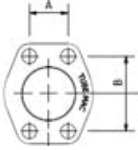
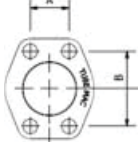


ISO 6164 Reference Guide

					
Flare Flange Dimensions	Flare Flange Clearance Holes NPS FFC74	Flare Flange Clearance Holes Metric FFCM74	Flare Flange Set O-Ring Face Cone Clearance Holes NPS FFC74-CO	Flare Flange Set O-Ring Face Cone Clearance Holes Metric FFCM74-CO	Flare Flange Set Flat Face Cone Clearance Holes NPS FFC74-CF
					
Flare Flange Set Flat Face Cone Clearance Holes Metric FFCM74-CF	Flare Flange Set Double Cone Clearance Holes NPS FFC74-CD	Flare Flange Set Double Cone Clearance Holes Metric FFCM74-CD	Flare Flange Cone Inserts NPS CO, CF, CD	Flare Flange Cone Inserts with Pilot Port NPS COP, CFP	Flare Flange Cone Inserts Metric CO, CF, CD
					
Flare Flange Cone Inserts with Pilot Port Metric COP, CFP	Retain Ring Flange Dimensions	Retain Ring Flange Clearance Holes NPS, Metric, RFC764	Retain Ring Flange NPS, Metric RFCA48-RFCA412	Bump Style Butt Weld Adapter Assembly, NPS A/BWA	Bump Style Butt Weld Adapter Assembly, Metric A/BWA
					
Retain Ring Style Butt Weld Adapter Assembly, NPS A/BWAR	Retain Ring Style Butt Weld Adapter Assembly, Metric A/BWAR	BSPP Female Thread Adapter Assembly A/FBTA	SAE Male Thread Adapter Assembly A/STA	NPT Male Thread Adapter Assembly A/NTA	BSPP Male Thread Adapter Assembly A/BTA
					
Pipe Assembly NPS, Metric PAF	Retain ring Bent Pipe Assembly NPS, Metric BPAF	Flare Flange Bend Elbow Assembly NPS, Metric A/FFE	Retain Ring Flange Bend Elbow Assembly A/RFE	Retain Ring Flange Elbow Assembly A/RRFE	Block Elbow NPS, Metric BE64, BEM64

PYPLOK

FLANGES
ISO 6164

PIPES &
TUBES

CLAMPS

VALVES

BITE TYPE
FITTINGS

HP HOSES

QUICK
COUPL.

TEST
POINTS

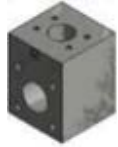
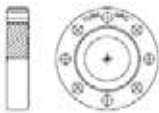
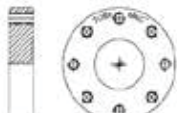
ADAPTORS

MACHINES

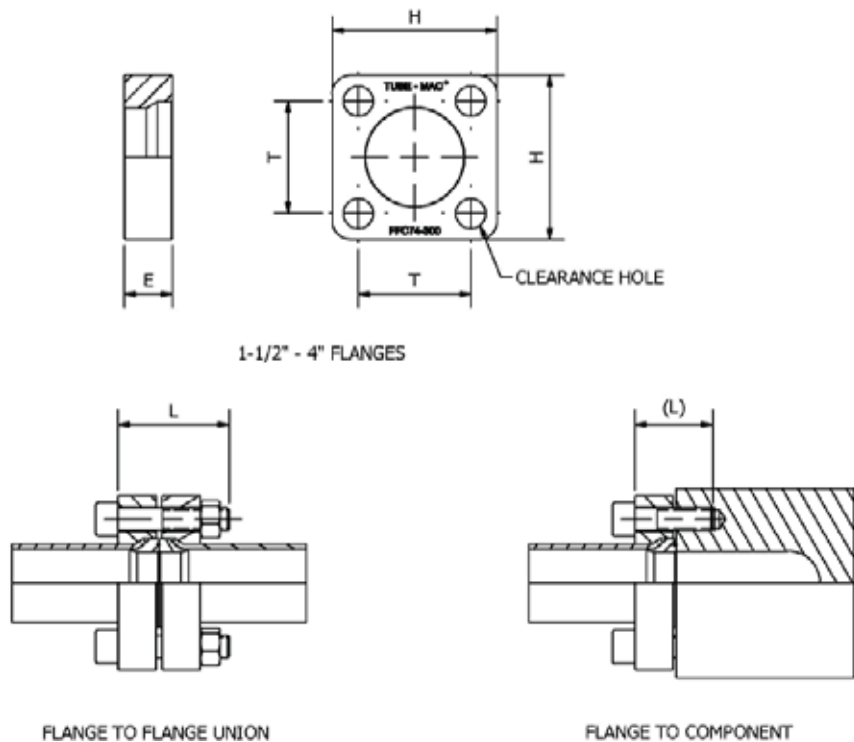
OTHER
PRODUCTS

ISO 6164

ISO 6164 Reference Guide

					
Flange Tee Assembly NPS, Metric A/RRFT	Block Tee NPS, Metric BT74, BTM74	Reducing Branch Block Tee NPS, Metric BTR74, BTRM74	Reducing Branch Block Tee NPS, Metric BTR7-64, BTRM7-64	Transition Plate Manifold Mount NPS, Metric TP07-34, TPOM7-34	Transition Plate Reducer NPS, Metric TPR7-34, TPRM7-34
					
Transition Plate ISO Reducer NPS, Metric TPR7-64, TPRM7-64	Transition Plate Reducer NPS, Metric TPR74, TPRM74	Transition Plate Reducer Manifold Mount NPS, Metric TPR07-34, TPROM7-34	ISO Transition Plate Reducer Manifold Mount NPS, Metric TPR07-64, TPROM7-64	O-Ring Connector Plate OCP	Connector Plate CP
					
Retain Ring R, RA	O-Ring Spacer RR Pipe Flange Connection OS, OSA	O-Ring Spacer RR Pipe to Hose End OSH	O-Ring Spacer With Pilot Port NPS, Metric OSP, OSPM	Retain Ring Flange Bulkhead Assembly A/RFBH	Retain Ring Flange Concentric Reducer Assembly A/CR
					
Blanking Flange O-Ring Face with Clearance Holes BF074, BFOM74	Blanking Flange Flat Face with Threaded Holes BFF74, BFFM74	Blanking Flange O-Ring Face with Clearance Holes BF0748, BFOM48	Blanking Flange Flat Face with BFF748, BFFM748	Non-Conductive Connector Plate NPS, Metric NCCP64	

ISO 6164 Flare Flange Dimensions, NPS



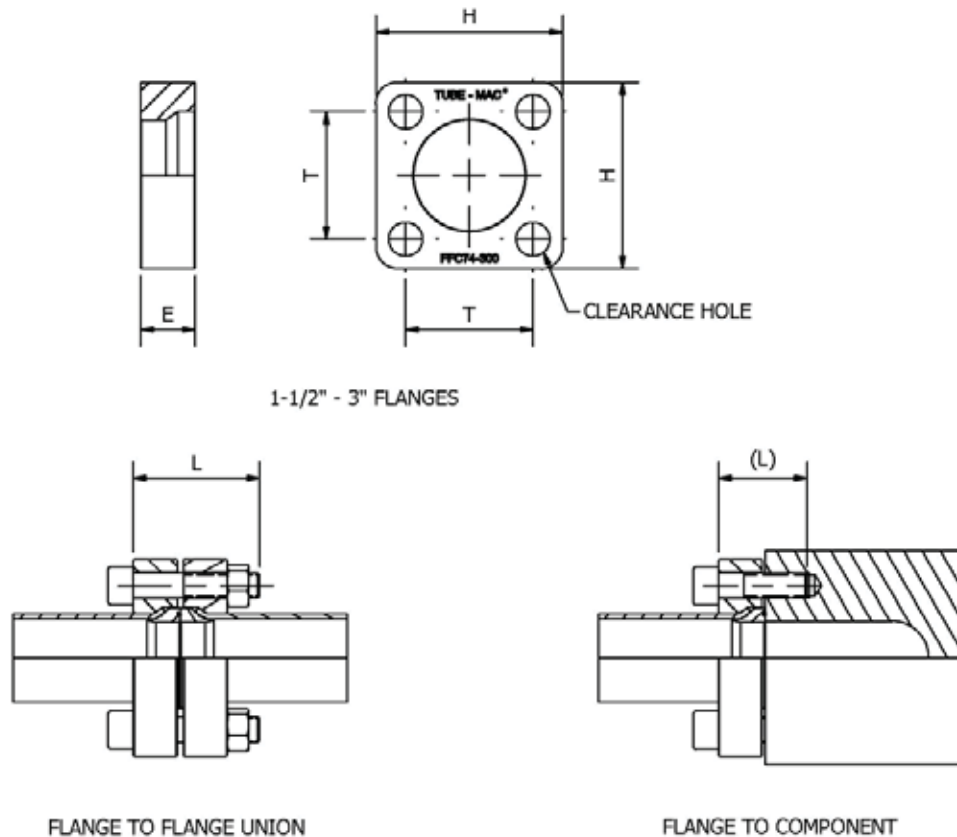
Flare Flange Dimensions, NPS

Flange Size	Pipe Size	Dimensions (in)			SHCS Bolt (in)* L (L)	Working Pressure PSI (bar)
		T	H	E		
1 1/2"	1 1/2" SCH80	2.37	3.50	1.38	5/8" UNC x 4.00" (2.50")	4920 (339)*
1 1/2"	1 1/2" SCH160	2.37	3.50	1.38	5/8" UNC x 4.25" (2.75")	5800 (400)
2"	2" SCH80	2.73	4.00	1.20	5/8" UNC x 3.75" (2.25")	4246 (293)*
2"	2" SCH160	2.73	4.00	1.20	5/8" UNC x 4.00" (2.50")	5800 (400)
2 1/2"	2 1/2" SCH80	3.29	4.72	1.48	3/4" UNC x 4.50" (3.00")	4455 (307)*
2 1/2"	2 1/2" SCH160	3.29	4.72	1.48	3/4" UNC x 5.00" (3.25")	5800 (400)
3"	3" SCH80	4.04	5.91	1.73	1" UNC x 5.00" (3.50")	3946 (272)*
3"	3" SCH160	4.04	5.91	1.73	1" UNC x 5.50" (4.50")	5800 (400)
4"	4" SCH80	4.87	7.00	1.98	1 1/8" UNC x 6.75" (4.00")	3420 (236)*

Note:
The working pressure ratings are subject to the lesser of the flange or pipe rating.
*The pipe working pressure is based on DIN 2413 I for straight pipe, including manufacturing tolerance.

