50	M8 x 35L
ISOK-SC-160250M-ZP	ISO160-ISO250	27.50	23.50	M10 x 35L
ISOK-SC-320500M-ZP	ISO320-ISO500	30.00	30.00	M12 x 50L

ISO-K DOUBLE CLAW

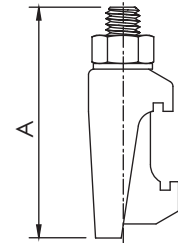
*Material: SS 304



Part Number	Size	A	Bolt Size
ISOK-DC-63250M	ISO63-ISO250	60.00	M10
ISOK-DC-320500M	ISO320-ISO500	76.50	M12

ISO-K DOUBLE CLAW

*Material: Zinc Plated Steel

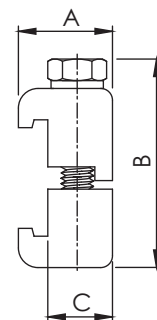


Part Number	Size	A	Bolt Size
ISOK-DC-63250M-ZP	ISO63-ISO250	60.00	M10
ISOK-DC-320500M-ZP	ISO320-ISO500	76.50	M12

ISO-K DOUBLE CLAW

*Material: Aluminum

*Bolt Thread: Metric or Inch size



Part Number	Size	A	B	C	Thread Size
ISOK-DC-63100M-AL	ISO63-ISO100	24.00	50.00	16.50	M8x45L
ISOK-DC-63100-AL	ISO63-ISO100	24.00	50.00	16.50	5/16-18x45L
ISOK-DC-160250M-AL	ISO160-ISO250	27.50	51.60	20.00	M10x45L
ISOK-DC-160250-AL	ISO160-ISO250	27.50	51.60	20.00	5/16-18x45L
ISOK-DC-320500M-AL	ISO320-ISO500	34.00	65.00	26.07	M12x60L

**ISO
NW**

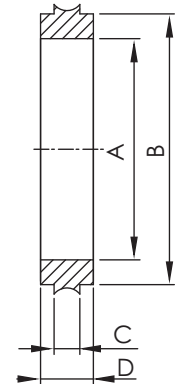
ISO Hardware & Seals

ISO CENTERING RINGS

*Material: SS 304 / Aluminum



Part Number (SS 304)	Part Number (Aluminum)	Size	A	B	C	D
ISO-CR-63	ISO-CR-63-AL	ISO63	68.00	70.00	3.90	8
ISO-CR-80	ISO-CR-80-AL	ISO80	81.00	83.00	3.90	8
ISO-CR-100	ISO-CR-100-AL	ISO100	100.00	102.00	3.90	8
ISO-CR-160	ISO-CR-160-AL	ISO160	151.00	153.00	3.90	8
ISO-CR-200	ISO-CR-200-AL	ISO200	210.00	213.00	3.90	8
ISO-CR-250	ISO-CR-250-AL	ISO250	256.00	261.00	3.90	8
ISO-CR-320	ISO-CR-320-AL	ISO320	311.15	316.48	5.50	14
ISO-CR-400	ISO-CR-400-AL	ISO400	392.93	398.02	5.50	14



*Note: SS 316L Material Available on Request.

**ISO
NW**

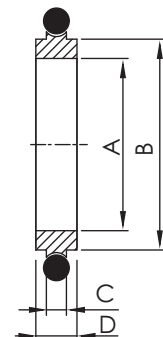
ISO CENTERING RINGS with O-RINGS

*Centering Ring Material: SS 304

*O-Ring Material: FKM / NBR



Part Number (FKM)	Part Number (NBR)	Size	A	B	C	D
ISO-CRO-63	ISO-CRO-63-NB	ISO63	68.00	70.00	3.90	8
ISO-CRO-80	ISO-CRO-80-NB	ISO80	81.00	83.00	3.90	8
ISO-CRO-100	ISO-CRO-100-NB	ISO100	100.00	102.00	3.90	8
ISO-CRO-160	ISO-CRO-160-NB	ISO160	151.00	153.00	3.90	8
ISO-CRO-200	ISO-CRO-200-NB	ISO200	210.00	213.00	3.90	8
ISO-CRO-250	ISO-CRO-250-NB	ISO250	256.00	261.00	3.90	8
ISO-CRO-320	ISO-CRO-320-NB	ISO320	311.15	316.48	5.50	14
ISO-CRO-400	ISO-CRO-400-NB	ISO400	392.93	398.02	5.50	14



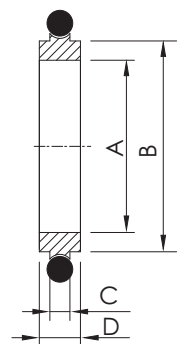
ISO CENTERING RINGS with O-RINGS, ALUMINUM

*Centering Ring Material: Aluminum

*O-Ring Material: FKM / NBR



Part Number (FKM)	Part Number (NBR)	Size	A	B	C	D
ISO-CRO-63-AL	ISO-CRO-63-AL-NB	ISO63	68.00	70.00	3.90	8
ISO-CRO-80-AL	ISO-CRO-80-AL-NB	ISO80	81.00	83.00	3.90	8
ISO-CRO-100-AL	ISO-CRO-100-AL-NB	ISO100	100.00	102.00	3.90	8
ISO-CRO-160-AL	ISO-CRO-160-AL-NB	ISO160	151.00	153.00	3.90	8
ISO-CRO-200-AL	ISO-CRO-200-AL-NB	ISO200	210.00	213.00	3.90	8
ISO-CRO-250-AL	ISO-CRO-250-AL-NB	ISO250	256.00	261.00	3.90	8
ISO-CRO-320-AL	ISO-CRO-320-AL-NB	ISO320	311.15	316.48	5.50	14
ISO-CRO-400-AL	ISO-CRO-400-AL-NB	ISO400	392.93	398.02	5.50	14



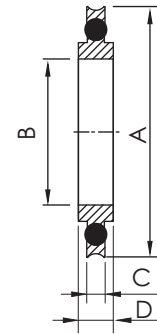
ISO Hardware & Seals

ISO CENTERING RINGS with O-RINGS and SPACERS

- *Centering Ring Material: SS 304/ Aluminum
- *O-Ring Material: FKM
- *Spacer Material: Aluminum



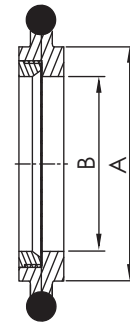
Part Number (SS 304)	Part Number (Aluminum)	Size	A	B	C	D
ISO-CROS-63	ISO-CROS-63-AL	ISO63	94.00	68.00	3.90	8
ISO-CROS-80	ISO-CROS-80-AL	ISO80	109.00	81.00	3.90	8
ISO-CROS-100	ISO-CROS-100-AL	ISO100	128.00	100.00	3.90	8
ISO-CROS-160	ISO-CROS-160-AL	ISO160	179.00	151.00	3.90	8
ISO-CROS-200	ISO-CROS-200-AL	ISO200	239.00	210.00	3.90	8
ISO-CROS-250	ISO-CROS-250-AL	ISO250	287.00	256.00	3.90	8
ISO-CROS-320	ISO-CROS-320-AL	ISO320	346.33	311.15	5.50	14
ISO-CROS-400	ISO-CROS-400-AL	ISO400	428.80	392.93	5.50	14



- *Note: SS 316L or Aluminum Material Available on Request.
- *Note: FFKM O-Ring Material Available on Request.

ISO SCREENED CENTERING RINGS with O-RINGS

- *Centering Ring Material: SS 304
- *70 Mesh Screen
- *Screen Material: SS 304



Part Number	Size	A	B
ISO-CROSC-63	ISO63	69.60	62.00
ISO-CROSC-80	ISO80	82.60	72.90
ISO-CROSC-100	ISO100	102.00	92.00
ISO-CROSC-160	ISO160	153.00	139.70

ISO
NW

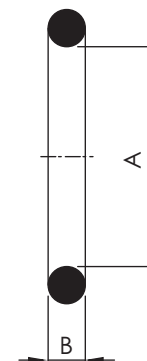
ISO Hardware & Seals

ISO REPLACEMENT O-RINGS

*Material: FKM / NBR



Part Number(FKM)	Part Number(NBR)	Size	A	B
ISO-RO-63	ISO-RO-63-NB	ISO63	72.39	5.33
ISO-RO-80	ISO-RO-80-NB	ISO80	85.09	5.33
ISO-RO-100	ISO-RO-100-NB	ISO100	104.14	5.33
ISO-RO-160	ISO-RO-160-NB	ISO160	151.77	5.33
ISO-RO-200	ISO-RO-200-NB	ISO200	215.27	5.33
ISO-RO-250	ISO-RO-250-NB	ISO250	266.07	5.33
ISO-RO-320	ISO-RO-320-NB	ISO320	316.87	6.99
ISO-RO-400	ISO-RO-400-NB	ISO400	393.07	6.99



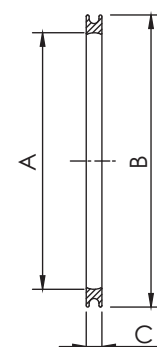
*Note: FFKM O-Ring Material Available on Request.

ISO SPACER RINGS

*Material: Aluminum



Part Number	Size	A	B	C
ISO-OR-63	ISO63	85.40	92.60	3.75
ISO-OR-80	ISO80	98.70	107.80	3.75
ISO-OR-100	ISO100	116.40	125.60	3.75
ISO-OR-160	ISO160	167.80	177.00	3.75
ISO-OR-200	ISO200	227.80	237.00	3.75
ISO-OR-250	ISO250	275.40	284.60	3.75
ISO-OR-320	ISO320	335.50	344.00	5.59
ISO-OR-400	ISO400	420.30	428.80	5.59

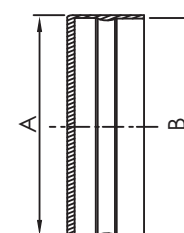


ISO-K FLANGE PLASTIC CAP

*Material: PE



Part Number	Size	A	B
ISOK-PC-63	ISO63	97.8	95.0
ISOK-PC-80	ISO80	113.0	110.0
ISOK-PC-100	ISO100	133.0	130.0
ISOK-PC-160	ISO160	183.0	180.0
ISOK-PC-200	ISO200	242.0	240.0
ISOK-PC-250	ISO250	293.4	290.0
ISOK-PC-320	ISO320	373.9	370.5
ISOK-PC-400	ISO400	454.2	450.8
ISOK-PC-500	ISO500	553.9	550.5



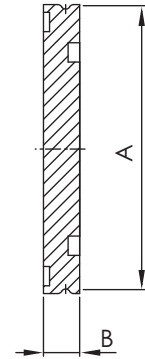
ISO Flanges

ISO-K BLANK FLANGES

*Material: SS 304L



Part Number	Size	A	B
ISOK-BL-63	ISO63	95.00	11.90
ISOK-BL-80	ISO80	110.00	11.90
ISOK-BL-100	ISO100	130.00	11.90
ISOK-BL-160	ISO160	180.00	11.90
ISOK-BL-200	ISO200	240.00	12.00
ISOK-BL-250	ISO250	290.00	12.00
ISOK-BL-320	ISO320	370.00	17.00
ISOK-BL-400	ISO400	450.09	17.00
ISOK-BL-500	ISO500	549.91	17.00
ISOK-BL-630	ISO630	690.12	22.10

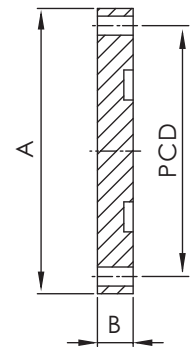


ISO-F BLANK FLANGES

*Material: SS 304L



Part Number	Size	A	B	Bolt Holes	PCD
ISOF-BL-63	ISO63	130.00	11.90	4	110.00
ISOF-BL-80	ISO80	145.00	11.90	8	125.00
ISOF-BL-100	ISO100	165.00	11.90	8	145.00
ISOF-BL-160	ISO160	225.00	16.00	8	200.00
ISOF-BL-200	ISO200	285.00	16.00	12	260.00
ISOF-BL-250	ISO250	335.00	16.00	12	310.00
ISOF-BL-320	ISO320	425.00	20.00	12	395.00
ISOF-BL-400	ISO400	510.03	20.07	16	480.06
ISOF-BL-500	ISO500	610.11	20.07	16	579.88
ISOF-BL-630	ISO630	750.06	23.88	20	720.09



*Note: SS 316L or Aluminum Material Available on Request.

