Steel & O'Brien® Manufacturing

Sanitary Simplified™

SANITARY PRODUCTS CATALOG

Simplifying Sanitary Through Superior Service™

Home of

TOP-FLO®



INTRODUCTION

Headquartered in Arcade, NY, Steel & O'Brien is a leading manufacturer of stainless steel process equipment, including sanitary fittings, BPE fittings, tubing, and valves for industries requiring strict hygienic and high-purity standards. As an ISO-certified custom stainless steel manufacturer, our experienced team of engineers, machinists, welders, and polishers delivers application-specific solutions to meet our customers' needs.

Founded in 1990, Steel & O'Brien has built a reputation for fast turnaround times, custom manufacturing capabilities, competitive pricing, and exceptional customer service. Our 205,000-square-foot Arcade facility maintains an extensive inventory of finished goods and raw materials to support reliable product availability, efficient production, and timely order fulfillment.

Our 20,000-plus-square-foot Fresno, California, Fulfillment Center extends our distribution capabilities to the West Coast, stocking three times the number of SKUs offered at any previous location. With an extensive inventory of Steel & O'Brien products, the facility supports one-day shipping to most of California, helping customers reduce lead times and keep operations moving.

Steel & O'Brien customer service representatives are available from 8 a.m. to 8 p.m. Eastern Time, providing extended support to our distributor partners nationwide. With strategically located facilities, extensive inventory, and a commitment to responsive service, we continue to deliver the quality, availability, and expertise our customers depend on.

We're simplifying sanitary from coast to coast!

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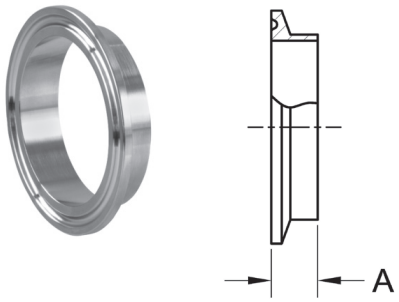
INDUSTRY CROSS REFERENCE 156



TRI-CLAMP FITTINGS

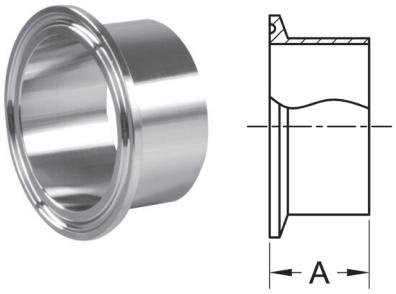
Steel & O'Brien stocks a broad assortment of 304 and 316L stainless steel sanitary fittings in a wide variety of shapes, configurations and sizes from 1/2" through 12". We supply sanitary ferrules, clamps, weld, bevel seat, I-Line, Q-Line, European and other sanitary pipe fittings and gaskets.

14WMP - WELD FERRULE, SHORT



PART NUMBER	SIZE	A
14WMP-.50x.25	1/4 (.035 WT)	.500
14WMP.50x.375	3/8 (.049 WT)	.500
14WMP-.50	1/2	.500
14WMP-.75	3/4	.500
14WMP-1-A	1 (TYPE A)	.500
14WMP-1	1	.500
14WMP-1.5	1-1/2	.500
14WMP-2	2	.500
14WMP-2.5	2-1/2	.500
14WMP-3	3	.500
14WMP-4	4	.625
14WMP-5	5	.750
14WMP-6	6	.750
14WMP-8	8	.875
14WMP-10	10	.875
14WMP-12	12	1.000

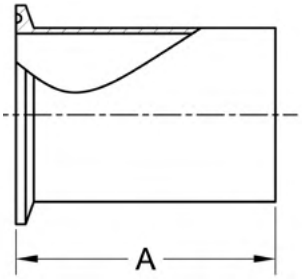
L14AM7 - WELD FERRULE, MEDIUM



PART NUMBER	SIZE	A
L14AM7-.50x.25	1/4 (.035 WT)	1.125
L14AM7-.50x.375	3/8 (.049 WT)	1.125
L14AM7-.50	1/2	1.125
L14AM7-.75	3/4	1.125
L14AM7-1-A	1 (TYPE A)	1.125
L14AM7-1	1	1.125
L14AM7-1.5	1-1/2	1.125
L14AM7-2	2	1.125
L14AM7-2.5	2-1/2	1.125
L14AM7-3	3	1.125
L14AM7-4	4	1.125
L14AM7-5X1.5	5	1.500
L14AM7-6	6	1.500
L14AM7-8	8	1.500
L14AM7-10	10	1.500
L14AM7-12	12	1.500

14WLMP - TANK WELDING SPUD (LIGHT)

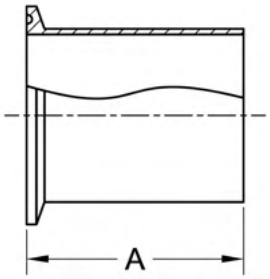




PART NUMBER	SIZE	A
14WLMP-.50	1/2	3.000
14WLMP-.75	3/4	3.000
14WLMP-1	1	3.000
14WLMP-1.5	1-1/2	3.000
14WLMP-2	2	3.000
14WLMP-2.5	2-1/2	3.000
14WLMP-3	3	4.000
14WLMP-4	4	4.000
14WLMP-6	6	6.000
14WLMP-8	8	6.000
14WLMP-10	10	6.000
14WLMP-12	12	6.000

TL14AM7 - WELD FERRULE

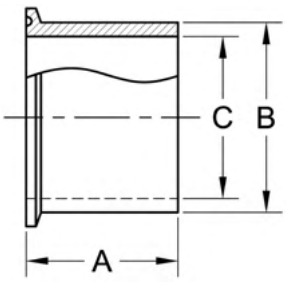




PART NUMBER	SIZE	A
TL14AM7-.50	1/2	2.000
TL14AM7-.75	3/4	2.000
TL14AM7-1	1	2.000
TL14AM7-1.5	1-1/2	2.000
TL14AM7-2	2	2.500
TL14AM7-2.5	2-1/2	2.500
TL14AM7-3	3	2.500
TL14AM7-4	4	2.500

14MPW - TANK WELDING SPUD (HEAVY)

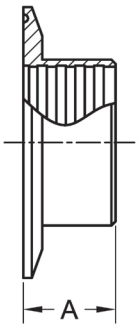




PART NUMBER	SIZE	A	B	C
14MPW-.50	1/2	2.000	.626	.370
14MPW-.75	3/4	2.000	.875	.625
14MPW-1	1	1.625	1.160	.870
14MPW-1.5	1-1/2	1.625	1.676	1.370
14MPW-2	2	1.750	2.192	1.870
14MPW-2.5	2-1/2	1.750	2.708	2.370
14MPW-3	3	1.813	3.224	2.870
14MPW-4	4	2.125	4.256	3.834
14MPW-6	6	2.500	6.192	5.758
14MPW-8	8	2.500	8.192	7.758

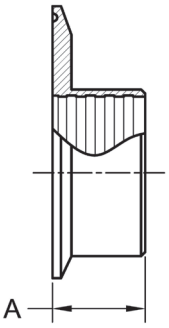
NOTE: FOR MORE HEAVY WALL FERRULE OPTIONS, SEE ASME FERRULES ON PG. 10.

31RMP - REDUCING CONCENTRIC ROLL-ON FERRULE



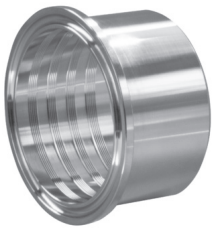
PART NUMBER	SIZE	A
31RMP-1.5X1	1-1/2 X 1	.750
31RMP-2X1	2 X 1	.750
31RMP-2X1.5	2 X 1-1/2	1.125
31RMP-2.5X1.5	2-1/2 X 1-1/2	1.313
31RMP-2.5X2	2-1/2 X 2	1.313
31RMP-3X2	3 X 2	1.313
31RMP-3X2.5	3 X 2-1/2	1.375
31RMP-4X2.5	4 X 2-1/2	1.375
31RMP-4X3	4 X 3	1.438

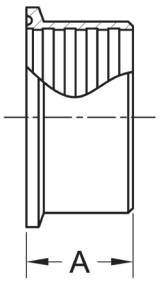
32RMP - REDUCING ECCENTRIC ROLL-ON FERRULE



PART NUMBER	SIZE	A
32RMP-1.5X1	1-1/2 X 1	.750
32RMP-2X1	2 X 1	.750
32RMP-2X1.5	2 X 1-1/2	1.125
32RMP-3X1.5	3 X 1-1/2	1.313
32RMP-3X2	3 X 2	1.313
32RMP-3X2.5	3 X 2-1/2	1.375
32RMP-4X2.5	4 X 2-1/2	1.375
32RMP-4X3	4 X 3	1.438

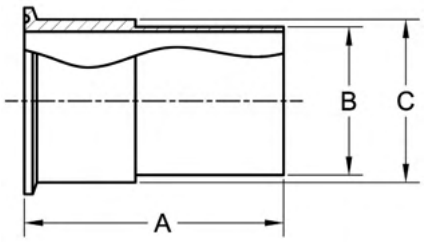
14RMP - ROLL-ON FERRULE





PART NUMBER	SIZE	A
14RMP-1	1	.750
14RMP-1.5	1-1/2	1.125
14RMP-2	2	1.313
14RMP-2.5	2-1/2	1.375
14RMP-3	3	1.438
14RMP-4	4	1.500
14RMP-6	6	2.000

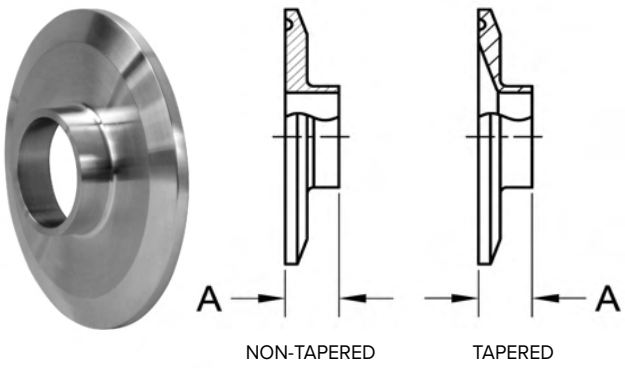
FLOWVERTER FERRULE



PART NUMBER	SIZE	A	B	C
LAB01000	1	3.500	1.000	1.200
LAB01500	1-1/2	3.500	1.500	1.700
LAB02000	2	3.500	2.000	2.200
LAB02500	2-1/2	3.500	2.500	2.700
LAB03000	3	3.500	3.000	3.200
LAB04000	4	3.500	4.000	4.200

NOTE: AVAILABLE IN OTHER END CONNECTIONS & LENGTHS

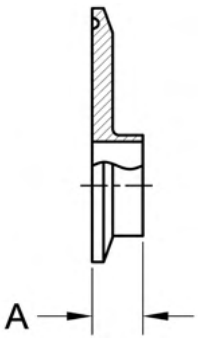
31WMP - REDUCING FERRULE



PART NUMBER	SIZE	A
31WMP-.75X.50	3/4 X 1/2	.500
31WMP-1X.50	1 X 1/2	.500
31WMP-1X.75	1 X 3/4	.500
31WMP-1.5X.50	1-1/2 X 1/2	.500
31WMP-1.5X.75	1-1/2 X 3/4	.625
31WMP-1.5X1	1-1/2 X 1	.500
31WMP-2X1	2 X 1	.500
31WMP-2X1.5	2 X 1-1/2	.500
31WMP-2.5X2	2-1/2 X 2	.500
31WMP-3X2	3 X 2	.500
31WMP-4X3	4 X 3	.625

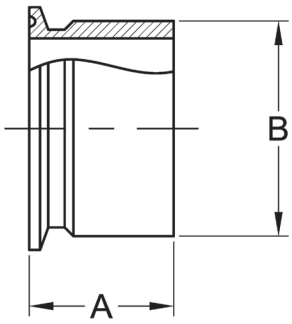
NOTE: AVAILABLE IN TAPERED AND NON-TAPERED STYLES
(PART NUMBERS SHOWN ARE TAPERED STYLE)

32WMP - ECCENTRIC REDUCING FERRULE



PART NUMBER	SIZE	A
32WMP-1X.75	1 X 3/4	.500
32WMP-1.5X.50	1-1/2 X 1/2	.500
32WMP-1.5X1	1-1/2 X 1	.500
32WMP-2X.75	2 X 3/4	.750
32WMP-2X1	2 X 1	.500
32WMP-2X1.5	2 X 1-1/2	.500
32WMP-2.5X1.5	2-1/2 X 1-1/2	.500
32WMP-3X1	3 X 1	.500
32WMP-3X2	3 X 2	.500
32WMP-3X2.5	4 X 1-1/2	.625
32WMP-4X3	4 X 3	.625

14ASME - ASME WELDING FERRULE

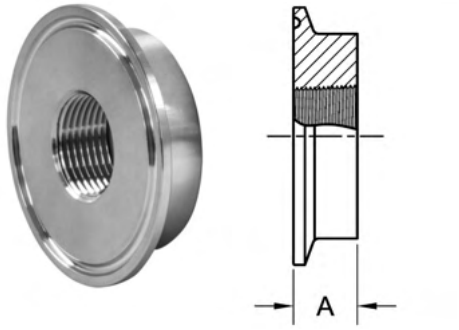


NOTE: FERRULES ARE MADE FROM ASME CERTIFIED MATERIAL

PART NUMBER	SIZE	A	B
14ASME-.50X2.5	1/2	2.500	.592
14ASME-.75X25	3/4	2.500	.846
14ASME-1X2.5	1	2.500	1.190
14ASME-1X6	1	6.000	1.190
14ASME-1.5X1.25	1-1/2	1.250	1.690
14ASME-1.5X2	1-1/2	2.000	1.690
14ASME-1.5X3	1-1/2	3.000	1.690
14ASME-1.5X6	1-1/2	6.000	1.690
14ASME-2X1.25	2	1.250	2.230
14ASME-2X2.25	2	2.250	2.230
14ASME-2X3.25	2	3.250	2.230
14ASME-2X6	2	6.000	2.230
14ASME-2.5X3.5	2-1/2	3.500	2.780
14ASME-2.5X6	2-1/2	6.000	2.780
14ASME-3X1.25	3	1.250	3.310
14ASME-3X2.75	3	2.750	3.310
14ASME-3X3.75	3	3.750	3.310
14ASME-3X6	3	6.000	3.310
14ASME-4X1.25	4	1.250	4.350
14ASME-4X3	4	3.000	4.350
14ASME-4X4	4	4.000	4.350
14ASME-4X6	4	6.000	4.350
14ASME-6X1.75	6	1.750	6.462
14ASME-6X6	6	6.000	6.462

ALSO AVAILABLE IN 8”, 10” AND 12” SIZES
OTHER LENGTHS AVAILABLE UPON REQUEST

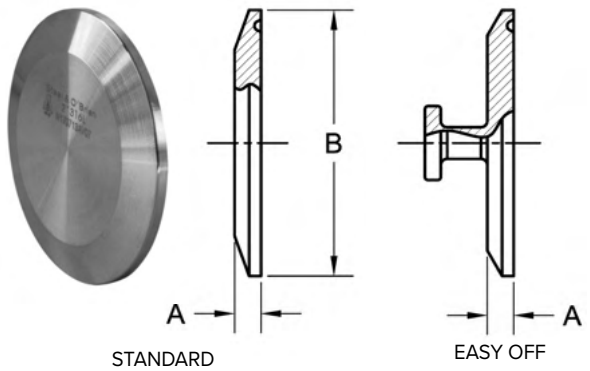
23BMP - THERMOMETER CAP



NOTE: SIZES ARE LISTED CLAMP SIZE X NPT SIZE

PART NUMBER	SIZE	A
23BMP-.50X.125	1/2 & 3/4 X 1/8	.500
23BMP-.50X.25	1/2 & 3/4 X 1/4	.500
23BMP-.50X.375	1/2 & 3/4 X 3/8	.500
23BMP-1X.25	1 & 1-1/2 X 1/4	.625
23BMP-1X.375	1 & 1-1/2 X 3/8	.625
23BMP-1X.50	1 & 1-1/2 X 1/2	.625
23BMP-1.5X.75	1 & 1-1/2 X 3/4	.625
23BMP-1.5X1	1 & 1-1/2 X 1	.625
23BMP-2X.50	2 X 1/2	.625
23BMP-2X.75	2 X 3/4	.625
23BMP-2X1	2 X 1	.625
23BMP-2X1.5	2 X 1-1/2	.625
23BMP-2.5X.50	2-1/2 X 1/2	.625
23BMP-2.5X.75	2-1/2 X 3/4	.625
23BMP-2.5X1	2-1/2 X 1	.625
23BMP-2.5X1.5	2-1/2 X 1-1/2	.625
23BMP-3X.50	3 X 1/2	.625
23BMP-3X.75	3 X 3/4	.625
23BMP-3X1	3 X 1	.625
23BMP-3X1.5	3 X 1-1/2	.625
23BMP-3X2	3 X 2	.625
23BMP-4X.50	4 X 1/2	.625
23BMP-4X.75	4 X 3/4	.625
23BMP-4X1	4 X 1	.625
23BMP-4X1.5	4 X 1-1/2	.625
23BMP-4X2	4 X 2	.625

16AMP - SOLID END CAP

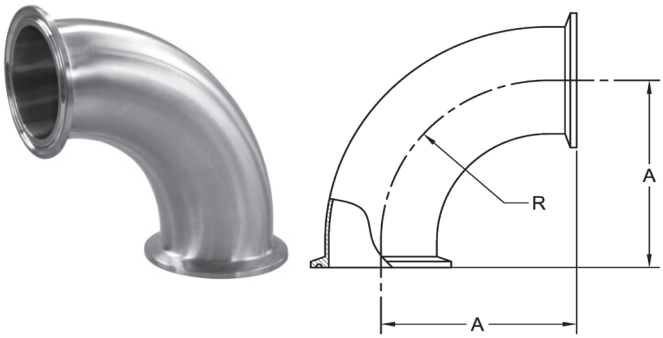


STANDARD EASY OFF

NOTE: END CAPS AVAILABLE IN STANDARD OR EASY OFF STYLE.
STANDARD CAPS ALSO AVAILABLE IN ACRYLIC AND LEXAN.

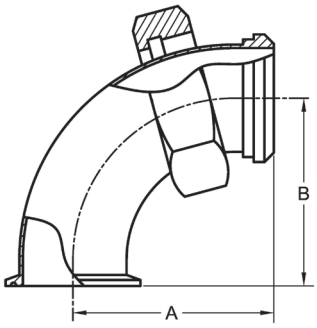
PART NUMBER	SIZE	A	B
16AMP-.50	1/2 & 3/4	.188	.984
16AMP-1-A	1 (TYPE A)	.250	1.339
16AMP-1	1 & 1-1/2	.250	1.984
16AMP-2	2	.250	2.516
16AMP-2.5	2-1/2	.250	3.047
16AMP-3	3	.250	3.579
16AMP-4	4	.312	4.682
16AMP-5	5	.375	5.687
16AMP-6	6	.438	6.570
16AMP-8	8	.480	8.570
16AMP-10	10	.480	10.570
16AMP-12	12	.480	12.570

2CMP - 90 DEGREE ELBOW, CLAMP ENDS



PART NUMBER	SIZE	A	R
2CMP-.50	1/2	1.250	.750
2CMP-.50L	1/2	1.625	1.125
2CMP-.75	3/4	1.625	1.125
2CMP-1	1	2.000	1.500
2CMP-1.5	1-1/2	2.750	2.250
2CMP-2	2	3.500	3.000
2CMP-2.5	2-1/2	4.250	3.750
2CMP-3	3	5.000	4.500
2CMP-4	4	6.625	6.000
2CMP-6	6	9.750	9.000
2CMP-8	8	12.875	12.000
2CMP-10	10	15.875	15.000
2CMP-12	12	19.000	18.000

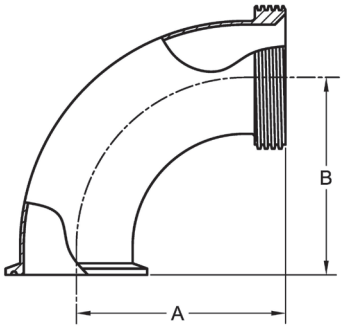
2FMP-14 - 90 DEGREE ELBOW, CLAMP X PLAIN BEVEL SEAT



PART NUMBER	SIZE	A	B
2FMP-14-1	1	2.188	2.000
2FMP-14-1.5	1-1/2	2.969	2.750
2FMP-14-2	2	3.723	3.500
2FMP-14-2.5	2-1/2	4.594	4.250
2FMP-14-3	3	5.406	5.000
2FMP-14-4	4	7.000	6.625

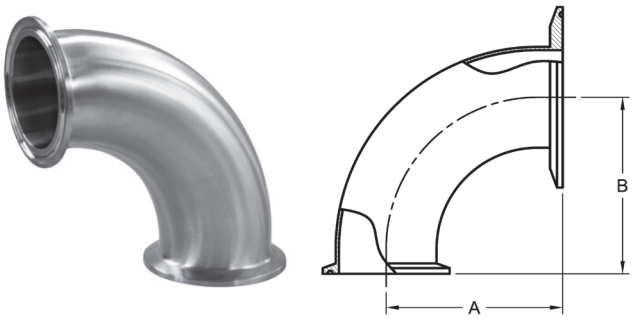
NOTE: HEX NUT INCLUDED

2FMP-15 - 90 DEGREE ELBOW, CLAMP X THREADED BEVEL SEAT



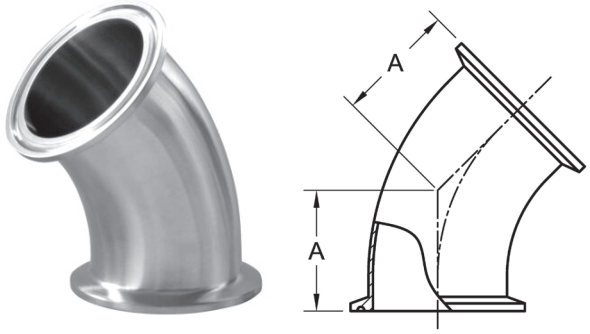
PART NUMBER	SIZE	A	B
2FMP-15-1	1	2.188	2.000
2FMP-15-1.5	1-1/2	2.969	2.750
2FMP-15-2	2	3.750	3.500
2FMP-15-2.5	2-1/2	4.594	4.250
2FMP-15-3	3	5.438	5.000
2FMP-15-4	4	7.219	6.625

2CMP-31MP - 90 DEGREE REDUCING ELBOW, CLAMP ENDS



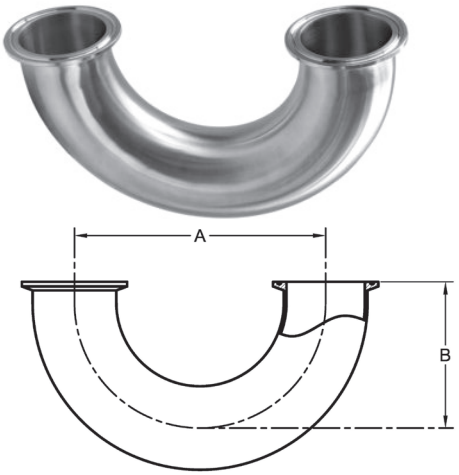
PART NUMBER	SIZE	A	B
2CMP-31MP-1.5X1	1-1/2 X 1	2.000	2.000
2CMP-31MP-2X1	2 X1	2.000	2.000
2CMP-31MP-2X1.5	2 X 1-1/2	2.750	2.750
2CMP-31MP-2.5X1.5	2-1/2 X 1-1/2	2.750	2.750
2CMP-31MP-2.5X2	2-1/2 X 2	3.500	3.500
2CMP-31MP-3X1.5	3 X 1-1/2	2.750	2.750
2CMP-31MP-3X2	3 X 2	3.500	3.500
2CMP-31MP-3X2.5	3 X 2-1/2	4.250	4.250
2CMP-31MP-4X2.5	4 X 2-1/2	4.375	4.250
2CMP-31MP-4X3	4 X 3	5.125	5.000

2KMP - 45 DEGREE ELBOW, CLAMP ENDS



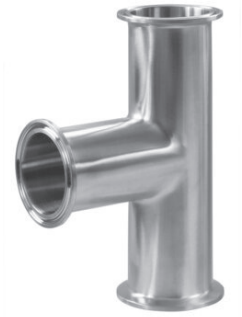
PART NUMBER	SIZE	A
2KMP-.50	1/2	.966
2KMP-.75	3/4	.966
2KMP-1	1	1.125
2KMP-1.5	1-1/2	1.437
2KMP-2	2	1.750
2KMP-2.5	2-1/2	2.063
2KMP-3	3	2.375
2KMP-4	4	3.125
2KMP-6	6	4.500
2KMP-8	8	5.846
2KMP-10	10	7.088

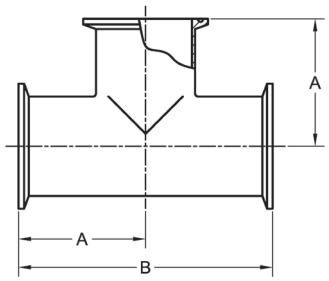
2UMP - 180 DEGREE RETURN BEND, CLAMP ENDS



PART NUMBER	SIZE	A	B
2UMP-.50	1/2	1.500	1.250
2UMP-.75	3/4	2.250	1.625
2UMP-1	1	3.000	2.000
2UMP-1.5	1-1/2	4.500	2.750
2UMP-2	2	6.000	3.500
2UMP-2.5	2-1/2	7.500	4.250
2UMP-3	3	9.000	5.000
2UMP-4	4	12.000	6.625
2UMP-6	6	18.000	9.750