ISO 6164

ISO 6164 Flare Flange Dimensions, Metric



Flare Flange Dimensions, Metric

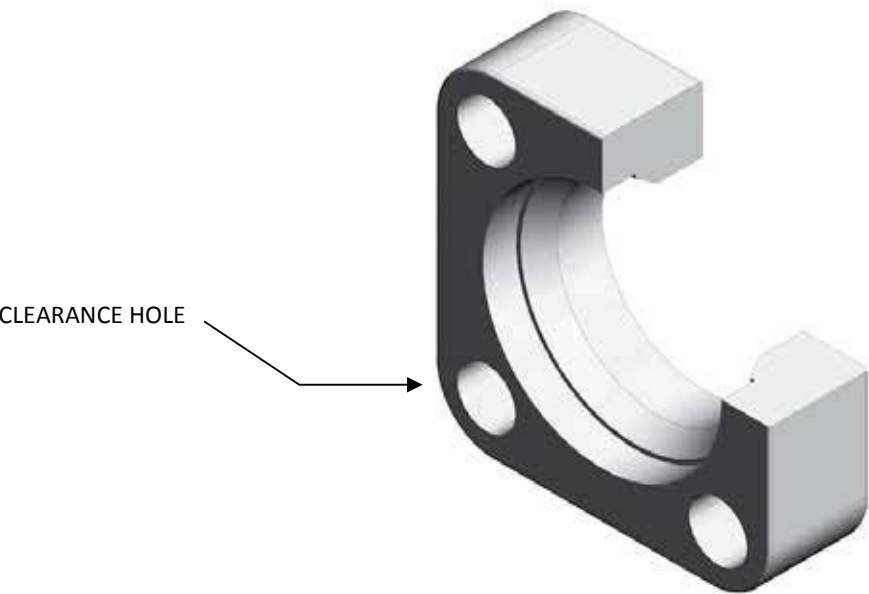
Size	Pipe Size (mm)	Dimensions (mm)			SHCS Bolt (mm)* L (L)	Working Pressure PSI (bar)
		T	H	E		
1 1/2"	50 x 5	60.1	88.9	35.0	M16 x 100 (60)	5235 (361)*
1 1/2"	56 x 8.5	60.1	88.9	35.0	M16 x 110 (70)	5800 (400)
2"	60 x 6	69.3	101.6	29.9	M16 x 100 (60)	5307 (366)*
2"	66 x 8.5	69.3	101.6	29.9	M16 x 100 (60)	5800 (400)
2 1/2"	73 x 7	83.5	119.9	37.6	M20 x 120 (75)	5119 (353)*
2 1/2"	80 x 10	83.5	119.9	37.6	M20 x 130 (85)	5800 (400)
3"	90 x 9	102.5	150.1	43.9	M24 x 130 (90)	5800 (400)
3"	97 x 12	102.5	150.1	60.3	M24 x 140 (115)	5800 (400)

Note:

The working pressure ratings are subject to the lesser of the flange or pipe rating.

*The pipe working pressure is based on DIN 2413 I for straight pipe, including manufacturing tolerance.

ISO 6164 Flare Flange with Clearance Holes, NPS



FFC74 Flare Flange with Clearance Holes, NPS DIN 400 bar (ISO 6164)

Size	Pipe Size	Standard Part No.	HDG Part No.	SS Part No.	Working Pressure PSI (bar)	WT lbs (kg)
1 1/2"	1 1/2" SCH80/160	FFC74-150	FFC74-150-HDG	FFC74-150-SS	5800 (400)	2.75 (1.25)
2"	2" SCH80/160	FFC74-200	FFC74-200-HDG	FFC74-200-SS	5800 (400)	3.10 (1.41)
2 1/2"	2 1/2" SCH80/160	FFC74-250	FFC74-250-HDG	FFC74-250-SS	5800 (400)	5.06 (2.30)
3"	3" SCH80/160	FFC74-300	FFC74-300-HDG	FFC74-300-SS	5800 (400)	8.79 (4.00)
4"	4" SCH80	FFC74-400	FFC74-400-HDG	FFC74-400-SS	5800 (400)	14.80 (6.71)

- Materials:
- Standard, No Designation = Carbon Steel, Zinc Plated
 - HDG = Carbon Steel, Hot Dip Galvanized
 - SS = Stainless Steel, Type 316

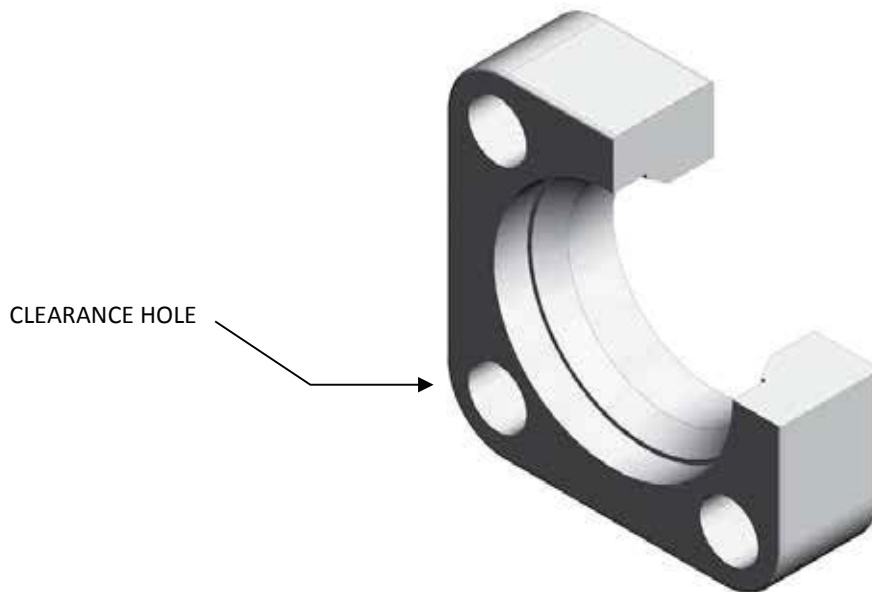
Note:
The working pressure shown is for the flange connection only. Refer to pipe section for allowable working pressure of the pipe.
The complete assembly working pressure ratings are subject to the lesser of the flange or pipe ratings.

3D step models available upon request

ISO 6164

ISO 6164 Flare Flange with Clearance Holes, Metric

DIN 400 bar (ISO 6164)



FFCM74 Flare Flange with Clearance Holes, Metric

Size	Pipe OD (mm)	Standard Part No.	HDG Part No.	SS Part No.	Working Pressure PSI (bar)	WT lbs (kg)
1 1/2"	50	FFCM74-150-50MM	FFCM74-150-50MM-HDG	FFCM74-150-50MM-SS	5800 (400)	2.75 (1.25)
1 1/2"	56	FFCM74-150-56MM	FFCM74-150-56MM-HDG	FFCM74-150-56MM-SS	5800 (400)	2.75 (1.25)
2"	60	FFC74-200	FFC74-200-HDG	FFC74-200-SS	5800 (400)	3.10 (1.41)
2"	66	FFCM74-200-66MM	FFCM74-200-66MM-HDG	FFCM74-200-66MM-SS	5800 (400)	3.10 (1.41)
2 1/2"	73	FFC74-250	FFC74-250-HDG	FFC74-250-SS	5800 (400)	5.06 (2.30)
2 1/2"	75	FFCM74-250-75MM	FFCM74-250-75MM-HDG	FFCM74-250-75MM-SS	5800 (400)	4.80 (2.18)
2 1/2"	80	FFCM74-250-80MM	FFCM74-250-80MM-HDG	FFCM74-250-80MM-SS	5800 (400)	4.80 (2.18)
3"	90	FFCM74-300-90MM	FFCM74-300-90MM-HDG	FFCM74-300-90MM-SS	5800 (400)	8.79 (4.00)
3"	97	FFCM74-300-97MM	FFCM74-300-97MM-HDG	FFCM74-300-97MM-SS	5800 (400)	12.70 (5.80)

Materials:

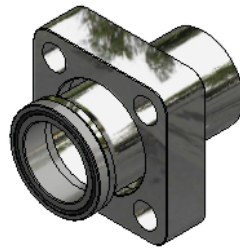
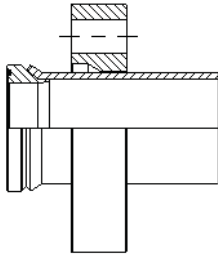
- Standard, No Designation = Carbon Steel, Zinc Plated
- HDG = Carbon Steel, Hot Dip Galvanized
- SS = Stainless Steel, Type 316

Note:

The working pressure shown is for the flange connection only. Refer to pipe section for allowable working pressure of the pipe.
The complete assembly working pressure ratings are subject to the lesser of the flange or pipe ratings.