**ISO
NW**

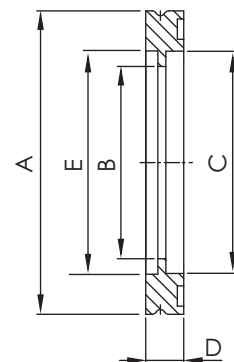
ISO Flanges



ISO-K BORED FLANGES

*Material: SS 304L

Part Number	Size	Nominal Tube OD	A	B	C	D	E
ISOK-BF-63	ISO63	2.5"	95.00	60.20	63.80	11.90	70.10
ISOK-BF-80	ISO80	3"	110.00	72.90	76.50	11.90	83.00
ISOK-BF-100	ISO100	4"	130.00	98.30	101.90	11.90	102.70
ISOK-BF-160	ISO160	6"	180.00	149.10	152.90	11.90	153.00
ISOK-BF-200	ISO200	8"	240.00	197.10	203.70	11.90	213.20
ISOK-BF-250	ISO250	10"	290.00	247.70	254.50	11.90	261.00
ISOK-BF-320	ISO320	12"	370.00	296.82	305.56	17.02	318.01
ISOK-BF-320-1	ISO320	12.75"	370.00	318.00	324.40	17.00	318.00
ISOK-BF-400	ISO400	16"	450.09	396.75	406.91	17.02	400.00
ISOK-BF-500	ISO500	20"	549.91	498.35	508.51	17.02	500.99
ISOK-BF-630	ISO630	24"	690.12	604.77	610.11	22.10	651.00



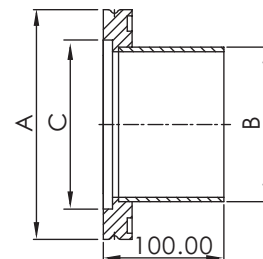
ISO-K HALF NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B	C
ISOK-HN-63	ISO63	95.00	63.50	70.00
ISOK-HN-80	ISO80	110.00	76.20	83.00
ISOK-HN-100	ISO100	130.00	101.60	102.00
ISOK-HN-160	ISO160	180.00	152.40	153.00
ISOK-HN-200	ISO200	240.00	203.20	213.00
ISOK-HN-250	ISO250	290.00	254.00	261.00
ISOK-HN-320	ISO320	370.00	324.00	318.00



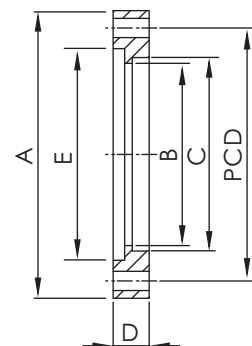
ISO
NW

ISO-F BORED FLANGES

*Material: SS 304L



Part Number	Size	A	B	C	D	E	PCD
ISOF-BF-63	ISO63	130.00	61.90	63.80	11.90	70.00	110.00
ISOF-BF-80	ISO80	145.00	74.60	76.50	11.90	83.00	125.00
ISOF-BF-100	ISO100	165.10	99.30	101.92	11.90	102.00	145.00
ISOF-BF-160	ISO160	225.00	149.20	152.90	16.00	153.00	200.00
ISOF-BF-200	ISO200	285.00	200.00	203.70	16.00	213.00	260.00
ISOF-BF-250	ISO250	335.00	250.80	254.50	16.00	261.00	310.00
ISOF-BF-320	ISO320	425.00	318.00	324.40	20.00	318.00	395.00
ISOF-BF-400	ISO400	510.03	396.75	406.91	20.07	400.00	480.06
ISOF-BF-500	ISO500	610.11	498.35	508.51	20.07	500.99	579.88
ISOF-BF-630	ISO630	750.06	604.77	610.11	23.88	610.10	720.09



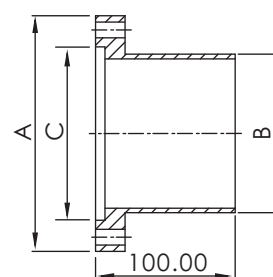
ISO-F HALF NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B	C
ISOF-HN-63	ISO63	130.00	63.50	70.00
ISOF-HN-80	ISO80	145.00	76.20	83.00
ISOF-HN-100	ISO100	165.10	101.60	102.00
ISOF-HN-160	ISO160	225.00	152.40	153.00
ISOF-HN-200	ISO200	285.00	203.20	213.00
ISOF-HN-250	ISO250	335.00	254.00	261.00
ISOF-HN-320	ISO320	425.00	324.00	318.00



*Note: SS 316L or Aluminum Material Available on Request.

ISO Fittings

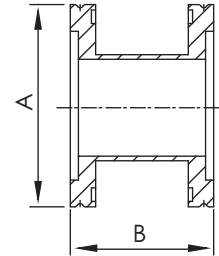
ISO-K FULL NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-FN-63	ISO63	ISO63	165.10
ISOK-FN-63-1	ISO63	ISO63	175.80
ISOK-FN-80	ISO80	ISO80	196.10
ISOK-FN-80-1	ISO80	ISO80	177.80
ISOK-FN-100	ISO100	ISO100	209.80
ISOK-FN-100-1	ISO100	ISO100	215.90
ISOK-FN-160	ISO160	ISO160	273.30
ISOK-FN-160-1	ISO160	ISO160	275.80



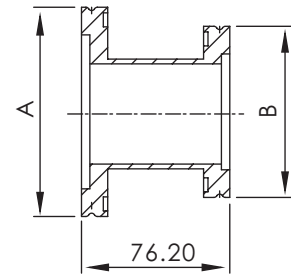
ISO-K STRAIGHT REDUCING NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-SRN-80x63	ISO80x63	ISO80	ISO63
ISOK-SRN-100x63	ISO100x63	ISO100	ISO63
ISOK-SRN-100x80	ISO100x80	ISO100	ISO80
ISOK-SRN-160x63	ISO160x63	ISO160	ISO63
ISOK-SRN-160x80	ISO160x80	ISO160	ISO80
ISOK-SRN-160x100	ISO160x100	ISO160	ISO100



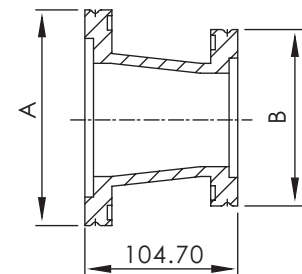
ISO-K CONICAL REDUCING NIPPLES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-CRN-80x63	ISO80x63	ISO80	ISO63
ISOK-CRN-100x63	ISO100x63	ISO100	ISO63
ISOK-CRN-100x80	ISO100x80	ISO100	ISO80



*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

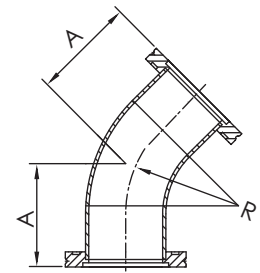
**ISO
NW**

ISO Fittings

ISO-K 45° ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast

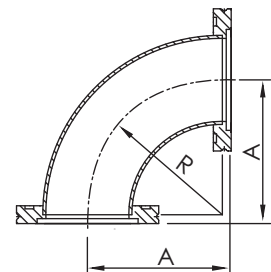


Part Number	Flange Size	A	R
ISOK-45EL-63	ISO63	82.30	95.25
ISOK-45EL-80	ISO80	100.00	114.30
ISOK-45EL-100	ISO100	128.50	152.40

ISO-K 90° ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast

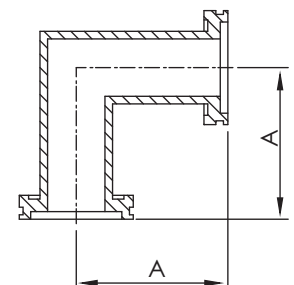


Part Number	Flange Size	A	R
ISOK-90EL-63	ISO63	101.60	95.25
ISOK-90EL-80	ISO80	120.60	114.30
ISOK-90EL-100	ISO100	158.70	152.40

ISO-K 90° MITERED ELBOWS

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A
ISOK-90MEL-63	ISO63	82.60
ISOK-90MEL-63-1	ISO63	87.93
ISOK-90MEL-80	ISO80	88.90
ISOK-90MEL-80-1	ISO80	108.00
ISOK-90MEL-100	ISO100	104.90
ISOK-90MEL-100-1	ISO100	108.00
ISOK-90MEL-160	ISO160	138.00
ISOK-90MEL-160-1	ISO160	160.20

*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

ISO
NW

ISO Fittings

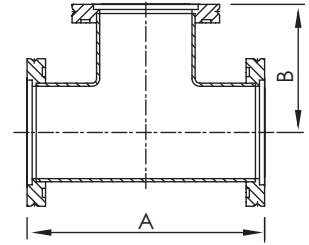
ISO-K EQUAL TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-ET-63	ISO63	165.00	82.50
ISOK-ET-63-1	ISO63	176.00	88.00
ISOK-ET-80	ISO80	177.80	88.90
ISOK-ET-80-1	ISO80	196.00	98.00
ISOK-ET-100	ISO100	209.40	104.70
ISOK-ET-100-1	ISO100	216.00	108.00
ISOK-ET-160	ISO160	266.60	133.30



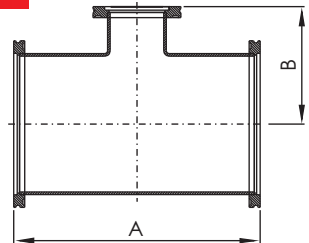
ISO-K REDUCING TEES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-RT-80x63	ISO80/ISO63	177.70	88.90
ISOK-RT-100x63	ISO100/ISO63	209.70	101.60
ISOK-RT-100x80	ISO100/ISO80	209.70	101.60
ISOK-RT-160x63	ISO160/ISO63	266.60	126.90
ISOK-RT-160x80	ISO160/ISO80	266.60	126.90
ISOK-RT-160x100	ISO160/ISO100	266.60	130.30



**ISO
NW**

*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

ISO Fittings

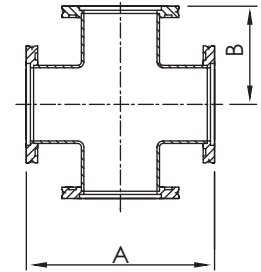
ISO-K 4-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-4C-63	ISO63	165.00	82.50
ISOK-4C-80	ISO80	177.80	88.90
ISOK-4C-80-1	ISO80	196.00	98.00
ISOK-4C-100	ISO100	209.40	104.70
ISOK-4C-100-1	ISO100	216.00	108.00
ISOK-4C-160	ISO160	266.60	133.30



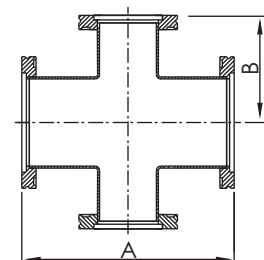
ISO-K 4-WAY REDUCING CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-4RC-80x63	ISO80/ISO63	177.70	88.85
ISOK-4RC-100x63	ISO100/ISO63	209.70	101.55
ISOK-4RC-100x80	ISO100/ISO80	209.70	101.55
ISOK-4RC-160x63	ISO160/ISO63	266.60	126.95
ISOK-4RC-160x80	ISO160/ISO80	266.60	126.95
ISOK-4RC-160x100	ISO160/ISO100	266.60	130.25



**ISO
NW**

*Note: SS 316L Material Available on Request.

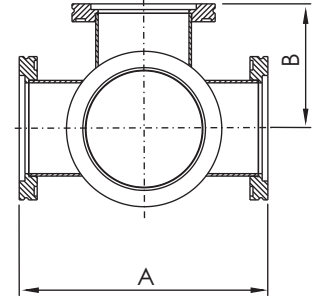
*Note: Polished and Electro- Polished Tube Finishes Available on Request.

ISO Fittings

ISO-K 5-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast

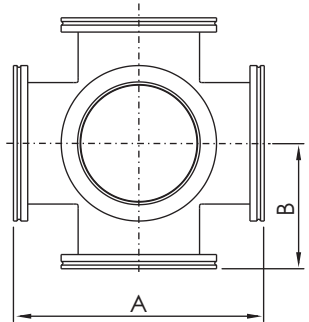


Part Number	Flange Size	A	B
ISOK-5C-63	ISO63	165.00	82.50
ISOK-5C-80	ISO80	177.80	88.90
ISOK-5C-100	ISO100	209.80	104.90
ISOK-5C-160	ISO160	266.60	133.30

ISO-K 6-WAY CROSSES

*Material: SS 304L

*Tube Finish: Bead Blast



Part Number	Flange Size	A	B
ISOK-6C-63	ISO63	165.00	82.50
ISOK-6C-80	ISO80	177.80	88.90
ISOK-6C-100	ISO100	209.80	104.90
ISOK-6C-160	ISO160	266.60	133.30

**ISO
NW**

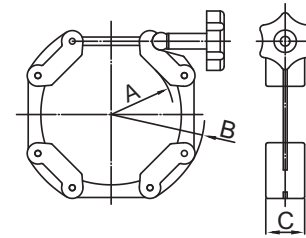
*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

NW Hardware & Seals

NW CHAIN CLAMPS TYPE 1

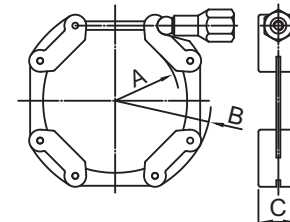
*Body Material: Aluminum
*Bolt Material: Plastic



Part Number	Size	A	B	C
NW-CC1-16	NW16	22.00	56.00	20.50
NW-CC1-25	NW25	32.00	66.00	20.50
NW-CC1-40	NW40	46.00	80.00	20.50
NW-CC1-50	NW50	69.00	100.00	20.50
NW-CC1-63	NW63	78.00	112.00	20.50

NW CHAIN CLAMPS TYPE 2

*Body Material: Aluminum
*Bolt Material: SS 304

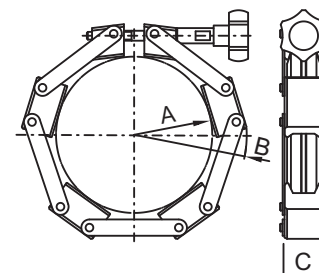


Part Number	Size	A	B	C
NW-CC2-16	NW16	22.00	56.00	20.50
NW-CC2-25	NW25	32.00	66.00	20.50
NW-CC2-40	NW40	46.00	80.00	20.50
NW-CC2-50	NW50	69.00	100.00	20.50
NW-CC2-63	NW63	78.00	112.00	20.50

ISO
NW

NW CHAIN CLAMPS TYPE 1

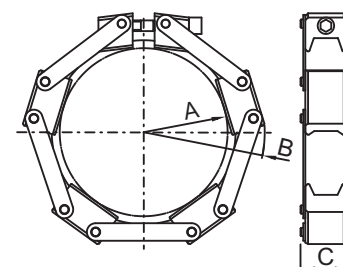
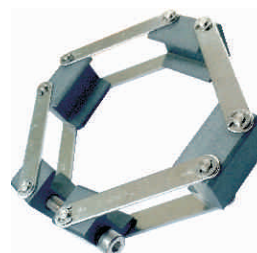
*Body Material: Aluminum
*Bolt Material: Plastic



Part Number	Size	A	B	C
NW-CC1-80	NW80	117.10	153.00	30.00
NW-CC1-100	NW100	136.50	171.68	30.00
NW-CC1-160	NW160	197.90	231.70	30.00

NW CHAIN CLAMPS TYPE 2

*Body Material: Aluminum
*Bolt Material: SS 304

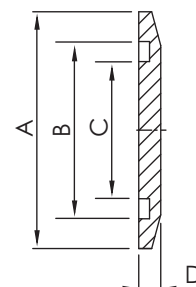


Part Number	Size	A	B	C
NW-CC2-80	NW80	100.00	165.00	38.00
NW-CC2-100	NW100	122.00	185.00	38.00
NW-CC2-160	NW160	174.00	235.00	38.00