7MP - TEE, CLAMP ENDS

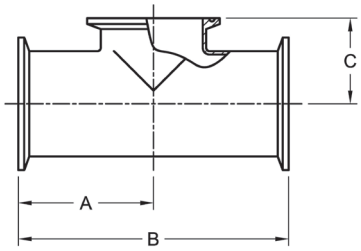




PART NUMBER	SIZE	A	B
7MP-.50	1/2	1.250	2.500
7MP-.75	3/4	2.375	4.750
7MP-1	1	2.375	4.750
7MP-1.5	1-1/2	2.750	5.500
7MP-2	2	3.500	7.000
7MP-2.5	2-1/2	3.500	7.000
7MP-3	3	3.750	7.500
7MP-4	4	4.500	9.000
7MP-6	6	6.375	12.750
7MP-8	8	7.875	15.750

7MPS - SHORT OUTLET TEE, CLAMP ENDS

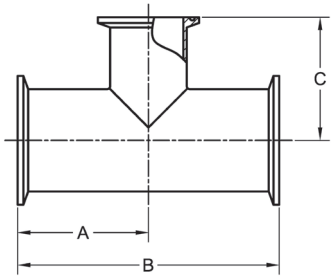




PART NUMBER	SIZE	A	B	C
7MPS-1	1	2.375	4.750	1.125
7MPS-1.5	1-1/2	2.750	5.500	1.375
7MPS-2	2	3.500	7.000	1.625
7MPS-2.5	2-1/2	3.500	7.000	1.875
7MPS-3	3	3.750	7.500	2.125
7MPS-4	4	4.500	9.000	2.750
7MPS-6	6	6.375	12.750	3.875
7 MPS-8	8	7.875	15.750	5.125

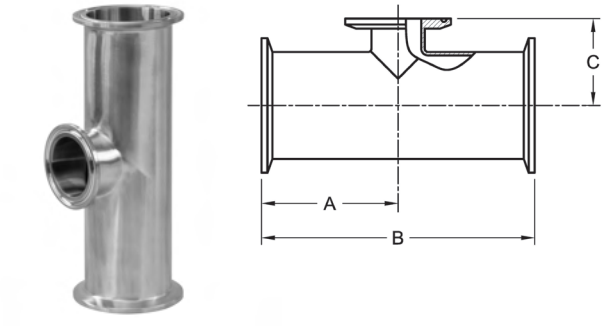
7RMP - REDUCING TEE, CLAMP ENDS





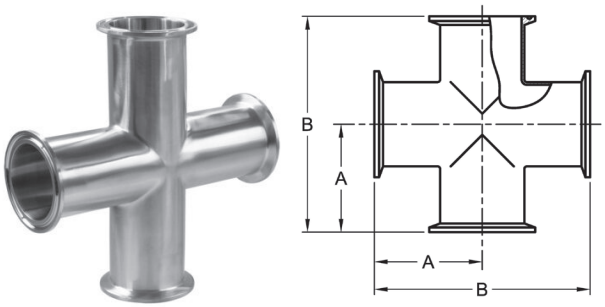
PART NUMBER	SIZE	A	B	C
7RMP-1.5X.75	1-1/2 X 3/4	2.875	5.750	2.875
7RMP-1.5X1	1-1/2 X 1	2.156	4.312	1.875
7RMP-2X1	2 X 1	2.562	5.125	2.125
7RMP-2X1.5	2 X 1-1/2	2.562	5.125	2.406
7RMP-2.5X1	2-1/2 X 1	2.844	5.688	2.375
7RMP-2.5X1.5	2-1/2 X 1-1/2	2.844	5.688	2.656
7RMP-2.5X2	2-1/2 X 2	2.844	5.688	2.812
7RMP-3X1	3 X 1	3.094	6.188	2.625
7RMP-3X1.5	3 X 1-1/2	3.094	6.188	2.906
7RMP-3X2	3 X 2	3.094	6.188	3.063
7RMP-3X2.5	3 X 2-1/2	3.094	6.188	3.094
7RMP-4X1.5	4 X 1-1/2	4.063	8.125	3.406
7RMP-4X2	4 X 2	4.063	8.125	3.562
7RMP-4X2.5	4 X 2-1/2	4.063	8.125	3.594
7RMP-4X3	4 X 3	4.063	8.125	3.594
7RMP-6X3	6 X 3	6.375	12.750	6.000
7RMP-6X4	6 X 4	6.375	12.750	5.500

7RMPS - SHORT OUTLET REDUCING TEE, CLAMP ENDS



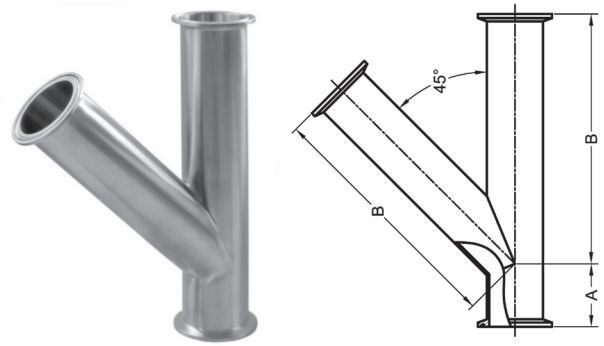
PART NUMBER	SIZE	A	B	C
7RMPS-1.5X.75	1-1/2 X 3/4	2.875	5.750	1.375
7RMPS-1.5X1	1-1/2 X 1	2.156	4.312	1.375
7RMPS-2X1	2 X 1	2.563	5.125	1.625
7RMPS-2X1.5	2 X 1-1/2	2.563	5.125	1.625
7RMPS-2.5X1	2-1/2 X 1	2.844	5.688	1.875
7RMPS-2.5X1.5	2-1/2 X 1-1/2	2.844	5.688	1.875
7RMPS-2.5X2	2-1/2 X 2	2.844	5.688	1.875
7RMPS-3X1	3 X 1	3.094	6.188	2.125
7RMPS-3X1.5	3 X 1-1/2	3.094	6.188	2.125
7RMPS-3X2	3 X 2	3.094	6.188	2.125
7RMPS-3X2.5	3 X 2-1/2	3.094	6.188	2.125
7RMPS-4X1.5	4 X 1-1/2	4.063	8.125	2.625
7RMPS-4X2	4 X 2	4.063	8.125	2.625
7RMPS-4X2.5	4 X 2-1/2	4.063	8.125	2.625
7RMPS-4X3	4 X 3	4.063	8.125	2.625
7RMPS-6X3	6 X 3	5.750	11.500	3.625
7RMPS-6X4	6 X 4	6.375	12.750	3.750

9MP - CROSS, CLAMP ENDS



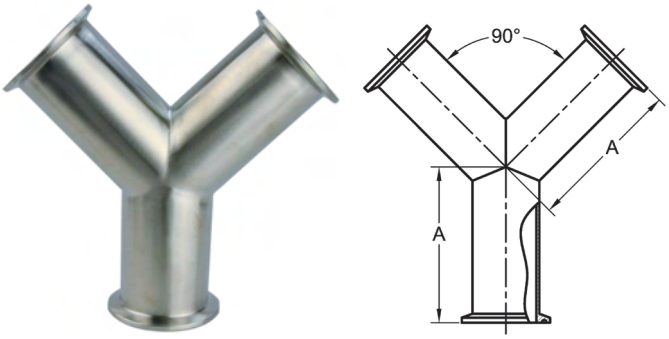
PART NUMBER	SIZE	A	B
9MP-.50	1/2	2.250	4.500
9MP-.75	3/4	2.375	4.750
9MP-1	1	2.375	4.750
9MP-1.5	1-1/2	2.750	5.500
9MP-2	2	3.500	7.000
9MP-2.5	2-1/2	3.500	7.000
9MP-3	3	3.750	7.500
9MP-4	4	4.500	9.000
9MP-6	6	6.375	12.750

28AMP - LATERAL WYE, CLAMP ENDS



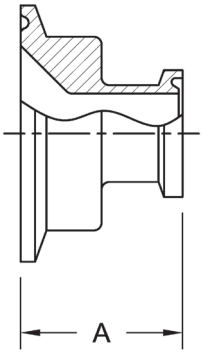
PART NUMBER	SIZE	A	B
28AMP-.50	1/2	1.500	5.500
28AMP-.75	3/4	1.500	5.500
28AMP-1	1	1.500	5.500
28AMP-1.5	1-1/2	1.687	6.688
28AMP-2	2	2.125	7.625
28AMP-2.5	2-1/2	2.000	9.000
28AMP-3	3	2.375	9.375
28AMP-4	4	2.687	11.375
28AMP-6	6	4.375	13.250
28AMP-8	8	5.375	18.375

28BMP - TRUE WYE, CLAMP ENDS



PART NUMBER	SIZE	A
28BMP-.50	1/2	2.500
28BMP-.75	3/4	2.500
28BMP-1	1	3.500
28BMP-1.5	1-1/2	3.500
28BMP-2	2	4.500
28BMP-2.5	2-1/2	5.500
28BMP-3	3	6.500
28BMP-4	4	8.625
28BMP-6	6	8.750

31-14MP - SHORT CONICAL INSTRUMENT REDUCER, CLAMP ENDS

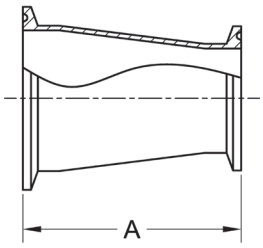


PART NUMBER	LARGE SIZE	SMALL SIZE	A
31-14MP-1X.50X1.25	1	1/2	1.250
31-14MP-1X.75X1.25	1	3/4	1.250
31-14MP-1.5X.50X1.25	1-1/2	1/2	1.250
31-14MP-1.5X.75X1.25	1-1/2	1	1.250
31-14MP-2X.50X1.25	2	1/2	1.250
31-14MP-2X.75X1.25	2	3/4	1.250
31-14MP-2X1X1.25	2	1	1.250

OTHERS SIZES AND LENGTHS AVAILABLE

31-14MP - CONCENTRIC REDUCER, CLAMP ENDS



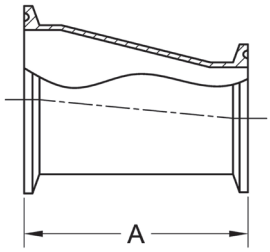


PART NUMBER	SIZE	A
31-14MP-.75X.50	3/4 X 1/2	2.000
31-14MP-1X.50	1 X 1/2	3.000
31-14MP-1X.75	1 X 3/4	2.000
31-14MP-1.5X.50	1-1/2 X 1/2	5.000
31-14MP-1.5X.75	1-1/2 X 3/4	4.000
31-14MP-1.5X1	1-1/2 X 1	3.000
31-14MP-2X1	2 X 1	5.000
31-14MP-2X1.5	2 X 1-1/2	3.000
31-14MP-2.5X1.5	2-1/2 X 1-1/2	5.000
31-14MP-2.5X2	2-1/2 X 2	3.000
31-14MP-3X1.5	3 X 1-1/2	7.000
31-14MP-3X2	3 X 2	5.000
31-14MP-3X2.5	3 X 2-1/2	3.000
31-14MP-4X2	4 X 2	9.125
31-14MP-4X2.5	4 X 2-1/2	7.125
31-14MP-4X3	4 X 3	5.125
31-14MP-6X3	6 X 3	6.750
31-14MP-6X4	6 X 4	6.875

OTHER SIZES AVAILABLE UPON REQUEST

32-14MP - ECCENTRIC REDUCER, CLAMP ENDS

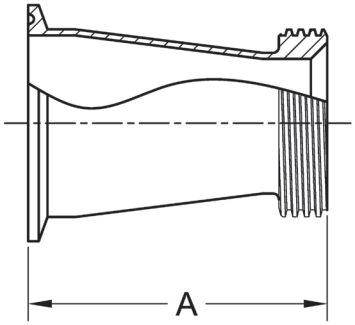




PART NUMBER	SIZE	A
32-14MP-.75X.50	3/4 X 1/2	2.000
32-14MP-1X.50	1 X 1/2	2.500
32-14MP-1X.75	1 X 3/4	2.000
32-14MP-1.5X1	1-1/2 X 1	3.000
32-14MP-2X1	2 X 1	5.000
32-14MP-2X1.5	2 X 1-1/2	3.000
32-14MP-2.5X1.5	2-1/2 X 1-1/2	5.000
32-14MP-2.5X2	2-1/2 X 2	3.000
32-14MP-3X1.5	3 X 1-1/2	7.000
32-14MP-3X2	3 X 2	5.000
32-14MP-3X2.5	3 X 2-1/2	3.000
32-14MP-4X2	4 X 2	9.125
32-14MP-4X2.5	4 X 2-1/2	7.125
32-14MP-4X3	4 X 3	5.125
32-14MP-6X3	6 X 3	6.750
32-14MP-6X4	6 X 4	6.875

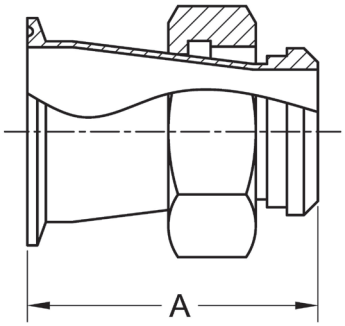
OTHER SIZES AVAILABLE UPON REQUEST

31MPT - CONCENTRIC REDUCER, CLAMP X THREADED BEVEL SEAT



PART NUMBER	SIZE	A
31MPT-1.5X1	1-1/2 X 1	3.188
31MPT-2X1	2 X 1	5.188
31MPT-2X1.5	2 X 1-1/2	3.188
31MPT-2.5X1.5	2-1/2 X 1-1/2	5.219
31MPT-2.5X2	2-1/2 X 2	3.219
31MPT-3X2	3 X 2	5.406
31MPT-3X2.5	3 X 2-1/2	3.406
31MPT-4X2.5	4 X 2-1/2	7.719
31MPT-4X3	4 X 3	5.719

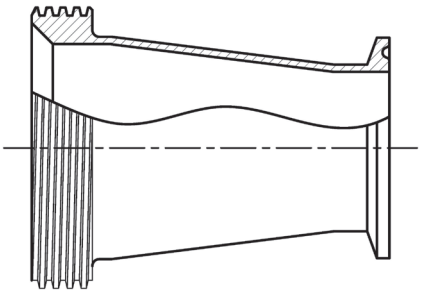
31MPP - CONCENTRIC REDUCER, CLAMP X PLAIN BEVEL SEAT



NOTE: HEX NUT INCLUDED

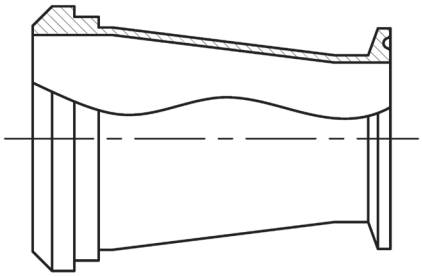
PART NUMBER	SIZE	A
31MPP-1.5X1	1-1/2 X 1	3.875
31MPP-2X1	2 X 1	5.875
31MPP-2X1.5	2 X 1-1/2	4.000
31MPP-2.5X1.5	2-1/2 X 1-1/2	6.000
31MPP-2.5X2	2-1/2 X 2	4.000
31MPP-3X2	3 X 2	6.000
31MPP-3X2.5	3 X 2-1/2	4.250
31MPP-4X2.5	4 X 2-1/2	8.375
31MPP-4X3	4 X 3	6.375

OTHER CLAMP REDUCERS AVAILABLE FROM STEEL & O'BRIEN



31TMP (CONCENTRIC)

32TMP (ECCENTRIC)

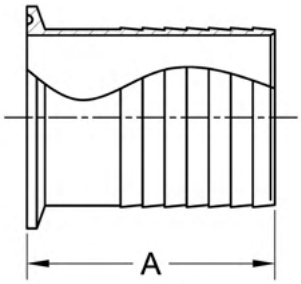


31PMP (CONCENTRIC)

32PMP (ECCENTRIC)

14MPHR - RUBBER HOSE ADAPTER



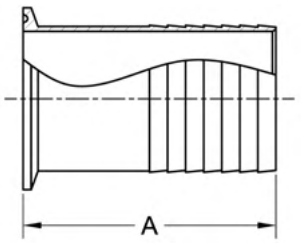


PART NUMBER	SIZE	A	PART NUMBER	SIZE	A
14MPHR-.50X.125	1/2 X 1/8	1.250	14MPHR-1.5X.50	1-1/2 X 1/2	1.500
14MPHR-.50X.25	1/2 X 1/4	1.500	14MPHR-1.5X.75	1-1/2 X 3/4	1.500
14MPHR-.50X.375	1/2 X 3/8	1.500	14MPHR-1.5X1	1-1/2 X 1	1.687
14MPHR-.50	1/2 X 1/2	1.500	14MPHR-1.5X1.25	1-1/2 X 1-1/4	1.687
14MPHR-.50X.75	1/2 X 3/4	1.500	14MPHR-1.5	1-1/2 X 1-1/2	1.687
14MPHR-.75X.125	3/4 X 1/8	1.250	14MPHR-2X.50	2 X 1/2	1.812
14MPHR-.75X.25	3/4 X 1/4	1.500	14MPHR-2X.75	2 X 3/4	1.812
14MPHR-.75X.375	3/4 X 3/8	1.500	14MPHR-2X1	2 X 1	2.312
14MPHR-.75X.50	3/4 X 1/2	1.500	14MPHR-2X1.5	2 X 1-1/2	2.312
14MPHR-.75	3/4 X 3/4	1.500	14MPHR-2	2 X 2	2.312
14MPHR-1X.375	1 X 3/8	1.500	14MPHR-2.5X1.5	2-1/2 X 1-1/2	2.312
14MPHR-1X.50	1 X 1/2	1.500	14MPHR-2.5X2	2-1/2 X 2	2.312
14MPHR-1X.75	1 X 3/4	1.500	14MPHR-2.5	2-1/2 X 2-1/2	2.343
14MPHR-1	1 X 1	1.687	14MPHR-3X2	3 X 2	3.109
14MPHR-1.5X.25	1-1/2 X 1/4	1.500	14MPHR-3	3 X 3	3.093
14MPHR-1.5X.375	1-1/2 X 3/8	1.500	14MPHR-4	4 X 4	3.406

NOTE: SIZES ARE LISTED CLAMP SIZE X HOSE BARB
OTHER LENGTHS AND SIZES AVAILABLE UPON REQUEST.

14MPHRL - BREWERY STYLE RUBBER HOSE ADAPTER

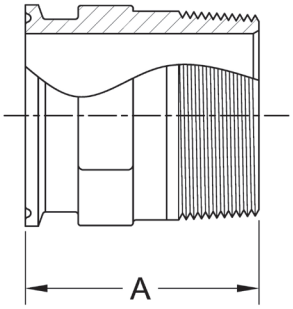




PART NUMBER	SIZE	A
14MPHRL-1X3.5	1	3.500
14MPHRL-1.5X3.5	1-1/2	3.500
14MPHRL-2X4.5	2	4.500
14MPHRL-2.5X4.5	2-1/2	4.500
14MPHRL-3X4.5	3	4.500
14MPHRL-4X6.25	4	6.250

21MP - ADAPTER, CLAMP X MALE NPT





NOTE: SIZES ARE LISTED CLAMP SIZE X NPT

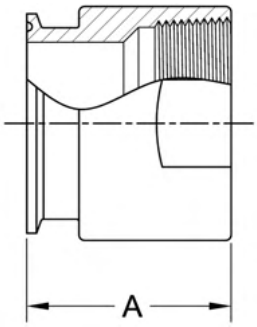
PART NUMBERS DENOTED WITH AN ASTERISK (*)
ARE SUPPLIED WITH A HEX OR WRENCH FLATS

HEX SHAPE PROVIDED ON OTHER SIZES UPON REQUEST

PART NUMBER	SIZE	A
21MP-.50X.125	1/2 X 1/8	2.000
21MP-.50X.25	1/2 X 1/4	2.000
21MP-.50X.375	1/2 X 3/8	2.000
21MP-.50	1/2 X 1/2	2.000
21MP-.50X.75	1/2 X 3/4	2.000
21MP-.50X1*	1/2 X 1	2.250
21MP-.75X.125	3/4 X 1/8	2.000
21MP-.75X.25	3/4 X 1/4	2.000
21MP-.75X.375	3/4 X 3/8	2.000
21MP-.75X.50	3/4 X 1/2	2.000
21MP-.75	3/4 X 3/4	2.000
21MP-.75X1*	3/4 X 1	2.250
21MP-1X.50*	1 X 1/2	2.187
21MP-1X.75*	1 X 3/4	2.187
21MP-1*	1 X 1	2.250
21MP-1.5X.50*	1-1/2 X 1/2	2.187
21MP-1.5X.75*	1-1/2 X 3/4	2.187
21MP-1.5X1*	1-1/2 X 1	2.313
21MP-1.5X1.25*	1-1/2 X 1-1/4	2.438
21MP-1.5*	1-1/2 X 1-1/2	2.438
21MP-2X1*	2 X 1	2.469
21MP-2X1.25*	2 X 1-1/4	2.469
21MP-2X1.5*	2 X 1-1/2	2.469
21MP-2*	2 X 2	2.656
21MP-2.5X1	2-1/2 X 1	2.781
21MP-2.5X1.5	2-1/2 X 1-1/2	2.781
21MP-2.5X2	2-1/2 X 2	2.781
21MP-2.5	2-1/2 X 2-1/2	3.281
21MP-3X1	3 X 1	2.875
21MP-3X1.5	3 X 1-1/2	3.000
21MP-3X2	3 X 2	3.000
21MP-3X2.5	3 X 2-1/2	3.500
21MP-3	3 X 3	3.500
21MP-4X1.5	4 X 1-1/2	3.813
21MP-4X2	4 X 2	3.813
21MP-4X2.5	4 X 2-1/2	3.813
21MP-4X3	4 X 3	3.813
21MP-4	4 X 4	3.813
21MP-6	6 X 6	4.500

22MP - ADAPTER, CLAMP X FEMALE NPT





NOTE: SIZES ARE LISTED CLAMP SIZE X NPT

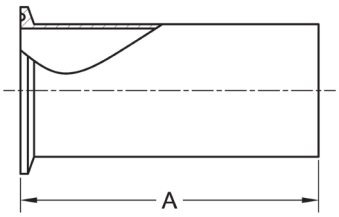
PART NUMBERS DENOTED WITH AN ASTERISK (*)
ARE SUPPLIED WITH A HEX OR WRENCH FLATS

HEX SHAPE PROVIDED ON OTHER SIZES UPON REQUEST

PART NUMBER	SIZE	A
22MP-.50X.125	1/2 X 1/8	1.250
22MP-.50X.25	1/2 X 1/4	1.500
22MP-.50X.375	1/2 X 3/8	1.500
22MP-.50	1/2 X 1/2	1.500
22MP-.50X.75	1/2 X 3/4	1.625
22MP-.50X1	1/2 X 1	1.625
22MP-.75X.125	3/4 X 1/8	1.250
22MP-.75X.25	3/4 X 1/4	1.500
22MP-.75X.375	3/4 X 3/8	1.500
22MP-.75X.50	3/4 X 1/2	1.500
22MP-.75	3/4 X 3/4	1.625
22MP-.75X1*	3/4 X 1	1.625
22MP-1X.50*	1 X 1/2	1.625
22MP-1X.75*	1 X 3/4	1.625
22MP-1*	1 X 1	1.625
22MP-1.5X.50*	1-1/2 X 1/2	1.625
22MP-1.5X.75*	1-1/2 X 3/4	1.625
22MP-1.5X1*	1-1/2 X 1	1.625
22MP-1.5X1.25*	1-1/2 X 1-1/4	2.250
22MP-1.5*	1-1/2 X 1-1/2	2.250
22MP-2X1*	2 X 1	1.687
22MP-2X1.25*	2 X 1-1/4	1.687
22MP-2X1.5*	2 X 1-1/2	1.687
22MP-2*	2 X 2	2.343
22MP-2.5X1	2-1/2 X 1	1.313
22MP-2.5X1.5	2-1/2 X 1-1/2	1.656
22MP-2.5X2	2-1/2 X 2	1.719
22MP-2.5	2-1/2 X 2-1/2	2.094
22MP-3X1	3 X 1	2.187
22MP-3X1.5	3 X 1-1/2	2.187
22MP-3X2	3 X 2	2.187
22MP-3X2.5	3 X 2-1/2	2.187
22MP-3	3 X 3	2.187
22MP-4X1.5	4 X 1-1/2	2.187
22MP-4X2	4 X 2	2.187
22MP-4X2.5	4 X 2-1/2	2.187
22MP-4X3	4 X 3	2.187
22MP-4	4 X 4	2.625
22MP-6	6 X 6	3.250

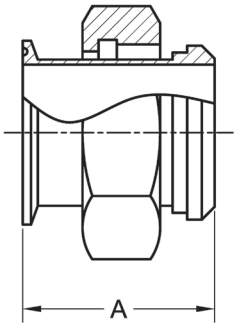
14MPHT - TYGON HOSE ADAPTER





PART NUMBER	SIZE	A
14MPHT-.50	1/2	4.500
14MPHT-.75	3/4	4.500
14MPHT-1	1	4.500
14MPHT-1.5	1-1/2	4.500
14MPHT-2	2	4.500
14MPHT-2.5	2-1/2	4.500
14MPHT-3	3	4.500
14MPHT-4	4	4.625
14MPHT-6	6	4.750

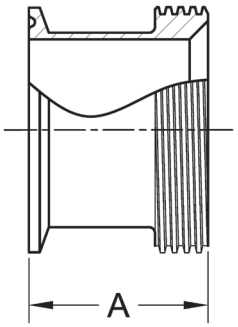
17MP-14 - ADAPTER, CLAMP X PLAIN BEVEL SEAT



PART NUMBER	SIZE	A
17MP-14-1	1	2.500
17MP-14-1.5	1-1/2	2.625
17MP-14-2	2	2.625
17MP-14-2.5	2-1/2	2.875
17MP-14-3	3	2.875
17MP-14-4	4	2.875

NOTE: HEX NUT INCLUDED

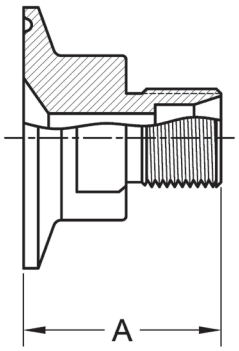
17MP-15 - ADAPTER, CLAMP X THREADED BEVEL SEAT



PART NUMBER	SIZE	A
17MP-15-1	1	1.813
17MP-15-1.5	1-1/2	1.844
17MP-15-2	2	1.875
17MP-15-2.5	2-1/2	1.969
17MP-15-3	3	2.062
17MP-15-4	4	2.344

31-14C - CLAMP X TUBE COMPRESSION



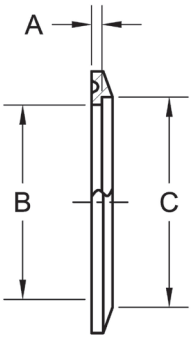


PART NUMBER	TC SIZE	TUBE SIZE	A
31-14-.50X.25	1/2	1/4	1.170
31-14-.50X.375	1/2	3/8	1.590
31-14-.50	1/2	1/2	1.715
31-14-1	1	1	1.500
31-14-1.5X.25	1-1/2	1/4	1.250
31-14-1.5X.50	1-1/2	1/2	1.500

OTHERS SIZES AND LENGTHS AVAILABLE
NUT AND BACK FERRULES AVAILABLE UPON REQUEST

16AAS - CLAMP FLUSH FERRULE





PART NUMBER	SIZE	A	B	C
16AAS-1	1	.188	.870	1.010
16AAS-1.5	1-1/2	.100	1.370	1.510
16AAS-2	2	.100	1.870	2.010
16AAS-2.5	2-1/2	.124	2.370	2.510
16AAS-3	3	.100	2.870	3.010
16AAS-4	4	.100	3.834	4.010
16AAS-6	6	.220	5.782	6.010

SLIP ONTO SANITARY TUBING AND WELD, NO NEED TO BUTT-WELD
EASY WELDING FOR NON-SANITARY APPLICATIONS

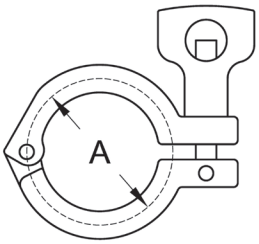
13WNTT - .50-12 CLAMP WING NUT TIGHTENING TOOL



The wing nut tightening tool fits most clamp wing nuts for all sizes. This tool eases in the tightening and loosening of clamp wing nuts, while protecting the user from hot wing nuts.