3D step models available upon request

ISO 6164 Flare Flange Set



Complete Flange Set Includes:

- One (1) Flare Flange
- One (1) O-Ring Face Cone
- One (1) Face O-Ring (O-Ring 2)
- One (1) Back Up O-Ring (O-Ring 1)

To be Ordered Separately:

- Bolt Kit (See Page J1)
- Metric Bolt Kit (See Page J2)

O-Ring Face with Clearance Holes DIN 400 bar (ISO 6164)

FFC74-CO Flare Flange O-Ring Face Set with Clearance Holes, NPS

Size	Pipe Size	Complete Flange Set Part No.	WT/Set lbs (kg)	Flange Part No.	O-Ring Face Cone Insert Part No.	O-Ring 1 (VITON) Part No.	O-Ring 2 (Buna) Part No.
1 1/2"	1 1/2" SCH80	FFC74-CO-SCH80-150-*^	3.17 (1.44)	FFC74-150-*	CO-SCH80-150-*^	ORV-4315	OR^2-225
1 1/2"	1 1/2" SCH160	FFC74-CO-SCH160-150-*^	3.17 (1.44)	FFC74-150-*	CO-SCH160-150-*^	ORV-3815	OR^2-225
2"	2" SCH80	FFC74-CO-SCH80-200-*^	3.59 (1.63)	FFC74-200-*	CO-SCH80-200-*^	ORV-5515	OR^2-228
2"	2" SCH160	FFC74-CO-SCH160-200-*^	3.77 (1.71)	FFC74-200-*	CO-SCH160-200-*^	ORV-5015	OR^2-228
2 1/2"	2 1/2" SCH80	FFC74-CO-SCH80-250-*^	6.05 (2.75)	FFC74-250-*	CO-SCH80-250-*^	ORV-2-036	OR^2-232
2 1/2"	2 1/2" SCH160	FFC74-CO-SCH160-250-*^	6.48 (2.95)	FFC74-250-*	CO-SCH160-250-*^	ORV-5615	OR^2-232
3"	3" SCH80	FFC74-CO-SCH80-300-*^	10.00 (4.55)	FFC74-300-*	CO-SCH80-300-*^	ORV-2-040	OR^2-237
3"	3" SCH160	FFC74-CO-SCH160-300-*^	10.69 (4.86)	FFC74-300-*	CO-SCH160-300-*^	ORV-2-037	OR^2-237
4"	4" SCH80	FFC74-CO-SCH80-400-*^	16.85 (7.66)	FFC74-400-*	CO-SCH80-400-*^	ORV-2-044	OR^2-245

FFCM74-CO Flare Flange O-Ring Face Set with Clearance Holes, Metric

Size	Pipe Size	Complete Flange Set Part No.	WT/Set lbs (kg)	Flange Part No.	O-Ring Face Cone Insert Part No.	O-Ring 1 (VITON) Part No.	O-Ring 2 (Buna) Part No.
1 1/2"	50 x 5.0	FFCM74-CO-50x5.0-150-*^	3.17 (1.44)	FFCM74-150-50MM-*	CO-50x5.0-150-*^	ORV-4515	OR^2-225
1 1/2"	56 x 8.5	FFCM74-CO-56x8.5-150-*^	3.17 (1.44)	FFCM74-150-56MM-*	CO-56x8.5-150-*^	ORV-4315	OR^2-225
2"	60 x 6.0	FFCM74-CO-60x6.0-200-*^	3.59 (1.63)	FFC74-200-*	CO-60x6.0-200-*^	ORV-5615	OR^2-228
2"	66 x 8.5	FFCM74-CO-66x8.5-200-*^	3.77 (1.71)	FFCM74-200-66MM-*	CO-66x8.5-200-*^	ORV-5615	OR^2-228
2 1/2"	73 x 7.0	FFCM74-CO-73x7.0-250-*^	6.05 (2.75)	FFC74-250-*	CO-73x7.0-250-*^	ORV-2-036	OR^2-232
2 1/2"	75 x 5.0	FFCM74-CO-75x5.0-250-*^	6.48 (2.95)	FFCM74-250-75MM-*	CO-75x5.0-250-*^	ORV-2-036	OR^2-232
2 1/2"	80 x 10.0	FFCM74-CO-80x10-250-*^	5.75 (2.61)	FFCM74-250-80MM-*	CO-80x10-250-*^	ORV-6715	OR^2-232
3"	90 x 9.0	FFCM74-CO-90x9.0-300-*^	10.11 (4.60)	FFCM74-300-90MM-*	CO-90x9.0-300-*^	ORV-	OR^2-237
3"	97 x 12.0	FFCM74-CO-97x12-300-*^	15.30 (6.95)	FFCM74-300-97MM-*	CO-97x12-300-*^	ORV-2-041	OR^2-237

Ordering Example: FFC74-CO-SCH80-200-SS-V

* Insert Material

^ Insert O-Ring 2 Type

* Materials:

- Standard, No Designation = All Carbon Steel, Clear Zinc Plated (Cr6 Free).
- SS = All Stainless Steel, Type 316.
- ZSS = Carbon Steel Flange with Stainless Steel Cone, Type 316.
- HDGSS = Carbon Steel, Hot Dip Galvanized Flange with Stainless Steel Cone, Type 316.

^ O-Ring 2 Type:

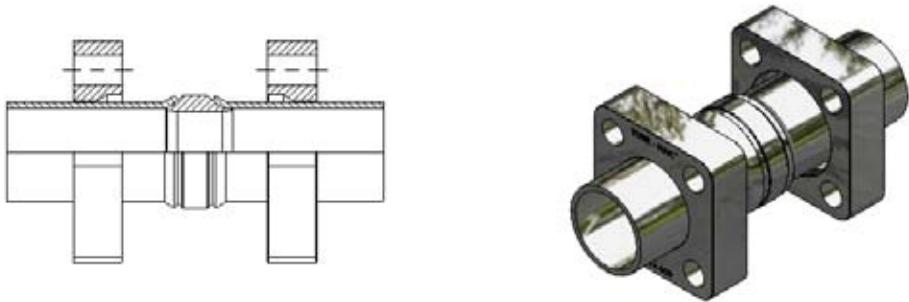
- Standard, No Designation = Buna Nitrile.
- V = Viton.

3D step models available upon request

ISO 6164

ISO 6164 Flare Flange Double Cone Union Set

with Clearance Holes DIN 400 bar (ISO 6164)



Complete Flange Set Includes:

- Two (2) Flare Flanges
- One (1) Double Cone
- Two (2) Back Up O-Rings (O-Ring 1)

To be Ordered Separately:

- Bolt Kit (See Page J1)
- Metric Bolt Kit (See Page J2)

FFC74-CD Flare Flange Double Cone Union Set with Clearance Holes, NPS

Size	Pipe Size	Complete Flange Set Part No.	WT/Set lbs (kg)	Flange Part No.	Flat Face Cone Insert Part No.	O-Ring 1 (VITON) Part No.
1 1/2"	1 1/2" SCH80	FFC74-CD-SCH80-150-*	6.34 (2.88)	FFC74-150-*	CD-SCH80-150-*	ORV-4315
1 1/2"	1 1/2" SCH160	FFC74-CD-SCH160-150-*	6.34 (2.88)	FFC74-150-*	CD-SCH160-150-*	ORV-3815
2"	2" SCH80	FFC74-CD-SCH80-200-*	7.17 (3.26)	FFC74-200-*	CD-SCH80-200-*	ORV-5515
2"	2" SCH160	FFC74-CD-SCH160-200-*	7.51 (3.41)	FFC74-200-*	CD-SCH160-200-*	ORV-5015
2 1/2"	2 1/2" SCH80	FFC74-CD-SCH80-250-*	12.07 (5.49)	FFC74-250-*	CD-SCH80-250-*	ORV-2-036
2 1/2"	2 1/2" SCH160	FFC74-CD-SCH160-250-*	12.89 (5.86)	FFC74-250-*	CD-SCH160-250-*	ORV-5615
3"	3" SCH80	FFC74-CD-SCH80-300-*	19.95 (9.07)	FFC74-300-*	CD-SCH80-300-*	ORV-2-040
3"	3" SCH160	FFC74-CD-SCH160-300-*	21.26 (9.66)	FFC74-300-*	CD-SCH160-300-*	ORV-2-037
4"	4" SCH80	FFC74-CD-SCH80-400-*	34.07 (15.49)	FFC74-400-*	CD-SCH80-400-*	ORV-2-044

FFCM74-CD Flare Flange Double Cone Union Set with Clearance Holes, Metric

Size	Pipe Size	Complete Flange Set Part No.	WT/Set lbs (kg)	Flange Part No.	Flat Face Cone Insert Part No.	O-Ring 1 (VITON) Part No.
1 1/2"	50 x 5	FFCM74-CD-50x5.0-150-*	6.31 (2.87)	FFCM74-150-50MM-*	CD-50x5.0-150-*	ORV-4515
1 1/2"	56 x 8.5	FFCM74-CD-56x8.5-150-*	6.31 (2.87)	FFCM74-150-56MM-*	CD-56x8.5-150-*	ORV-4315
2"	60 x 6	FFCM74-CD-60x6.0-200-*	7.09 (3.22)	FFC74-200-*	CD-60x6.0-200-*	ORV-5615
2"	66 x 8.5	FFCM74-CD-66x8.5-200-*	7.09 (3.22)	FFCM74-200-66MM-*	CD-66x8.5-200-*	ORV-5615
2 1/2"	73 x 7	FFCM74-CD-73x7.0-250-*	12.12 (5.51)	FFC74-250-*	CD-73x7.0-250-*	ORV-2-036
2 1/2"	75 x 5	FFCM74-CD-75x5.0-250-*	11.60 (5.27)	FFCM74-250-75MM-*	CD-75x5.0-250-*	ORV-2-036
2 1/2"	80 x 10	FFCM74-CD-80x10-250-*	11.48 (5.23)	FFCM74-250-80MM-*	CD-CD80x10-250-*	ORV-6715
3"	90 x 9	FFCM74-CD-90x9.0-300-*	20.18 (9.17)	FFCM74-300-90MM-*	CD-90x9.0-300-*	ORV-
3"	97 x 12	FFCM74-CD-97x12-300-*	30.50 (13.86)	FFCM74-300-97MM-*	CD-97x12-300-*	ORV-2-041

* Materials:

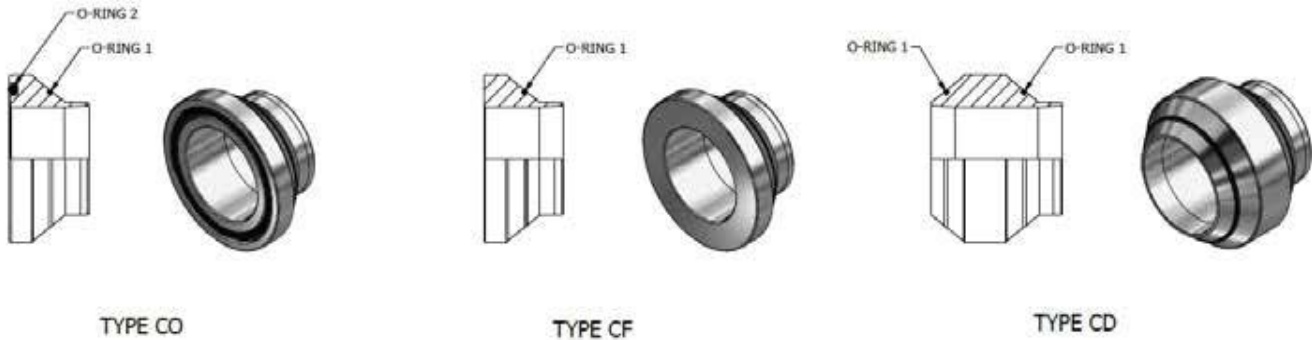
- Standard, No Designation = All Carbon Steel, Clear Zinc Plated (Cr6 Free).
- SS = All Stainless Steel, Type 316.
- ZSS = Carbon Steel Flange with Stainless Steel Cone, Type 316.
- HDGSS = Carbon Steel, Hot Dip Galvanized Flange with Stainless Steel Cone, Type 316.

Ordering Example: FFC74-CD-SCH80-200-SS

* Insert Material _____

3D step models available upon request

ISO 6164 Cone Inserts for Flare Flange Connections

**CO, CF and CD** Cone Inserts for Flare Flange Connections, NPS

DIN 400 bar (ISO 6164)

Size	Pipe Size	O-Ring Face Cone Insert Part No. (Type CO)	WT lbs (kg)	Flat Face Cone Insert Part No. (Type CF)	WT lbs (kg)	Double Cone Insert Part No. (Type CD)	WT lbs (kg)	O-Ring 1 (VITON) Part No.	O-Ring 2 (Buna) Part No.
1 1/2"	1 1/2" SCH80	CO-SCH80-150-*^	0.42 (0.19)	CF-SCH80-150-*	0.46 (0.21)	CD-SCH80-150-*	0.84 (0.38)	ORV-4315	OR^2-225
1 1/2"	1 1/2" SCH160	CO-SCH160-150-*^	0.42 (0.19)	CF-SCH160-150-*	0.45 (0.20)	CD-SCH160-150-*	0.83 (0.37)	ORV-3815	OR^2-225
2"	2" SCH80	CO-SCH80-200-*^	0.49 (0.22)	CF-SCH80-200-*	0.53 (0.24)	CD-SCH80-200-*	0.97 (0.44)	ORV-5515	OR^2-228
2"	2" SCH160	CO-SCH160-200-*^	0.67 (0.30)	CF-SCH160-200-*	0.71 (0.32)	CD-SCH160-200-*	1.31 (0.59)	ORV-5015	OR^2-228
2 1/2"	2 1/2" SCH80	CO-SCH80-250-*^	0.99 (0.45)	CF-SCH80-250-*	1.06 (0.48)	CD-SCH80-250-*	1.95 (0.88)	ORV-2-036	OR^2-232
2 1/2"	2 1/2" SCH160	CO-SCH160-250-*^	1.42 (0.64)	CF-SCH160-250-*	1.50 (0.68)	CD-SCH160-250-*	2.77 (1.26)	ORV-5615	OR^2-232
3"	3" SCH80	CO-SCH80-300-*^	1.21 (0.55)	CF-SCH80-300-*	1.28 (0.58)	CD-SCH80-300-*	2.37 (1.07)	ORV-2-040	OR^2-237
3"	3" SCH160	CO-SCH160-300-*^	1.86 (0.85)	CF-SCH160-300-*	1.93 (0.88)	CD-SCH160-300-*	3.68 (1.67)	ORV-2-037	OR^2-237
4"	4" SCH80	CO-SCH80-400-*^	2.05 (0.93)	CF-SCH80-400-*	2.12 (0.96)	CD-SCH80-400-*	4.47 (2.03)	ORV-2-044	OR^2-245

CO, CF and CD Cone Inserts for Flare Flange Connections, Metric

Size	Pipe Size	O-Ring Face Cone Insert Part No. (Type CO)	Weight lbs (kg)	Flat Face Cone Insert Part No. (Type CF)	Weight lbs (kg)	Double Cone Insert Part No. (Type CD)	Weight lbs (kg)	O-Ring 1 (VITON) Part No.	O-Ring 2 (Buna) Part No.
1 1/2"	50x5.0	CO-50x5.0-150-*^	0.42 (0.19)	CF-50x5.0-150-*	0.44 (0.20)	CD-50x5.0-150-*	0.81 (0.37)	ORV-4515	OR^2-225
1 1/2"	56x8.5	CO-56x8.5-150-*^	0.42 (0.19)	CF-56x8.5-150-*	0.44 (0.20)	CD-56x8.5-150-*	0.81 (0.37)	ORV-4315	OR^2-225
2"	60x6.0	CO-60x6.0-200-*^	0.46 (0.21)	CF-60x6.0-200-*	0.48 (0.22)	CD-60x6.0-200-*	0.89 (0.40)	ORV-5615	OR^2-228
2"	66x8.5	CO-66x8.5-200-*^	0.46 (0.21)	CF-66x8.5-200-*	0.48 (0.22)	CD-66x8.5-200-*	0.89 (0.40)	ORV-5615	OR^2-228
2 1/2"	73x7.0	CO-73x7.0-250-*^	1.00 (0.45)	CF-73x7.0-250-*	1.08 (0.49)	CD-73x7.0-250-*	2.00 (0.90)	ORV-2-036	OR^2-232
2 1/2"	75 x 5.0	CO-75x5.0-250-*^	1.00 (0.45)	CF-75x5.0-250-*	1.08 (0.49)	CD-75x5.0-250-*	2.00 (0.90)	ORV-2-036	OR^2-232
2 1/2"	80x10	CO-80x10-250-*^	0.95 (0.43)	CF-80x10-250-*	0.98 (0.44)	CD-80x10-250-*	1.88 (0.86)	ORV-6715	OR^2-232
3"	90x9.0	CO-90x9.0-300-*^	1.32 (0.60)	CF-90x9.0-300-*	1.36 (0.62)	CD-90x9.0-300-*	2.60 (1.18)	ORV-	OR^2-237
3"	97x12	CO-97x12-300-*^	2.60 (1.18)	CF-97x12-300-*	2.70 (1.23)	CD-97x12-300-*	5.10 (2.32)	ORV-2-041	OR^2-237

*** Materials:**

- Standard, No Designation = All Carbon Steel, Clear Zinc Plated (Cr6 Free).
- SS = All Stainless Steel, Type 316.

^ O-Ring 2 Type:

- Standard, No Designation = Buna Nitrile.
- V = Viton.

Ordering Example: CO-SCH80-200-SS-V

* Insert Material

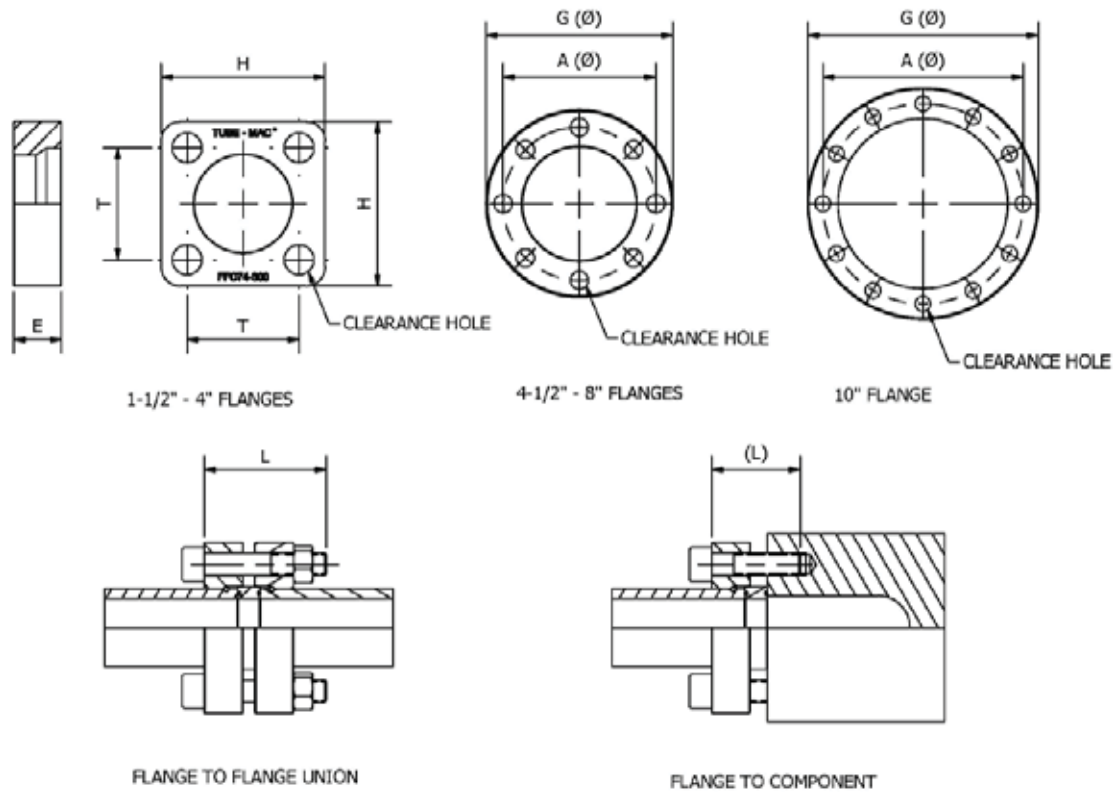
^ Insert O-Ring 2 Type

3D step models available upon request

ISO 6164

ISO 6164 Retain Ring Flange Dimensions, NPS

Flange Pattern Drilled to ISO 6164 up to 4"