NW Hardware & Seals

NW BLANK FLANGES

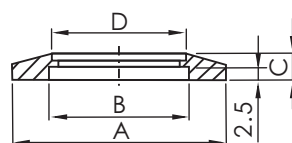
*Material: SS 304L



Part Number	Flange Size	A	B	C	D
NW-BL-63	NW63	87.00	70.20	64.00	5.00
NW-BL-80	NW80	114.00	83.00	73.00	11.00
NW-BL-100	NW100	134.00	102.00	92.00	11.00
NW-BL-160	NW160	190.00	153.20	143.00	11.00

NW BORED FLANGES

*Material: SS 304



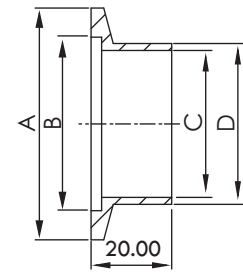
Part Number	Flange Size	A	B	C	D
NW-BF-63	NW 63	87.00	70.00	5.00	63.70
NW-BF-80	NW 80	114.00	83.00	11.00	76.40
NW-BF-100	NW 100	134.00	102.00	11.00	101.80
NW-BF-160	NW 160	190.00	153.00	11.00	152.90

ISO
NW

NW Hardware & Seals

NW BUTT WELD FLANGES

*Material: SS 304L



Part Number	Flange Size	A	B	C	D	Tube Size
NW-BWF-80	NW80	114.00	83.10	83.10	89.10	80A 10S
NW-BWF-80-1	NW80	114.00	83.10	84.90	89.10	80A 5S
NW-BWF-100	NW100	134.00	102.20	108.30	114.30	100A 10S
NW-BWF-100-1	NW100	134.00	102.20	110.10	114.30	100A 5S
NW-BWF-160	NW160	190.00	153.20	158.40	165.20	150A 10S
NW-BWF-160-1	NW160	190.00	153.20	159.60	165.20	150A 5S

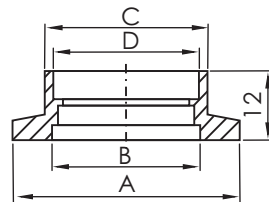


Figure 1

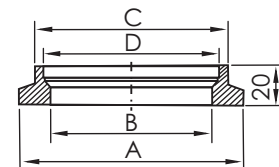


Figure 2

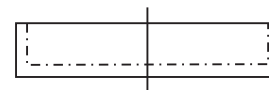
NW SOCKET WELD FLANGES

*Material: SS 304

Part Number	Flange Size	A	B	C	D	Figure
NW-SWF-63	NW 63	87.00	70.00	67.50	63.70	1
NW-SWF-80	NW 80	114.00	83.00	98.00	89.50	2
NW-SWF-100	NW 100	134.00	102.00	118.00	114.50	2
NW-SWF-160	NW 160	190.00	153.00	174.00	165.50	2

NW FLANGE PLASTIC CAP

*Material: PE

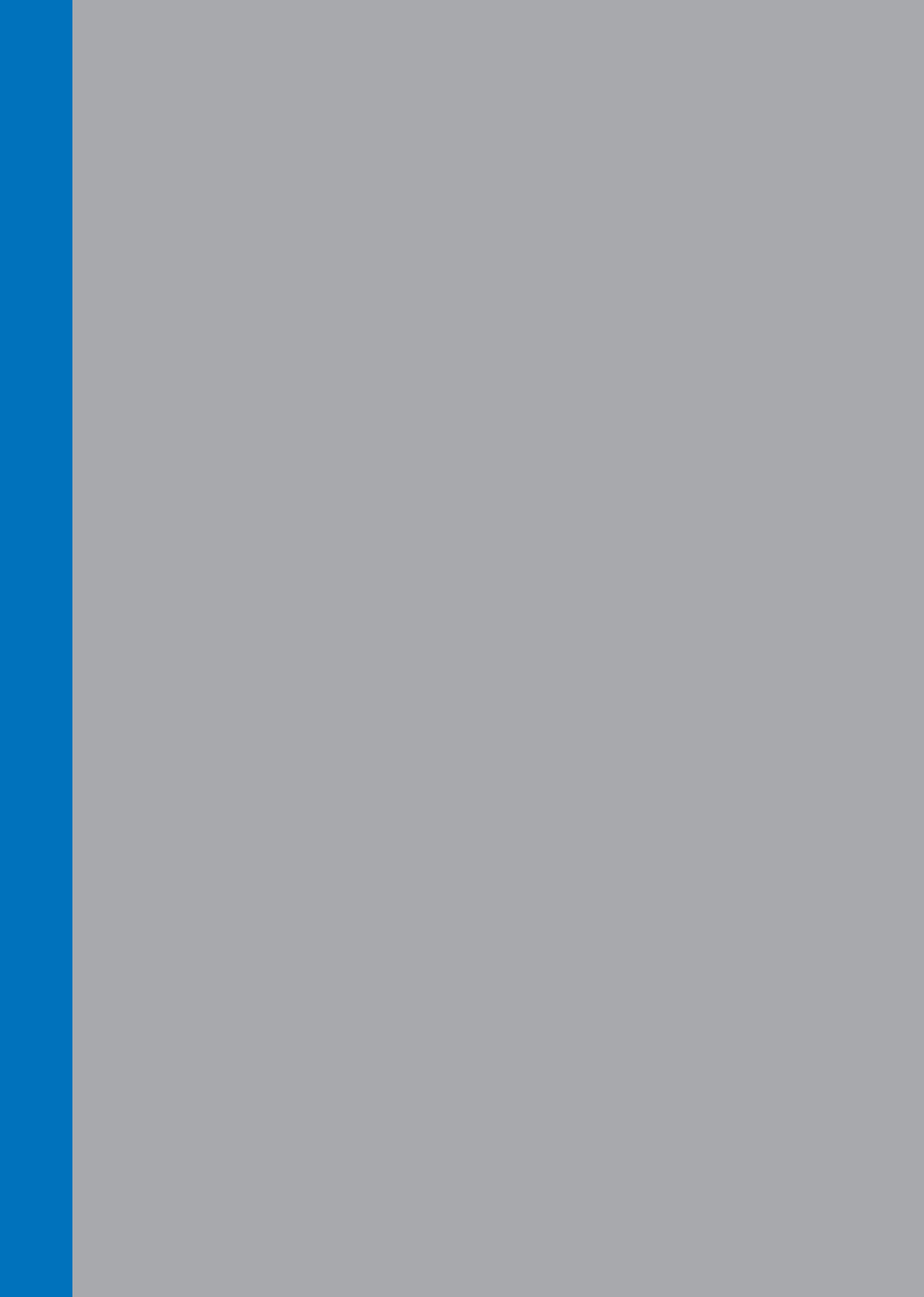


Part Number	Flange Size
NW-PC-63	NW 63
NW-PC-80	NW 80
NW-PC-100	NW 100

ISO
NW

Adaptors





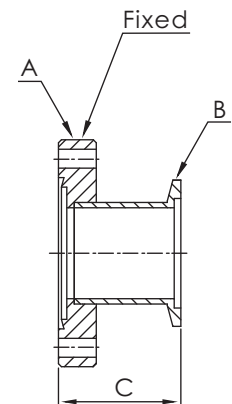
Adaptors

KF to CF FLANGE ADAPTORS

*Material: SS 304L



Part Number	Flange Size	A	B	C
AD-KF10xCF133	KF10/CF1.33(DN16)	CF1.33	KF 10	44.50
AD-KF16xCF133	KF16/CF1.33(DN16)	CF1.33	KF 16	44.50
AD-KF16xCF275	KF16/CF2.75(DN40)	CF2.75	KF 16	45.20
AD-KF25xCF212	KF25/CF2.12(DN25)	CF2.12	KF 25	44.50
AD-KF25xCF275	KF25/CF2.75(DN40)	CF2.75	KF 25	45.20
AD-KF40xCF275	KF40/CF2.75(DN40)	CF2.75	KF 40	45.20
AD-KF40xCF338	KF40/CF3.38(DN50)	CF3.38	KF 40	45.70
AD-KF50xCF133	KF50/CF1.33(DN16)	CF1.33	KF 50	49.50
AD-KF50xCF275	KF50/CF2.75(DN40)	CF2.75	KF 50	49.50
AD-KF50xCF338	KF50/CF3.38(DN50)	CF3.38	KF 50	45.70
AD-KF50xCF450	KF50/CF4.50(DN63)	CF4.50	KF 50	49.50

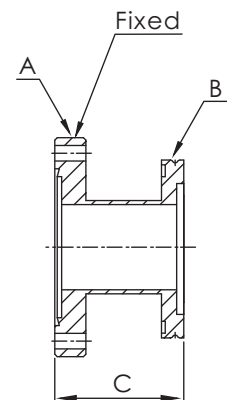


ISO to CF FLANGE ADAPTORS

*Material: SS 304L



Part Number	Flange Size	A	B	C
AD-ISO63xCF450	ISO63/CF4.50(DN63)	CF4.50	ISO63	110.00
AD-ISO80xCF462	ISO80/CF4.62(DN80)	CF4.62	ISO80	110.00
AD-ISO80xCF600	ISO80/CF6.00(DN100)	CF6.00	ISO80	110.00
AD-ISO100xCF600	ISO100/CF6.00(DN100)	CF6.00	ISO100	111.00
AD-ISO160xCF800	ISO160/CF8.00(DN160)	CF8.00	ISO160	113.00
AD-ISO200xCF1000	ISO200/CF10.00(DN200)	CF10.00	ISO200	113.00

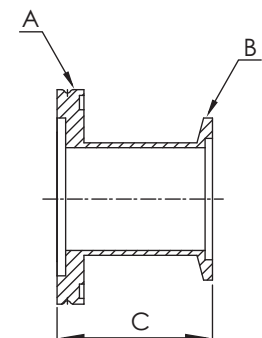


ISO to KF FLANGE ADAPTORS

*Material: SS 304L



Part Number	Flange Size	A	B	C
AD-ISO63xKF25	ISO63/KF25	ISO63	KF25	46.50
AD-ISO63xKF40	ISO63/KF40	ISO63	KF40	46.30
AD-ISO63xKF50	ISO63/KF50	ISO63	KF50	46.30
AD-ISO80xKF40	ISO80/KF40	ISO80	KF40	46.30
AD-ISO80xKF50	ISO80/KF50	ISO80	KF50	46.30
AD-ISO100xKF40	ISO100/KF40	ISO100	KF40	46.30
AD-ISO100xKF50	ISO100/KF50	ISO100	KF50	46.30



*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

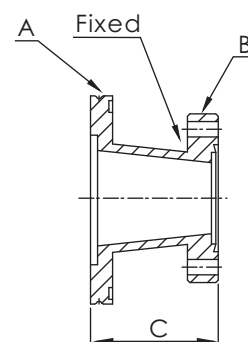
Adaptors

ISO to CF FLANGE CONICAL ADAPTORS

*Material: SS 304L



Part Number	Flange Size	A	B	C
ADC-ISO63xCF275	ISO63/CF2.75(DN40)	ISO63	CF2.75	71.90
ADC-ISO63xCF338	ISO63/CF3.38(DN50)	ISO63	CF3.38	72.30
ADC-ISO63xCF462	ISO63/CF4.62(DN80)	ISO63	CF4.62	108.00
ADC-ISO63xCF600	ISO63/CF6.00(DN100)	ISO63	CF6.00	109.50
ADC-ISO80xCF275	ISO80/CF2.75(DN40)	ISO80	CF2.75	103.70
ADC-ISO80xCF338	ISO80/CF3.38(DN50)	ISO80	CF3.38	104.10
ADC-ISO80xCF450	ISO80/CF4.50(DN63)	ISO80	CF4.50	107.90
ADC-ISO80xCF600	ISO80/CF6.00(DN100)	ISO80	CF6.00	109.50
ADC-ISO100xCF338	ISO100/CF3.38(DN50)	ISO100	CF3.38	104.10
ADC-ISO100xCF450	ISO100/CF4.50(DN63)	ISO100	CF4.50	107.90
ADC-ISO100xCF462	ISO100/CF4.62(DN80)	ISO100	CF4.62	108.00



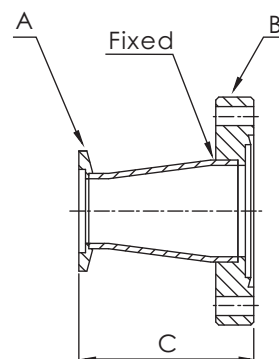
AD

KF to CF FLANGE CONICAL ADAPTORS

*Material: SS 304L



Part Number	Flange Size	A	B	C
ADC-KF16XCF212	KF16/CF2.12(DN25)	KF 16	CF2.12	42.90
ADC-KF16XCF275	KF16/CF2.75(DN40)	KF 16	CF2.75	69.30
ADC-KF25XCF133	KF25/CF1.33(DN16)	KF 25	CF1.33	43.15
ADC-KF25XCF275	KF25/CF2.75(DN40)	KF 25	CF2.75	69.30
ADC-KF25XCF338	KF25/CF3.38(DN50)	KF25	CF3.38	69.90
ADC-KF40XCF133	KF40/CF1.33(DN16)	KF 40	CF1.33	68.55
ADC-KF40XCF212	KF40/CF2.12(DN25)	KF 40	CF2.12	68.30
ADC-KF40XCF338	KF40/CF3.38(DN50)	KF 40	CF3.38	69.90
ADC-KF40XCF450	KF40/CF4.50(DN63)	KF 40	CF4.50	73.70
ADC-KF40XCF462	KF40/CF4.62(DN80)	KF 40	CF4.62	103.10
ADC-KF50XCF212	KF50/CF2.12(DN25)	KF 50	CF2.12	68.30
ADC-KF50XCF275	KF50/CF2.75(DN40)	KF 50	CF2.75	69.30
ADC-KF50XCF450	KF50/CF4.50(DN63)	KF 50	CF4.50	73.70
ADC-KF50XCF462	KF50/CF4.62(DN80)	KF 50	CF4.62	103.10
ADC-KF50XCF600	KF50/CF6.00(DN100)	KF 50	CF6.00	106.90



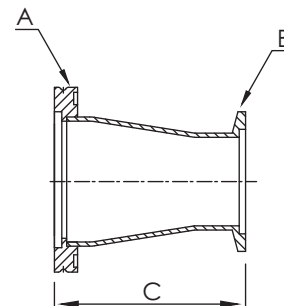
*Note: SS 316L Material Available on Request.