13MHHM - SINGLE PIN CLAMP



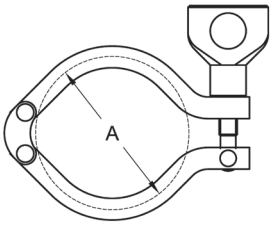


PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
13MHHM-.50	1/2 & 3/4	1.125	1500	1200
13MHHM-1	1 & 1-1/2	2.122	500	300
13MHHM-2	2	2.654	450	300
13MHHM-2.5	2-1/2	3.185	400	200
13MHHM-3	3	3.717	350	195
13MHHM-4	4	4.820	300	150
13MHHM-5	5	5.625	150	75
13MHHM-6	6	6.695	150	75
13MHHM-8	8	8.695	100	50
13MHHM-10	10	10.695	75	40
13MHHM-12	12	12.695	50	25

NOTE: ALSO AVAILABLE WITH ROCKET WING NUT
AVAILABLE IN 304 OR 316 MATERIAL
PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
PRESSURE RATINGS PERTAIN TO THE CLAMP “UNION”

13MHHM-DP - DOUBLE PIN CLAMP





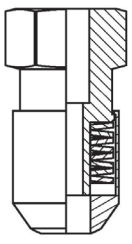
AVAILABLE IN 304 MATERIAL ONLY

PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
13MHHM-DP-.50	1/2 & 3/4	1.125	1500	1200
13MHHM-DP-1	1 & 1-1/2	2.122	500	300
13MHHM-DP-2	2	2.654	450	300
13MHHM-DP-2.5	2-1/2	3.185	400	200
13MHHM-DP-3	3	3.717	350	195
13MHHM-DP-4	4	4.820	300	150
13MHHM-DP-6	6	6.695	150	75
13MHHM-DP-8	8	8.695	100	50
13MHHM-DP-10	10	10.695	75	40

NOTE: ROCKET WING NUTS ALSO AVAILABLE
PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
PRESSURE RATINGS PERTAIN TO THE CLAMP “UNION”

13WNLL - LIVE LOADED CLAMP NUT



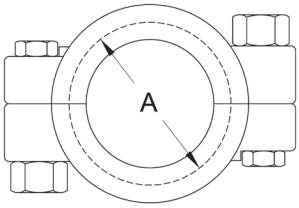


The live loaded clamp nut maintains a constant tightening force on clamped unions. This is helpful in keeping the seal of a clamped union, especially one with teflon gaskets. The “Live Loaded” nut fits on standard clamps and can be retrofitted on existing clamps.

The assembly consists of a two-piece outer housing with springs contained inside, once the nut is tightened to 50 inch/pounds on the clamp, the springs are compressed.

13MHP - HIGH PRESSURE CLAMP





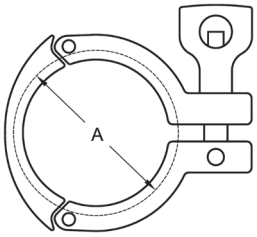
AVAILABLE IN 304 AND 316 MATERIAL

PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
13MHP-.50	1/2 & 3/4	1.125	1500	1200
13MHP-1	1 & 1-1/2	2.046	1000	800
13MHP-2	2	2.596	1000	800
13MHP-2.5	2-1/2	3.127	1000	800
13MHP-3	3	3.659	1000	800
13MHP-4	4	4.762	800	600
13MHP-5	5	5.762	300	200
13MHP-6	6	6.695	300	200
13MHP-8	8	8.695	250	150
13MHP-10	10	10.695	200	125
13MHP-12	12	12.695	150	100

NOTE: PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
PRESSURE RATINGS PERTAIN TO THE CLAMP “UNION”
SUPPLIED WITH BRASS HEX NUTS

13MHHS - THREE SEGMENT CLAMP





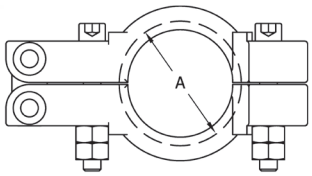
AVAILABLE IN 304 MATERIAL ONLY

PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
13MHHS-1	1 & 1-1/2	2.122	600	300
13MHHS-2	2	2.654	550	275
13MHHS-2.5	2-1/2	3.185	450	225
13MHHS-3	3	3.717	350	175
13MHHS-4	4	4.820	300	150

NOTE: ROCKET WING NUTS ALSO AVAILABLE
PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
PRESSURE RATINGS PERTAIN TO THE CLAMP “UNION”

13ASME - ASME DOUBLE BOLT CLAMP



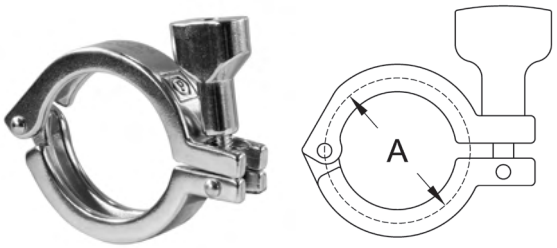


VAILABLE IN 316 MATERIAL ONLY

PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
13ASME-1	1 & 1-1/2	2.046	1485	1337
13ASME-2	2	2.578	1370	1233
13AMSE-3	3	3.640	1000	900
13ASME-4	4	4.744	874	787
13ASME-6	6	6.632	415	374
13ASME-8	8	8.632	299	269
13ASME-10	10	10.632	161	145
13ASME-12	12	12.632	102	92

NOTE: TO MEET THE PSI RATINGS ABOVE THE FERRULE (HUB) USED SHALL BE DESIGNED IN ACCORDANCE WITH ASME SECTION 8 DIVISION 1 MANDATORY APPENDIX 24
STANDARD FERRULES AND FULL FACE GASKET CAN BE USED HOWEVER PERFORMANCE MAY NOT MEET THE ABOVE RATINGS

P13MHHM - PURITY CLAMP

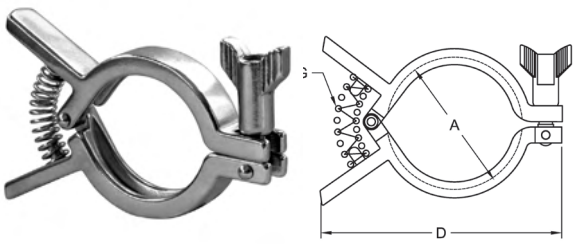


AVAILABLE IN 304 MATERIAL ONLY

PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
P13MHHM-.50	1/2 & 3/4	1.125	1500	1200
P13MHHM-1	1 & 1-1/2	2.122	500	300
P13MHHM-2	2	2.654	450	300
P13MHHM-2.5	2-1/2	3.185	400	200
P13MHHM-3	3	3.717	350	195
P13MHHM-4	4	4.820	300	150

TRUE SPHERICAL DESIGN
LOBE WING NUT
POLISHED

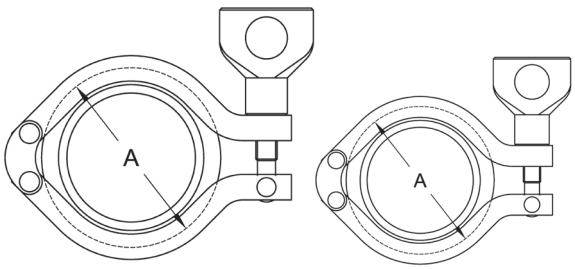
13MHHMQ - SQUEEZE CLAMP



AVAILABLE IN 304 MATERIAL ONLY

PART NUMBER	SIZE	A	D	PSI RATING @ 70°F	PSI RATING @ 250°F
13MHHMQ-.50	1/2 & 3/4	1.125	3.625	1500	1200
13MHHMQ-1	1 & 1-1/2	2.122	4.625	500	300
13MHHMQ-2	2	2.654	5.000	450	300
13MHHMQ-2.5	2-1/2	3.185	6.000	400	200
13MHHMQ-3	3	3.717	7.000	350	195
13MHHMQ-4	4	4.820	8.000	300	150

A12MPS - SWIVEL JOINT CLAMP ASSEMBLY



AVAILABLE IN 304
MATERIAL ONLY

PART NUMBER	SIZE	A	PSI RATING @ 70°F
A12MPS-1	1 & 1-1/2	2.122	50
A12MPS-2	2	2.654	50
A12MPS-2.5	2-1/2	3.185	50
A12MPS-3	3	3.717	50
A12MPS-4	4	4.820	50

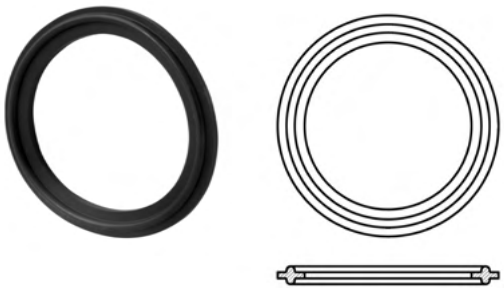
NOTE: “A” DIMENSION DOES NOT INCLUDE TEFLON COLLAR
ASSEMBLY INCLUDES PTFE COLLAR AND PTFE/EPDM ENVELOPE GASKET

CLAMP GASKET PERFORMANCE CHART

PROPERTY	BUNA-N	EPDM	PTFE	FKM/SFY	SILICONE
TENSILE STRENGTH	GOOD	GOOD - EXCELLENT	EXCELLENT	EXCELLENT	GOOD
ELECTRICAL PROPERTIES	POOR	EXCELLENT	EXCELLENT	GOOD	EXCELLENT
WEATHER RESISTANCE	GOOD	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT
OZONE RESISTANCE	POOR	EXCELLENT	EXCELLENT	EXCELLENT	EXCELLENT
HEAT RESISTANCE	200°F	300°F	500°F	400°F	450°F
COLD RESISTANCE	-30°F	-30°F	-100°F	-30°F	-40°F
STEAM RESISTANCE	POOR	EXCELLENT	EXCELLENT	EXCELLENT	GOOD
TEAR RESISTANCE	GOOD	GOOD	EXCELLENT	GOOD	GOOD
ABRASION RESISTANCE	GOOD	GOOD	EXCELLENT	GOOD	GOOD
ACID RESISTANCE	POOR - GOOD	GOOD - EXCELLENT	EXCELLENT	GOOD	GOOD
PETROLEUM OIL	EXCELLENT	POOR	EXCELLENT	EXCELLENT	POOR - GOOD
FLAME RESISTANCE	POOR	POOR	EXCELLENT	GOOD	POOR
VEGETABLE OIL	EXCELLENT	GOOD	EXCELLENT	EXCELLENT	POOR - GOOD
USP CLASS VI	NO	YES	YES	YES	YES
ANIMAL OILS & FATS	EXCELLENT	POOR	EXCELLENT	EXCELLENT	GOOD
ALCOHOL, GLYCOLS	EXCELLENT	EXCELLENT	EXCELLENT	GOOD	EXCELLENT
SOAPS, BLEACHES, DETERGENTS	POOR	EXCELLENT	EXCELLENT	GOOD	POOR

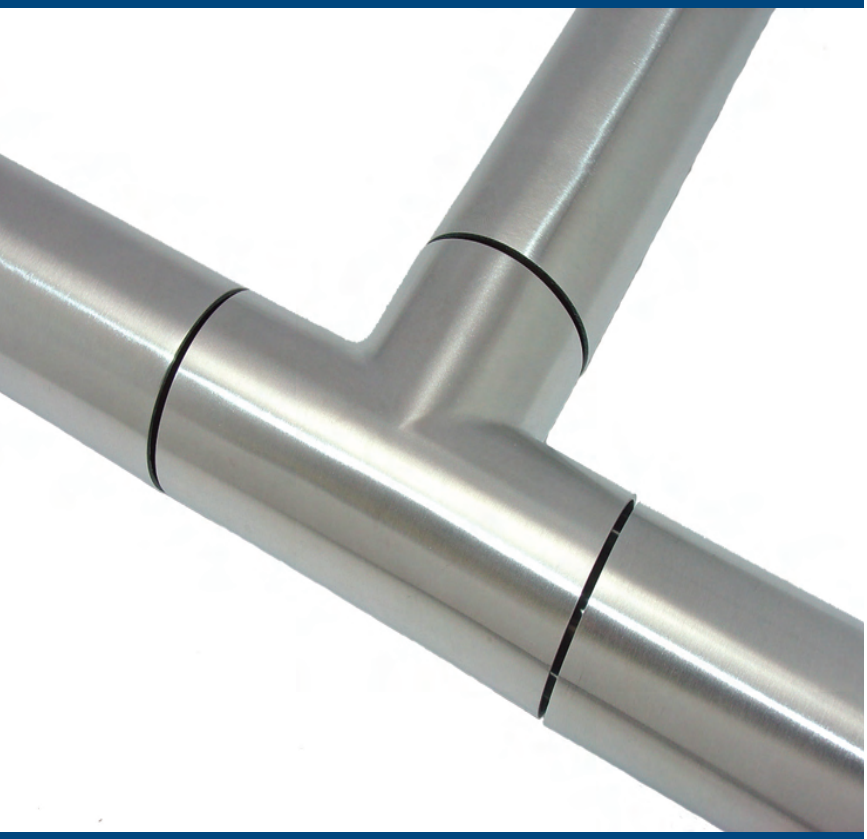
THE ABOVE CHART IS INTENDED AS A GUIDLINE, ACUTAL PERFORMANCE MAY VARY WITH EACH APPLICATION.

40MP - CLAMP GASKET



AVAILABLE IN THE FOLLOWING MATERIALS:
BUNA-N, EPDM, TEFLON, VITON, SILICONE
TUF-STEEL & STAINLESS
OTHER MATERIALS AVAILABLE UPON REQUEST

PART NUMBER	SIZE
40MP-.50	1/2
40MP-.75	3/4
40MP-1	1
40MP-1.5	1-1/2
40MP-2	2
40MP-2.5	2-1/2
40MP-3	3
40MP-4	4
40MP-5	5
40MP-6	6
40MP-8	8
40MP-10	10
40MP-12	12

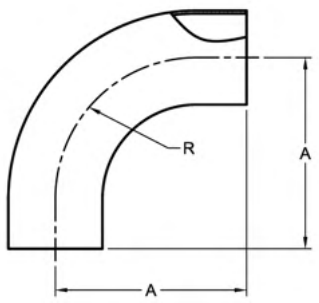


WELD FITTINGS

Steel & O'Brien is your ultimate resource for sanitary butt weld fittings. We maintain an extensive inventory of these fittings, including reducers, flanges, adaptors, elbows and caps. We stock products available in 304 and 316L stainless steel, with sizes ranging up to 12" in diameter. These stainless-steel sanitary fittings are welded to connect to tubing or other fittings for a permanent and flush connection.

L2S - 90 DEGREE ELBOW, TANGENT WELD ENDS

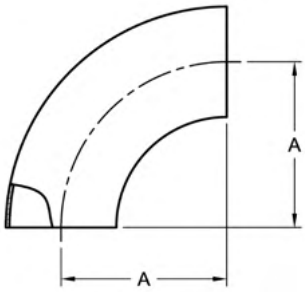




PART NUMBER	SIZE	A	R
L2S-.50	1/2	3.000	.750
L2S-.50L	1/2	3.000	1.125
L2S-.75	3/4	3.000	1.125
L2S-1	1	2.062	1.500
L2S-1.5	1-1/2	2.937	2.250
L2S-2	2	4.062	3.000
L2S-2.5	2-1/2	5.187	3.750
L2S-3	3	6.312	4.500
L2S-4	4	8.312	6.000
L2S-6	6	11.000	9.000
L2S-8	8	15.000	12.000

2WCL - 90 DEGREE ELBOW, WELD ENDS

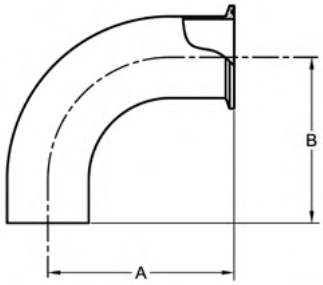




PART NUMBER	SIZE	A
2WCL-.50	1/2	.750
2WCL-.50L	1/2	1.125
2WCL-.75	3/4	1.125
2WCL-1	1	1.500
2WCL-1.5	1-1/2	2.250
2WCL-2	2	3.000
2WCL-2.5	2-1/2	3.750
2WCL-3	3	4.500
2WCL-4	4	6.000
2WCL-6	6	9.000
2WCL-8	8	12.000
2WCL-10	10	15.000
2WCL-12	12	18.000

L2CM - 90 DEGREE ELBOW, WELD X CLAMP

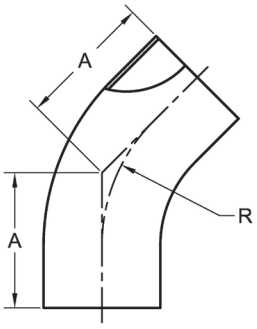




PART NUMBER	SIZE	A	B
L2CM-1	1	2.563	2.063
L2CM-1.5	1-1/2	3.438	2.938
L2CM-2	2	4.563	4.063
L2CM-2.5	2-1/2	5.688	5.188
L2CM-3	3	6.813	6.313
L2CM-4	4	8.938	8.313
L2CM-6	6	11.750	11.000
L2CM-8	8	15.875	15.000
L2CM-10	10	18.875	18.000
L2CM-12	12	22.000	21.000

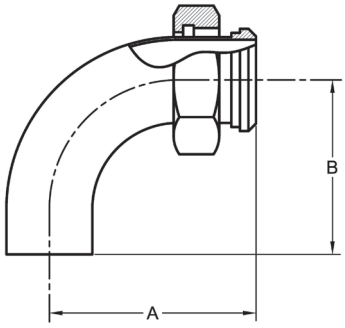
L2KS - 45 DEGREE ELBOW, TANGENT WELD ENDS





PART NUMBER	SIZE	A	R
L2KS-.50	1/2	2.250	.750
L2KS-.50L	1/2	2.250	1.125
L2KS-.75	3/4	2.250	1.125
L2KS-1	1	1.188	1.500
L2KS-1.5	1-1/2	1.625	2.250
L2KS-2	2	2.312	3.000
L2KS-2.5	2-1/2	3.000	3.750
L2KS-3	3	3.688	4.500
L2KS-4	4	4.812	6.000
L2KS-6	6	7.500	9.000
L2KS-8	8	7.971	12.000

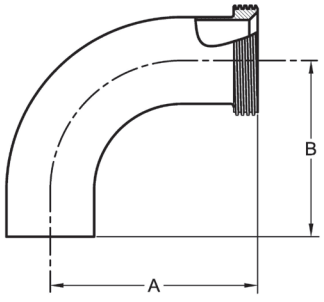
L2F - 90 DEGREE ELBOW, WELD X PLAIN BEVEL SEAT



PART NUMBER	SIZE	A	B
L2F-1	1	2.749	2.062
L2F-1.5	1-1/2	3.656	2.937
L2F-2	2	4.785	4.062
L2F-2.5	2-1/2	6.031	5.187
L2F-3	3	7.218	6.312
L2F-4	4	9.312	8.312

NOTE: HEX NUT INCLUDED

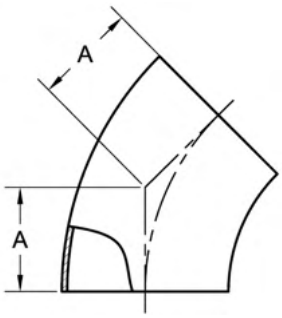
L2C - 90 DEGREE ELBOW, WELD X THREADED BEVEL SEAT



PART NUMBER	SIZE	A	B
L2C-1	1	2.750	2.062
L2C-1.5	1-1/2	3.656	2.937
L2C-2	2	4.812	4.062
L2C-2.5	2-1/2	6.031	5.187
L2C-3	3	7.245	6.312
L2C-4	4	9.531	8.312

2WK - 45 DEGREE ELBOW, WELD ENDS

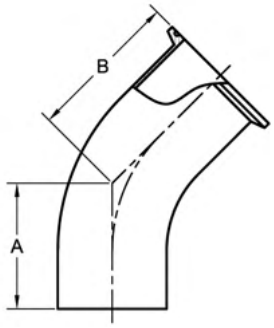




PART NUMBER	SIZE	A
2WK-.50	1/2	.313
2WK-.50L	1/2	.466
2WK-.75	3/4	.466
2WK-1	1	.625
2WK-1.5	1-1/2	.937
2WK-2	2	1.250
2WK-2.5	2-1/2	1.562
2WK-3	3	1.875
2WK-4	4	2.500
2WK-6	6	3.750
2WK-8	8	5.000
2WK-10	10	6.250
2WK-12	12	7.500

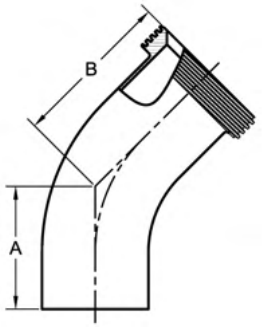
L2KM - 45 DEGREE ELBOW, WELD X CLAMP





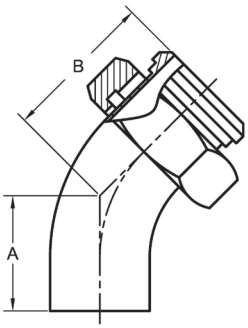
PART NUMBER	SIZE	A	B
L2KM-1	1	1.188	1.688
L2KM-1.5	1-1/2	1.625	2.125
L2KM-2	2	2.312	2.812
L2KM-2.5	2-1/2	3.000	3.500
L2KM-3	3	3.688	4.188
L2KM-4	4	4.812	5.437
L2KM-6	6	3.750	4.625

L2K - 45 DEGREE ELBOW, WELD X THREADED BEVEL SEAT



PART NUMBER	SIZE	A	B
L2K-1	1	1.188	1.907
L2K-1.5	1-1/2	1.625	2.344
L2K-2	2	2.312	3.031
L2K-2.5	2-1/2	3.000	3.719
L2K-3	3	3.688	4.406
L2K-4	4	4.812	5.531

L2P - 45 DEGREE ELBOW, WELD X PLAIN BEVEL SEAT

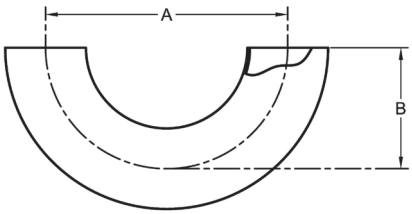


PART NUMBER	SIZE	A	B
L2P-1	1	1.188	1.875
L2P-1.5	1-1/2	1.625	2.344
L2P-2	2	2.312	3.035
L2P-2.5	2-1/2	3.000	3.844
L2P-3	3	3.688	4.594
L2P-4	4	4.812	5.812