Retain Ring Flange Dimensions, NPS

Size	Dimensions (in)					SHCS Bolt (in)* L(L)	Working Pressure PSI (bar)
	T	H	E	AØ	GØ		
1 1/2"	2.37	3.50	1.38	-	-	5/8" UNC x 3 3/4" (2 3/4")	5800 (400)
2"	2.73	4.00	1.18	-	-	5/8" UNC x 3 1/2" (2 1/2")	5800 (400)
2 1/2"	3.29	4.72	1.48	-	-	3/4" UNC x 4 1/2" (3 1/2")	5800 (400)
3"	4.04	5.91	1.73	-	-	1" UNC x 5" (4")	5800 (400)
4"	4.87	7.00	1.98	-	-	1 1/8" UNC x 5 3/4" (4 1/2")	5800 (400)
4-1/2"	-	-	1.97	6.89	8.43	3/4" UNC x 6" (4 1/4")	5000 (350)
5"	-	-	2.00	8.07	9.65	1" UNC x 6" (5")	5000 (350)
6"	-	-	2.31	9.65	11.81	1 1/8" UNC x 7" (5")	5000 (350)
8" ⁽¹⁾	-	-	3.00	11.42	13.78	1 1/8" UNC x 8 1/2" (6")	5000 (350)
8"	-	-	3.00	12.40	15.13	1 1/2" UNC x 8 1/2" (6")	5000 (350)
10"	-	-	3.80	14.76	17.75	1 1/2" UNC x 10" (7")	3600 (250)

*SHCS Bolt Specification

Carbon Steel: ASTM A574

316 Stainless Steel: ASTM A193 B8M Class 2

Note:

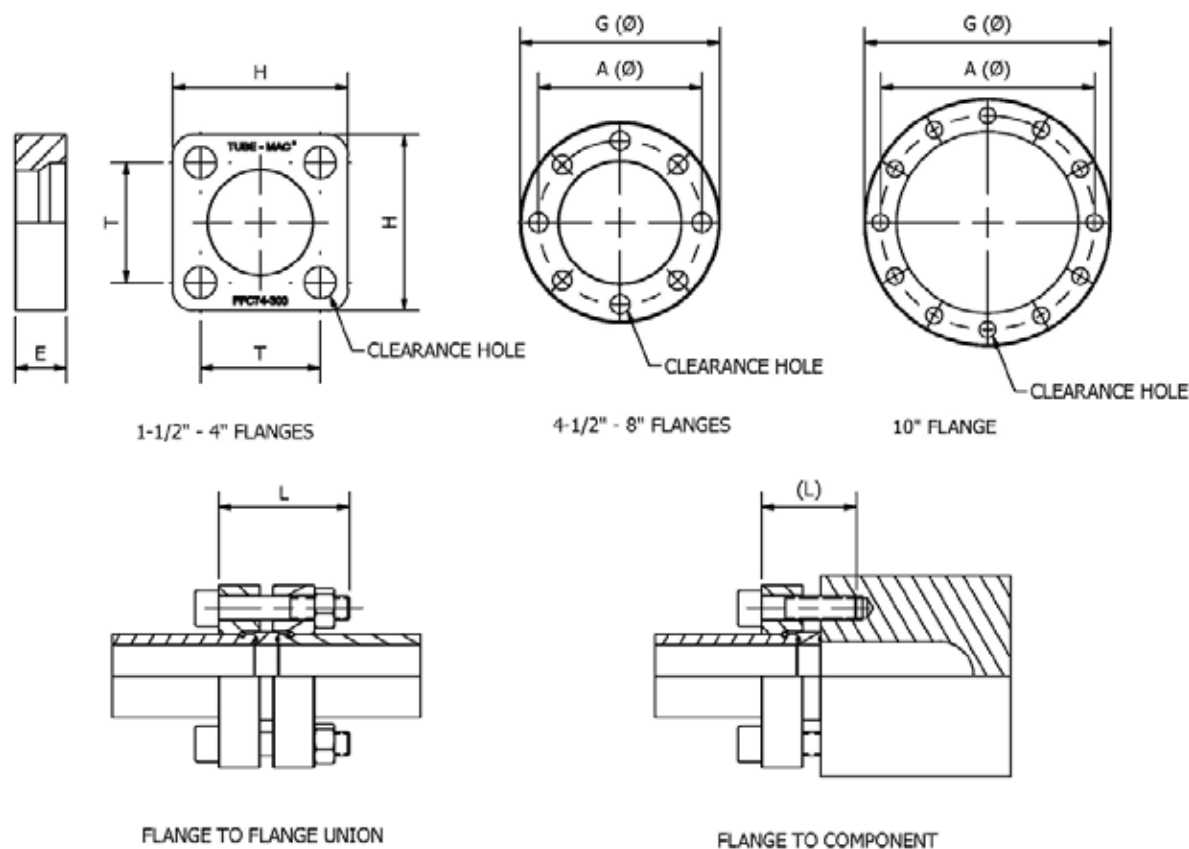
The working pressure ratings are subject to the lesser of the flange or pipe rating.

(1) Special Flange Size

3D step models available upon request

ISO 6164 Retain Ring Flange Dimensions, Metric

Flange Pattern Drilled to ISO 6164 up to 4"



Retain Ring Flange Dimensions, Metric

Size	Dimensions (mm)-					SHCS Bolt (mm)* L(L)	Working Pressure PSI (bar)
	T	H	E	AØ	GØ		
1 1/2"	60.1	88.9	35.0	-	-	M16 x 100 (60)	5800 (400)
2"	69.3	101.6	29.9	-	-	M16 x 90 (60)	5800 (400)
2 1/2"	83.5	119.9	37.6	-	-	M20 x 115 (90)	5800 (400)
3"	102.5	150.1	43.9	-	-	M24 x 130 (100)	5800 (400)
4"	123.7	177.8	50.3	-	-	M30 x 150 (115)	5800 (400)
4-1/2"	-	-	50.0	175	214	M20 x 160 (115)	5000 (350)
5"	-	-	50.8	205	245	M24 x 160 (120)	5000 (350)
6"	-	-	58.7	245	300	M30 x 180 (130)	5000 (350)
8" ⁽¹⁾	-	-	76.2	290	350	M30 X 220 (160)	5000 (350)
8"	-	-	76.2	315	385	M36 X 220 (160)	5000 (350)
10"	-	-	96.5	375	450	M36 x 250 (180)	3600 (250)

*SHCS Bolt Specification

Carbon steel: DIN912 / ISO4762 Grade 8.8

316 Stainless Steel: DIN912 / ISO4762 A480

Note:

The working pressure ratings are subject to the lesser of the flange or pipe rating.

(1) Special Flange Size

3D step models available upon request

ISO 6164

ISO 6164 Retain Ring Flange, NPS

with Clearance Holes, for Grooved NPS Pipe Only DIN 400 bar (ISO 6164)



1 1/2" - 4" Flanges



5" – 8" Flanges



10" Flange

RFAC74, RFAC48, RFAC412 Retain Ring Flange with Clearance Holes, for Grooved NPS Pipe Only

Size	Pipe Size	Standard Part No.	HDG Part No.	SS Part No.	Working Pressure PSI (bar)	WT lbs (kg)
1 1/2"	1 1/2" SCHXXS	RFAC74-150	RFAC74-150-HDG	RFAC74-150-SS	5800 (400)	2.75 (1.25)
2"	2" SCH160/XXS	RFAC74-200	RFAC74-200-HDG	RFAC74-200-SS	5800 (400)	3.10 (1.41)
2 1/2"	2 1/2" SCH160/XXS	RFAC74-250	RFAC74-250-HDG	RFAC74-250-SS	5800 (400)	5.06 (2.30)
3"	3" SCH160/XXS	RFAC74-300	RFAC74-300-HDG	RFAC74-300-SS	5800 (400)	8.79 (4.00)
4"	4" SCH160/XXS	RFAC74-400	RFAC74-400-HDG	RFAC74-400-SS	5800 (400)	14.80 (6.71)
5"	5" SCH160/XXS	RFAC48-500	RFAC48-500-HDG	RFAC48-500-SS	5100 (350)	20.85 (9.48)
6"	6" SCH160/XXS	RFAC48-600	RFAC48-600-HDG	RFAC48-600-SS	5100 (350)	44.25 (20.11)
8" ⁽¹⁾	8" SCH160/XXS	RFAC48-800-290BC	RFAC48-800-290BC-HDG	RFAC48-800-290BC-SS	5100 (350)	65.30 (29.68)
8"	8" SCH160/XXS	RFAC48-800	RFAC48-800-HDG	RFAC48-800-SS	5100 (350)	87.06 (39.57)
10"	10" SCH160	RFAC412-1000	RFAC412-1000-HDG	RFAC412-1000-SS	5100 (350)	138.00 (62.73)

Materials:

- Standard, No Designation = Carbon Steel, Zinc Plated
- HDG = Carbon Steel, Hot Dip Galvanized
- SS = Stainless Steel, Type 316

Note:
The working pressure shown is for the flange connection only. Refer to pipe section for allowable working pressure of the pipe.
The complete assembly working pressure ratings are subject to the lesser of the flange or pipe ratings.