*Note: Polished and Electro- Polished Tube Finishes Available on Request.

Adaptors

ISO to KF FLANGE CONICAL ADAPTORS

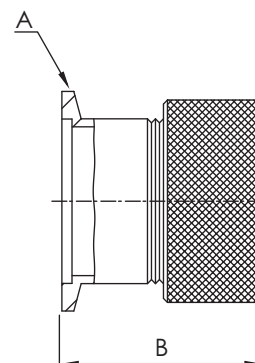
*Material: SS 304L



Part Number	Flange Size	A	B	C
ADC-ISO63xKF40	ISO63/KF40	ISO63	KF40	70.40
ADC-ISO63xKF50	ISO63/KF50	ISO63	KF50	70.40
ADC-ISO80xKF40	ISO80/KF40	ISO80	KF40	102.20
ADC-ISO80xKF50	ISO80/KF50	ISO80	KF50	102.20
ADC-ISO100xKF50	ISO100/KF50	ISO100	KF50	102.20

KF FLANGES to QUICK COUPLINGS with VITON O-RINGS

*Material: SS 304L



Part Number	Size	Tube Size	A	B
AD-QC-KF10x050	KF10-½"	½"	KF10	38.10
AD-QC-KF16x025	KF16-¼"	¼"	KF16	35.60
AD-QC-KF16x050	KF16-½"	½"	KF16	38.10
AD-QC-KF16x075	KF16-¾"	¾"	KF16	45.70
AD-QC-KF25x050	KF25-½"	½"	KF25	38.10
AD-QC-KF25x062	KF25-⅝"	⅝"	KF25	43.20
AD-QC-KF25x075	KF25-¾"	¾"	KF25	45.70
AD-QC-KF25x100	KF25-1"	1"	KF25	50.80
AD-QC-KF25x112	KF25-1⅛"	1⅛"	KF25	50.80
AD-QC-KF40x050	KF40-½"	½"	KF40	37.60
AD-QC-KF40x075	KF40-¾"	¾"	KF40	45.70
AD-QC-KF40x100	KF40-1"	1"	KF40	50.80
AD-QC-KF40x112	KF40-1⅛"	1⅛"	KF40	50.80
AD-QC-KF40x125	KF40-1¼"	1¼"	KF40	50.80
AD-QC-KF40x138	KF40-1⅜"	1⅜"	KF40	53.30
AD-QC-KF40x150	KF40-1½"	1½"	KF40	61.00
AD-QC-KF50x050	KF50-½"	½"	KF50	38.10
AD-QC-KF50x075	KF50-¾"	¾"	KF50	45.70
AD-QC-KF50x100	KF50-1"	1"	KF50	50.80
AD-QC-KF50x112	KF50-1⅛"	1⅛"	KF50	50.80
AD-QC-KF50x150	KF50-1½"	1½"	KF50	61.00
AD-QC-KF50x200	KF50-2"	2"	KF50	61.00

AD

Adaptors

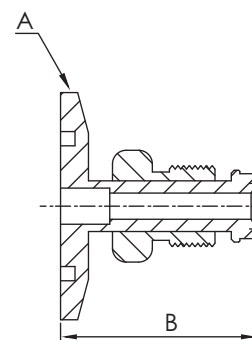
KF FLANGES to MALE VCRS

* KF Flange Material: SS 304L

* Gland Material: SS 316L



Part Number	Size	A	B
AD-VCRM-KF16x025	KF16x¼"	KF16	37.10
AD-VCRM-KF16x038	KF16x⅜"	KF16	41.90
AD-VCRM-KF16x050	KF16x½"	KF16	41.90
AD-VCRM-KF25x025	KF25x¼"	KF25	37.10
AD-VCRM-KF25x038	KF25x⅜"	KF25	41.90
AD-VCRM-KF25x050	KF25x½"	KF25	41.90
AD-VCRM-KF25x075	KF25x¾"	KF25	55.40
AD-VCRM-KF40x025	KF40x¼"	KF40	37.10
AD-VCRM-KF40x038	KF40x⅜"	KF40	41.90
AD-VCRM-KF40x050	KF40x½"	KF40	41.90
AD-VCRM-KF40x075	KF40x¾"	KF40	55.40
AD-VCRM-KF50x025	KF50x¼"	KF50	37.10
AD-VCRM-KF50x038	KF50x⅜"	KF50	41.90
AD-VCRM-KF50x050	KF50x½"	KF50	41.90
AD-VCRM-KF50x075	KF50x¾"	KF50	55.40



AD

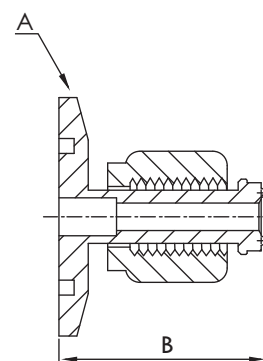
KF FLANGES to FEMALE VCRS

* KF Flange Material: SS 304L

* Gland Material: SS 316L



Part Number	Size	A	B
AD-VCRF-KF16x025	KF16-¼"	KF16	37.10
AD-VCRF-KF16x038	KF16-⅜"	KF16	41.90
AD-VCRF-KF16x050	KF16-½"	KF16	41.90
AD-VCRF-KF25x025	KF25-¼"	KF25	37.10
AD-VCRF-KF25x038	KF25-⅜"	KF25	41.90
AD-VCRF-KF25x050	KF25-½"	KF25	41.90
AD-VCRF-KF25x075	KF25-¾"	KF25	55.40
AD-VCRF-KF40x025	KF40-¼"	KF40	37.10
AD-VCRF-KF40x038	KF40-⅜"	KF40	41.90
AD-VCRF-KF40x050	KF40-½"	KF40	41.90
AD-VCRF-KF40x075	KF40-¾"	KF40	55.40
AD-VCRF-KF50x025	KF50-¼"	KF50	37.10
AD-VCRF-KF50x038	KF50-⅜"	KF50	41.90
AD-VCRF-KF50x050	KF50-½"	KF50	41.90
AD-VCRF-KF50x075	KF50-¾"	KF50	55.40

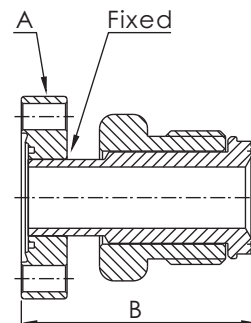


Adaptors

CF FLANGES to MALE VCRES

* CF Flange Material: SS 304L

* VCR Material: SS 316L

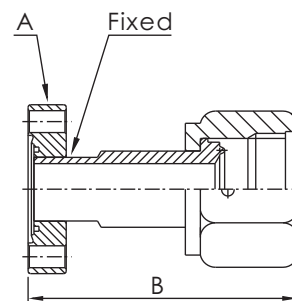


Part Number	Size	A	B
AD-VCRM-CF133x025	CF1.33"(DN16)x¼"	CF1.33	36.30
AD-VCRM-CF133x038	CF1.33"(DN16)x⅜"	CF1.33	39.27
AD-VCRM-CF133x050	CF1.33"(DN16)x½"	CF1.33	39.27
AD-VCRM-CF275x025	CF2.75"(DN40)x¼"	CF2.75	38.61
AD-VCRM-CF275x038	CF2.75"(DN40)x⅜"	CF2.75	43.41
AD-VCRM-CF275x050	CF2.75"(DN40)x½"	CF2.75	43.41

CF FLANGES to FEMALE VCRES

* CF Flange Material: SS 304L

* VCR Material: SS 316L



Part Number	Size	A	B
AD-VCRF-CF133x025	CF1.33"(DN16)x¼"	CF1.33	36.30
AD-VCRF-CF133x038	CF1.33"(DN16)x⅜"	CF1.33	39.27
AD-VCRF-CF133x050	CF1.33"(DN16)x½"	CF1.33	39.27
AD-VCRF-CF275x025	CF2.75"(DN40)x¼"	CF2.75	38.61
AD-VCRF-CF275x038	CF2.75"(DN40)x⅜"	CF2.75	43.41
AD-VCRF-CF275x050	CF2.75"(DN40)x½"	CF2.75	43.41

AD

Adaptors

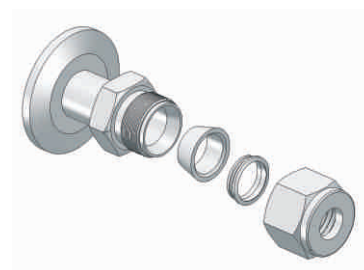
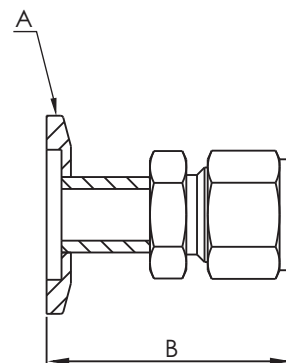
KF FLANGES to TWO-FERRULE FITTINGS

* KF Flange Material: SS 304L

* Two-Ferrule Fitting Material: SS 316



Part Number	Size	A	B
AD-SWG-KF10x025	KF10-¼"	30.00	33.30
AD-SWG-KF16x025	KF16-¼"	30.00	39.40
AD-SWG-KF16x038	KF16-⅜"	30.00	41.40
AD-SWG-KF16x050	KF16-½"	30.00	50.00
AD-SWG-KF25x025	KF25-¼"	40.00	39.40
AD-SWG-KF25x038	KF25-⅜"	40.00	41.40
AD-SWG-KF25x050	KF25-½"	40.00	50.00
AD-SWG-KF25x075	KF25-¾"	40.00	52.80
AD-SWG-KF25x100	KF25-1"	40.00	65.70
AD-SWG-KF40x025	KF40-¼"	55.00	39.40
AD-SWG-KF40x038	KF40-⅜"	55.00	41.40
AD-SWG-KF40x050	KF40-½"	55.00	50.00
AD-SWG-KF40x075	KF40-¾"	55.00	52.80
AD-SWG-KF40x100	KF40-1"	55.00	65.70
AD-SWG-KF50x025	KF50-¼"	75.00	39.40
AD-SWG-KF50x038	KF50-⅜"	75.00	41.40
AD-SWG-KF50x050	KF50-½"	75.00	50.00
AD-SWG-KF50x075	KF50-¾"	75.00	52.80
AD-SWG-KF50x100	KF50-1"	75.00	65.70



AD

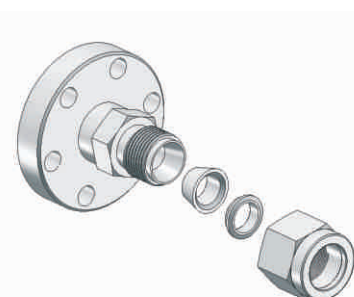
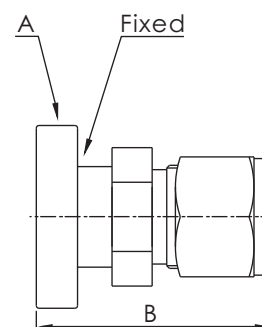
CF FLANGES to TWO-FERRULE FITTINGS

* CF Flange Material: SS 304L

* Two-Ferrule Fitting Material: SS 316



Part Number	Size	A	B
AD-SWG-CF133x025	CF1.33"(DN16)-¼"	CF1.33	34.80
AD-SWG-CF133x038	CF1.33"(DN16)-⅜"	CF1.33	42.05
AD-SWG-CF133x050	CF1.33"(DN16)-½"	CF1.33	43.18
AD-SWG-CF275x025	CF2.75"(DN40)-¼"	CF2.75	38.81
AD-SWG-CF275x038	CF2.75"(DN40)-⅜"	CF2.75	42.91
AD-SWG-CF275x050	CF2.75"(DN40)-½"	CF2.75	46.41
AD-SWG-CF275x075	CF2.75"(DN40)-¾"	CF2.75	55.81
AD-SWG-CF275x100	CF2.75"(DN40)-1"	CF2.75	67.51



Adaptors

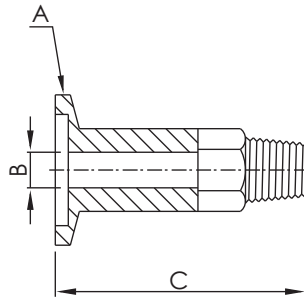


Figure 1

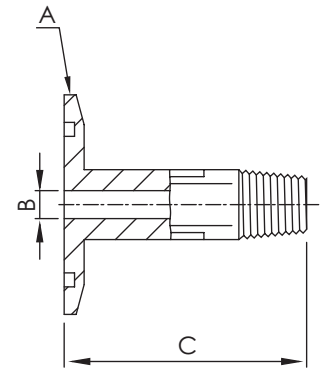


Figure 2

KF FLANGES to MALE NPT ADAPTORS

*Material: SS 304L

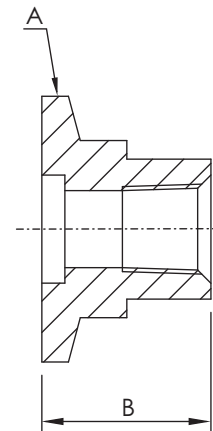
Part Number	Size	A	B	C	Figure
AD-NPTM-KF16x012	KF16-1/8" NPT	KF16	4.70	40.00	1
AD-NPTM-KF16x025	KF16-1/4" NPT	KF16	7.10	50.00	1
AD-NPTM-KF25x012	KF25-1/8" NPT	KF25	4.70	40.00	2
AD-NPTM-KF25x025	KF25-1/4" NPT	KF25	7.10	50.00	2
AD-NPTM-KF25x050	KF25-1/2" NPT	KF25	11.90	75.00	2
AD-NPTM-KF25x075	KF25-3/4" NPT	KF25	15.90	75.00	2
AD-NPTM-KF40x025	KF40-1/4" NPT	KF40	7.10	50.00	2
AD-NPTM-KF40x050	KF40-1/2" NPT	KF40	11.90	75.00	2
AD-NPTM-KF40x075	KF40-3/4" NPT	KF40	15.90	75.00	2
AD-NPTM-KF50x025	KF50-1/4" NPT	KF50	7.10	50.00	2
AD-NPTM-KF50x050	KF50-1/2" NPT	KF50	11.90	75.00	2
AD-NPTM-KF50x075	KF50-3/4" NPT	KF50	15.90	75.00	2