NOTE: HEX NUT INCLUDED

2WU - 180 DEGREE RETURN BEND, WELD ENDS

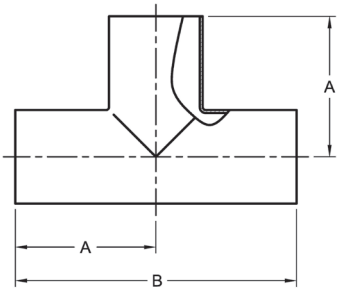




PART NUMBER	SIZE	A	B
2WU-1	1	3.000	1.500
2WU-1.5	1-1/2	4.500	2.250
2WU-2	2	6.000	3.000
2WU-2.5	2-1/2	7.500	3.750
2WU-3	3	9.000	4.500
2WU-4	4	12.000	6.000
2WU-6	6	18.000	9.000

7W - TEE, WELD ENDS (LONG)

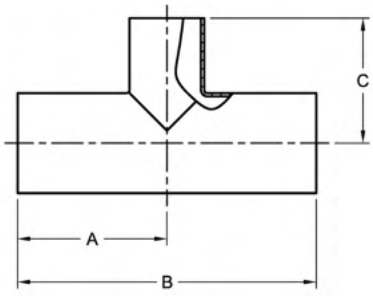




PART NUMBER	SIZE	A	B
7W-.50	1/2	1.875	3.750
7W-.75	3/4	1.875	3.750
7W-1	1	1.875	3.750
7W-1.5	1-1/2	2.250	4.500
7W-2	2	3.000	6.000
7W-2.5	2-1/2	3.000	6.000
7W-3	3	3.250	6.500
7W-4	4	3.875	7.750
7W-6	6	5.030	10.038

7RW - REDUCING TEE, WELD ENDS (LONG)

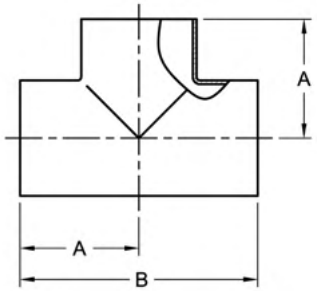




PART NUMBER	SIZE	A	B	C
7RW-1X.50	1 X 1/2	2.125	4.250	2.125
7RW-1X.75	1 X 3/4	2.125	4.250	2.125
7RW-1.5X.50	1-1/2 X 1/2	2.375	4.750	2.375
7RW-1.5X.75	1-1/2 X 3/4	2.375	4.750	2.375
7RW-1.5X1	1-1/2 X 1	2.250	4.500	2.125
7RW-2X.50	2 X 1/2	2.875	5.750	2.625
7RW-2X.75	2 X 3/4	3.000	6.000	2.375
7RW-2X1	2 X 1	3.000	6.000	2.375
7RW-2X1.5	2 X 1-1/2	3.000	6.000	2.500
7RW-2.5X1	2-1/2 X 1	3.000	6.000	2.625
7RW-2.5X1.5	2-1/2 X 1-1/2	3.000	6.000	2.750
7RW-2.5X2	2-1/2 X 2	3.000	6.000	3.250
7RW-3X1	3 X 1	3.250	6.000	2.875
7RW-3X1.5	3 X 1-1/2	3.250	6.500	3.000
7RW-3X2	3 X 2	3.250	6.500	3.500
7RW-3X2.5	3 X 2-1/2	3.250	6.500	3.250
7RW-4X1	4 X 1	3.875	7.750	3.625
7RW-4X1.5	4 X 1-1/2	3.875	7.750	3.625
7RW-4X2	4 X 2	3.875	7.750	4.000
7RW-4X2.5	4 X 2-1/2	3.875	7.750	3.750
7RW-4X3	4 X 3	3.875	7.750	3.750

7WWW - TEE, WELD ENDS (SHORT)

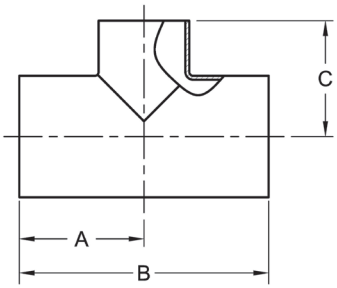




PART NUMBER	SIZE	A	B
7WWW-.50	1/2	1.125	2.250
7WWW-.75	3/4	1.125	2.250
7WWW-1	1	1.125	2.250
7WWW-1.5	1-1/2	1.656	3.312
7WWW-2	2	2.063	4.125
7WWW-2.5	2-1/2	2.344	4.688
7WWW-3	3	2.594	5.188
7WWW-4	4	3.438	6.875
7WWW-6	6	5.625	11.250
7WWW-8	8	7.000	14.000
7WWW-10	10	8.500	17.000
7WWW-12	12	10.000	20.000

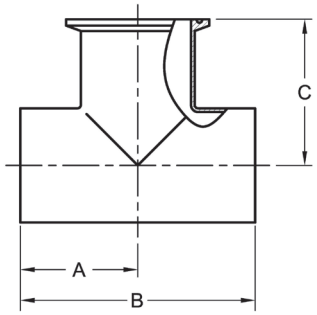
7RWWW - REDUCING TEE, WELD ENDS (SHORT)





PART NUMBER	SIZE	A	B	C
7RWWW-1.5X1	1-1/2 X 1	1.656	3.312	1.375
7RWWW-2X1	2 X 1	2.062	4.125	1.625
7RWWW-2X1.5	2 X 1-1/2	2.062	4.125	1.905
7RWWW-2.5X1	2-1/2 X 1	2.344	4.688	1.875
7RWWW-2.5X1.5	2-1/2 X 1-1/2	2.344	4.688	2.156
7RWWW-2.5X2	2-1/2 X 2	2.344	4.688	2.312
7RWWW-3X1	3 X 1	2.594	5.188	2.125
7RWWW-3X1.5	3 X 1-1/2	2.594	5.188	2.406
7RWWW-3X2	3 X 2	2.594	5.188	2.562
7RWWW-3X2.5	3 X 2-1/2	2.594	5.188	2.594
7RWWW-4X1	4 X 1	3.438	6.875	2.625
7RWWW-4X1.5	4 X 1-1/2	3.438	6.875	2.906
7RWWW-4X2	4 X 2	3.438	6.875	3.062
7RWWW-4X2.5	4 X 2-1/2	3.438	6.875	3.094
7RWWW-4X3	4 X 3	3.438	6.875	3.094
7RWWW-6X3	6 X 3	5.625	11.250	4.875
7RWWW-6X4	6 X 4	5.625	11.250	5.125
7RWWW-8X4	8 X 4	7.000	14.000	6.125
7RWWW-8X6	8 X 6	7.000	14.000	6.625

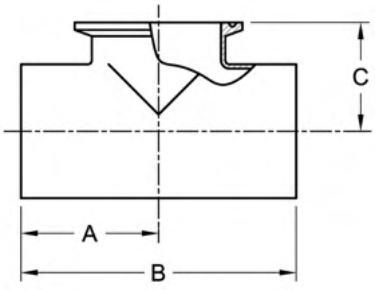
7WWM - TEE, WELD X WELD X CLAMP OUTLET



PART NUMBER	SIZE	A	B	C
7WWM-.75	3/4	1.875	3.750	2.375
7WWM-1	1	1.125	2.250	1.625
7WWM-1.5	1-1/2	1.656	3.312	2.156
7WWM-2	2	2.063	4.125	2.563
7WWM-2.5	2-1/2	2.344	4.688	2.844
7WWM-3	3	2.594	5.188	3.094
7WWM-4	4	3.438	6.875	4.063
7WWM-6	6	5.625	11.250	6.375

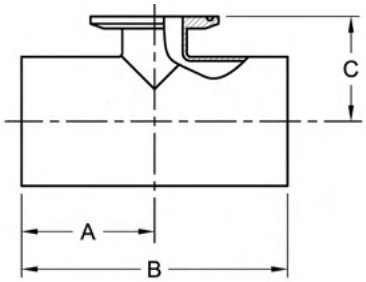
7WWMS - TEE, WELD X WELD X SHORT CLAMP OUTLET





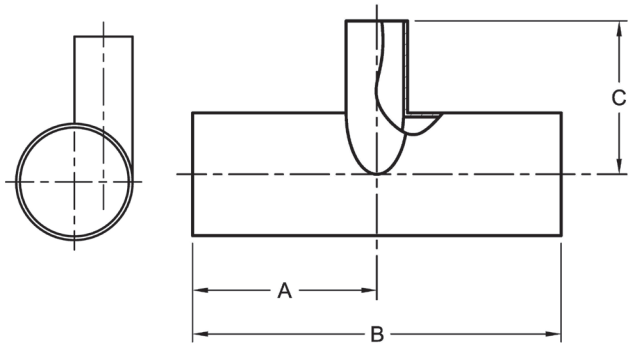
PART NUMBER	SIZE	A	B	C
7WWMS-1	1	1.125	2.250	1.125
7WWMS-1.5	1-1/2	1.656	3.312	1.375
7WWMS-2	2	2.063	4.125	1.625
7WWMS-2.5	2-1/2	2.344	4.688	1.875
7WWMS-3	3	2.594	5.188	2.125
7WWMS-4	4	3.438	6.876	2.750
7WWMS-6	6	5.625	11.250	4.500
7WWMS-8	8	7.000	14.000	5.125

7RWWMS - REDUCING TEE, WELD X WELD X SHORT CLAMP OUTLET



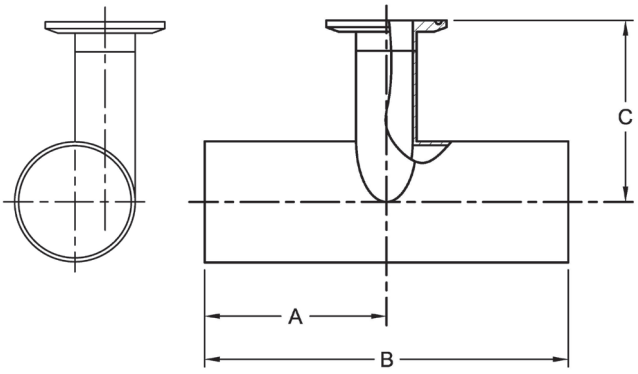
PART NUMBER	SIZE	A	B	C
7RWWMS-1.5X1	1-1/2 X 1	1.656	3.312	1.375
7RWWMS-2X1	2 X 1	2.062	4.125	1.625
7RWWMS-2X1.5	2 X 1-1/2	2.062	4.125	1.625
7RWWMS-2.5X1	2-1/2 X 1	2.344	4.688	1.875
7RWWMS-2.5X1.5	2-1/2 X 1-1/2	2.344	4.688	1.875
7RWWMS-2.5X2	2-1/2 X 2	2.344	4.688	1.875
7RWWMS-3X1	3 X 1	2.594	5.188	2.125
7RWWMS-3X1.5	3 X 1-1/2	2.594	5.188	2.125
7RWWMS-3X2	3 X 2	2.594	5.188	2.125
7RWWMS-3X2.5	3 X 2-1/2	2.594	5.188	2.125
7RWWMS-4X1	4 X 1	3.438	6.875	2.625
7RWWMS-4X1.5	4 X 1-1/2	3.438	6.875	2.625
7RWWMS-4X2	4 X 2	3.438	6.875	2.625
7RWWMS-4X2.5	4 X 2-1/2	3.438	6.875	2.625
7RWWMS-4X3	4 X 3	3.438	6.875	2.625
7RWWMS-6X3	6 X 3	5.625	11.250	3.625
7RWWMS-6X4	6 X 4	5.625	11.250	3.750

7ERWWW - TANGENTIAL REDUCING TEE, WELD ENDS



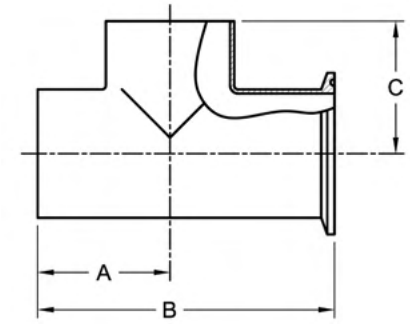
PART NUMBER	SIZE	A	B	C
7ERWWW-1.5X1	1-1/2 X 1	1.656	3.312	1.375
7ERWWW-2X1	2 X 1	2.062	4.125	1.625
7ERWWW-2X1.5	2 X 1-1/2	2.062	4.125	1.905
7ERWWW-2.5X1	2-1/2 X 1	2.344	4.688	1.875
7ERWWW-2.5X1.5	2-1/2 X 1 1/2	2.344	4.688	2.156
7ERWWW-2.5X2	2-1/2 X 2	2.344	4.688	2.312
7ERWWW-3X1	3 X 1	2.594	5.188	2.125
7ERWWW-3X1.5	3 X 1-1/2	2.594	5.188	2.406
7ERWWW-3X2	3 X 2	2.594	5.188	2.562
7ERWWW-3X2.5	3 X 2-1/2	2.594	5.188	2.594
7ERWWW-4X1	4 X 1	3.438	6.875	2.625
7ERWWW-4X1.5	4 X 1-1/2	3.438	6.875	2.906
7ERWWW-4X2	4 X 2	3.438	6.875	3.062
7ERWWW-4X2.5	4 X 2-1/2	3.438	6.875	3.094
7ERWWW-4X3	4 X 3	3.438	6.875	3.094

7ERWWK - TANGENTIAL REDUCING TEE, WELD X WELD X CLAMP OUTLET



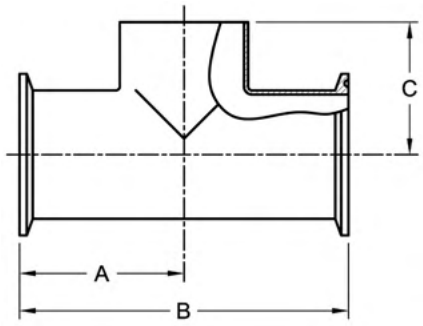
PART NUMBER	SIZE	A	B	C
7ERWWK-1.5X1	1-1/2 X 1	1.656	3.312	1.875
7ERWWK-2X1	2 X 1	2.062	4.125	2.125
7ERWWK-2X1.5	2 X 1-1/2	2.062	4.125	2.406
7ERWWK-2.5X1	2-1/2 X 1	2.344	4.688	2.375
7ERWWK-2.5X1.5	2-1/2 X 1-1/2	2.344	4.688	2.656
7ERWWK-2.5X2	2-1/2 X 2	2.344	4.688	2.812
7ERWWK-3X1	3 X 1	2.594	5.188	2.625
7ERWWK-3X1.5	3 X 1-1/2	2.594	5.188	2.906
7ERWWK-3X2	3 X 2	2.594	5.188	3.062
7ERWWK-3X2.5	3 X 2-1/2	2.594	5.188	3.094
7ERWWK-4X1	4 X 1	3.438	6.875	3.125
7ERWWK-4X1.5	4 X 1-1/2	3.438	6.875	3.406
7ERWWK-4X2	4 X 2	3.438	6.875	3.562
7ERWWK-4X2.5	4 X 2-1/2	3.438	6.875	3.594
7ERWWK-4X3	4 X 3	3.438	6.875	3.594

7WMW - TEE, WELD X CLAMP X WELD OUTLET



PART NUMBER	SIZE	A	B	C
7WMW-1	1	1.125	2.750	1.125
7WMW-1.5	1-1/2	1.656	3.812	1.656
7WMW-2	2	2.063	4.625	2.063
7WMW-2.5	2-1/2	2.344	5.188	2.344
7WMW-3	3	2.594	5.688	2.594
7WMW-4	4	3.438	7.500	3.438
7WMW-6	6	5.625	12.000	5.625
7WMW-8	8	7.000	14.875	7.000

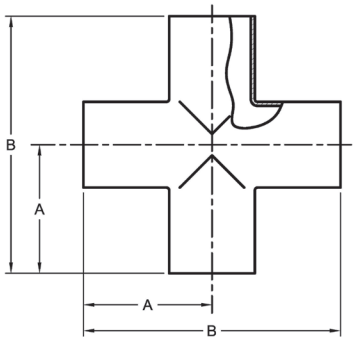
7MMW - TEE, CLAMP X CLAMP X WELD OUTLET



PART NUMBER	SIZE	A	B	C
7MMW-1	1	1.625	3.250	1.125
7MMW-1.5	1-1/2	2.156	4.312	1.656
7MMW-2	2	2.563	5.125	2.063
7MMW-2.5	2-1/2	2.844	5.688	2.344
7MMW-3	3	3.094	6.188	2.594
7MMW-4	4	4.063	8.125	3.438
7WMW-6	6	6.375	12.750	5.625
7WMW-8	8	7.875	15.750	7.000

9W - CROSS, WELD ENDS (LONG)

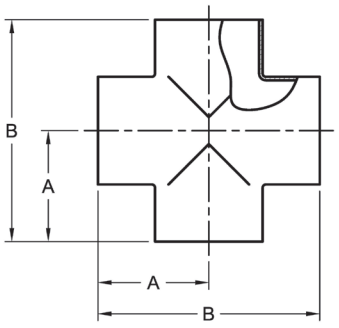




PART NUMBER	SIZE	A	B
9W-.50	1/2	1.875	3.750
9W-.75	3/4	1.875	3.750
9W-1	1	1.875	3.750
9W-1.5	1-1/2	2.250	4.500
9W-2	2	3.000	6.000
9W-2.5	2-1/2	3.000	6.000
9W-3	3	3.250	6.500
9W-4	4	3.875	7.750

9WWWW - CROSS, WELD ENDS (SHORT)

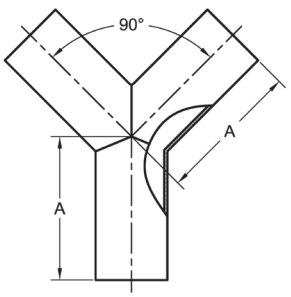




PART NUMBER	SIZE	A	B
9WWWW-.50	1/2	.750	1.500
9WWWW-.75	3/4	1.125	2.250
9WWWW-1	1	1.125	2.250
9WWWW-1.5	1-1/2	1.656	3.312
9WWWW-2	2	2.063	4.125
9WWWW-2.5	2-1/2	2.344	4.688
9WWWW-3	3	2.594	5.188
9WWWW-4	4	3.438	6.875
9WWWW-6	6	5.625	11.250

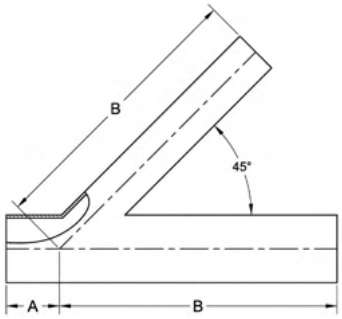
28WB - TRUE WYE, WELD ENDS





PART NUMBER	SIZE	A
28WB-.50	1/2	2.000
28WB-.75	3/4	2.000
28WB-1	1	3.000
28WB-1.5	1-1/2	3.000
28WB-2	2	4.000
28WB-2.5	2-1/2	5.000
28WB-3	3	6.000
28WB-4	4	8.000
28WB-6	6	8.000
28WB-8	8	9.000

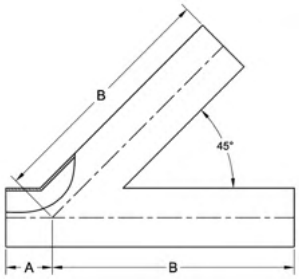
28WAR - REDUCING LATERAL WYE, WELD ENDS



PART NUMBER	SIZE	A	B
28WAR-1X.50	1 X 1/2	1.000	5.000
28WAR-1X.75	1 X 3/4	1.000	5.000
28WAR-1.5X.50	1-1/2 X 1/2	1.188	6.188
28WAR-1.5X.75	1-1/2 X 3/4	1.188	6.188
28WAR-1.5X1	1-1/2 X 1	1.188	6.188
28WAR-2X.50	2 X 1/2	1.625	7.125
28WAR-2X.75	2 X 3/4	1.625	7.125
28WAR-2X1	2 X 1	1.625	7.125
28WAR-2X1.5	2 X 1-1/2	1.625	7.125
28WAR-2.5X.50	2-1/2 X 1/2	1.500	8.500
28WAR-2.5X.75	2-1/2 X 3/4	1.500	8.500
28WAR-2.5X1	2-1/2 X 1	1.500	8.500
28WAR-2.5X1.5	2-1/2 X 1-1/2	1.500	8.500
28WAR-2.5X2	2-1/2 X 2	1.625	8.500
28WAR-3X.50	3 X 1/2	1.875	8.875
28WAR-3X.75	3 X 3/4	1.875	8.875
28WAR-3X1	3 X 1	1.875	8.875
28WAR-3X1.5	3 X 1-1/2	1.875	8.875
28WAR-3X2	3 X 2	1.875	8.875
28WAR-3X2.5	3 X 2-1/2	1.875	8.875
28WAR-4X.50	4 X 1/2	2.063	10.750
28WAR-4X.75	4 X 3/4	2.063	10.750
28WAR-4X1	4 X 1	2.063	10.750
28WAR-4X1.5	4 X 1-1/2	2.063	10.750
28WAR-4X2	4 X 2	2.063	10.750
28WAR-4X2.5	4 X 2-1/2	2.063	10.750
28WAR-4X3	4 X 3	2.063	10.750

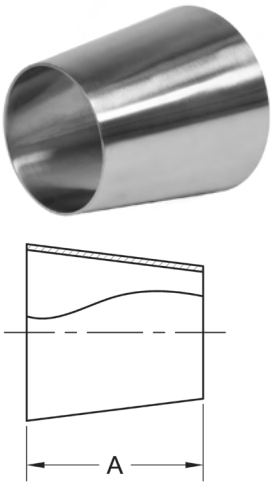
28WA - LATERAL WYE, WELD ENDS





PART NUMBER	SIZE	A	B
28WA-.50	1/2	1.000	5.000
28WA-.75	3/4	1.000	5.000
28WA-1	1	1.000	5.000
28WA-1.5	1-1/2	1.188	6.188
28WA-2	2	1.625	7.125
28WA-2.5	2-1/2	1.500	8.500
28WA-3	3	1.875	8.875
28WA-4	4	2.063	10.750
28WA-6	6	3.500	14.500
28WA-8	8	4.500	17.500

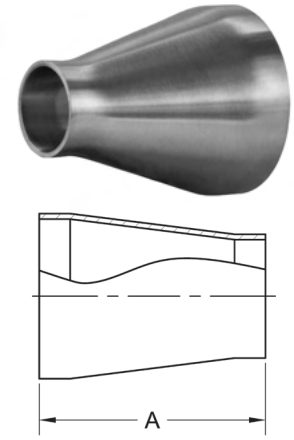
31W - CONCENTRIC REDUCER, WELD ENDS



PART NUMBER	SIZE	A
31W-.50X.25	1/2 X 1/4	.750
31W-.50X.375	1/2 X 3/8	1.000
31W-.75X.50	3/4 X 1/2	1.000
31W-1X.50	1 X 1/2	2.000
31W-1X.75	1 X 3/4	1.000
31W-1.5X.50	1-1/2 X 1/2	4.000
31W-1.5X.75	1-1/2 X 3/4	3.000
31W-1.5X1	1-1/2 X 1	2.000
31W-2X1	2 X 1	4.000
31W-2X1.5	2 X 1-1/2	2.000
31W-2.5X1.5	2-1/2 X 1-1/2	4.000

PART NUMBER	SIZE	A
31W-2.5X2	2-1/2 X 2	2.000
31W-3X1.5	3 X 1-1/2	6.000
31W-3X2	3 X 2	4.000
31W-3X2.5	3 X 2-1/2	2.000
31W-4X2	4 X 2	8.000
31W-4X3	4 X 3	4.000
31W-6X3	6 X 3	5.500
31W-6X4	6 X 4	5.500
31W-8X4	8 X 4	6.000
31W-8X6	8 X 6	6.000

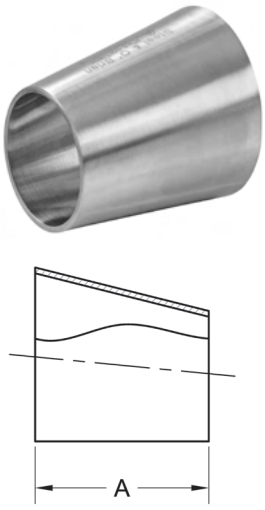
31WT - CONCENTRIC REDUCER, TANGENT WELD ENDS



PART NUMBER	SIZE	A
31WT-1X.50	1 X 1/2	2.375
31WT-1X.75	1 X 3/4	2.375
31WT-1.5X1	1-1/2 X 1	2.375
31WT-2X1	2 X 1	2.375
31WT-2X1.5	2 X 1-1/2	2.375
31WT-2.5X1.5	2-1/2 X 1-1/2	2.375
31WT-2.5X2	2-1/2 X 2	2.375

PART NUMBER	SIZE	A
31WT-3X1.5	3 X 1-1/2	3.625
31WT-3X2	3 X 2	3.625
31WT-3X2.5	3 X 2-1/2	3.625
31WT-4X2	4 X 2	3.625
31WT-4X2.5	4 X 2-1/2	3.625
31WT-4X3	4 X 3	3.625

32W - ECCENTRIC REDUCER, WELD ENDS



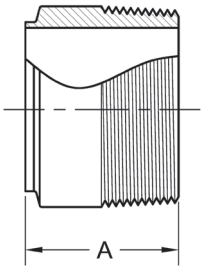
PART NUMBER	SIZE	A
32W-.75X.50	3/4 X 1/2	1.000
32W-1X.50	1 X 1/2	1.500
32W-1X.75	1 X 3/4	1.000
32W-1.5X.50	1-1/2 X 1/2	2.500
32W-1.5X.75	1-1/2 X 3/4	2.000
32W-1.5X1*	1-1/2 X 1	2.000
32W-2X1*	2 X 1	4.000
32W-2X1.5*	2 X 1-1/2	2.000
32W-2.5X1.5*	2-1/2 X 1-1/2	4.000

PART NUMBER	SIZE	A
32W-2.5X2*	2-1/2 X 2	2.000
32W-3X2*	3 X 2	4.000
32W-3X2.5*	3 X 2-1/2	2.000
32W-4X2*	4 X 2	8.000
32W-4X3*	4 X 3	4.000
32W-6X3*	6 X 3	5.500
32W-6X4*	6 X 4	5.500
32W-8X4*	8 X 4	6.000
32W-8X6*	8 X 6	6.000

NOTE: PARTS DENOTED WITH AN ASTERISK (*) ARE AVAILABLE IN MILL FINISH OR POLISHED ID/OD. ALL OTHERS ARE POLISHED ID/OD ONLY.