(1) Special Flange Size

3D step models available upon request

ISO 6164 Retain Ring Flange, METRIC

with Clearance Holes, for Grooved Metric Pipe Only DIN 400 bar (ISO 6164)



1 1/2" – 4" Flanges



5" – 8" Flanges



10" Flange

RFC74- Retain Ring Flange with Clearance Holes, for Grooved Metric Pipe Only

Size	Pipe Size	Standard Part No.	HDG Part No.	SS Part No.	Working Pressure PSI (bar)	WT lbs (kg)
1 1/2"	56x8.5	RFC74-150	RFC74-150-HDG	RFC74-150-SS	5800 (400)	2.75 (1.25)
2"	66x8.5	RFC74-200	RFC74-200-HDG	RFC74-200-SS	5800 (400)	3.10 (1.41)
2 1/2"	80x10	RFC74-250	RFC74-250-HDG	RFC74-250-SS	5800 (400)	5.06 (2.30)
3"	97x12	RFC74-300	RFC74-300-HDG	RFC74-300-SS	5800 (400)	8.79 (4.00)
4"	115x15	RFC74-400	RFC74-400-HDG	RFC74-400-SS	5800 (400)	14.80 (6.71)
4 1/2"	130x15	RFAC48-450-130MM	RFAC48-450-130MM-HDG	RFC48-450-130MM-SS	5100 (350)	16.40 (7.45)
5"	150x15	RFAC48-500-150MM	RFAC48-500-150MM-HDG	RFC48-500-150MM-SS	5100 (350)	20.85 (9.48)
6"	190x20	RFAC48-600-190MM	RFAC48-600-190MM-HDG	RFC48-600-190MM-SS	5100 (350)	44.25 (20.11)
8" ⁽¹⁾	220x20	RFAC48-800-290BC	RFAC48-800-290BC-HDG	RFC48-800-290BC-SS	5100 (350)	65.30 (29.68)
8"	250x25	RFAC48-800-250MM	RFAC48-800-250MM-HDG	RFC48-800-250MM-SS	5100 (350)	87.06 (39.57)
10"	273x28.6	RFAC412-1000	RFAC412-1000-HDG	RFAC412-1000-SS	5100 (350)	138.00 (62.73)

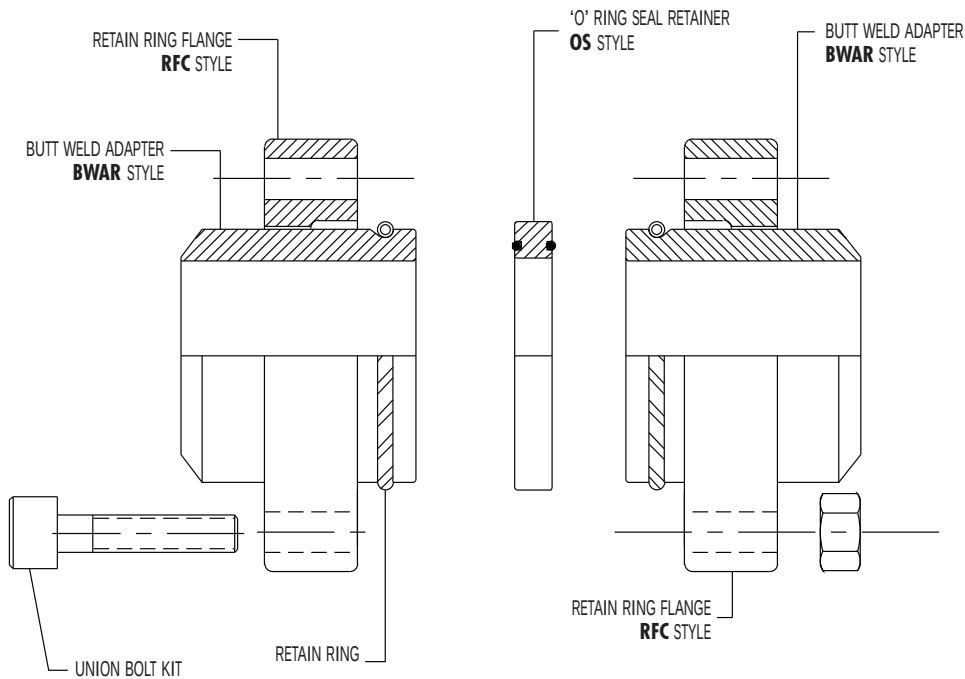
- Materials:
- Standard, No Designation = Carbon Steel, Zinc Plated
 - HDG = Carbon Steel, Hot Dip Galvanized
 - SS = Stainless Steel, Type 316

Note:
The working pressure shown is for the flange connection only. Refer to pipe section for allowable working pressure of the pipe.
The complete assembly working pressure ratings are subject to the lesser of the flange or pipe ratings.

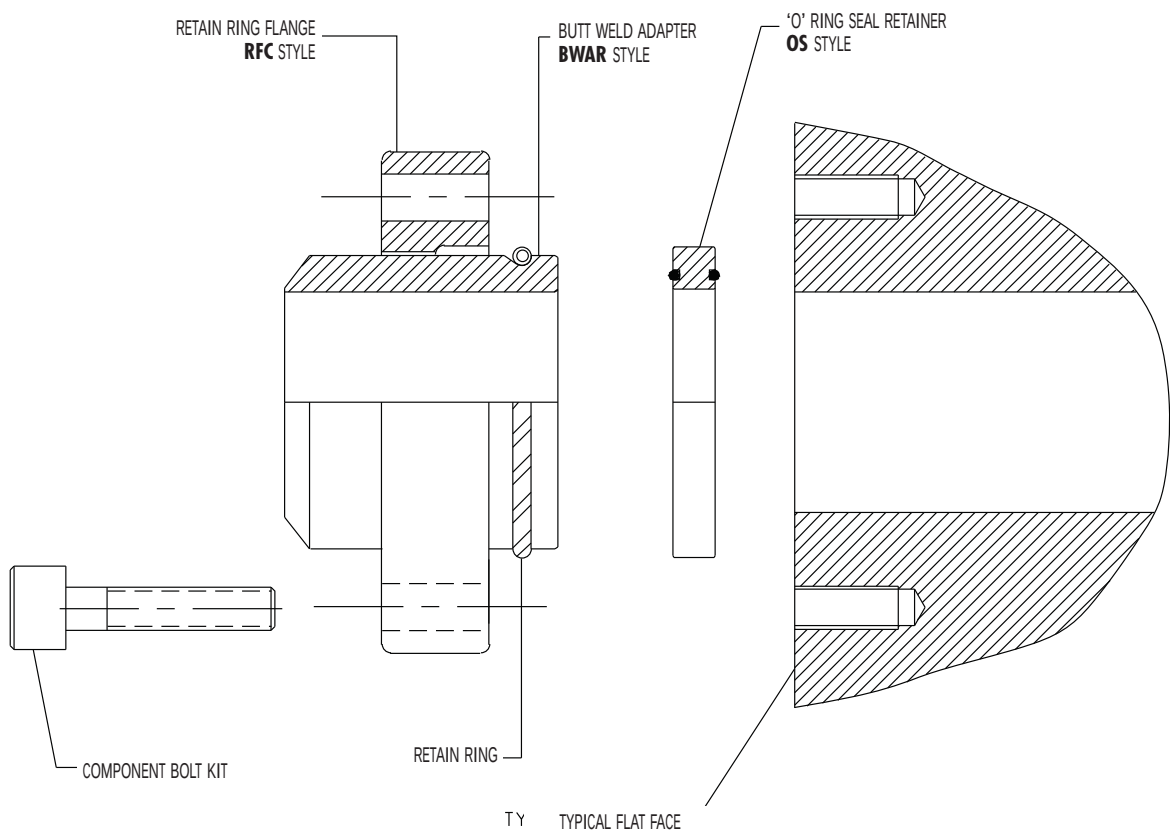
3D step models available upon request

Butt Weld Adapter Retain Ring Style Connections

Typical Butt Weld Adapter Union Connection

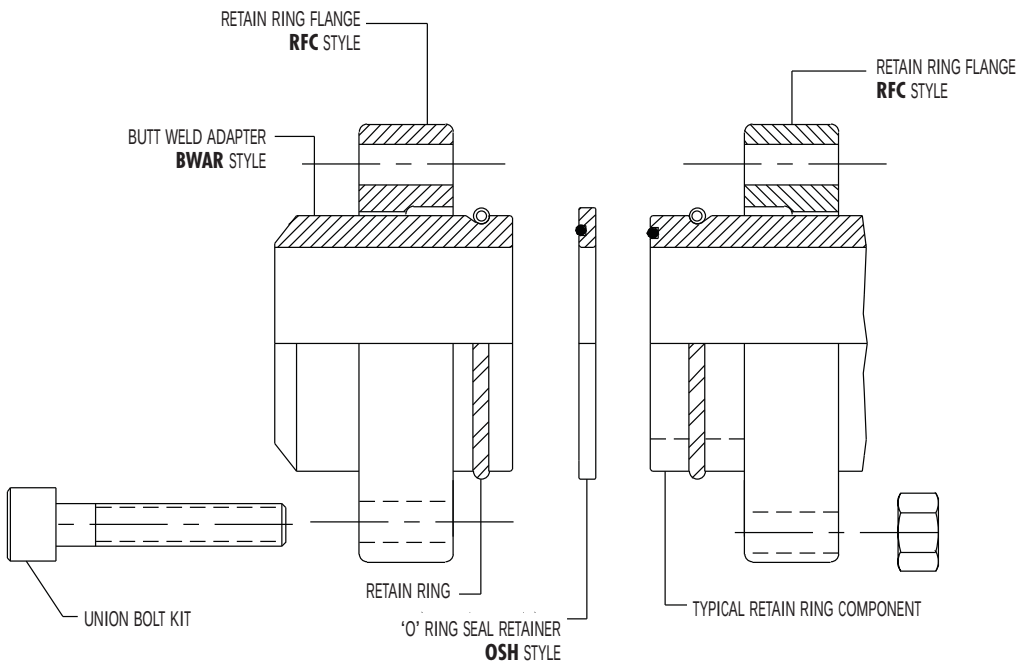


Typical Butt Weld Adapter to Flat Face Connection

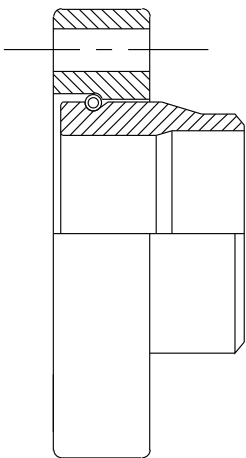


Butt Weld Adapter Retain Ring Style Connections

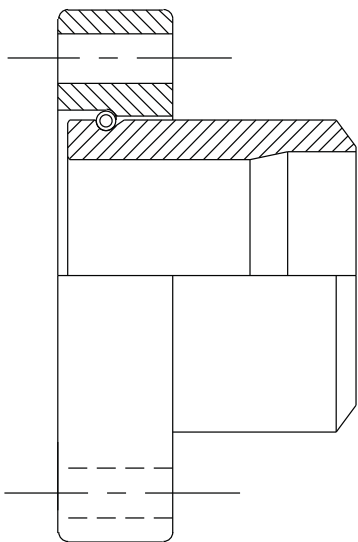
Typical Butt Weld Adapter to 'O' Ring Face Retain Ring Component Connection