KF FLANGES to FEMALE NPT ADAPTORS

*Material: SS 304L

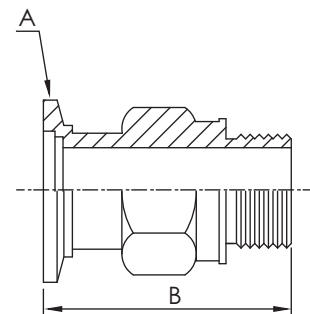


Part Number	Size	A	B
AD-NPTF-KF10x012	KF10-1/8" NPT	KF10	19.10
AD-NPTF-KF10x025	KF10-1/4" NPT	KF10	19.10
AD-NPTF-KF16x012	KF16-1/8" NPT	KF16	19.10
AD-NPTF-KF16x025	KF16-1/4" NPT	KF16	19.10
AD-NPTF-KF25x012	KF25-1/8" NPT	KF25	19.10
AD-NPTF-KF25x025	KF25-1/4" NPT	KF25	19.10
AD-NPTF-KF25x038	KF25-3/8" NPT	KF25	19.10
AD-NPTF-KF25x050	KF25-1/2" NPT	KF25	25.40
AD-NPTF-KF40x012	KF40-1/8" NPT	KF40	25.40
AD-NPTF-KF40x025	KF40-1/4" NPT	KF40	25.40
AD-NPTF-KF40x050	KF40-1/2" NPT	KF40	25.40
AD-NPTF-KF40x075	KF40-3/4" NPT	KF40	25.40
AD-NPTF-KF50x012	KF50-1/8" NPT	KF50	25.40
AD-NPTF-KF50x025	KF50-1/4" NPT	KF50	25.40
AD-NPTF-KF50x050	KF50-1/2" NPT	KF50	25.40
AD-NPTF-KF50x075	KF50-3/4" NPT	KF50	25.40



AD

Adaptors

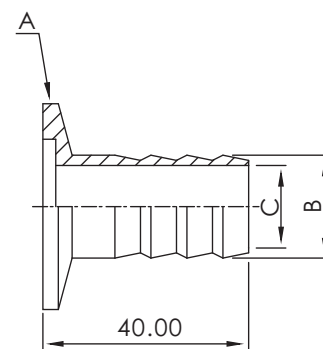


KF FLANGES to WELCH PUMP ADAPTORS

*Material: SS 304L

Part Number	Size	A	B
AD-WP-KF16x062	KF16-WP1	KF16	45.00
AD-WP-KF16x075	KF16-WP2	KF16	65.00
AD-WP-KF25x100	KF25-WP1	KF25	70.10
AD-WP-KF40x150	KF40-WP1	KF40	65.00
AD-WP-KF40x175	KF40-WP2	KF40	65.30

AD

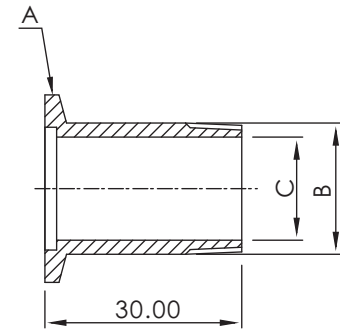


KF FLANGES to HOSE NOZZLES

*Material: SS 304L

Part Number	Size	A	B	C
AD-HS-KF10x008M	KF10-8mm	KF10	8.00	4.00
AD-HS-KF10x012M	KF10-12mm	KF10	12.00	8.00
AD-HS-KF16x008M	KF16-8mm	KF16	8.00	4.00
AD-HS-KF16x012M	KF16-12mm	KF16	12.00	8.00
AD-HS-KF25x008M	KF25-8mm	KF25	8.00	4.00
AD-HS-KF25x012M	KF25-12mm	KF25	12.00	8.00
AD-HS-KF25x016M	KF25-16mm	KF25	16.00	12.00
AD-HS-KF25x020M	KF25-20mm	KF25	20.00	16.00
AD-HS-KF40x012M	KF40-12mm	KF40	12.00	8.00
AD-HS-KF40x016M	KF40-16mm	KF40	16.00	12.00
AD-HS-KF40x020M	KF40-20mm	KF40	20.00	16.00
AD-HS-KF40x025M	KF40-25mm	KF40	25.00	20.00
AD-HS-KF50x025M	KF50-25mm	KF50	25.00	20.00

Adaptors



DN FLANGES to BSPT ADAPTORS

*Material: SS 304L

Part Number	Size	A	B	C	BSPT
AD-BSPT-DN10x025	DN10- $\frac{1}{4}$ "	DN10	13.16	9.00	$\frac{1}{4}$ "x19BSPT
AD-BSPT-DN10x038	DN10- $\frac{3}{8}$ "	DN10	16.66	10.00	$\frac{3}{8}$ "x19BSPT
AD-BSPT-DN16x050	DN16- $\frac{1}{2}$ "	DN16	20.96	16.00	$\frac{1}{2}$ "x14BSPT
AD-BSPT-DN25x038	DN25- $\frac{3}{8}$ "	DN25	16.66	10.00	$\frac{3}{8}$ "x19BSPT
AD-BSPT-DN25x075	DN25- $\frac{3}{4}$ "	DN25	26.44	20.00	$\frac{3}{4}$ "x14BSPT
AD-BSPT-DN25x100	DN25-1"	DN25	33.25	24.00	1"x11BSPT
AD-BSPT-DN40x125	DN40-1 $\frac{1}{4}$ "	DN40	41.91	35.00	1 $\frac{1}{4}$ "x11BSPT
AD-BSPT-DN40x150	DN40-1 $\frac{1}{2}$ "	DN40	47.80	41.00	1 $\frac{1}{2}$ "x11BSPT
AD-BSPT-DN50x200	DN50-2"	DN50	59.61	51.00	2"x11BSPT

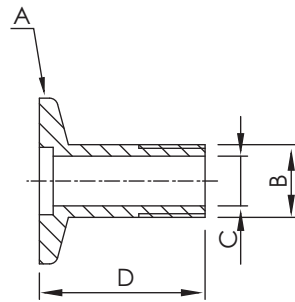


Figure 1

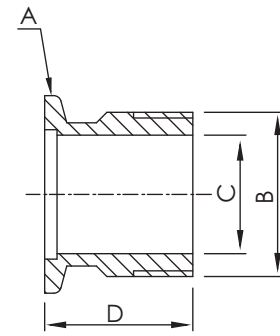


Figure 2

DN FLANGES to BSP ADAPTORS

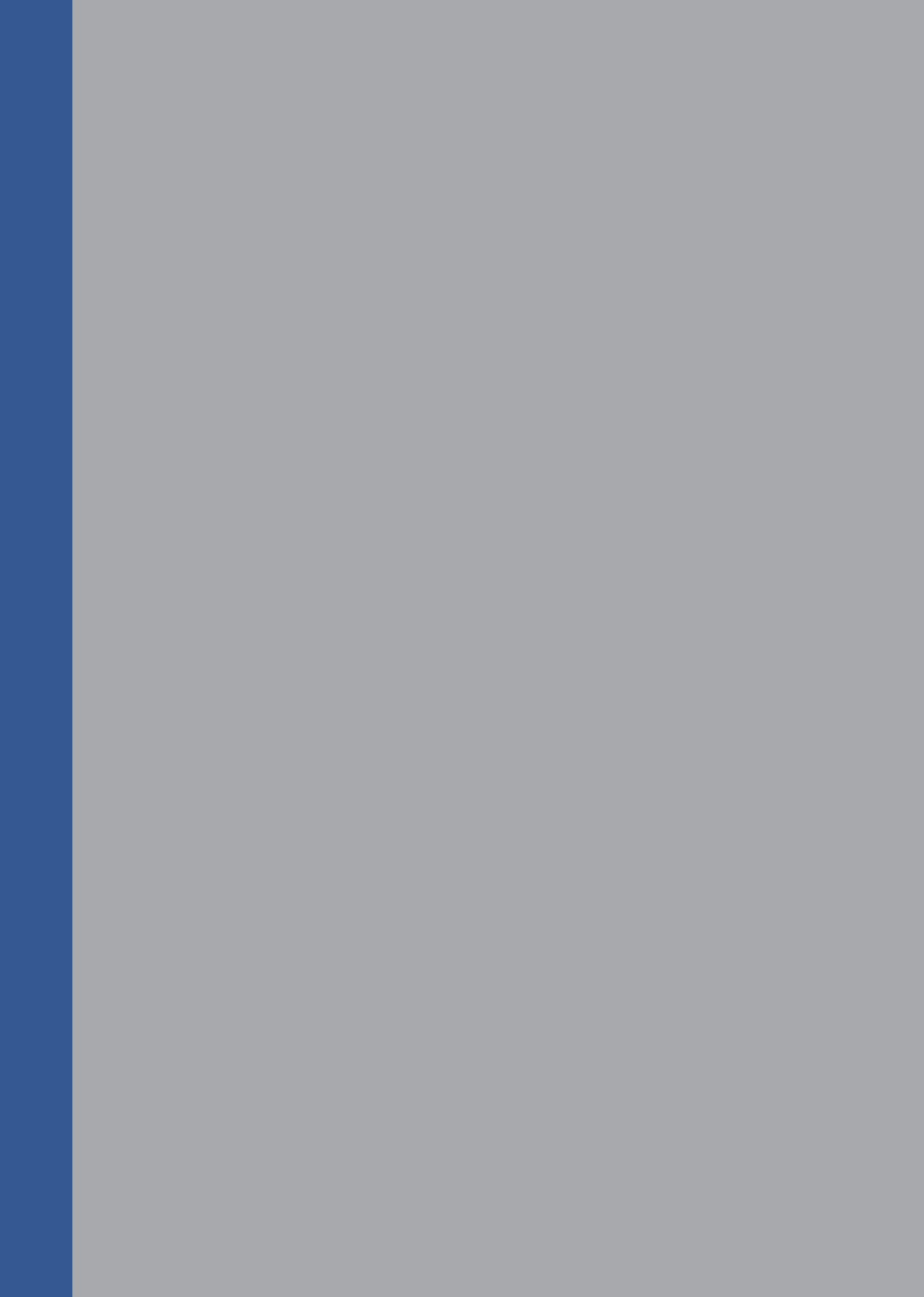
*Material: SS 304L

Part Number	Size	Figure	A	B	C	D	BSP
AD-BSP-DN10x025	DN10- $\frac{1}{4}$ "	1	DN10	13.16	9.00	30.00	$\frac{1}{4}$ "x19BSP
AD-BSP-DN10x038	DN10- $\frac{3}{8}$ "	1	DN10	16.66	10.00	30.00	$\frac{3}{8}$ "x19BSP
AD-BSP-DN16x025	DN16- $\frac{1}{4}$ "	1	DN16	13.16	9.00	30.00	$\frac{1}{4}$ "x19BSP
AD-BSP-DN16x050	DN16- $\frac{1}{2}$ "	1	DN16	20.96	16.00	30.00	$\frac{1}{2}$ "x14BSP
AD-BSP-DN25x050	DN25- $\frac{1}{2}$ "	1	DN25	20.96	16.00	30.00	$\frac{1}{2}$ "x14BSP
AD-BSP-DN25x075	DN25- $\frac{3}{4}$ "	1	DN25	26.44	20.00	30.00	$\frac{3}{4}$ "x14BSP
AD-BSP-DN25x100	DN25-1"	2	DN25	33.25	24.00	30.00	1"x11BSP
AD-BSP-DN40x025	DN40- $\frac{1}{4}$ "	1	DN40	13.16	9.00	30.00	$\frac{1}{4}$ "x19BSP
AD-BSP-DN40x050	DN40- $\frac{1}{2}$ "	1	DN40	20.96	16.00	30.00	$\frac{1}{2}$ "x14BSP
AD-BSP-DN40x125	DN40-1 $\frac{1}{4}$ "	1	DN40	41.91	35.00	30.00	1 $\frac{1}{4}$ "x11BSP
AD-BSP-DN40x150	DN40-1 $\frac{1}{2}$ "	2	DN40	47.80	41.00	30.00	1 $\frac{1}{2}$ "x11BSP
AD-BSP-DN50x200	DN50-2"	1	DN50	59.61	51.00	35.00	2"x11BSP

AD

Butt Weld Fittings

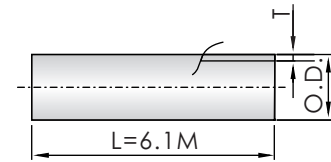




Butt Weld Fittings

TUBE

*Surface Finish: MP / EP



Part Number (MP)	Part Number (EP)	Nominal Tube Size	Outside diameter at end	Wall thickness at end
		OD	OD	T
BW-TU-050-MP	BW-TU-050-EP	½"	12.70	1.24
BW-TU-075-MP	BW-TU-075-EP	¾"	19.05	1.65
BW-TU-100-MP	BW-TU-100-EP	1"	25.40	1.65
BW-TU-150-MP	BW-TU-150-EP	1½"	38.10	1.65
BW-TU-200-MP	BW-TU-200-EP	2"	50.80	1.65
BW-TU-250-MP	BW-TU-250-EP	2½"	63.50	1.65
BW-TU-300-MP	BW-TU-300-EP	3"	76.20	1.65
BW-TU-400-MP	BW-TU-400-EP	4"	101.60	2.11
BW-TU-600-MP	BW-TU-600-EP	6"	152.40	2.77

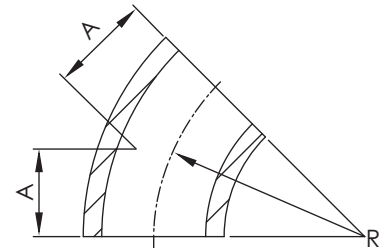
*Note: Other Lengths on Request.