19WB - ADAPTER, WELD X MALE NPT



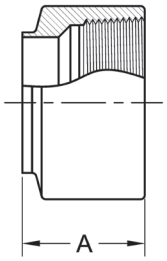


PART NUMBER	SIZE	A
19WB-.25	1/4	1.000
19WB-.375	3/8	1.500
19WB-.50	1/2	1.625
19WB-.75	3/4	1.625
19WB-1	1	1.750
19WB-1.5	1-1/2	1.750
19WB-2	2	1.812
19WB-2.5	2-1/2	2.312
19WB-3	3	2.500
19WB-4	4	2.562
19WB-6	6	3.000
19WB-8	8	2.875

REDUCING SIZES AVAILABLE UPON REQUEST

22WB - ADAPTER, WELD X FEMALE NPT



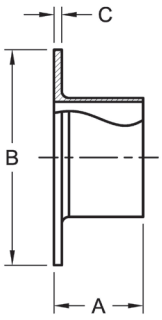


PART NUMBER	SIZE	A
22WB-.25	1/4	1.125
22WB-.375	3/8	1.125
22WB-.50	1/2	1.250
22WB-.75	3/4	1.625
22WB-1	1	1.750
22WB-1.5	1-1/2	1.750
22WB-2	2	1.812
22WB-2.5	2-1/2	2.250
22WB-3	3	2.500
22WB-4	4	2.562
22WB-6	6	3.250

REDUCING SIZES AVAILABLE UPON REQUEST

14VB - STUB END

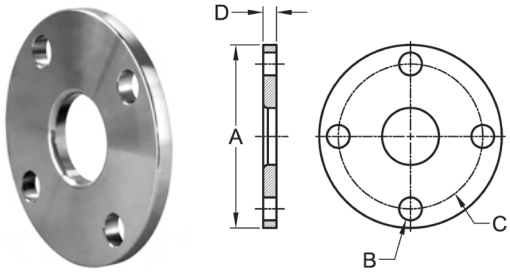




PART NUMBER	SIZE	A	B	C
14VB-.50	1/2	2.000	1.500	.130
14VB-.75	3/4	2.000	1.500	.130
14VB-1	1	1.625	2.000	.130
14VB-1.5	1-1/2	1.750	2.875	.130
14VB-2	2	1.500	3.625	.130
14VB-2.5	2-1/2	2.000	4.125	.130
14VB-3	3	2.250	5.000	.166
14VB-4	4	2.625	6.187	.166
14VB-6	6	3.000	8.500	.218
14VB-8	8	3.000	10.625	.218
14VB-10	10	4.000	12.750	.268
14VB-12	12	2.000	13.875	.100

NOTE: FACE OF STUB END IS SERRATED. AVAILABLE IN POLISHED AND UNPOLISHED

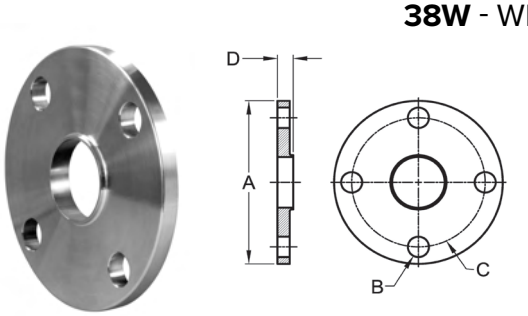
38SL - SLIP-ON FLANGE



FLANGE GASKET KIT AVAILABLE
FLANGES ARE FLAT FACE LIGHT DUTY
4" AND UP HAVE 8 - BOLT HOLES (150LB. BOLT HOLE PATTERN ALL SIZES)

PART NUMBER	SIZE	A	B	C	D
38SL-.50	1/2	3.500	.625	2.375	.375
38SL-.75	3/4	3.875	.625	2.750	.375
38SL-1	1	4.250	.625	3.125	.375
38SL-1.5	1-1/2	5.000	.625	3.875	.375
38SL-2	2	6.000	.750	4.750	.438
38SL-2.5	2-1/2	7.000	.750	5.500	.438
38SL-3	3	7.500	.750	6.000	.500
38SL-4	4	9.000	.750	7.500	.500
38SL-6	6	11.000	.875	9.500	.563
38SL-8	8	13.500	.875	11.750	.563
38SL-10	10	16.000	1.000	14.250	.688
38SL-12	12	19.000	1.000	17.000	.688

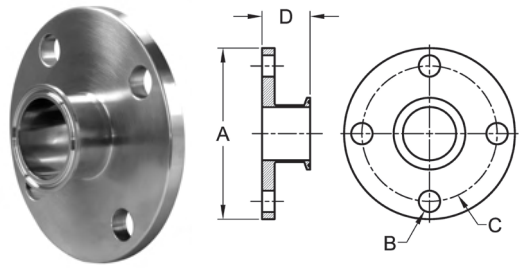
38W - WELD NECK FLANGE (LIGHT DUTY)



FLANGE GASKET KIT AVAILABLE
FLANGES ARE FLAT FACE LIGHT DUTY
4" AND UP HAVE 8 - BOLT HOLES (150LB. BOLT HOLE PATTERN ALL SIZES)

PART NUMBER	SIZE	A	B	C	D
38W-.50	1/2	3.500	.625	2.375	.500
38W-.75	3/4	3.875	.625	2.750	.500
38W-1	1	4.250	.625	3.125	.500
38W-1.5	1-1/2	5.000	.625	3.875	.500
38W-2	2	6.000	.750	4.750	.563
38W-2.5	2-1/2	7.000	.750	5.500	.563
38W-3	3	7.500	.750	6.000	.625
38W-4	4	9.000	.750	7.500	.625
38W-6	6	11.000	.875	9.500	.688
38W-8	8	13.500	.875	11.750	.688
38W-10	10	16.000	1.000	14.250	.813
38W-12	12	19.000	1.000	17.000	.813

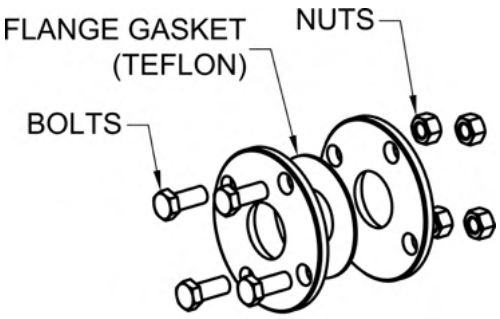
38MP - FLANGE ADAPTER



FLANGE GASKET KIT AVAILABLE
FLANGES ARE FLAT FACE LIGHT DUTY
4" AND UP HAVE 8 - BOLT HOLES (150LB. BOLT HOLE PATTERN ALL SIZES)

PART NUMBER	SIZE	A	B	C	D
38MP-.50	1/2	3.500	.625	2.375	1.625
38MP-.75	3/4	3.875	.625	2.750	1.625
38MP-1	1	4.250	.625	3.125	1.625
38MP-1.5	1-1/2	5.000	.625	3.875	1.625
38MP-2	2	6.000	.750	4.750	1.688
38MP-2.5	2-1/2	7.000	.750	5.500	1.688
38MP-3	3	7.500	.750	6.000	1.750
38MP-4	4	9.000	.750	7.500	1.750
38MP-6	6	11.000	.875	9.500	2.188
38MP-8	8	13.500	.875	11.750	2.193

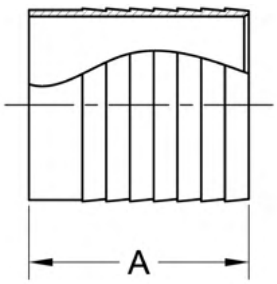
40RFK - FLANGE GASKET KIT



NOTE: KIT CONSISTS OF BOLTS, NUTS AND TEFLON RING STYLE FLANGE GASKET (OTHER GASKET MATERIALS AVAILABLE)

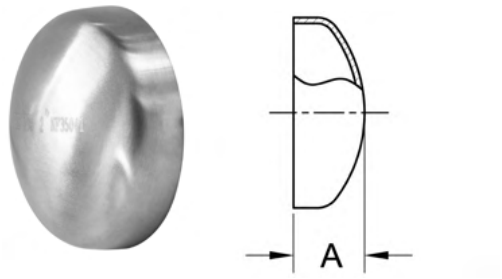
PART NUMBER	SIZE
40RFK-.50-KIT	1/2
40RFK-.75-KIT	3/4
40RFK-1-KIT	1
40RFK-1.5-KIT	1-1/2
40RFK-2-KIT	2
40RFK-2.5-KIT	2-1/2
40RFK-3-KIT	3
40RFK-4-KIT	4
40RFK-6-KIT	6
40RFK-8-KIT	8
40RFK-10-KIT	10
40RFK-12-KIT	12

14WHR - HOSE BARB



PART NUMBER	SIZE	A
14WHR-.50	1/2	1.500
14WHR-.75	3/4	1.500
14WHR-1	1	1.688
14WHR-1.5	1-1/2	1.688
14WHR-2	2	2.312
14WHR-2.5	2-1/2	2.000
14WHR-3	3	3.093
14WHR-4	4	3.406
14WHR-6	6	4.000
14WHR-8	8	2.000

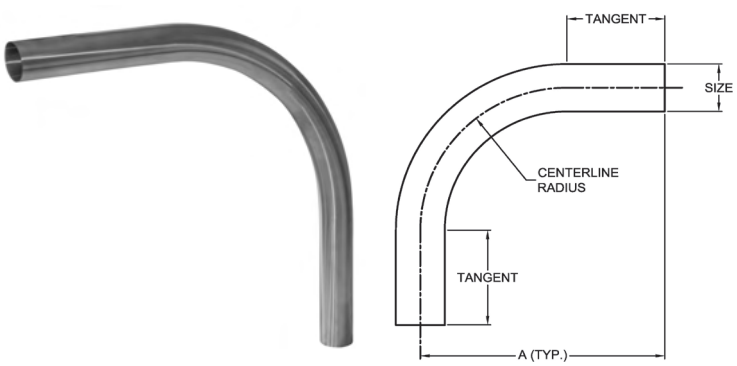
16W - WELD CAP



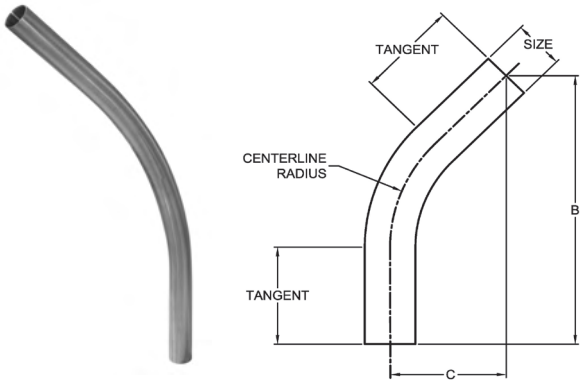
AVAILABLE POLISHED ID/OD
AVAILABLE WITH CENTER HOLE UPON REQUEST

PART NUMBER	SIZE	A
16W-.50	1/2	.250
16W-.75	3/4	.312
16W-1	1	.375
16W-1.5	1-1/2	.562
16W-2	2	.750
16W-2.5	2-1/2	1.000
16W-3	3	1.250
16W-4	4	1.500
16W-6	6	2.000
16W-8	8	2.888
16W-10	10	3.395
16W-12	12	3.815

2SXL - 90 DEGREE ELBOW, SWEEP



2KXL - 45 DEGREE ELBOW, SWEEP

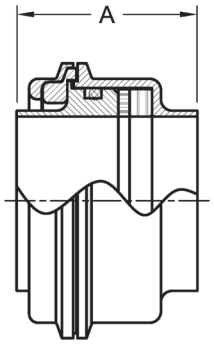


SIZE	CENTERLINE RADIUS	A	B	C	TANGENT
1-1/2 - 4	12.000	20.000	22.142	9.172	8.000
1-1/2 - 4	18.000	26.000	26.388	10.929	8.000
1-1/2 - 6	24.000	32.000	30.627	12.686	8.000
1-1/2 - 6	36.000	44.000	39.113	16.201	8.000
1-1/2 - 6	48.000	56.000	47.598	19.716	8.000

CENTERLINE RADIUS IS A MINIMUM ONLY, OTHER RADII ARE AVAILABLE UPON REQUEST
8.000 LONG TANGENT IS STANDARD, OTHER LENGTHS ARE AVAILABLE UPON REQUEST

STANDARD 316 MATERIAL
POLISHED TO 32 RA I.D. AND O.D.
VARIOUS END CONNECTIONS AVAILABLE UPON REQUEST

SWIVEL JOINT ASSEMBLY



PART NUMBER	SIZE	A
MDA01500	1-1/2	2.031
MDA02000	2	2.011
MDA03000	3	2.000
MDA04000	4	2.650

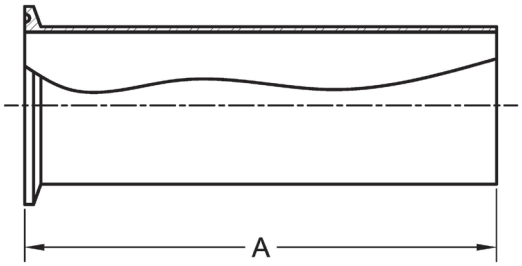
CONNECTING CLAMP NOT SHOWN
ABILITY TO ROTATE ELBOW OR JUMPER CONNECTIONS WITHOUT CLAMP DISASSEMBLY



SPOOL ASSEMBLIES

Sanitary spools are fabricated lengths of stainless steel tubing available in a variety of end connections. Steel & O'Brien offers a broad selection of stainless steel sanitary spools including a wide selection of tri-clamp spools in numerous sizes. These fit a range of applications — including brewing operations, dairies, food and beverage manufacturing facilities, and biotech and pharmaceutical lines.

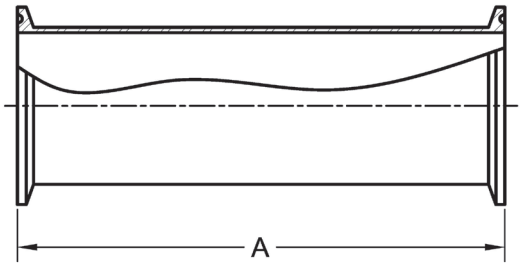
X17EMW - WELD X CLAMP



SIZE	A (Minimum Length)
1/2	.500
3/4	.500
1	.500
1-1/2	.500
2	.500
2-1/2	.500
3	.500
4	.625
6	.750

MAXIMUM LENGTH UP TO APPROX. 20 FEET

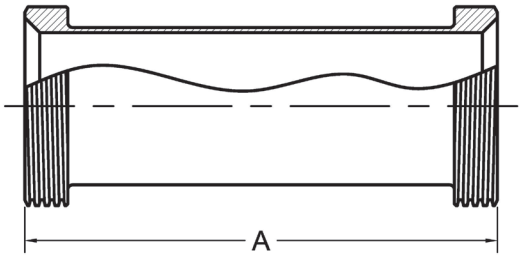
X17EMP - CLAMP X CLAMP



SIZE	A (Minimum Length)
1/2	1.125
3/4	1.125
1	1.125
1-1/2	1.125
2	1.125
2-1/2	1.125
3	1.125
4	1.250
6	1.500

MAXIMUM LENGTH UP TO APPROX. 20 FEET

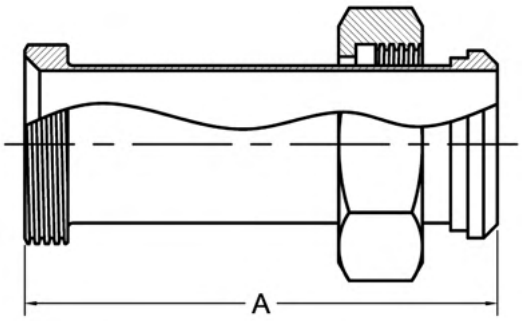
17C - ACME THREAD X ACME THREAD



SIZE	A (Minimum Length)
1	1.375
1-1/2	1.438
2	1.438
2-1/2	1.688
3	1.813
4	2.438

MAXIMUM LENGTH UP TO APPROX. 20 FEET

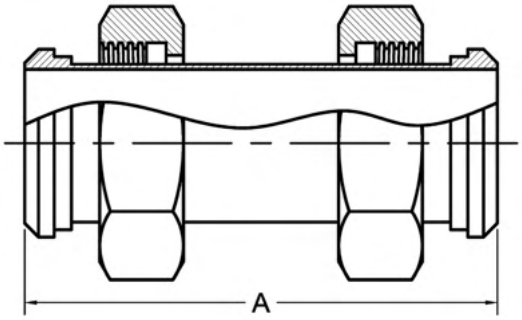
17D - ACME THREAD X BEVEL SEAT



SIZE	A (Minimum Length)
1	2.875
1-1/2	3.125
2	3.375
2-1/2	3.750
3	3.875
4	4.625

MAXIMUM LENGTH UP TO APPROX. 20 FEET

17E - BEVEL SEAT X BEVEL SEAT



SIZE	A (Minimum Length)
1	2.875
1-1/2	3.125
2	3.375
2-1/2	3.750
3	3.875
4	4.625

MAXIMUM LENGTH UP TO APPROX. 20 FEET

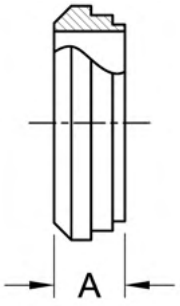


BEVEL SEAT FITTINGS

There's no better place to turn for a wide range of bevel seat sanitary fittings than Steel & O'Brien. We stock a large selection of high-quality bevel seat components including ferrules, caps, reducers, elbows and more. These stainless-steel products come in a variety of sizes and threading options to fit virtually any application.

14PRF - SHORT WELD FERRULE, PLAIN

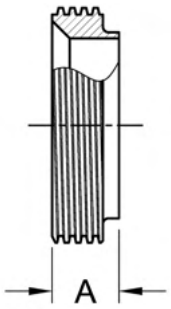




PART NUMBER	SIZE	A
14PRF-1	1	.687
14PRF-1.5	1-1/2	.719
14PRF-2	2	.723
14PRF-2.5	2-1/2	.844
14PRF-3	3	.906
14PRF-4	4	1.000

15TRF - SHORT WELD FERRULE, THREADED

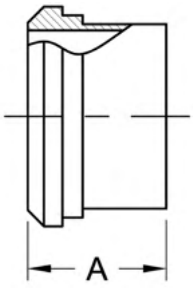




PART NUMBER	SIZE	A
15TRF-1	1	.688
15TRF-1.5	1-1/2	.719
15TRF-2	2	.750
15TRF-2.5	2-1/2	.844
15TRF-3	3	.938
15TRF-4	4	1.219

L14A7 - TUBE FERRULE, PLAIN

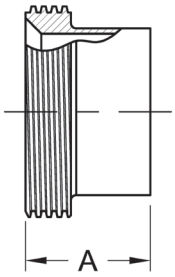




PART NUMBER	SIZE	A
L14A7-1	1	1.375
L14A7-1.5	1-1/2	1.500
L14A7-2	2	1.500
L14A7-2.5	2-1/2	1.750
L14A7-3	3	1.750
L14A7-4	4	1.750

L15A7 - TUBE FERRULE, THREADED

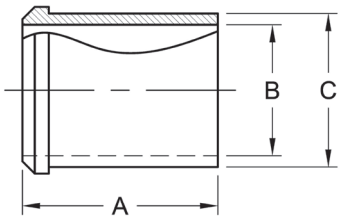




PART NUMBER	SIZE	A
L15A7-1	1	1.375
L15A7-1.5	1-1/2	1.500
L15A7-2	2	1.500
L15A7-2.5	2-1/2	1.750
L15A7-3	3	1.750
L15A7-4	4	1.750

14W - TANK SPUD (HEAVY), PLAIN

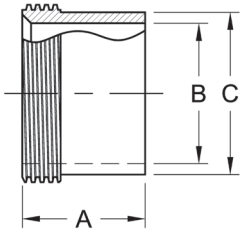




PART NUMBER	SIZE	A	B	C
14W-1	1	2.375	.870	1.156
14W-1.5	1-1/2	2.531	1.370	1.672
14W-2	2	2.781	1.870	2.187
14W-2.5	2-1/2	3.062	2.370	2.703
14W-3	3	3.531	2.870	3.218
14W-4	4	4.312	3.834	4.247

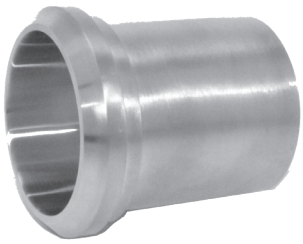
15W - TANK SPUD (HEAVY), THREADED

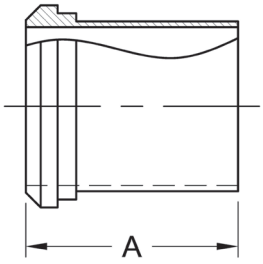




PART NUMBER	SIZE	A	B	C
15W-1	1	1.500	.870	1.250
15W-1.5	1-1/2	1.625	1.370	1.750
15W-2	2	1.750	1.870	2.312
15W-2.5	2-1/2	1.750	2.370	2.875
15W-3	3	1.812	2.870	3.375
15W-4	4	2.125	3.834	4.250

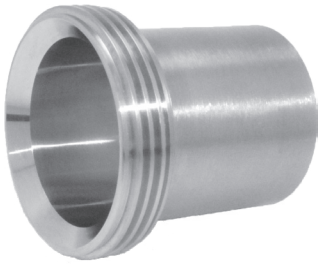
14WL - TANK SPUD (LIGHT), PLAIN

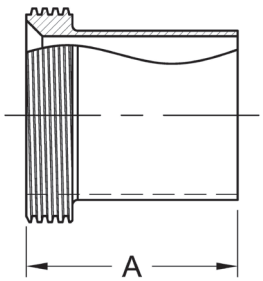




PART NUMBER	SIZE	A
14WL-1	1	2.000
14WL-1.5	1-1/2	2.250
14WL-2	2	2.500
14WL-2.5	2-1/2	2.750
14WL-3	3	3.000
14WL-4	4	4.000

15WL - TANK SPUD (LIGHT), THREADED

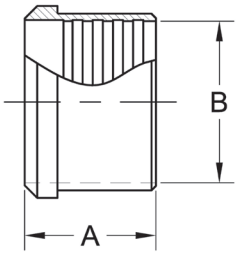




PART NUMBER	SIZE	A
15WL-1	1	2.000
15WL-1.5	1-1/2	2.250
15WL-2	2	2.500
15WL-2.5	2-1/2	2.750
15WL-3	3	3.000
15WL-4	4	4.000

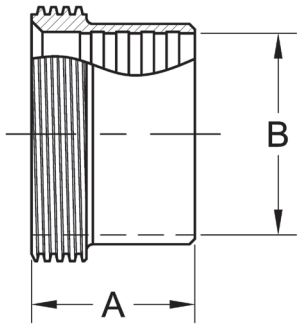
14R - ROLL-ON FERRULE, PLAIN





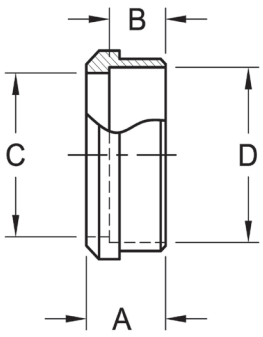
PART NUMBER	SIZE	A	B
14R-1	1	.750	1.000
14R-1.5	1-1/2	1.125	1.500
14R-2	2	1.313	2.000
14R-2.5	2-1/2	1.375	2.500
14R-3	3	1.438	3.000
14R-4	4	1.500	4.000

15R - ROLL-ON FERRULE, THREADED



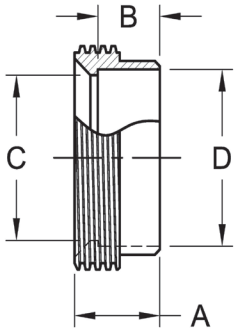
PART NUMBER	SIZE	A	B
15R-1	1	.813	1.007
15R-1.5	1-1/2	1.625	1.507
15R-2	2	1.375	2.007
15R-2.5	2-1/2	1.500	2.507
15R-3	3	1.625	3.007
15R-4	4	1.625	4.007

14 - RECESSED FERRULE, PLAIN



PART NUMBER	SIZE	A	B	C	D
14-1	1	.750	.500	.870	1.000
14-1.5	1-1/2	.875	.625	1.370	1.500
14-2	2	.969	.688	1.870	2.000
14-2.5	2-1/2	.938	.750	2.370	2.500
14-3	3	1.125	.813	2.870	3.000
14-4	4	1.250	.938	3.834	4.000