Typical A/BWAR Assembly - 1/2"-4"



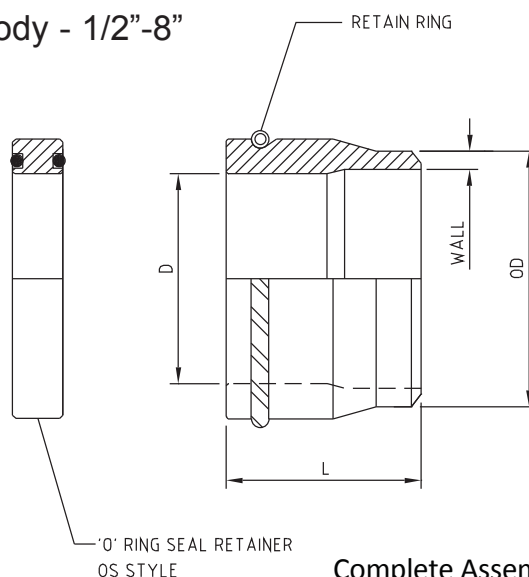
Typical A/BWAAR Assembly - 5"-8"



ISO 6164

BWAR- Butt Weld Adapter Body - 1/2"-8"

Retain Ring Style



O-RING SEAL RETAINER AND
RETAIN RING ARE SOLD SEPARATELY.

Complete Assembly DIN 400 bar (ISO 6164)

Material: Carbon Steel, (Stainless Steel - 316, Duplex and Super Duplex available)
The pipe O.D. x wall must match the adapter O.D. x wall.

Size (inch)	Adapter Part No.	Dimensions (mm)		OD x Wall (mm)	WT. kgs./pc	Working Pressure (bar)
		D	L			
1/2"	BWAR-12.0 x 1.5-050	14.0	38.1	12.0 x 1.5	0.11	Note 1.
1/2"	BWAR-16.0 x 2.0-050	14.0	38.1	16.0 x 2.0	0.11	
1/2"	BWAR-18.0 x 2.0-050	14.0	38.1	18.0 x 2.0	0.11	
1/2"	BWAR-20.0 x 2.5-050	14.0	38.1	20.0 x 2.5	0.11	
1/2"	BWAR-20.0 x 3.0-050	14.0	38.1	20.0 x 3.0	0.11	
1/2"	BWAR-21.3 x 2.8-050	14.0	38.1	21.3 x 2.8	0.11	
1/2"	BWAR-21.3 x 3.7-050	14.0	38.1	21.3 x 3.7	0.11	
1/2"	BWAR-21.3 x 4.8-050	14.0	38.1	21.3 x 4.8	0.11	
1/2"	BWAR-21.3 x 7.5-050	14.0	38.1	21.3 x 7.5	0.11	
1/2"	BWAR-26.0 x 6.0-050	14.0	38.1	26.0 x 6.0	0.11	
3/4"	BWAR-20.0 x 2.5-075	20.1	44.5	20.0 x 2.5	0.20	
3/4"	BWAR-25.0 x 3.0-075	20.1	44.5	25.0 x 3.0	0.20	
3/4"	BWAR-26.7 x 2.8-075	20.1	44.5	26.7 x 2.8	0.20	
3/4"	BWAR-26.7 x 3.9-075	20.1	44.5	26.7 x 3.9	0.20	
3/4"	BWAR-26.7 x 5.6-075	20.1	44.5	26.7 x 5.6	0.20	
3/4"	BWAR-26.7 x 7.8-075	20.1	44.5	26.7 x 7.8	0.20	
3/4"	BWAR-30.0 x 4.0-075	20.1	44.5	30.0 x 4.0	0.20	
3/4"	BWAR-36.0 x 8.0-075	20.1	44.5	36.0 x 8.0	0.20	
1"	BWAR-25.0 x 3.0-100	23.1	44.5	25.0 x 3.0	0.21	
1"	BWAR-30.0 x 4.0-100	23.1	44.5	30.0 x 4.0	0.21	
1"	BWAR-33.4 x 3.4-100	23.1	44.5	33.4 x 3.4	0.21	
1"	BWAR-33.4 x 4.6-100	23.1	44.5	33.4 x 4.6	0.21	

BWAR- Butt Weld Adapter Body - Metric Retain Ring Style

Size (inch)	Adapter Part No.	Dimensions (mm)		OD x Wall (mm)	WT. kgs./pc	Working Pressure (bar)
		D	L			
1"	BWAR-33.4 x 6.4-100	23.1	44.5	33.4 x 6.4	0.21	Note 1.
1"	BWAR-33.4 x 9.1-100	23.1	44.5	33.4 x 9.1	0.21	
1"	BWAR-38.0 x 5.0-100	23.1	44.5	38.0 x 5.0	0.21	
1"	BWAR-39.0 x 7.5-100	23.1	44.5	39.0 x 7.5	0.21	
1 1/4"	BWAR-30.0 x 4.0-125	30.0	50.8	30.0 x 4.0	0.34	
1 1/4"	BWAR-38.0 x 4.0-125	30.0	50.8	38.0 x 4.0	0.34	
1 1/4"	BWAR-42.2 x 3.6-125	30.0	50.8	42.2 x 3.6	0.34	
1 1/4"	BWAR-42.2 x 4.9-125	30.0	50.8	42.2 x 4.9	0.34	
1 1/4"	BWAR-42.2 x 6.4-125	30.0	50.8	42.2 x 6.4	0.34	
1 1/4"	BWAR-42.2 x 9.7-125	30.0	50.8	42.2 x 9.7	0.34	
1 1/4"	BWAR-46.0 x 8.5-125	30.0	50.8	46.0 x 8.5	0.34	
1 1/2"	BWAR-38.0 x 5.0-150	39.1	57.2	38.0 x 5.0	0.44	
1 1/2"	BWAR-48.3 x 3.7-150	39.1	57.2	48.3 x 3.7	0.44	
1 1/2"	BWAR-48.3 x 5.1-150	39.1	57.2	48.3 x 5.1	0.44	
1 1/2"	BWAR-48.3 x 7.1-150	39.1	57.2	48.3 x 7.1	0.44	
1 1/2"	BWAR-48.3 x 10.2-150	39.1	57.2	48.3 x 10.2	0.44	
1 1/2"	BWAR-50.0 x 5.0-150	39.1	57.2	50.0 x 5.0	0.44	
1 1/2"	BWAR-56.0 x 8.5-150	39.1	57.2	56.0 x 8.5	0.44	
2"	BWAR-60.0 x 5.0-200	49.0	63.5	60.0 x 5.0	0.55	
2"	BWAR-60.0 x 8.0-200	49.0	63.5	60.0 x 8.0	0.55	
2"	BWAR-60.3 x 3.9-200	49.0	63.5	60.3 x 3.9	0.55	
2"	BWAR-60.3 x 5.5-200	49.0	63.5	60.3 x 5.5	0.55	
2"	BWAR-60.3 x 8.7-200	49.0	63.5	60.3 x 8.7	0.55	
2"	BWAR-60.3 x 11.1-200	49.0	63.5	60.3 x 11.1	0.55	
2"	BWAR-66.0 x 8.5-200	49.0	63.5	66.0 x 8.5	0.55	
2 1/2"	BWAR-65.0 x 8.0-250	59.9	63.5	65.0 x 8.0	0.77	
2 1/2"	BWAR-73.0 x 7.0-250	59.9	63.5	73.0 x 7.0	0.77	
2 1/2"	BWAR-76.1 x 6.3-250	59.9	63.5	76.1 x 6.3	0.77	
2 1/2"	BWAR-76.1 x 12.5-250	59.9	63.5	76.1 x 12.5	0.77	
2 1/2"	BWAR-80.0 x 10.0-250	59.9	63.5	80.0 x 10.0	0.77	
3"	BWAR-80.0 x 10.0-300	73.2	69.9	80.0 x 10.0	1.36	
3"	BWAR-88.9 x 5.5-300	73.2	69.9	88.9 x 5.5	1.36	
3"	BWAR-88.9 x 7.7-300	73.2	69.9	88.9 x 7.7	1.36	
3"	BWAR-88.9 x 11.1-300	73.2	69.9	88.9 x 11.1	1.36	
3"	BWAR-88.9 x 15.2-300	73.2	69.9	88.9 x 15.2	1.36	
3"	BWAR-97.0 x 12.0-300	73.2	69.9	97.0 x 12.0	1.36	
4"	BWAR-115.0 x 15.5-400	85.1	101.6	115.0 x 15.5	2.64	
5"	BWAAR-141.3 x 19.0-500	103.1	152.5	141.3 x 19.0	8.8	
6"	BWAAR-168.3 x 22.0-600	124.5	152.5	168.3 x 22.0	11.8	
8"	BWAAR-219.0 x 22.2-800	172.9	152.5	219.0 x 22.2	16.7	