WELD 45° ELBOWS

*Material: SS 304L



Part Number	Tube Size	Wall Thickness	A	R
BW-45EL-050	½"	1.65	7.95	19.10
BW-45EL-075	¾"	1.65	11.91	28.60
BW-45EL-100	1"	1.65	15.77	38.10
BW-45EL-150	1½"	1.65	23.67	57.15
BW-45EL-200	2"	1.65	31.57	76.20
BW-45EL-250	2½"	1.65	39.70	95.25
BW-45EL-300	3"	1.65	47.35	114.30
BW-45EL-400	4"	2.11	63.12	152.40

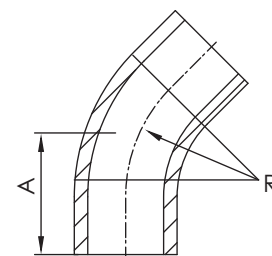


WELD 45° ELBOWS with TANGENTS

*Material: SS 304L



Part Number	Tube Size	Wall Thickness	A	R
BW-45ELT-075	¾"	1.65	19.40	28.60
BW-45ELT-100	1"	1.65	30.18	38.10
BW-45ELT-150	1½"	1.65	41.28	57.15
BW-45ELT-200	2"	1.65	58.72	76.20
BW-45ELT-250	2½"	1.65	76.20	95.25
BW-45ELT-300	3"	1.65	93.70	114.30
BW-45ELT-400	4"	2.11	122.20	152.40



*Note: SS 316L Material Available on Request.

BW

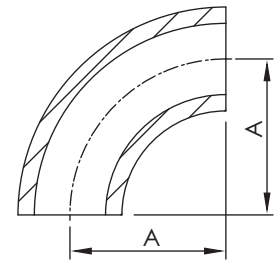
Butt Weld Fittings



WELD 90° ELBOWS

*Material: SS 304L

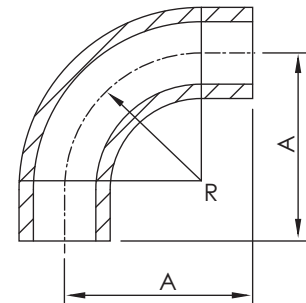
Part Number	Tube Size	Wall Thickness	A
BW-90EL-050	½"	1.65	19.10
BW-90EL-075	¾"	1.65	28.60
BW-90EL-100	1"	1.65	38.10
BW-90EL-150	1½"	1.65	57.15
BW-90EL-200	2"	1.65	76.20
BW-90EL-250	2½"	1.65	95.25
BW-90EL-300	3"	1.65	114.30
BW-90EL-400	4"	2.11	152.40



WELD 90° ELBOWS with TANGENTS

*Material: SS 304L

Part Number	Tube Size	Wall Thickness	A	R
BW-90ELT-075	¾"	0.89	36.07	25.40
BW-90ELT-075-1	¾"	1.65	64.78	28.60
BW-90ELT-100	1"	1.65	46.23	38.10
BW-90ELT-100-1	1"	1.65	52.40	38.10
BW-90ELT-150	1½"	1.65	61.21	57.15
BW-90ELT-150-1	1½"	1.65	74.60	57.15
BW-90ELT-200	2"	1.65	103.12	76.20
BW-90ELT-250	2½"	1.65	131.83	95.25
BW-90ELT-300	3"	1.65	160.30	114.30
BW-90ELT-400	4"	2.11	211.07	152.40



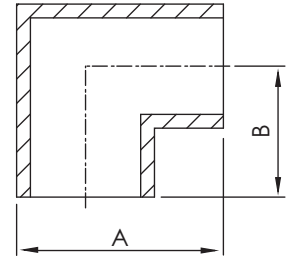
BW

*Note: SS 316L Material Available on Request.

Butt Weld Fittings

WELD 90° MITERED ELBOWS

*Material: SS 304L



Part Number	Tube Size	Wall Thickness	A	B
BW-MEL-075	¾"	1.65	34.93	25.40
BW-MEL-075-1	¾"	1.65	45.08	35.56
BW-MEL-075-2	¾"	1.65	45.63	36.10
BW-MEL-100	1"	1.65	60.20	47.50
BW-MEL-100-1	1"	1.65	60.45	47.75
BW-MEL-100-2	1"	1.65	58.90	46.20
BW-MEL-150	1½"	1.65	76.20	57.15
BW-MEL-150-1	1½"	1.65	80.26	61.21
BW-MEL-200	2"	1.65	91.44	66.04
BW-MEL-200-1	2"	1.65	101.30	75.90
BW-MEL-200-2	2"	1.65	102.10	76.70
BW-MEL-200-3	2"	1.65	101.60	76.20
BW-MEL-250	2½"	1.65	107.95	76.20
BW-MEL-250-1	2½"	1.65	127.00	95.25
BW-MEL-250-2	2½"	1.65	108.05	76.30
BW-MEL-300	3"	1.65	120.65	82.55
BW-MEL-300-1	3"	1.65	113.50	75.40
BW-MEL-400	4"	2.11	149.35	98.55
BW-MEL-400-1	4"	2.11	174.50	123.70
BW-MEL-600	6"	2.11	230.12	153.92

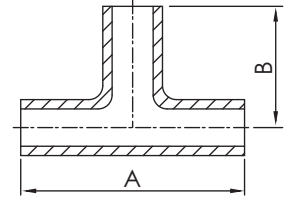
*Note: SS 316L Material Available on Request.

BW

Butt Weld Fittings

WELD EQUAL TEES

*Material: SS 304L

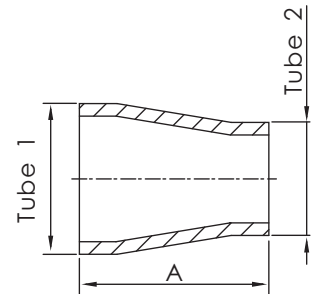


Part Number	Tube Size	Wall Thickness	A	B
BW-ET-050	½"	1.65	38.10	19.05
BW-ET-075	¾"	1.65	50.80	25.40
BW-ET-075-1	¾"	1.65	72.40	36.20
BW-ET-075-2	¾"	1.65	95.20	47.60
BW-ET-100	1"	1.65	91.40	45.70
BW-ET-100-1	1"	1.65	95.20	47.60
BW-ET-150	1½"	1.65	114.40	57.20
BW-ET-150-1	1½"	1.65	122.42	61.21
BW-ET-200	2"	1.65	132.58	66.29
BW-ET-200-1	2"	1.65	152.40	76.20
BW-ET-250	2½"	1.65	152.40	76.20
BW-ET-250-1	2½"	1.65	163.40	81.70
BW-ET-250-2	2½"	1.65	190.24	95.12
BW-ET-300	3"	1.65	165.20	82.60
BW-ET-300-1	3"	1.65	183.40	91.70
BW-ET-400	4"	2.11	196.80	98.40
BW-ET-400-1	4"	2.11	203.40	101.70
BW-ET-400-2	4"	2.11	247.56	123.78
BW-ET-600	6"	2.77	254.00	127.00
BW-ET-600-1	6"	2.11	307.80	153.90

BW

WELD CONICAL REDUCERS

*Material: SS 304L



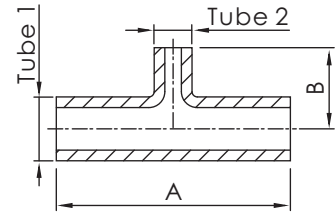
Part Number	Tube 1		Tube 2		A
	OD	T	OD	T	
BW-CRN-100x050	1"	1.65	½"	1.65	34.90
BW-CRN-100x075	1"	1.65	¾"	1.65	34.90
BW-CRN-150x050	1½"	1.65	½"	1.65	60.30
BW-CRN-150x075	1½"	1.65	¾"	1.65	60.30
BW-CRN-150x100	1½"	1.65	1"	1.65	60.30
BW-CRN-200x100	2"	1.65	1"	1.65	60.30
BW-CRN-200x150	2"	1.65	1½"	1.65	60.30
BW-CRN-250x150	2½"	1.65	1½"	1.65	60.30
BW-CRN-250x200	2½"	1.65	2"	1.65	60.30
BW-CRN-300x150	3"	1.65	1½"	1.65	92.10
BW-CRN-300x200	3"	1.65	2"	1.65	92.10
BW-CRN-300x250	3"	1.65	2½"	1.65	92.10
BW-CRN-400x150	4"	2.11	1½"	1.65	92.10
BW-CRN-400x200	4"	2.11	2"	1.65	92.10
BW-CRN-400x250	4"	2.11	2½"	1.65	92.10
BW-CRN-400x300	4"	2.11	3"	1.65	92.10

*Note: SS 316L Material Available on Request.

Butt Weld Fittings

WELD REDUCING TEES

*Material: SS 304L

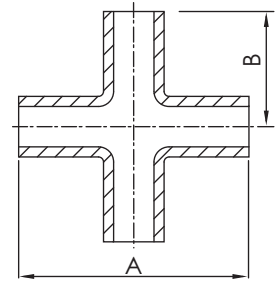


Part Number	Tube 1		Tube 2		A	B
	OD	T	OD	T		
BW-RT-100x050	1"	1.65	½"	1.65	95.50	25.40
BW-RT-100x075	1"	1.65	¾"	1.65	95.50	28.45
BW-RT-150x050	1½"	1.65	½"	1.65	114.30	31.75
BW-RT-150x075	1½"	1.65	¾"	1.65	114.30	35.05
BW-RT-150x075-1	1½"	1.65	¾"	0.89	114.30	35.05
BW-RT-150x100	1½"	1.65	1"	1.65	114.30	54.10
BW-RT-200x050	2"	1.65	1½"	1.65	152.40	38.10
BW-RT-200x075	2"	1.65	¾"	1.65	152.40	41.40
BW-RT-200x100	2"	1.65	1"	1.65	152.40	60.30
BW-RT-200x150	2"	1.65	1½"	1.65	152.40	63.50
BW-RT-250x150	2½"	1.65	1½"	1.65	152.40	69.85
BW-RT-250x200	2½"	1.65	2"	1.65	152.40	82.55
BW-RT-300x150	3"	1.65	1½"	1.65	165.10	76.20
BW-RT-300x200	3"	1.65	2"	1.65	165.10	88.90
BW-RT-300x250	3"	1.65	2½"	1.65	165.10	82.55
BW-RT-400x150	4"	2.11	1½"	1.65	197.10	88.90
BW-RT-400x200	4"	2.11	2"	1.65	197.10	101.60
BW-RT-400x250	4"	2.11	2½"	1.65	197.10	95.25
BW-RT-400x300	4"	2.11	3"	1.65	197.10	95.25
BW-RT-600x150	6"	2.11	1½"	1.65	254.00	114.30
BW-RT-600x200	6"	2.11	2"	1.65	254.00	127.00
BW-RT-600x250	6"	2.11	2½"	1.65	254.00	120.65
BW-RT-600x300	6"	2.11	3"	1.65	254.00	120.65
BW-RT-600x400	6"	2.11	4"	2.11	254.00	123.95

*Note: SS 316L Material Available on Request.

BW

Butt Weld Fittings



WELD 4-WAY EQUAL CROSSES

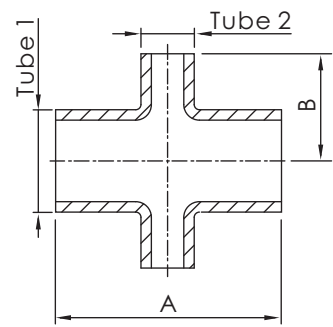
*Material: SS 304L

Part Number	Tube Size	Wall Thickness	A	B
BW-4C-050	½"	1.65	38.10	19.05
BW-4C-075	¾"	1.65	50.80	25.40
BW-4C-075-1	¾"	1.65	71.20	35.60
BW-4C-075-2	¾"	1.65	95.20	47.60
BW-4C-100	1"	1.65	95.20	47.60
BW-4C-100-1	1"	1.65	91.40	45.70
BW-4C-150	1½"	1.65	114.40	57.20
BW-4C-150-1	1½"	1.65	121.42	60.71
BW-4C-200	2"	1.65	152.40	76.20
BW-4C-200-1	2"	1.65	131.60	65.80
BW-4C-250	2½"	1.65	152.40	76.20
BW-4C-250-1	2½"	1.65	190.50	95.25
BW-4C-300	3"	1.65	160.28	80.14
BW-4C-300-1	3"	1.65	165.20	82.60
BW-4C-400	4"	2.11	196.80	98.40
BW-4C-400-1	4"	2.11	247.40	123.70
BW-4C-600	6"	2.77	254.00	127.00
BW-4C-600-1	6"	2.77	307.80	153.90

BW

*Note: SS 316L Material Available on Request.

Butt Weld Fittings



WELD 4-WAY REDUCING CROSSES

*Material: SS 304L

Part Number	Tube 1		Tube 2		A	B
	OD	T	OD	T		
BW-4RC-100x050	1"	1.65	½"	1.65	95.50	25.40
BW-4RC-100x075	1"	1.65	¾"	1.65	95.50	28.45
BW-4RC-150x050	1½"	1.65	½"	1.65	114.30	31.75
BW-4RC-150x075	1½"	1.65	¾"	1.65	114.30	35.05
BW-4RC-150x100	1½"	1.65	1"	1.65	114.30	54.10
BW-4RC-200x050	2"	1.65	½"	1.65	152.40	38.10
BW-4RC-200x075	2"	1.65	¾"	1.65	152.40	41.40
BW-4RC-200x100	2"	1.65	1"	1.65	152.40	60.45
BW-4RC-200x150	2"	1.65	1½"	1.65	152.40	63.50
BW-4RC-250x150	2½"	1.65	1½"	1.65	152.40	69.85
BW-4RC-250x200	2½"	1.65	2"	1.65	152.40	82.55
BW-4RC-300x150	3"	1.65	1½"	1.65	165.10	76.20
BW-4RC-300x200	3"	1.65	2"	1.65	165.10	88.90
BW-4RC-300x250	3"	1.65	2½"	1.65	165.10	82.55
BW-4RC-400x150	4"	2.11	1½"	1.65	197.10	88.90
BW-4RC-400x200	4"	2.11	2"	1.65	197.10	101.60
BW-4RC-400x250	4"	2.11	2½"	1.65	197.10	95.25
BW-4RC-400x300	4"	2.11	3"	1.65	197.10	95.25
BW-4RC-600x150	6"	2.11	1½"	1.65	254.00	114.30
BW-4RC-600x200	6"	2.11	2"	1.65	254.00	127.00
BW-4RC-600x250	6"	2.11	2½"	1.65	254.00	120.65
BW-4RC-600x300	6"	2.11	3"	1.65	254.00	120.65
BW-4RC-600x400	6"	2.11	4"	2.11	254.00	123.95

*Note: SS 316L Material Available on Request.