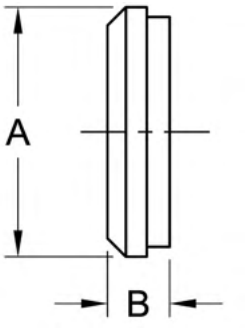
15 - RECESSED FERRULE, THREADED



PART NUMBER	SIZE	A	B	C	D
15-1	1	.812	.500	.870	1.000
15-1.5	1-1/2	.875	.625	1.370	1.500
15-2	2	1.031	.688	1.870	2.000
15-2.5	2-1/2	1.125	.750	2.370	2.500
15-3	3	1.250	.813	2.870	3.000
15-4	4	1.375	.938	3.834	4.000

16A - SOLID END CAP

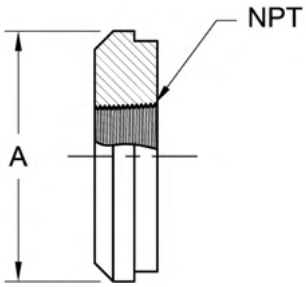




PART NUMBER	SIZE	A	B
16A-1	1	1.316	.468
16A-1.5	1-1/2	1.848	.563
16A-2	2	2.380	.625
16A-2.5	2-1/2	2.912	.656
16A-3	3	3.444	.718
16A-4	4	4.508	.812

23B - THERMOMETER CAP



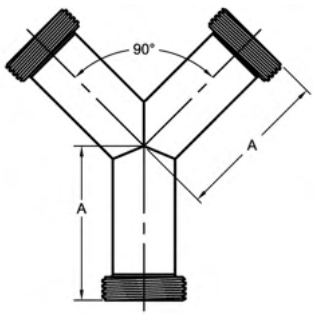


PART NUMBER	SIZE	A
23B-1	1 X 1/2	1.316
23B-1.5	1-1/2 X 3/4	1.848
23B-2	2 X 3/4	2.380
23B-2.5	2-1/2 X 3/4	2.912
23B-3	3 X 3/4	3.444
23B-4	4 X 3/4	4.508

NOTE: SIZES ARE LISTED BEVEL SEAT SIZE X NPT SIZE

28B - TRUE WYE, THREADED ENDS

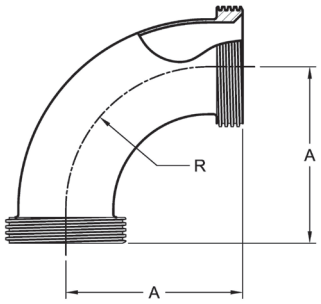




PART NUMBER	SIZE	A
28B-1	1	3.688
28B-1.5	1-1/2	3.718
28B-2	2	4.750
28B-2.5	2-1/2	5.844
28B-3	3	6.933
28B-4	4	9.219

2C - 90 DEGREE ELBOW, THREADED ENDS

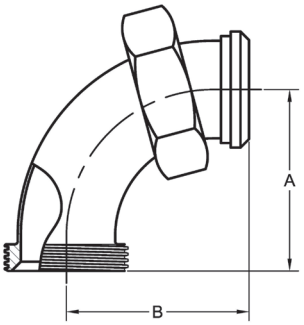




PART NUMBER	SIZE	A	R
2C-1	1	2.188	1.500
2C-1.5	1-1/2	2.969	2.250
2C-2	2	3.750	3.000
2C-2.5	2-1/2	4.594	3.750
2C-3	3	5.433	4.500
2C-4	4	7.219	6.000

2F - 90 DEGREE ELBOW, THREADED X PLAIN ENDS



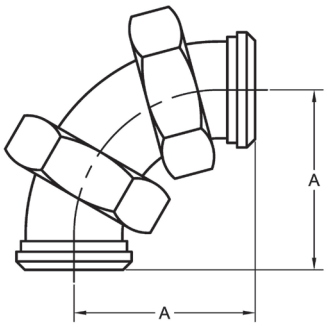


PART NUMBER	SIZE	A	B
2F-1	1	2.218	2.188
2F-1.5	1-1/2	2.969	2.969
2F-2	2	3.750	3.723
2F-2.5	2-1/2	4.594	4.594
2F-3	3	5.433	5.406
2F-4	4	7.219	7.000

NOTE: HEX NUT INCLUDED

2E - 90 DEGREE ELBOW, PLAIN ENDS

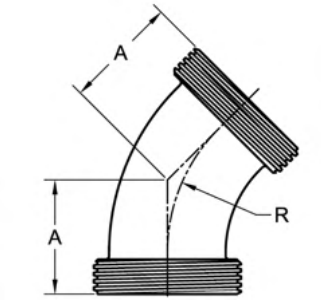




PART NUMBER	SIZE	A
2E-1	1	2.188
2E-1.5	1-1/2	2.969
2E-2	2	3.723
2E-2.5	2-1/2	4.594
2E-3	3	5.406
2E-4	4	7.000

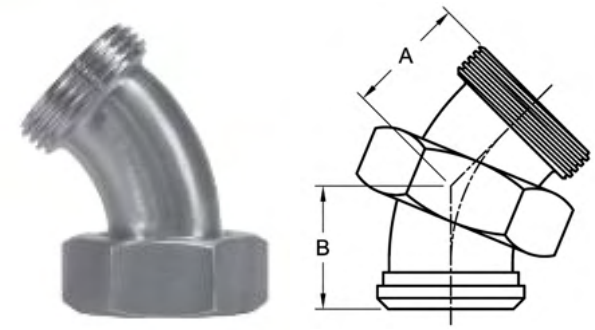
NOTE: HEX NUTS INCLUDED

2K - 45 DEGREE ELBOW, THREADED ENDS



PART NUMBER	SIZE	A	R
2K-1	1	1.313	1.500
2K-1.5	1-1/2	1.655	2.250
2K-2	2	2.000	3.000
2K-2.5	2-1/2	2.406	3.750
2K-3	3	2.808	4.500
2K-4	4	3.719	6.000

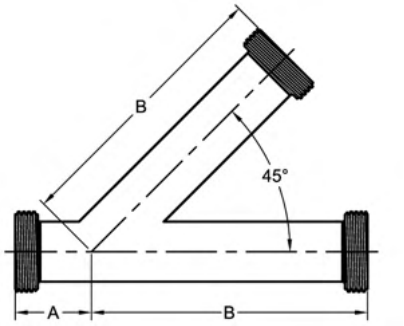
2P - 45 DEGREE ELBOW, THREADED X PLAIN ENDS



PART NUMBER	SIZE	A	B
2P-1	1	1.313	1.313
2P-1.5	1-1/2	1.655	1.655
2P-2	2	2.000	2.000
2P-2.5	2-1/2	2.406	2.406
2P-3	3	2.808	2.781
2P-4	4	3.719	3.500

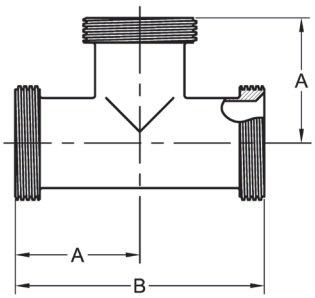
NOTE: HEX NUT INCLUDED

28A - LATERAL WYE, THREADED ENDS



PART NUMBER	SIZE	A	B
28A-1	1	1.688	5.688
28A-1.5	1-1/2	1.908	6.906
28A-2	2	2.370	7.875
28A-2.5	2-1/2	2.375	9.344
28A-3	3	2.808	9.808
28A-4	4	3.282	12.006

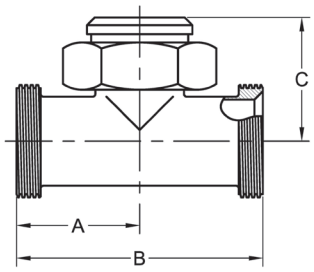
7 - TEE, THREADED ENDS



PART NUMBER	SIZE	A	B
7-1	1	1.813	3.626
7-1.5	1-1/2	2.375	4.750
7-2	2	2.813	5.626
7-2.5	2-1/2	3.188	6.376
7-3	3	3.527	7.054
7-4	4	4.657	9.314

7A - TEE, THREADED X THREADED X PLAIN OUTLET

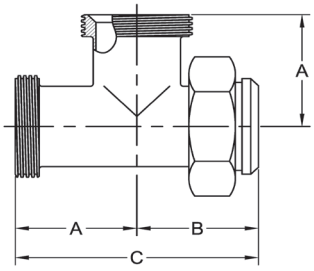




PART NUMBER	SIZE	A	B	C
7A-1	1	1.813	3.626	1.812
7A-1.5	1-1/2	2.375	4.750	2.375
7A-2	2	2.813	5.626	2.786
7A-2.5	2-1/2	3.188	6.376	3.188
7A-3	3	3.532	7.064	3.500
7A-4	4	4.657	9.314	4.438

NOTE: HEX NUT INCLUDED

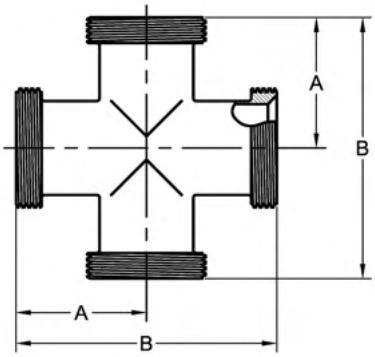
7B - TEE, THREADED X PLAIN X THREADED OUTLET



PART NUMBER	SIZE	A	B	C
7B-1	1	1.813	2.500	4.313
7B-1.5	1-1/2	2.375	3.125	5.500
7B-2	2	2.813	4.688	7.500
7B-2.5	2-1/2	3.188	6.062	9.250
7B-3	3	3.532	4.344	7.876
7B-4	4	4.657	5.188	9.845

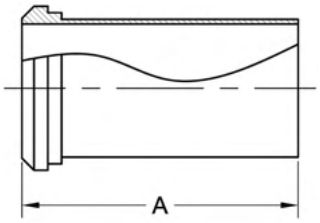
NOTE: HEX NUT INCLUDED

9 - CROSS, THREADED ENDS



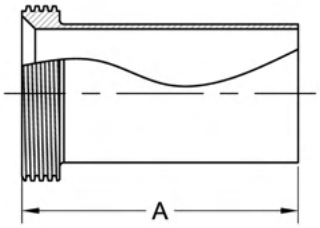
PART NUMBER	SIZE	A	B
9-1	1	1.813	3.626
9-1.5	1-1/2	2.375	4.750
9-2	2	2.813	5.626
9-2.5	2-1/2	3.188	6.376
9-3	3	3.527	7.054
9-4	4	4.657	9.314

14AHT - TYGON HOSE ADAPTER, PLAIN



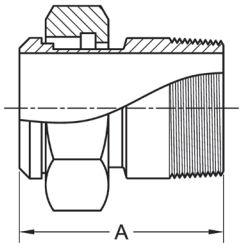
PART NUMBER	SIZE	A
14AHT-1	1	4.688
14AHT-1.5	1-1/2	4.719
14AHT-2	2	4.719
14AHT-2.5	2-1/2	4.843
14AHT-3	3	4.906
14AHT-4	4	5.219

15AHT - TYGON HOSE ADAPTER, THREADED



PART NUMBER	SIZE	A
15AHT-1	1	4.688
15AHT-1.5	1-1/2	4.719
15AHT-2	2	4.719
15AHT-2.5	2-1/2	4.844
15AHT-3	3	4.906
15AHT-4	4	5.272

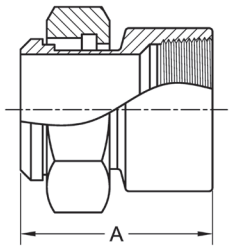
14-19 - ADAPTER, PLAIN X MALE NPT



PART NUMBER	SIZE	A
14-19-1	1	3.125
14-19-1.5	1-1/2	3.250
14-19-2	2	3.312
14-19-2.5	2-1/2	4.062
14-19-3	3	4.250
14-19-4	4	4.312

NOTE: HEX NUT INCLUDED

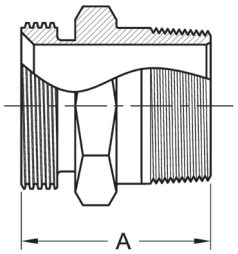
14-18 - ADAPTER, PLAIN X FEMALE NPT



PART NUMBER	SIZE	A
14-18-1	1	3.125
14-18-1.5	1-1/2	3.250
14-18-2	2	3.312
14-18-2.5	2-1/2	4.000
14-18-3	3	4.250
14-18-4	4	4.312

NOTE: HEX NUT INCLUDED

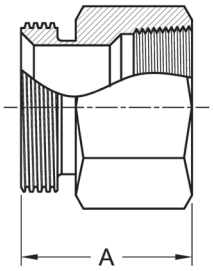
21 - ADAPTER, ACME THREAD X MALE NPT



PART NUMBER	SIZE	A
21-1	1	2.250
21-1.5	1-1/2	2.437
21-2	2	2.562
21-2.5	2-1/2	3.281
21-3	3	3.500
21-4	4	3.813

NOTE: REDUCING SIZES ALSO AVAILABLE
AVAILABLE WITH WRENCH FLATS OR HEX

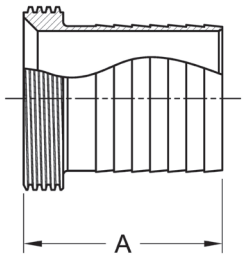
22 - ADAPTER, ACME THREAD X FEMALE NPT



PART NUMBER	SIZE	A
22-1	1	1.625
22-1.5	1-1/2	2.250
22-2	2	2.562
22-2.5	2-1/2	2.875
22-3	3	2.469
22-4	4	3.125

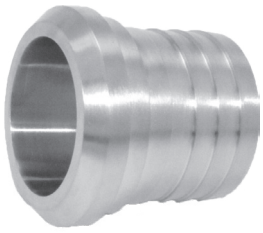
NOTE: REDUCING SIZES ALSO AVAILABLE
AVAILABLE WITH WRENCH FLATS OR HEX

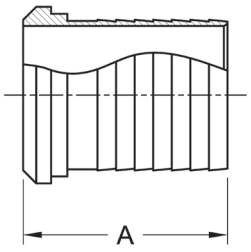
15AHR - ADAPTER, ACME THREAD X RUBBER HOSE



PART NUMBER	SIZE	A
15AHR-1	1	2.375
15AHR-1.5	1-1/2	1.687
15AHR-2	2	3.062
15AHR-2.5	2-1/2	2.844
15AHR-3	3	4.031
15AHR-4	4	4.625

14AHR - ADAPTER, BEVEL SEAT X RUBBER HOSE

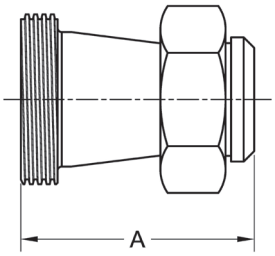




PART NUMBER	SIZE	A
14AHR-1	1	2.375
14AHR-1.5	1-1/2	2.406
14AHR-2	2	3.035
14AHR-2.5	2-1/2	2.844
14AHR-3	3	3.500
14AHR-4	4	4.411

31TP - CONCENTRIC REDUCER, THREADED X PLAIN ENDS



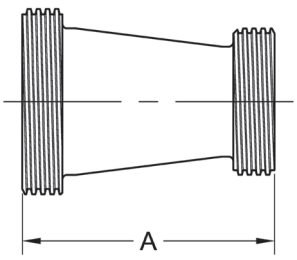


PART NUMBER	SIZE	A
31TP-1.5X1	1-1/2 X 1	3.406
31TP-2X1.5	2 X 1-1/2	3.468
31TP-2.5X2	2-1/2 X 2	3.567
31TP-3X2	3 X 2	5.656
31TP-3X2.5	3 X 2-1/2	3.782
31TP-4X3	4 X 3	6.125

NOTE: HEX NUT INCLUDED

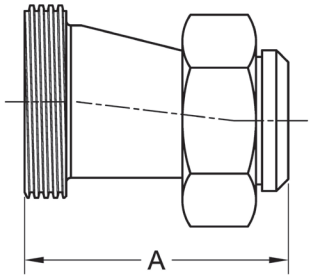
31TT - CONCENTRIC REDUCER, THREADED ENDS



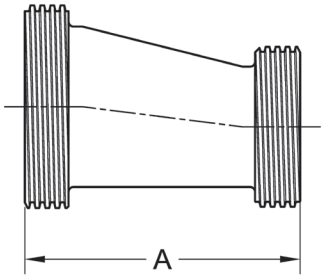


PART NUMBER	SIZE	A
31TT-1.5X1	1-1/2 X 1	3.407
31TT-2X1.5	2 X 1-1/2	3.468
31TT-2.5X2	2-1/2 X 2	3.594
31TT-3X2	3 X 2	5.683
31TT-3X2.5	3 X 2-1/2	3.777
31TT-4X3	4 X 3	6.152

BEVEL SEAT REDUCERS



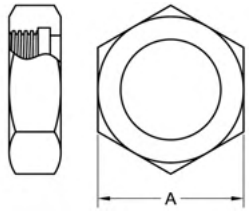
32TP (ECCENTRIC)



32TT (ECCENTRIC)

13H - HEX UNION NUT



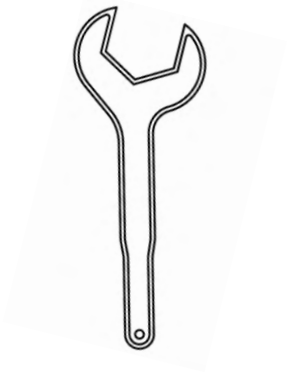


PART NUMBER	SIZE	A
13H-1	1	1.812
13H-1.5	1-1/2	2.406
13H-2	2	3.000
13H-2.5	2-1/2	3.594
13H-3	3	4.188
13H-4	4	5.438

NOTE: AVAILABLE IN 304 & 316 GRADES

25H - ALUMINUM HEX WRENCH, SINGLE-SIDED



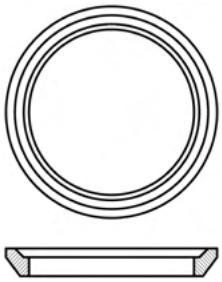


PART NUMBER	SIZE
25H-1	1
25H-1.5	1-1/2
25H-2	2
25H-2.5	2-1/2
25H-3	3
25H-4	4

NOTE: DOUBLE-SIDED WRENCH ALSO AVAILABLE

BEVEL SEAT GASKET





PART NUMBER	SIZE
40BS-1	1
40BS-1.5	1-1/2
40BS-2	2
40BS-2.5	2-1/2
40BS-3	3
40BS-4	4

AVAILABLE IN THE FOLLOWING MATERIALS:
BUNA-N, EPDM, PTFE, FKM/SFY, & SILICONE

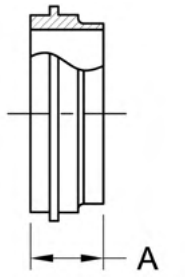


JOHN PERRY FITTINGS

Steel & O'Brien has a wide selection of John Perry fittings designed specifically for the dairy and beverage markets. These are notable for their flat-faced ferrules, which enable them to work with a metal-to-metal seat. However, they can be used with a gasket to provide additional security for creating a tight seal. Our range of John Perry pipe fittings are engineered and manufactured to provide a completely leak-free connection between elements.

14PRFJP - SHORT WELD FERRULE, PLAIN

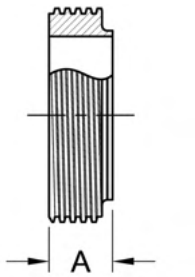




PART NUMBER	SIZE	A
14PRFJP-1	1	.688
14PRFJP-1.5	1-1/2	.719
14PRFJP-2	2	.719
14PRFJP-2.5	2-1/2	.844
14PRFJP-3	3	.906
14PRFJP-4	4	1.218

15TRFJP - SHORT WELD FERRULE, THREADED

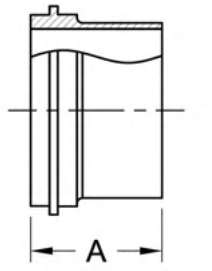




PART NUMBER	SIZE	A
15TRFJP-1	1	.688
15TRFJP-1.5	1-1/2	.719
15TRFJP-2	2	.750
15TRFJP-2.5	2-1/2	.844
15TRFJP-3	3	.938
15TRFJP-4	4	1.218

L14AJP - LONG WELD FERRULE, PLAIN

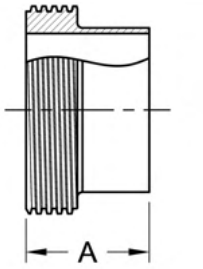




PART NUMBER	SIZE	A
L14AJP-1	1	1.375
L14AJP-1.5	1-1/2	1.500
L14AJP-2	2	1.500
L14AJP-2.5	2-1/2	1.750
L14AJP-3	3	1.750
L14AJP-4	4	1.750

L15AJP - LONG WELD FERRULE, THREADED

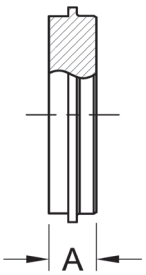




PART NUMBER	SIZE	A
L15AJP-1	1	1.375
L15AJP-1.5	1-1/2	1.500
L15AJP-2	2	1.500
L15AJP-2.5	2-1/2	1.750
L15AJP-3	3	1.750
L15AJP-4	4	1.750

16AJP - SOLID END CAP

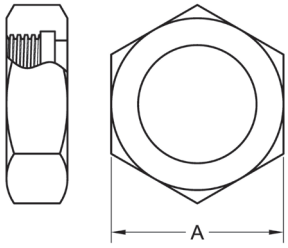




PART NUMBER	SIZE	A
16AJP-1	1	.469
16AJP-1.5	1-1/2	.484
16AJP-2	2	.531
16AJP-2.5	2-1/2	.547
16AJP-3	3	.609
16AJP-4	4	.687

13H - HEX UNION NUT





PART NUMBER	SIZE	A
13H-1	1	1.812
13H-1.5	1-1/2	2.406
13H-2	2	3.000
13H-2.5	2-1/2	3.594
13H-3	3	4.188
13H-4	4	5.438

NOTE: AVAILABLE IN 304 & 316 GRADES

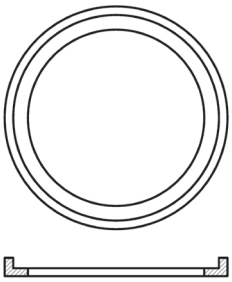
25H - ALUMINUM HEX WRENCH, SINGLE-SIDED



PART NUMBER	SIZE
25H-1	1
25H-1.5	1-1/2
25H-2	2
25H-2.5	2-1/2
25H-3	3
25H-4	4

NOTE: DOUBLE-SIDED WRENCH ALSO AVAILABLE

JOHN PERRY GASKET



PART NUMBER	SIZE
40JP-1	1
40JP-1.5	1-1/2
40JP-2	2
40JP-2.5	2-1/2
40JP-3	3
40JP-4	4

AVAILABLE IN THE FOLLOWING MATERIALS:
BUNA-N, EPDM, PTFE, FKM/SFY, & SILICONE

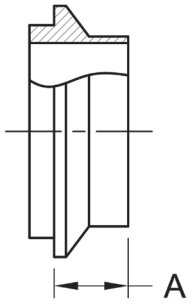


I-LINE FITTINGS

Steel & O'Brien stocks a broad assortment of 304 and 316L stainless steel I-Line sanitary fittings in a wide variety of shapes, configurations and sizes. Typically used to join runs of tubing, they are most commonly found in the food and beverage, dairy and pharmaceutical industries. These fittings are made of the highest-quality materials so they perform consistently for your sanitary applications.