Note 1. WORKING PRESSURE RATING IS DEPENDANT ON THE PIPE THAT THE ADAPTER IS WELDED TO

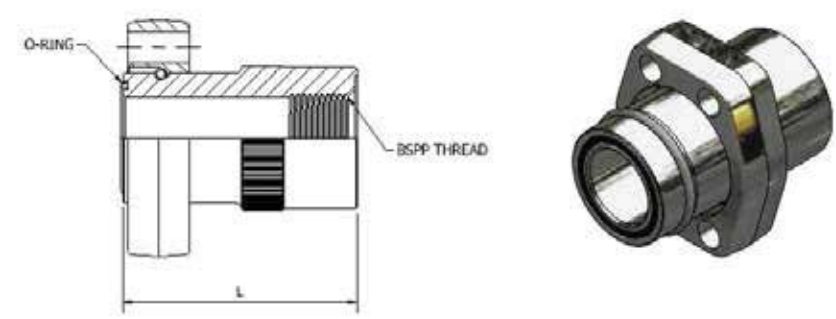
- JUMP SIZES ARE AVAILABLE
- LARGER SIZES AVAILABLE CONSULT FACTORY

MATERIAL: CARBON STEEL, (STAINLESS STEEL STANDARD-316 AVAILABLE) OTHER MATERIALS ARE AVAILABLE

Complete Assembly DIN 400 bar (ISO 6164): A/BWAR-200.....

ISO 6164

A/FBTA Female Thread Adapter, BSPP – with Buna O-Ring



- Complete Flange Set Includes:
- One (1) Female Thread Adapter
 - One (1) Retain Ring Flange
 - One (1) Retain Ring
 - One (1) Face O-Ring (O-Ring 1)

ISO 6164 BSPP Female Thread Adapter

Complete Assembly DIN 400 bar (ISO 6164)

Size (flange x thread)	Complete Assembly Part No.	Dimensions in (mm)	Thread Size R	O-Ring (Buna) Part No.	Assembly WT lbs (kg)	Body Only Part No.	Body Only WT lbs (kg)
		L					
1 1/2" x 1 1/4"	A/FBTA-150x125-FC74-*-*^	2.00 (50.80)	1 1/4"	OR^--3-924	4.27 (1.94)	FBTA-150x125-*-*^	1.52 (0.69)
1 1/2" x 1 1/2"	A/FBTA-150-150-FC74-*-*^	4.00 (101.60)	1 1/2"	OR^--3-924	5.58 (2.54)	FBTA-150x150-*-*^	2.83 (1.28)
2" x 1 1/2"	A/FBTA-200x150-FC74-*-*^	2.17 (55.00)	1 1/2"	OR^--3-928	4.75 (2.16)	FBTA-200x150-*-*^	1.65 (0.75)
2" x 2"	A/FBTA-200x200-FC74-*-*^	4.50 (114.30)	2"	OR^--3-928	8.49 (3.86)	FBTA-200x200-*-*^	3.67 (1.66)
2 1/2" x 2"	A/FBTA-250x200-FC74-*-*^	3.15 (80.00)	2"	OR^--2-232	8.40 (3.82)	FBTA-250x200-*-*^	3.34 (1.52)
2 1/2" x 2 1/2"	A/FBTA-250x250-FC74-*-*^	5.00 (127.00)	2 1/2"	OR^--2-232	12.16 (5.53)	FBTA-250x250-*-*^	7.10 (3.23)
3" x 2 1/2"	A/FBTA-300x250-FC74-*-*^	3.35 (85.00)	2 1/2"	OR^--2-237	13.43 (6.10)	FBTA-300x250-*-*^	4.64 (2.11)
3" x 3"	A/FBTA-300x300-FC74-*-*^	5.75 (146.05)	3"	OR^--2-237	19.35 (8.80)	FBTA-300x300-*-*^	10.56 (4.80)

Flange Option:

- Standard, FC74 = DIN 400 (ISO 6164) Clearance Flange.

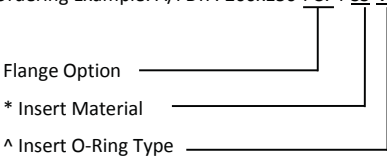
* Materials:

- Standard, No Designation = All Carbon Steel, Clear Zinc Plated (Cr6 Free).
- SS = All Stainless Steel, Type 316.

^ O-Ring Type:

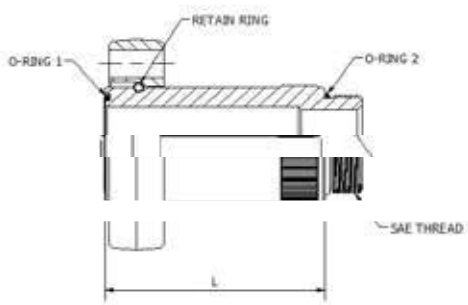
- Standard, No Designation = Buna Nitrile.
- V = Viton.

Ordering Example: A/FBTA-200x150-FC74-SS-V



STA – SAE Male Thread Adapter Complete Assembly

Complete Assembly DIN 400 bar (ISO 6164)



Complete Flange Set Includes:

- One (1) Male Thread Adapter
- One (1) Retain Ring Flange
- One (1) Retain Ring
- One (1) Face O-Ring (O-Ring 1)
- One (1) Thread O-Ring (O-Ring 2)

Size (flange x thread)	Complete Assembly Part No.	Dimensions in (mm)	Thread Size UNF/UN-2A	O-Ring 1 (Buna) Part No.	O-Ring 2 (Buna) Part No.	Assembly WT lbs (kg)	Body Only Part No.	Body Only WT lbs (kg)
		L						
1 1/2" x 1 1/4"	A/STA-150x125-FC74-* [^]	4.25 (107.95)	1 5/8"-12	OR [^] -3-924	OR [^] -3-920	3.84 (1.74)	STA-150x125-*	2.94 (1.33)
1 1/2" x 1 1/2"	A/STA-150x150-FC74-* [^]	4.25 (107.95)	1 7/8"-12	OR [^] -3-924	OR [^] -3-924	4.32 (1.96)	STA-150x150-*	2.97 (1.35)
1 1/2" x 2"	A/STA-150x200-FC74-* [^]	4.25 (107.95)	2 1/2"-12	OR [^] -3-924	OR [^] -3-932	4.89 (2.22)	STA-150x200-*	3.54 (1.61)
2" x 1 1/2"	A/STA-200x150-FC74-* [^]	4.38 (111.25)	1 7/8"-12	OR [^] -3-928	OR [^] -3-924	5.78 (2.62)	STA-200x150-*	3.76 (1.71)
2" x 2"	A/STA-200x200-FC74-* [^]	4.38 (111.25)	2 1/2"-12	OR [^] -3-928	OR [^] -3-932	5.98 (2.71)	STA-200x200-*	3.96 (1.80)
2 1/2" x 2"	A/STA-250x200-FC74-* [^]	3.60 (91.44)	2 1/2"-12	OR [^] -2-232	OR [^] -3-932	9.42 (4.28)	STA-250-200-*	4.18 (1.90)
2 1/2" x 2-1/2"	A/STA-250x250-FC74-* [^]	3.60 (91.44)	3"-12	OR [^] -2-232	OR [^] -2-230	9.86 (4.48)	STA-250-250-*	4.80 (2.18)

Flange Option:

- Standard, FC74 = DIN 400 bar (ISO 6164) Clearance Flange.

* Materials:

- Standard, No Designation = All Carbon Steel, Clear Zinc Plated (Cr6 Free).
- SS = Stainless Steel, Type 316. Body Only
- SSA = Stainless Steel, Type 316. All SS including flange

[^] O-Ring Type:

- Standard, No Designation = Buna Nitrile.
- V = Viton.

Ordering Example: A/STA-200x150-FC74-SS-V

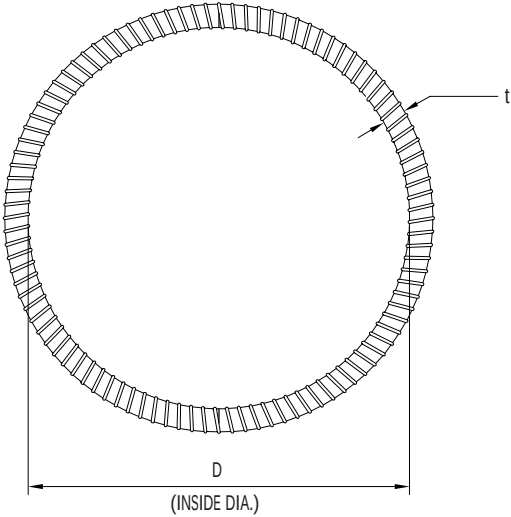
Flange Option _____
 * Insert Material _____
[^] Insert O-Ring Type _____

ISO 6164

R Retain Ring - 1/2"- 4"

RA Retain Ring - 5"- 8"

Size (inch)	Retain Ring Part No.	Dimensions (mm)		WT. kgs./pc
		D	t	
1/2"	R-050	21.6	4.1	0.005
3/4"	R-075	31.5	4.1	0.009
1"	R-100	33.5	5.1	0.014
1 1/4"	R-125	40.4	5.1	0.018
1 1/2"	R-150	50.5	5.1	0.023
2"	R-200	60.5	5.1	0.027
2 1/2"	R-250	74.4	5.1	0.032
3"	R-300	90.4	6.1	0.055
4"	R-400	106.4	7.9	0.123
5"	RA-500	132.8	7.9	0.155
6"	RA-600	157.7	9.9	0.291
8"	RA-800	206.5	11.9	0.536



- FOR SIZES 10" OR LARGER CONSULT FACTORY
- MATERIAL:** STAINLESS STEEL - AISI 302/304 SPRING TEMPER

More pages under constructions.....