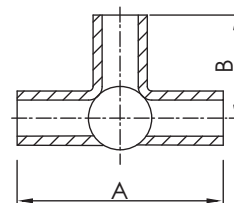
Butt Weld Fittings



WELD 5-WAY CROSSES

*Material: SS 304L

Part Number	Tube Size	Wall Thickness	A	B
BW-5C-075	¾"	1.65	50.80	25.40
BW-5C-075-1	¾"	1.65	67.30	33.65
BW-5C-100	1"	1.65	95.40	47.70
BW-5C-100-1	1"	1.65	91.40	45.70
BW-5C-150	1½"	1.65	114.40	57.20
BW-5C-200	2"	1.65	152.40	76.20
BW-5C-250	2½"	1.65	152.40	76.20
BW-5C-250-1	2½"	1.65	190.26	95.13
BW-5C-300	3"	1.65	165.20	82.60
BW-5C-400	4"	2.11	197.20	98.60
BW-5C-400-1	4"	2.11	247.40	123.70
BW-5C-600	6"	2.77	254.00	127.00
BW-5C-600-1	6"	2.77	307.80	153.90



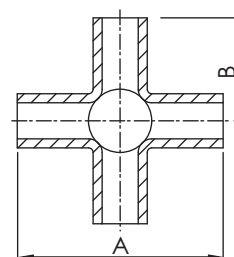
BW



WELD 6-WAY CROSSES

*Material: SS 304L

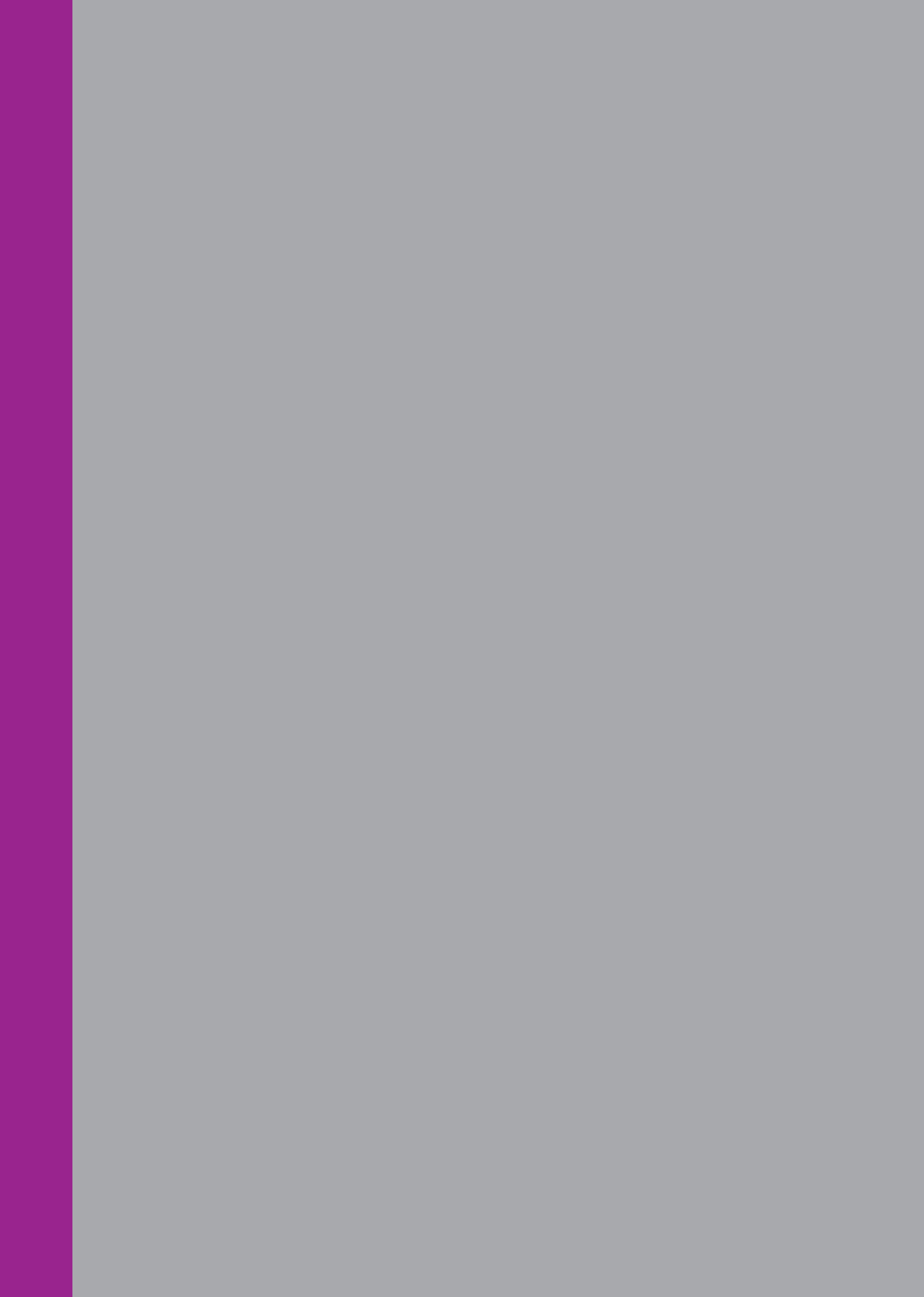
Part Number	Tube Size	Wall Thickness	A	B
BW-6C-075	¾"	1.65	50.80	25.40
BW-6C-075-1	¾"	1.65	67.30	33.65
BW-6C-100	1"	1.65	95.40	47.70
BW-6C-150	1½"	1.65	114.40	57.20
BW-6C-200	2"	1.65	152.40	76.20
BW-6C-250	2½"	1.65	152.40	76.20
BW-6C-250-1	2½"	1.65	190.26	95.13
BW-6C-300	3"	1.65	165.20	82.60
BW-6C-400	4"	2.11	197.20	98.60
BW-6C-400-1	4"	2.11	247.40	123.70
BW-6C-600	6"	2.77	254.00	127.00
BW-6C-600-1	6"	2.77	307.80	153.90



*Note: SS 316L Material Available on Request.



**Bellows &
Flexible Hoses**



Bellows & Flexible Hoses

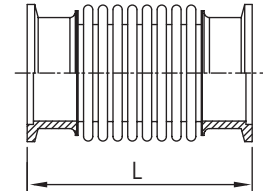
KF BELLOWS

*Material: SS 304

*Customized lengths available upon request.



Part Number	Flange Size	OD (mm)	ID (mm)	Wall Thickness (mm)	Pitch	L
MB-KF-16-100L	KF16	28.50	20.10	0.15	3.50	100
MB-KF-16-250L	KF16	28.50	20.10	0.15	3.50	250
MB-KF-16-500L	KF16	28.50	20.10	0.15	3.50	500
MB-KF-16-750L	KF16	28.50	20.10	0.15	3.50	750
MB-KF-16-1000L	KF16	28.50	20.10	0.15	3.50	1000
MB-KF-25-100L	KF25	36.00	25.10	0.15	4.30	100
MB-KF-25-250L	KF25	36.00	25.10	0.15	4.30	250
MB-KF-25-500L	KF25	36.00	25.10	0.15	4.30	500
MB-KF-25-750L	KF25	36.00	25.10	0.15	4.30	750
MB-KF-25-1000L	KF25	36.00	25.10	0.15	4.30	1000
MB-KF-40-100L	KF40	54.00	38.00	0.15	5.00	100
MB-KF-40-250L	KF40	54.00	38.00	0.15	5.00	250
MB-KF-40-500L	KF40	54.00	38.00	0.15	5.00	500
MB-KF-40-750L	KF40	54.00	38.00	0.15	5.00	750
MB-KF-40-1000L	KF40	54.00	38.00	0.15	5.00	1000
MB-KF-50-100L	KF50	68.00	50.10	0.15	6.00	100
MB-KF-50-250L	KF50	68.00	50.10	0.15	6.00	250
MB-KF-50-500L	KF50	68.00	50.10	0.15	6.00	500
MB-KF-50-750L	KF50	68.00	50.10	0.15	6.00	750
MB-KF-50-1000L	KF50	68.00	50.10	0.15	6.00	1000



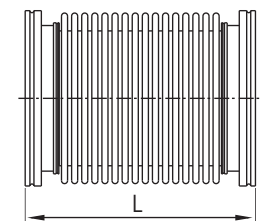
ISO-K BELLOWS

*Material: SS 304

*Customized lengths available upon request.



Part Number	Flange Size	OD (mm)	ID (mm)	Wall Thickness (mm)	Pitch	L
MB-ISOK-63-100L	ISO63	85.00	65.20	0.20	6.50	100
MB-ISOK-63-250L	ISO63	85.00	65.20	0.20	6.50	250
MB-ISOK-63-500L	ISO63	85.00	65.20	0.20	6.50	500
MB-ISOK-63-750L	ISO63	85.00	65.20	0.20	6.50	750
MB-ISOK-63-1000L	ISO63	85.00	65.20	0.20	6.50	1000
MB-ISOK-80-100L	ISO80	101.00	78.00	0.20	7.00	100
MB-ISOK-80-250L	ISO80	101.00	78.00	0.20	7.00	250
MB-ISOK-80-500L	ISO80	101.00	78.00	0.20	7.00	500
MB-ISOK-80-750L	ISO80	101.00	78.00	0.20	7.00	750
MB-ISOK-80-1000L	ISO80	101.00	78.00	0.20	7.00	1000
MB-ISOK-100-100L	ISO100	127.00	100.00	0.25	7.50	100
MB-ISOK-100-250L	ISO100	127.00	100.00	0.25	7.50	250
MB-ISOK-100-500L	ISO100	127.00	100.00	0.25	7.50	500
MB-ISOK-100-750L	ISO100	127.00	100.00	0.25	7.50	750
MB-ISOK-100-1000L	ISO100	127.00	100.00	0.25	7.50	1000
MB-ISOK-160-100L	ISO160	175.50	149.70	0.25	8.00	100
MB-ISOK-160-250L	ISO160	175.50	149.70	0.25	8.00	250
MB-ISOK-160-500L	ISO160	175.50	149.70	0.25	8.00	500
MB-ISOK-160-750L	ISO160	175.50	149.70	0.25	8.00	750
MB-ISOK-160-1000L	ISO160	175.50	149.70	0.25	8.00	1000



*Note: SS 316L Material Available on Request.

**MB
MH**

Bellows & Flexible Hoses

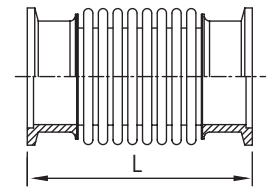
KF FLEXIBLE HOSES

*Material: SS 304

*Customized lengths available upon request.



Part Number	Flange Size	OD (mm)	ID (mm)	Wall Thickness (mm)	Pitch	L
MH-KF-16-250L	KF16	26.70	20.10	0.15	3.20	250
MH-KF-16-500L	KF16	26.70	20.10	0.15	3.20	500
MH-KF-16-1000L	KF16	26.70	20.10	0.15	3.20	1000
MH-KF-25-250L	KF25	33.00	25.10	0.15	4.20	250
MH-KF-25-500L	KF25	33.00	25.10	0.15	4.20	500
MH-KF-25-1000L	KF25	33.00	25.10	0.15	4.20	1000
MH-KF-40-250L	KF40	49.40	37.90	0.20	5.20	250
MH-KF-40-500L	KF40	49.40	37.90	0.20	5.20	500
MH-KF-40-1000L	KF40	49.40	37.90	0.20	5.20	1000
MH-KF-50-250L	KF50	62.70	50.00	0.20	5.50	250
MH-KF-50-500L	KF50	62.70	50.00	0.20	5.50	500
MH-KF-50-1000L	KF50	62.70	50.00	0.20	5.50	1000



ISO-K FLEXIBLE HOSES

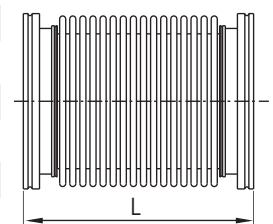
*Material: SS 304

*Customized lengths available upon request.



MB
MH

Part Number	Flange Size	OD (mm)	ID (mm)	Wall Thickness (mm)	Pitch	L
MH-ISOK-63-250L	ISO63	81.00	65.20	0.20	7.10	250
MH-ISOK-63-500L	ISO63	81.00	65.20	0.20	7.10	500
MH-ISOK-63-1000L	ISO63	81.00	65.20	0.20	7.10	1000
MH-ISOK-80-250L	ISO80	127.00	100.00	0.20	10.00	250
MH-ISOK-80-500L	ISO80	127.00	100.00	0.20	10.00	500
MH-ISOK-80-1000L	ISO80	127.00	100.00	0.20	10.00	1000
MH-ISOK-100-250L	ISO100	96.00	78.00	0.20	7.50	250
MH-ISOK-100-500L	ISO100	96.00	78.00	0.20	7.50	500
MH-ISOK-100-1000L	ISO100	96.00	78.00	0.20	7.50	1000
MH-ISOK-160-250L	ISO160	175.50	149.50	0.25	6.50	250
MH-ISOK-160-500L	ISO160	175.50	149.50	0.25	6.50	500
MH-ISOK-160-1000L	ISO160	175.50	149.50	0.25	6.50	1000



*Note: SS 316L Material Available on Request.