14WI - SHORT WELD FERRULE, MALE

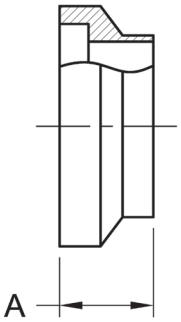




PART NUMBER	SIZE	A
14WI-1	1	.589
14WI-1.5	1-1/2	.746
14WI-2	2	.780
14WI-2.5	2-1/2	.850
14WI-3	3	.912
14WI-4	4	1.037
14WI-6	6	.818
14WI-8	8	.818

15WI - SHORT WELD FERRULE, FEMALE

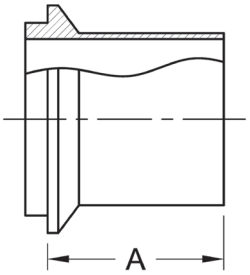




PART NUMBER	SIZE	A
15WI-1	1	.786
15WI-1.5	1-1/2	.942
15WI-2	2	1.036
15WI-2.5	2-1/2	1.161
15WI-3	3	1.223
15WI-4	4	1.348
15WI-6	6	1.130
15WI-8	8	1.130

14WLI - LONG WELD FERRULE, MALE

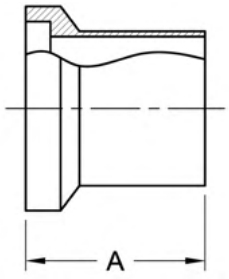




PART NUMBER	SIZE	A
14WLI-1	1	1.562
14WLI-1.5	1-1/2	1.843
14WLI-2	2	2.062
14WLI-2.5	2-1/2	2.500
14WLI-3	3	2.375
14WLI-4	4	2.688
14WLI-6	6	3.813
14WLI-8	8	3.813

15WLI - LONG WELD FERRULE, FEMALE

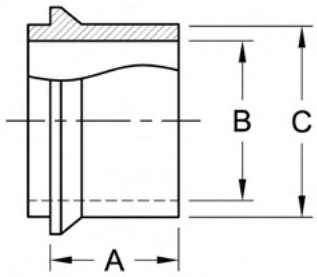




PART NUMBER	SIZE	A
15WLI-1	1	1.750
15WLI-1.5	1-1/2	2.031
15WLI-2	2	2.312
15WLI-2.5	2-1/2	2.500
15WLI-3	3	2.688
15WLI-4	4	3.000
15WLI-6	6	3.000
15WLI-8	8	4.000

14WHI - TANK WELD FERRULE, MALE

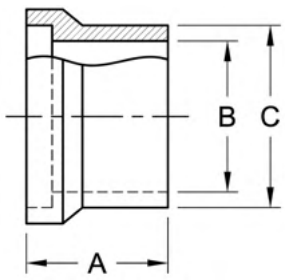




PART NUMBER	SIZE	A	B	C
14WHI-1	1	1.312	.870	1.250
14WHI-1.5	1-1/2	1.437	1.370	1.688
14WHI-2	2	1.500	1.870	2.250
14WHI-2.5	2-1/2	1.437	2.370	2.750
14WHI-3	3	1.500	2.870	3.313
14WHI-4	4	1.812	3.834	4.250
14WHI-6	6	1.812	5.782	6.500
14WHI-8	8	2.813	7.787	8.875

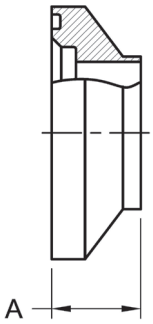
15WHI - TANK WELD FERRULE, FEMALE





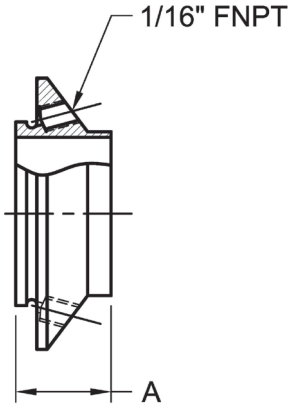
PART NUMBER	SIZE	A	B	C
15WHI-1	1	1.500	.870	1.250
15WHI-1.5	1-1/2	1.625	1.370	1.688
15WHI-2	2	1.750	1.870	2.250
15WHI-2.5	2-1/2	1.750	2.370	2.750
15WHI-3	3	1.812	2.870	3.313
15WHI-4	4	2.125	3.834	4.250
15WHI-6	6	2.000	5.782	6.500

15WNI - ASEPTIC, FEMALE



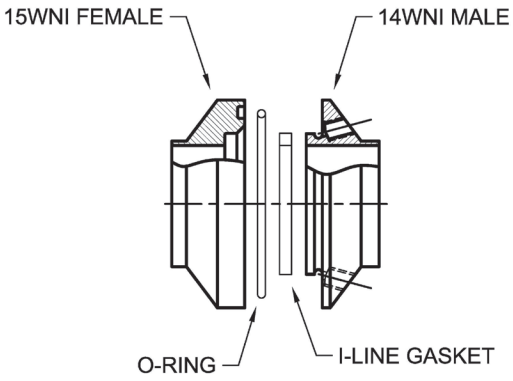
PART NUMBER	SIZE	A
15WNI-1	1	.942
15WNI-1.5	1-1/2	1.036
15WNI-2	2	1.161
15WNI-2.5	2-1/2	1.223
15WNI-3	3	1.348
15WNI-4	4	1.348

14WNI - ASEPTIC, MALE



PART NUMBER	SIZE	A
14WNI-1	1	.942
14WNI-1.5	1-1/2	1.036
14WNI-2	2	1.161
14WNI-2.5	2-1/2	1.223
14WNI-3	3	1.348
14WNI-4	4	1.348

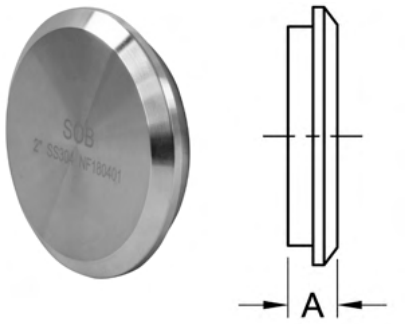
ASEPTIC UNION



PART NUMBER	SIZE
29WNI-1	1
29WNI-1.5	1-1/2
29WNI-2	2
29WNI-2.5	2-1/2
29WNI-3	3
29WNI-4	4

CLAMP NOT SHOWN FOR CLARITY

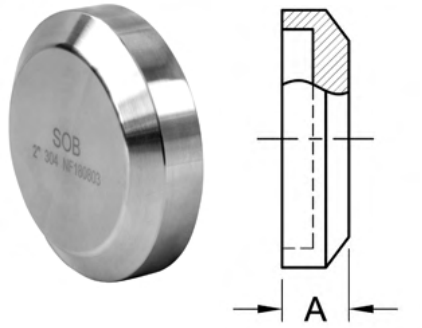
16AI-14I - SOLID END CAP, MALE



PART NUMBER	SIZE	A
16AI-14I-1	1	.505
16AI-14I-1.5	1-1/2	.505
16AI-14I-2	2	.505
16AI-14I-2.5	2-1/2	.692
16AI-14I-3	3	.692
16AI-14I-4	4	.755
16AI-14I-6	6	.755
16AI-14I-8	8	.755

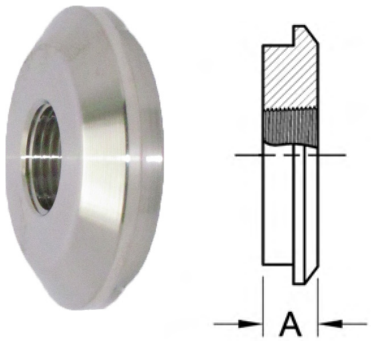
NOTE: AVAILABLE IN ACRYLIC AND LEXAN

16AI-15I - SOLID END CAP, FEMALE



PART NUMBER	SIZE	A
16AI-15I-1	1	.500
16AI-15I-1.5	1-1/2	.500
16AI-15I-2	2	.687
16AI-15I-2.5	2-1/2	.687
16AI-15I-3	3	.687
16AI-15I-4	4	.750
16AI-15I-6	6	.750
16AI-15I-8	8	.750

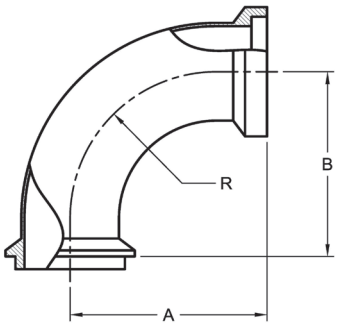
23BI - THERMOMETER CAP, MALE



PART NUMBER	SIZE	A
23BI-1	1 X 1/2 NPT	.505
23BI-1.5	1-1/2 X 3/4 NPT	.505
23BI-2	2 X 3/4 NPT	.505
23BI-2.5	2-1/2 X 3/4 NPT	.692
23BI-3	3 X 3/4 NPT	.692
23BI-4	4 X 3/4 NPT	.755
23BI-6	6 X 3/4 NPT	.755

2FI - 90 DEGREE ELBOW, FEMALE X MALE ENDS

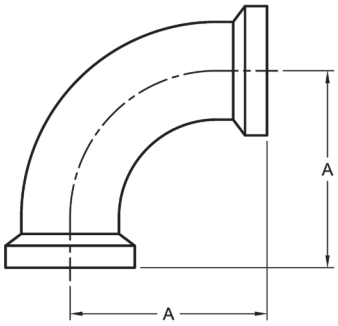




PART NUMBER	SIZE	A	B	R
2FI-1	1	2.286	2.089	1.500
2FI-1.5	1-1/2	3.192	2.996	2.250
2FI-2	2	4.036	3.780	3.000
2FI-2.5	2-1/2	4.911	4.600	3.750
2FI-3	3	5.723	5.412	4.500
2FI-4	4	7.348	7.037	6.000
2FI-6	6	10.130	9.818	9.000

2CI - 90 DEGREE ELBOW, FEMALE ENDS

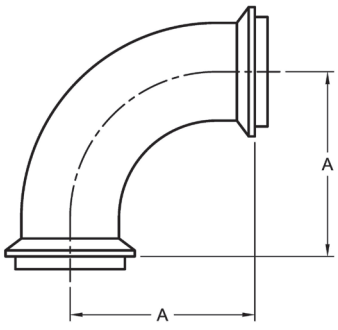




PART NUMBER	SIZE	A
2CI-1	1	2.286
2CI-1.5	1-1/2	3.192
2CI-2	2	4.036
2CI-2.5	2-1/2	4.911
2CI-3	3	5.723
2CI-4	4	7.348
2CI-6	6	10.130

2EI - 90 DEGREE ELBOW, MALE ENDS

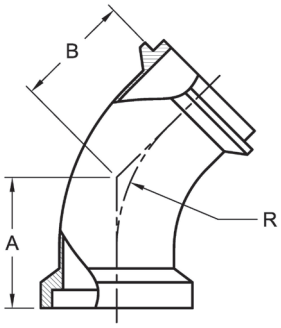




PART NUMBER	SIZE	A
2EI-1	1	2.089
2EI-1.5	1-1/2	2.996
2EI-2	2	3.780
2EI-2.5	2-1/2	4.600
2EI-3	3	5.412
2EI-4	4	7.037
2EI-6	6	9.818

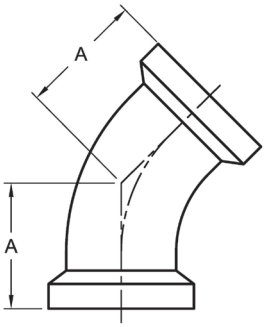
2PI - 45 DEGREE ELBOW, FEMALE X MALE ENDS





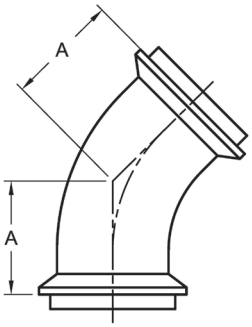
PART NUMBER	SIZE	A	B	R
2PI-1	1	1.411	1.214	1.500
2PI-1.5	1-1/2	1.879	1.526	2.250
2PI-2	2	2.286	2.030	3.000
2PI-2.5	2-1/2	2.723	2.412	3.750
2PI-3	3	3.098	2.787	4.500
2PI-4	4	3.848	3.537	6.000

2KI - 45 DEGREE ELBOW, FEMALE ENDS



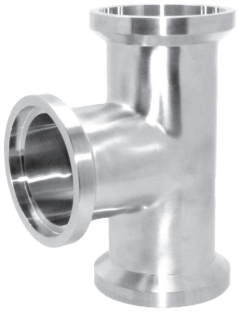
PART NUMBER	SIZE	A
2KI-1	1	1.411
2KI-1.5	1-1/2	1.879
2KI-2	2	2.286
2KI-2.5	2-1/2	2.723
2KI-3	3	3.098
2KI-4	4	3.848

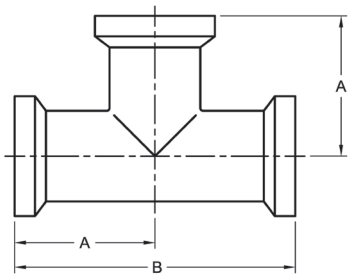
2HI - 45 DEGREE ELBOW, MALE ENDS



PART NUMBER	SIZE	A
2HI-1	1	1.214
2HI-1.5	1-1/2	1.526
2HI-2	2	2.030
2HI-2.5	2-1/2	2.412
2HI-3	3	2.787
2HI-4	4	3.537

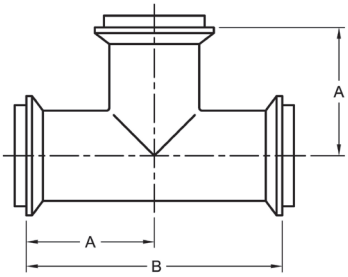
7I - TEE, FEMALE ENDS





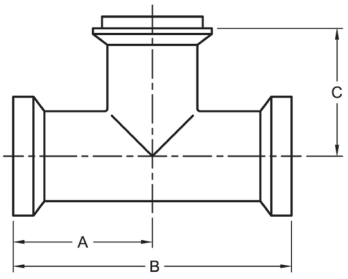
PART NUMBER	SIZE	A	B
7I-1	1	1.911	3.822
7I-1.5	1-1/2	2.598	5.196
7I-2	2	3.099	6.198
7I-2.5	2-1/2	3.505	7.010
7I-3	3	3.817	7.634
7I-4	4	4.786	9.572

7HI - TEE, MALE ENDS



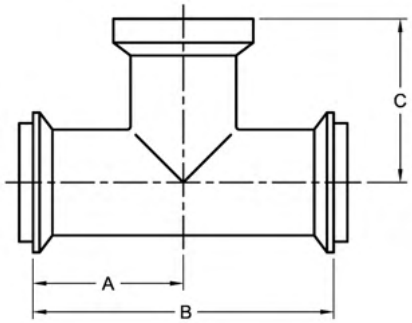
PART NUMBER	SIZE	A	B
7HI-1	1	1.714	3.428
7HI-1.5	1-1/2	2.402	4.804
7HI-2	2	2.843	5.686
7HI-2.5	2-1/2	3.194	6.388
7HI-3	3	3.506	7.012
7HI-4	4	4.475	8.950

7AI - TEE, FEMALE RUN X MALE OUTLET



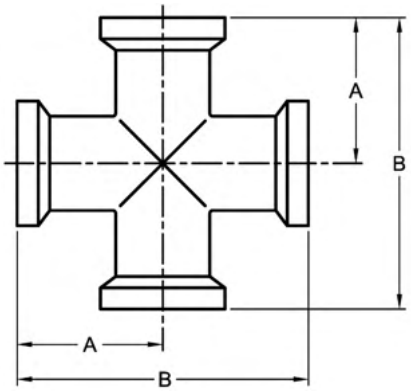
PART NUMBER	SIZE	A	B	C
7AI-1	1	1.911	3.822	1.714
7AI-1.5	1-1/2	2.598	5.196	2.402
7AI-2	2	3.099	6.198	2.843
7AI-2.5	2-1/2	3.505	7.010	3.194
7AI-3	3	3.817	7.634	3.506
7AI-4	4	4.786	9.572	4.475

7EI - TEE, MALE RUN X FEMALE OUTLET



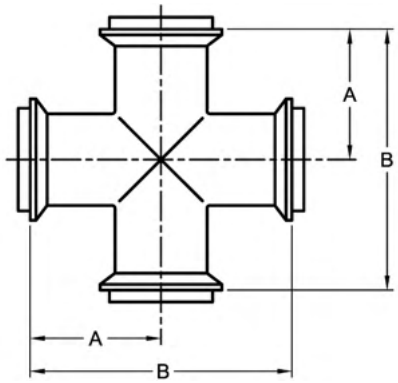
PART NUMBER	SIZE	A	B	C
7EI-1	1	1.714	3.428	1.911
7EI-1.5	1-1/2	2.402	4.804	2.598
7EI-2	2	2.843	5.686	3.099
7EI-2.5	2-1/2	3.194	6.388	3.505
7EI-3	3	3.506	7.012	3.817
7EI-4	4	4.475	8.950	4.786

9I - CROSS, FEMALE ENDS



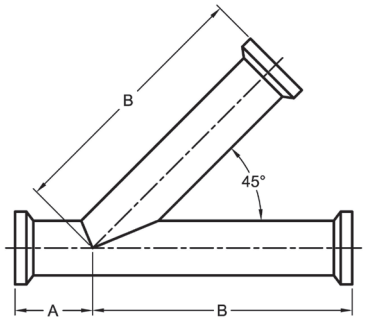
PART NUMBER	SIZE	A	B
9I-1	1	1.911	3.822
9I-1.5	1-1/2	2.598	5.196
9I-2	2	3.099	6.198
9I-2.5	2-1/2	3.505	7.010
9I-3	3	3.817	7.634
9I-4	4	4.786	9.572

9HI - CROSS, MALE ENDS



PART NUMBER	SIZE	A	B
9HI-1	1	1.714	3.428
9HI-1.5	1-1/2	2.402	4.804
9HI-2	2	2.843	5.686
9HI-2.5	2-1/2	3.194	6.388
9HI-3	3	3.506	7.012
9HI-4	4	4.475	8.950

28AI - LATERAL WYE, FEMALE ENDS

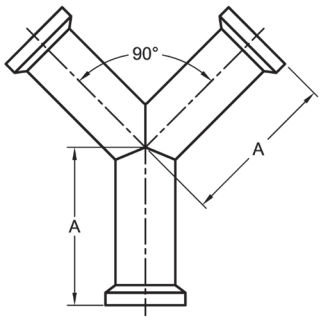


PART NUMBER	SIZE	A	B
28AI-1	1	1.786	5.786
28AI-1.5	1-1/2	2.132	7.132
28AI-2	2	2.656	8.156
28AI-2.5	2-1/2	2.661	9.661
28AI-3	3	3.103	10.103
28AI-4	4	3.408	12.148

ALSO AVAILABLE WITH MALE I-LINE ENDS
OTHER CONFIGURATIONS AVAILABLE UPON REQUEST

28BI - TRUE WYE, FEMALE ENDS

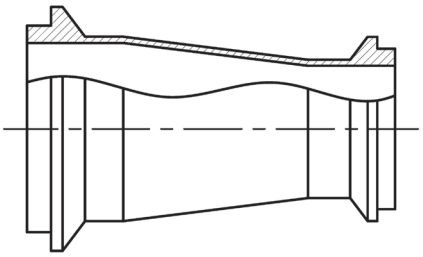




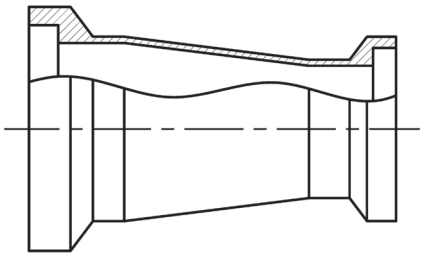
PART NUMBER	SIZE	A
28BI-1	1	3.786
28BI-1.5	1-1/2	3.942
28BI-2	2	5.036
28BI-2.5	2-1/2	6.161
28BI-3	3	7.223
28BI-4	4	9.348

ALSO AVAILABLE WITH MALE I-LINE ENDS
OTHER CONFIGURATIONS AVAILABLE UPON REQUEST

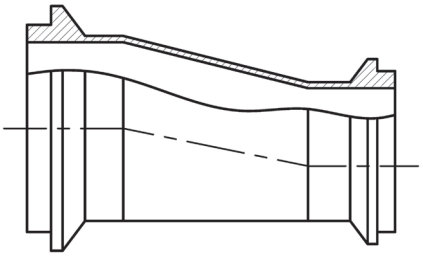
I-LINE REDUCERS



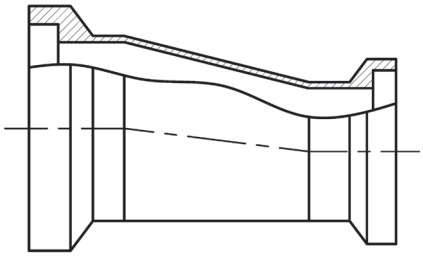
31-14I-14I (CONCENTRIC)



31-15I-15I (CONCENTRIC)

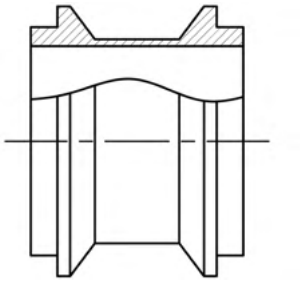


32-14I-14I (ECCENTRIC)

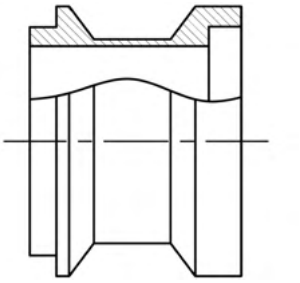


32-15I-15I (ECCENTRIC)

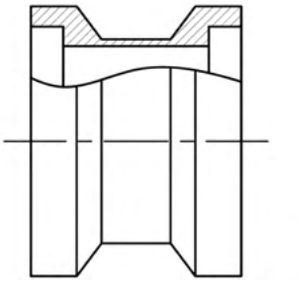
I-LINE ADAPTERS



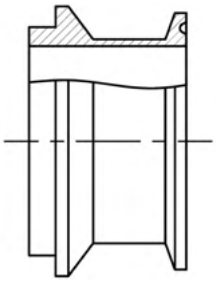
17-14I-14I
MALE I-LINE X MALE I-LINE



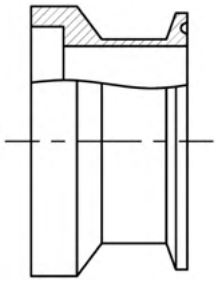
17-14I-15I
MALE I-LINE X FEMALE I-LINE



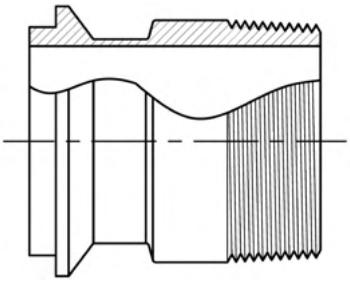
17-15I-15I
FEMALE I-LINE X FEMALE I-LINE



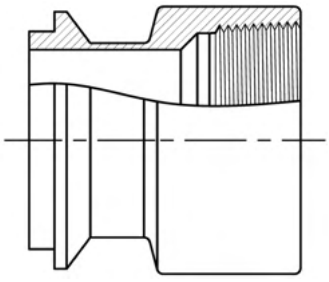
17-14I-14MP
MALE I-LINE X CLAMP



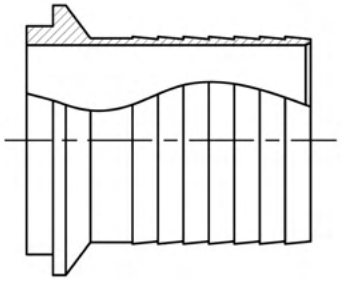
17-15I-14MP
FEMALE I-LINE X CLAMP



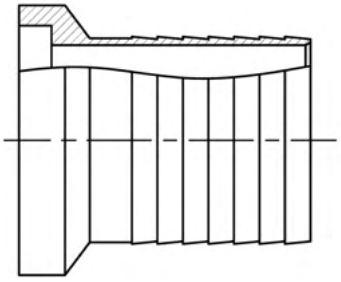
21FI-14I
MALE I-LINE X MALE NPT
(ALSO AVAILABLE W/FEMALE I-LINE)



22FI-14I
MALE I-LINE X FEMALE NPT
(ALSO AVAILABLE W/FEMALE I-LINE)



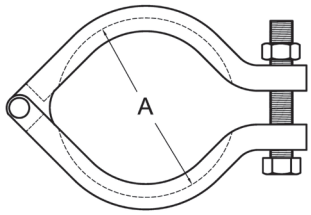
14HRI
MALE I-LINE X RUBBER HOSE



15HRI
FEMALE I-LINE X RUBBER HOSE

13I - I-LINE CLAMP, BOLTED STYLE

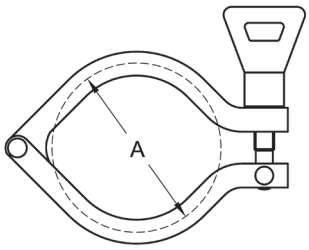




PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
13I-1	1 & 1-1/2	2.155	1220	1100
13I-2	2	2.843	900	830
13I-2.5	2-1/2	3.529	720	660
13I-3	3	4.071	600	550
13I-4	4	5.071	570	525
13I-6	6	7.688	150	75
13I-8	8	9.688	--	--

13IS - I-LINE CLAMP, WING NUT STYLE

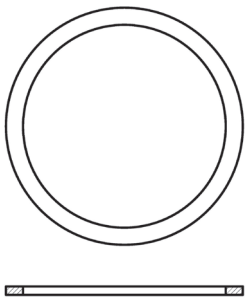




PART NUMBER	SIZE	A	PSI RATING @ 70°F	PSI RATING @ 250°F
13IS-1	1 & 1-1/2	2.155	1220	1100
13IS-2	2	2.843	900	830
13IS-2.5	2-1/2	3.529	720	660
13IS-3	3	4.071	600	550
13IS-4	4	5.071	570	525
13IS-6	6	7.688	150	75
13IS-8	8	9.688	--	--

I-LINE GASKET





PART NUMBER	SIZE
40I-1	1
40I-1.5	1-1/2
40I-2	2
40I-2.5	2-1/2
40I-3	3
40I-4	4
40I-6	6
40I-8	8

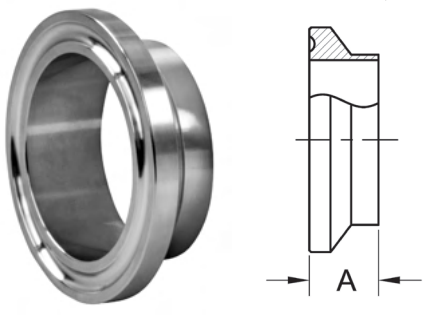
AVAILABLE IN THE FOLLOWING MATERIALS:
BUNA-N, EPDM, TEFLON, VITON, & SILICONE



Q-LINE FITTINGS

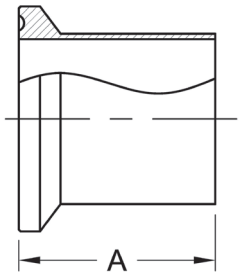
Steel & O'Brien stocks a broad assortment of 304 and 316L stainless steel Q-Line sanitary fittings in a wide variety of shapes, configurations and sizes. These fittings are made of the highest-quality materials so they perform consistently for your sanitary applications.