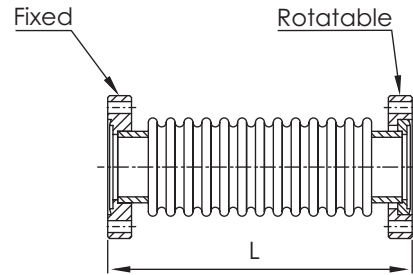
Bellows & Flexible Hoses



CF BELLOWS

*Material: SS 304

*Customized lengths available upon request.



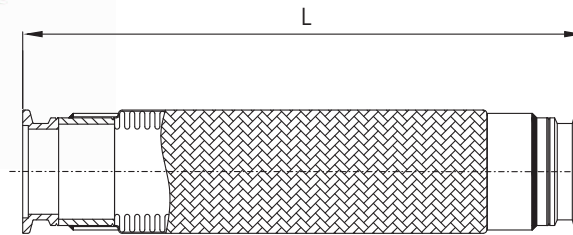
Part Number	Flange Size	OD (mm)	ID (mm)	Wall Thickness (mm)	Pitch	L
MB-CF-133-082L	CF1.33"(DN16)	28.50	20.10	0.15	3.50	82
MB-CF-212-082L	CF2.12"(DN25)	36.00	25.10	0.15	4.30	82
MB-CF-275-082L	CF2.75"(DN40)	54.00	38.00	0.15	5.00	82
MB-CF-338-082L	CF3.38"(DN50)	68.00	50.10	0.15	6.00	82
MB-CF-450-178L	CF4.50"(DN63)	85.00	65.20	0.20	6.50	178
MB-CF-462-178L	CF4.62"(DN80)	101.00	78.00	0.20	7.00	178
MB-CF-600-178L	CF6.00"(DN100)	127.00	100.00	0.25	7.50	178
MB-CF-800-178L	CF8.00"(DN160)	175.50	149.70	0.25	8.00	178



MESH BELLOWS

*Material: SS 304

*Customized lengths available upon request.



Part Number	Flange Size	OD (mm)	ID (mm)	Wall Thickness (mm)	L
BB-KF-16-250L	KF16	30.50	20.00	0.25	250
BB-KF-16-500L	KF16	30.50	20.00	0.25	500
BB-KF-16-750L	KF16	30.50	20.00	0.25	750
BB-KF-16-1000L	KF16	30.50	20.00	0.25	1000
BB-KF-25-250L	KF25	37.50	25.00	0.25	250
BB-KF-25-500L	KF25	37.50	25.00	0.25	500
BB-KF-25-750L	KF25	37.50	25.00	0.25	750
BB-KF-25-1000L	KF25	37.50	25.00	0.25	1000
BB-KF-40-250L	KF40	55.50	37.50	0.25	250
BB-KF-40-500L	KF40	55.50	37.50	0.25	500
BB-KF-40-750L	KF40	55.50	37.50	0.25	750
BB-KF-40-1000L	KF40	55.50	37.50	0.25	1000
BB-KF-50-250L	KF50	67.50	49.80	0.25	250
BB-KF-50-500L	KF50	67.50	49.80	0.25	500
BB-KF-50-750L	KF50	67.50	49.80	0.25	750
BB-KF-50-1000L	KF50	67.50	49.80	0.25	1000

*Note: SS 316L Material Available on Request.



**Traps &
Vacuum Heating Jackets**



FORELINE TRAPS SEALED METAL TYPE

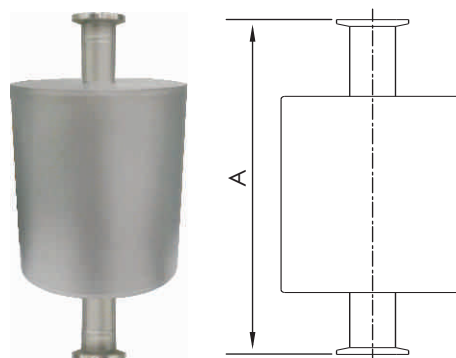
*Filter Material: Copper Wool

*Filter Type: Sealed Type

*Surface Finish: Bead Blast

*Body Material: SS 304L

Part Number	Flange Size	Body OD	A
FT-S-KF16	KF16	101.6	241.30
FT-S-KF25	KF25	101.6	224.54
FT-S-KF40	KF40	101.6	226.52
FT-S-KF50	KF50	101.6	227.33



Traps

TRAPS for Silicon Nitride LPCVD

In silicon nitride LPCVD process using DCS (SiCl_2H_2) and NH_3 , NH_4Cl is always formed as a by-product during the deposition process. It condenses into solid and deposits on any inner surface along the pumping line when its temperature is below its sublimation temperature as shown in the vapor pressure curve on the right. For most of silicon nitride LPCVD processes, this temperature is around 150°C for foreline (before the vacuum pump), and can be much higher ($>180^\circ\text{C}$) in exhaust line after vacuum pump due to higher partial pressure after compression inside the vacuum pump.

Due to the exponential relationship between the vapor pressure and temperature, the accumulation of solid NH_4Cl is very rapid on any cold spot along the pumping line as commonly observed in many deposition tools, this also poses a challenge for a trap as its entrance could be clogged quickly if the trap is not properly designed.

AdvanTorr Trap is optimized for both trapping capacity and efficiency by sending the deposition effectively into the trap body.

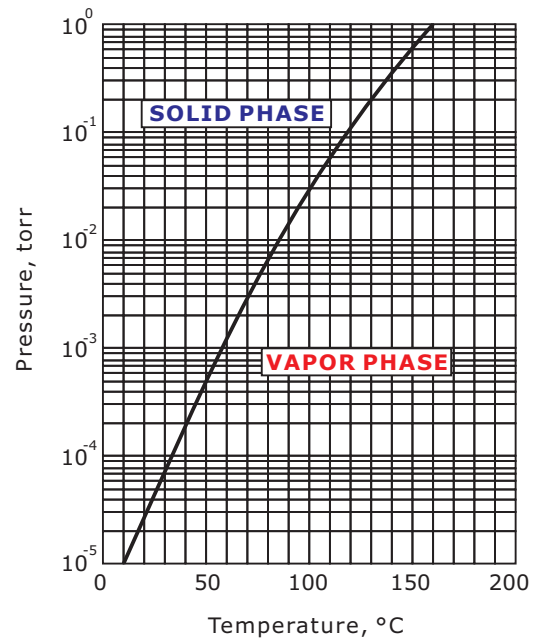
Cooling at the trap exit ensures high trapping efficiency and minimizes its impact on trapping capacity.

Trap with a high capacity and efficiency in pump foreline line can be very effective as it reduces the number of heaters used for pumping line, extends the pump life, and prolongs the time between PM of the tool, including scrubber.

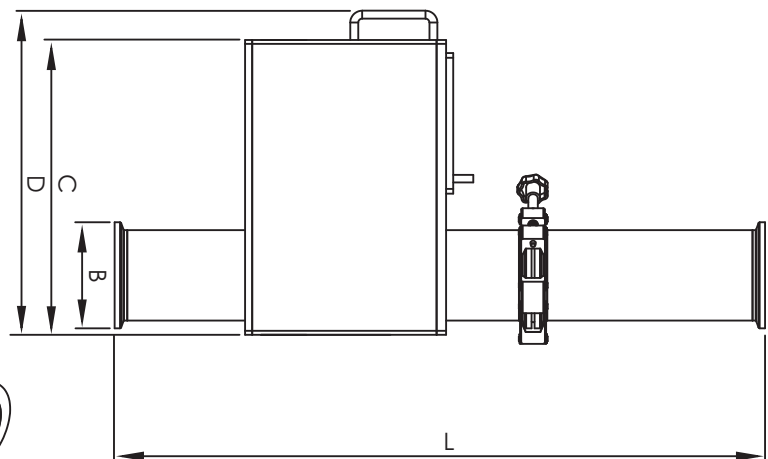
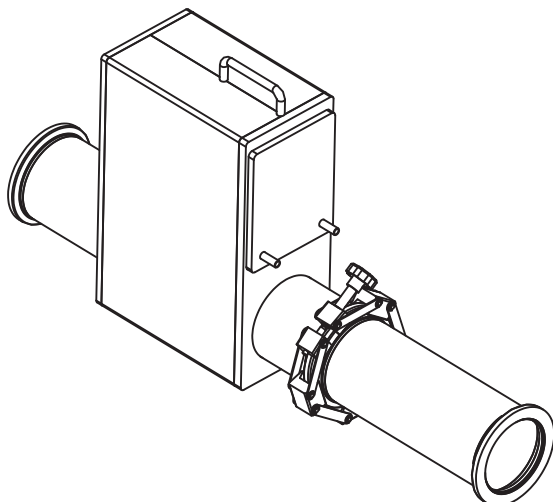
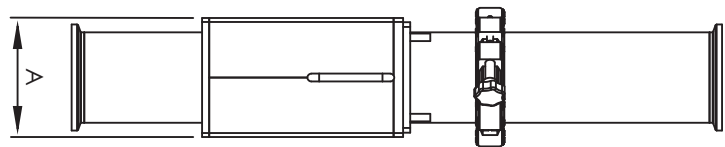
Specifications:

- * Trapping capacity: $>5\text{kg}$
- * Trapping efficiency: $>99\%$
- * Conductance (L/sec): $60 \times P(\text{mtorr})$, (note: conductance is a function of pressure in viscous flow regime)
- * Cooling water: $>0.3\text{L/min}$, optional if flow rate is low.
- * Cooling water temperature: $<20^\circ\text{C}$. Lower is better.
- * Weight: 10.8kg

VAPOR PRESSURE CURVE FOR NH_4Cl



Part Number	Flange Size	A	B	C	D	L
T-KF-100	KF100	150	134	373	410	822



TR
HJ

Vacuum Heating Jackets

- **Reducing the particle-** Teflon coated fiberglass cover and liner.
- **Improving heater reliability-** Etch foil heating element.
- **Reducing surface temperature and saving energy-** Hybrid super thermal insulation/fiberglass wool.
- **Splitting design for easy installation-** Avoid bending and stress to extend the heater service life.

Molded for Vacuum Products

Check valve heater



Poppet valve heater



Chain clamp heater



Pipe clamp heater



Elbow heater



Straight heater



TR
HJ

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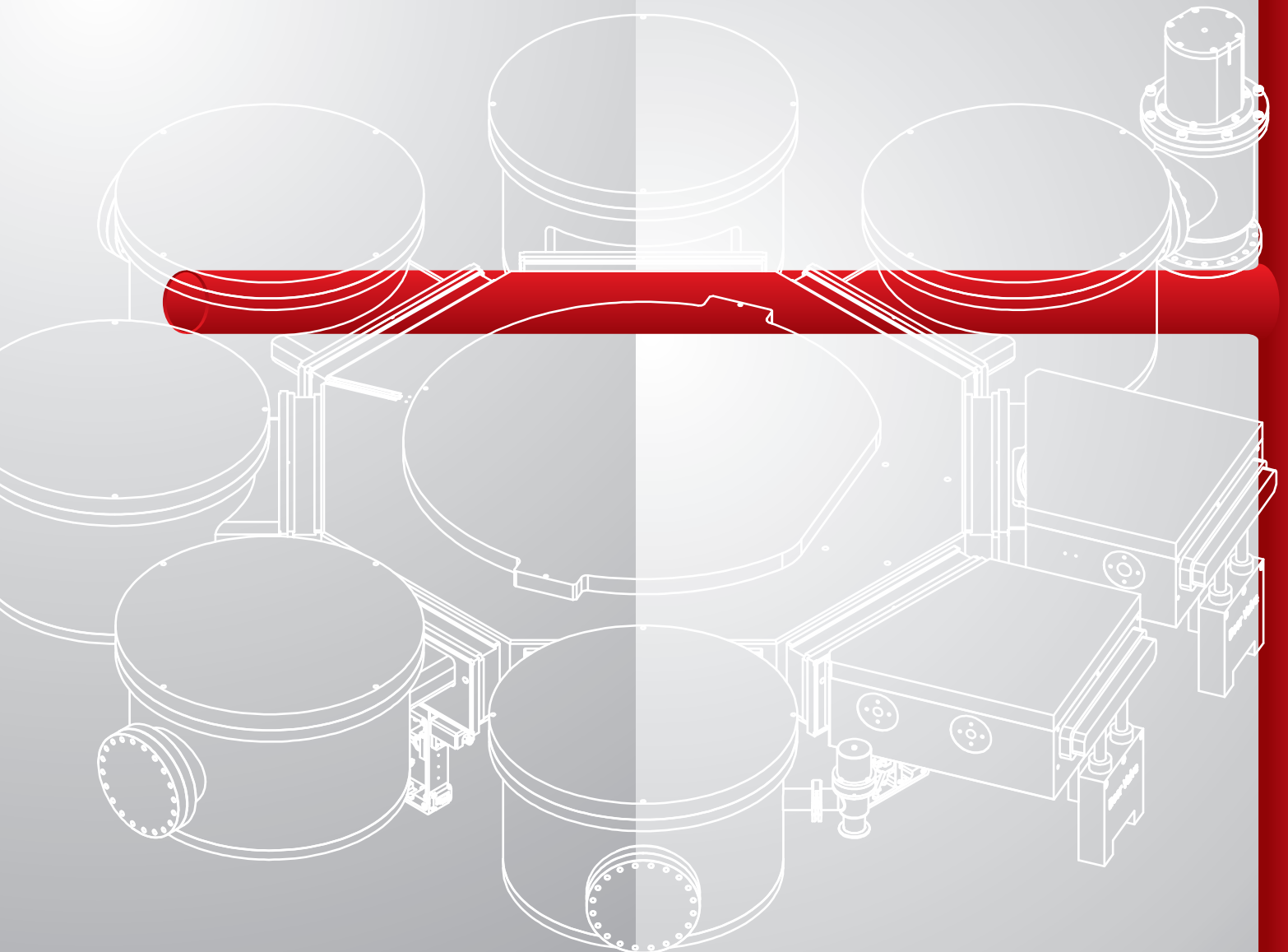


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