14WQ - SHORT WELD FERRULE



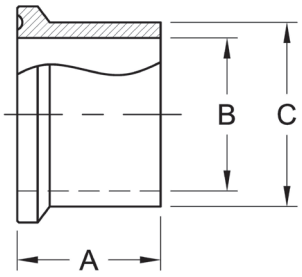
PART NUMBER	SIZE	A
14WQ-1	1	.531
14WQ-1.5	1-1/2	.562
14WQ-2	2	.812
14WQ-2.5	2-1/2	.937
14WQ-3	3	.937
14WQ-4	4	1.000
14WQ-6	6	1.130

14WLQ - LONG WELD FERRULE



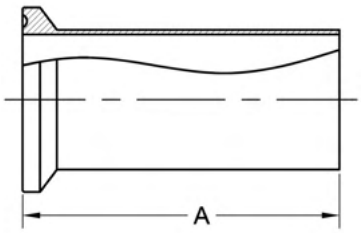
PART NUMBER	SIZE	A
14WLQ-1	1	1.750
14WLQ-1.5	1-1/2	2.031
14WLQ-2	2	2.313
14WLQ-2.5	2-1/2	2.500
14WLQ-3	3	2.688
14WLQ-4	4	3.000
14WLQ-6	6	4.000

14WHQ - TANK WELD FERRULE



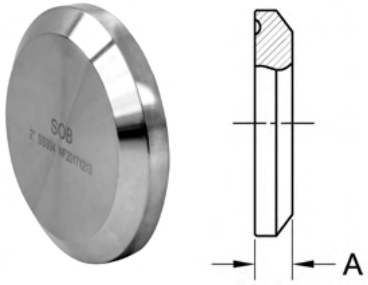
PART NUMBER	SIZE	A	B	C
14WHQ-1	1	1.500	.870	1.250
14WHQ-1.5	1-1/2	1.625	1.370	1.688
14WHQ-2	2	1.750	1.870	2.250
14WHQ-2.5	2-1/2	1.750	2.370	2.750
14WHQ-3	3	1.813	2.870	3.313
14WHQ-4	4	2.125	3.834	4.250
14WHQ-6	6	2.125	5.782	6.500

14HTQ - TYGON HOSE ADAPTER



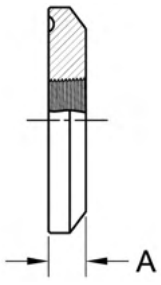
PART NUMBER	SIZE	A
14HTQ-1	1	4.000
14HTQ-1.5	1-1/2	4.500
14HTQ-2	2	4.531
14HTQ-2.5	2-1/2	4.906
14HTQ-3	3	5.093
14HTQ-4	4	5.156

16AQ-14Q - SOLID END CAP



PART NUMBER	SIZE	A
16AQ-14Q-1	1	.313
16AQ-14Q-1.5	1-1/2	.313
16AQ-14Q-2	2	.438
16AQ-14Q-2.5	2-1/2	.500
16AQ-14Q-3	3	.500
16AQ-14Q-4	4	.625
16AQ-14Q-6	6	.675

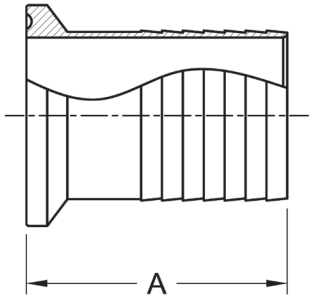
23BQ - THERMOMETER CAP



PART NUMBER	SIZE	A
23BQ-1	1	.625
23BQ-1.5	1-1/2	.625
23BQ-2	2	.438
23BQ-2.5	2-1/2	.500
23BQ-3	3	.625
23BQ-4	4	.625

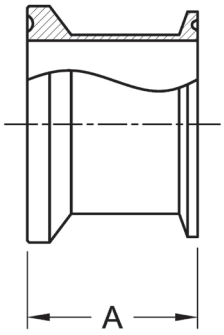
NOTE: 3/4” FEMALE NPT THREAD SIZE IS STANDARD
OTHER SIZES AVAILABLE UPON REQUEST

14HRQ - RUBBER HOSE ADAPTER



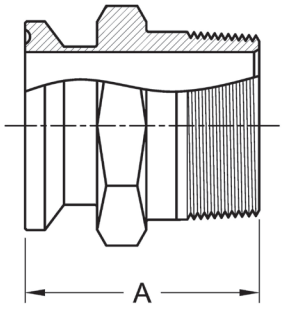
PART NUMBER	SIZE	A
14HRQ-1	1	1.781
14HRQ-1.5	1-1/2	1.750
14HRQ-2	2	3.124
14HRQ-2.5	2-1/2	2.938
14HRQ-3	3	3.531
14HRQ-4	4	4.406

17MP-14Q - Q-LINE x CLAMP ADAPTER



PART NUMBER	SIZE	A
17MP-14Q-1	1	1.656
17MP-14Q-1.5	1-1/2	1.687
17MP-14Q-2	2	1.942
17MP-14Q-2.5	2-1/2	2.062
17MP-14Q-3	3	2.062
17MP-14Q-4	4	2.125

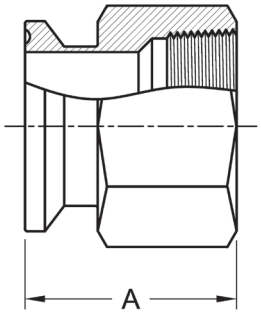
21Q - ADAPTER, Q-LINE x MALE NPT



PART NUMBER	SIZE	A
21Q-1	1	2.250
21Q-1.5	1-1/2	2.437
21Q-2	2	2.656
21Q-2.5	2-1/2	3.281
21Q-3	3	3.500
21Q-4	4	3.813

NOTE: REDUCING SIZES AVAILABLE UPON REQUEST
WRENCH FLAT STYLE AVAILABLE UPON REQUEST

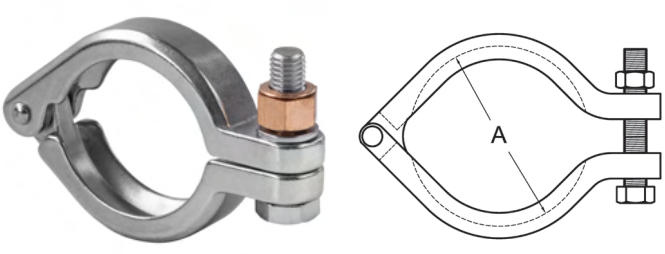
22Q - ADAPTER, Q-LINE x FEMALE NPT



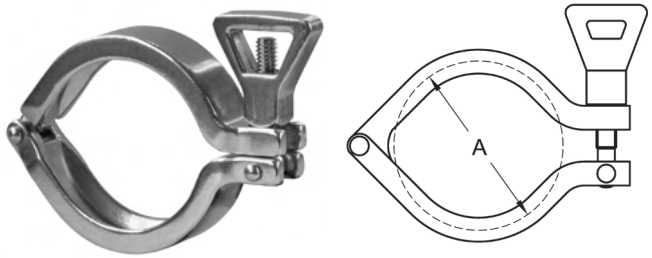
PART NUMBER	SIZE	A
22Q-1	1	1.625
22Q-1.5	1-1/2	2.250
22Q-2	2	2.343
22Q-2.5	2-1/2	2.094
22Q-3	3	2.187
22Q-4	4	2.625

NOTE: REDUCING SIZES AVAILABLE UPON REQUEST
WRENCH FLAT STYLE AVAILABLE UPON REQUEST

13I - BOLT STYLE

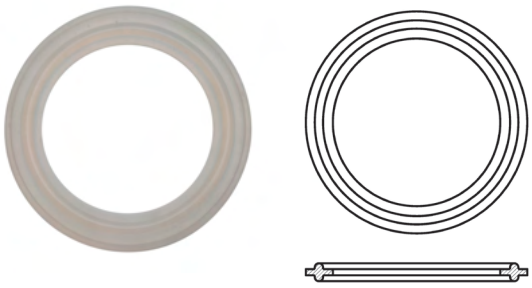


13IS - WING NUT STYLE



NOTE: Q-LINE FITTINGS UTILIZE I-LINE CLAMPS, SEE I-LINE SECTION FOR CLAMP DIMENSIONS.

Q-LINE GASKET



PART NUMBER	SIZE
40Q-1	1
40Q-1.5	1-1/2
40Q-2	2
40Q-2.5	2-1/2
40Q-3	3
40Q-4	4

MOST COMMON MATERIAL IS BUNA
OTHER MATERIALS AVAILABLE UPON REQUEST

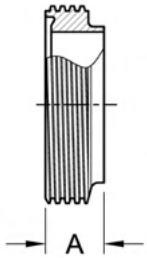


APC/APV FITTINGS

Steel & O'Brien stocks a broad assortment of 304 and 316L stainless steel APC/APV sanitary fittings in a wide variety of shapes, configurations and sizes. These fittings are made of the highest-quality materials so they perform consistently for your sanitary applications.

PV15WX - APC SHORT WELD FERRULE, THREADED

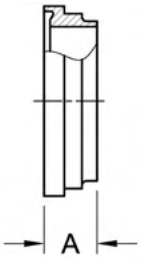




PART NUMBER	SIZE	A
PV15WX-1	1	.690
PV15WX-1.5	1-1/2	.690
PV15WX-2	2	.750
PV15WX-2.5	2-1/2	.844
PV15WX-3	3	.906
PV15WX-4	4	1.000

PV14WX - APC SHORT WELD FERRULE, PLAIN

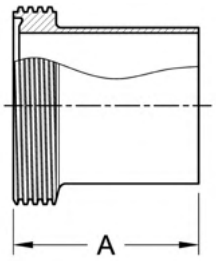




PART NUMBER	SIZE	A
PV14WX-1	1	.610
PV14WX-1.5	1-1/2	.580
PV14WX-2	2	.665
PV14WX-2.5	2-1/2	.719
PV14WX-3	3	.781
PV14WX-4	4	.834

PV15A - APC LONG WELD FERRULE, THREADED

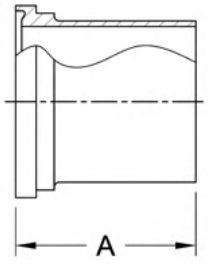




PART NUMBER	SIZE	A
PV15A-1	1	1.625
PV15A-1.5	1-1/2	1.875
PV15A-2	2	2.375
PV15A-2.5	2-1/2	2.625
PV15A-3	3	2.875
PV15A-4	4	2.875

PV14A - APC LONG WELD FERRULE, PLAIN

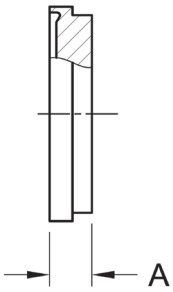




PART NUMBER	SIZE	A
PV14A-1	1	1.297
PV14A-1.5	1-1/2	1.770
PV14A-2	2	2.218
PV14A-2.5	2-1/2	2.375
PV14A-3	3	2.562
PV14A-4	4	2.578

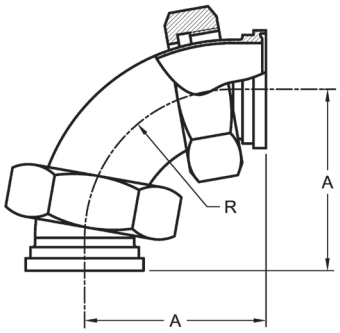
PV16A - APC SOLID END CAP





PART NUMBER	SIZE	A
PV16A-1	1	.297
PV16A-1.5	1-1/2	.422
PV16A-2	2	.468
PV16A-2.5	2-1/2	.468
PV16A-3	3	.500
PV16A-4	4	.531

PV2E - APC 90 DEGREE ELBOW, PLAIN ENDS

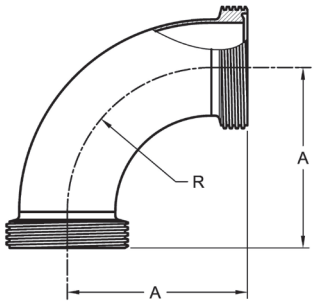


PART NUMBER	SIZE	A	R
PV2E-1	1	2.110	1.500
PV2E-1.5	1-1/2	2.830	2.250
PV2E-2	2	3.665	3.000
PV2E-2.5	2-1/2	4.469	3.750
PV2E-3	3	5.281	4.500
PV2E-4	4	6.834	6.000

SEE 13H STANDARD HEX NUT PG. 86

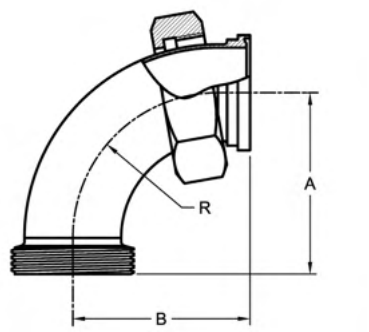
PV2C - APC 90 DEGREE ELBOW, THREADED ENDS





PART NUMBER	SIZE	A	R
PV2C-1	1	2.190	1.500
PV2C-1.5	1-1/2	2.940	2.250
PV2C-2	2	3.750	3.000
PV2C-2.5	2-1/2	4.594	3.750
PV2C-3	3	5.406	4.500
PV2C-4	4	7.000	6.000

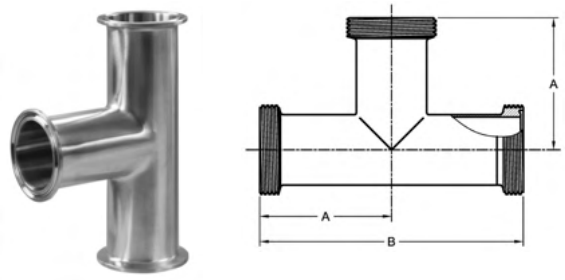
PV2F - APC 90 DEGREE ELBOW, THREADED X PLAIN ENDS



PART NUMBER	SIZE	A	B	R
PV2F-1	1	2.190	2.110	1.500
PV2F-1.5	1-1/2	2.940	2.830	2.250
PV2F-2	2	3.750	3.665	3.000
PV2F-2.5	2-1/2	4.594	4.469	3.750
PV2F-3	3	5.406	5.281	4.500
PV2F-4	4	7.000	6.834	6.000

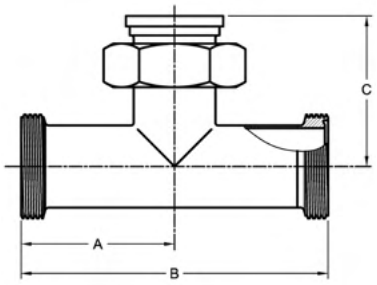
CAPTIVE NUT IS INCLUDED
FOR 13H HEX NUT DETAILS SEE PG. 86

PV7 - APC TEE, THREADED ENDS



PART NUMBER	SIZE	A	B
PV7-1	1	1.815	3.630
PV7-1.5	1-1/2	2.346	4.692
PV7-2	2	2.813	5.626
PV7-2.5	2-1/2	3.188	6.376
PV7-3	3	3.500	7.000
PV7-4	4	4.438	8.876

PV7A - APC TEE, THREADED X THREADED X PLAIN OUTLET

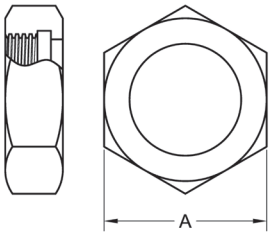


PART NUMBER	SIZE	A	B	C
PV7A-1	1	1.815	3.630	1.735
PV7A-1.5	1-1/2	2.346	4.692	2.236
PV7A-2	2	2.813	5.626	2.728
PV7A-2.5	2-1/2	3.188	6.376	3.063
PV7A-3	3	3.500	7.000	3.375
PV7A-4	4	4.438	8.876	4.272

CAPTIVE NUT IS INCLUDED
FOR 13H HEX NUT DETAILS SEE PG. 86

13H - HEX UNION NUT





PART NUMBER	SIZE	A
13H-1	1	1.812
13H-1.5	1-1/2	2.406
13H-2	2	3.000
13H-2.5	2-1/2	3.594
13H-3	3	4.188
13H-4	4	5.438

NOTE: AVAILABLE IN 304 & 316 GRADES

40APC - GASKET



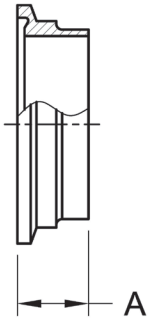


PART NUMBER	SIZE
40APC-1	1
40APC-1.5	1-1/2
40APC-2	2
40APC-2.5	2-1/2
40APC-3	3
40APC-4	4

STANDARD CLAMPS ARE USED ON APC CLAMP FITTINGS,

PV14WMP - APC WELD FERRULE, SHORT



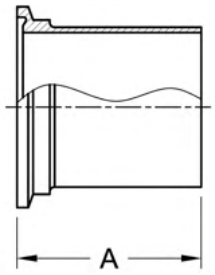


PART NUMBER	SIZE	A
PV14WMP-1	1	.688
PV14WMP-1.5	1-1/2	.688
PV14WMP-2	2	.750
PV14WMP-2.5	2-1/2	.843
PV14WMP-3	3	.906
PV14WMP-4	4	1.000

STANDARD CLAMPS ARE USED ON APC FITTINGS

PV14AMP - APC WELD FERRULE, LONG



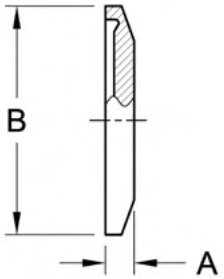


PART NUMBER	SIZE	A
PV14AMP-1	1	1.375
PV14AMP-1.5	1-1/2	1.875
PV14AMP-2	2	2.312
PV14AMP-2.5	2-1/2	2.500
PV14AMP-3	3	2.688
PV14AMP-4	4	2.750

STANDARD CLAMPS ARE USED ON APC FITTINGS

PV16AMP - APC SOLID END CAP



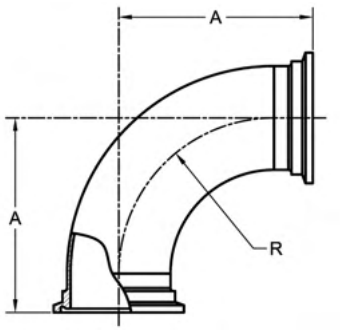


PART NUMBER	SIZE	A	B
PV16AMP-1	1	.250	1.984
PV16AMP-1.5	1-1/2	.250	1.984
PV16AMP-2	2	.250	2.516
PV16AMP-2.5	2-1/2	.250	3.047
PV16AMP-3	3	.250	3.579
PV16AMP-4	4	.250	4.682

STANDARD CLAMPS ARE USED ON APC FITTINGS

PV2CMP - APC 90 DEGREE ELBOW, APV CLAMP ENDS



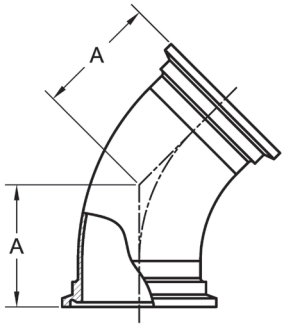


PART NUMBER	SIZE	A	R
PV2CMP-1	1	2.188	1.500
PV2CMP-1.5	1-1/2	2.938	2.250
PV2CMP-2	2	3.750	3.000
PV2CMP-2.5	2-1/2	4.593	3.750
PV2CMP-3	3	5.406	4.500
PV2CMP-4	4	7.000	6.000

STANDARD CLAMPS ARE USED ON APC FITTINGS

PV2KMP - APC 45 DEGREE ELBOW, APV CLAMP ENDS



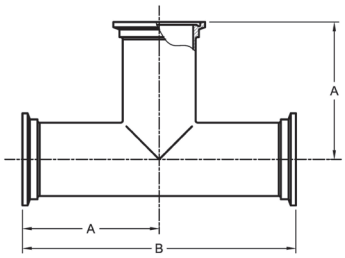


PART NUMBER	SIZE	A
PV2KMP-1	1	1.313
PV2KMP-1.5	1-1/2	1.625
PV2KMP-2	2	2.000
PV2KMP-2.5	2-1/2	2.405
PV2MKP-3	3	2.781
PV2KMP-4	4	3.500

STANDARD CLAMPS ARE USED ON APC FITTINGS

PV7MP - APC TEE, APV CLAMP ENDS





PART NUMBER	SIZE	A	B
PV7MP-1	1	1.812	3.625
PV7MP-1.5	1-1/2	2.375	4.750
PV7MP-2	2	2.781	5.562
PV7MP-2.5	2-1/2	3.187	6.375
PV7MP-3	3	3.500	7.000
PV7MP-4	4	4.656	9.312

STANDARD CLAMPS ARE USED ON APC FITTINGS



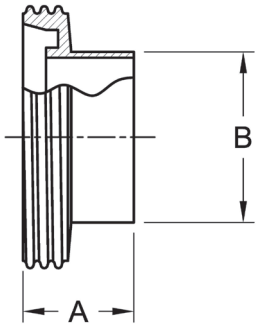
EUROPEAN DIN FITTINGS

DIN – short for ‘Deutsches Institut für Normung’ – which means German institute for Standardization, sanitary DIN fittings include metric dimension and thread options. Steel & O’Brien has a wide range of sanitary DIN fittings available in multiple sizes, materials and connection types. The selection of products we provide include DIN 11851 sanitary fittings commonly used in food and beverage applications.

DIN CONNECTION x TUBE O.D. WELD CONNECTION

DN15SC - 15DIN THREAD (DIN 11851) X SANITARY TUBE WELD

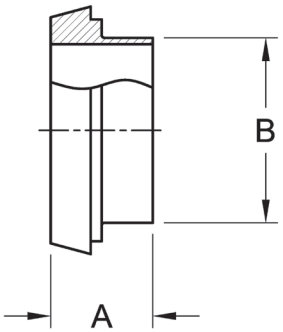




PART NUMBER	SIZE	A	B
DN15SC-1	DN25 X 1	1.143	1.000
DN15SC-1.5	DN40 X 1-1/2	1.300	1.500
DN15SC-2	DN50 X 2	1.378	2.000
DN15SC-2.5	DN65 X 2-1/2	1.575	2.500
DN15SC-3	DN80 X 3	1.772	3.000
DN15SC-4	DN100 X 4	2.126	4.000

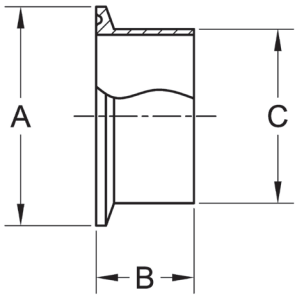
DN14SD - 14DIN LINER (DIN 11851) X SANITARY TUBE WELD





PART NUMBER	SIZE	A	B
DN14SD-1	DN25 X 1	.866	1.000
DN14SD-1.5	DN40 X 1-1/2	1.025	1.500
DN14SD-2	DN50 X 2	1.102	2.000
DN14SD-2.5	DN65 X 2-1/2	1.260	2.500
DN14SD-3	DN80 X 3	1.460	3.000
DN14SD-4	DN100 X 4	1.732	4.000

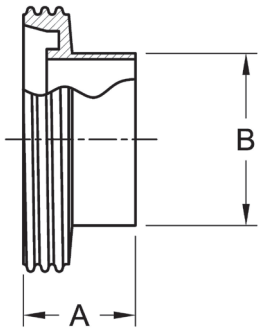
DN14WMPAS - DIN 32676 CLAMP X SANITARY TUBE WELD



PART NUMBER	SIZE	A	B	C
DN14WMPAS-DN20	DN20 X 3/4	1.339	.625	.750
DN14WMPAS-DN25	DN25 X 1	1.988	.846	1.000
DN14WMPAS-DN40	DN40 X 1-1/2	1.988	.846	1.500
DN14WMPAS-DN50	DN50 X 2	2.539	.500	2.000
DN14WMPAS-DN80	DN80 X 3	4.173	.500	3.000
DN14WMPAS-DN100	DN100 X 4	4.685	1.102	4.000

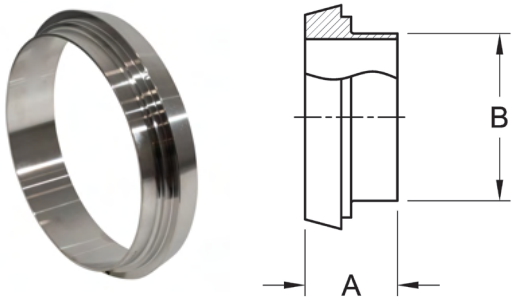
DIN CONNECTION x METRIC WELD CONNECTION

DN15SCM - 15DIN THREAD (DIN 11851) X METRIC TUBE WELD



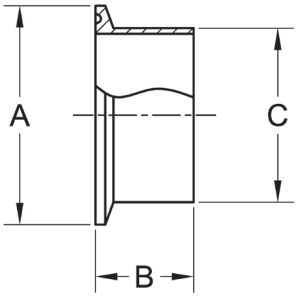
PART NUMBER	SIZE	A	B
DN15SCM-DN25	DN25	1.143	1.142
DN15SCM-DN40	DN40	1.300	1.614
DN15SCM-DN50	DN50	1.378	2.087
DN15SCM-DN65	DN65	1.575	2.755
DN15SCM-DN80	DN80	1.772	3.346
DN15SCM-DN100	DN100	2.126	4.094

DN14SDM - 14DIN LINER (DIN 11851) X METRIC TUBE WELD



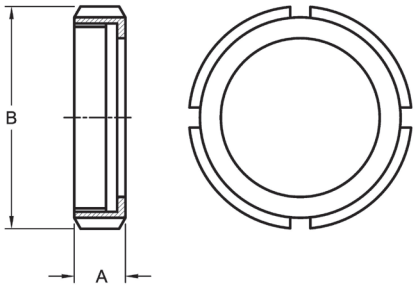
PART NUMBER	SIZE	A	B
DN14SDM-DN25	DN25	.866	1.142
DN14SDM-DN40	DN40	1.025	1.614
DN14SDM-DN50	DN50	1.102	2.087
DN14SDM-DN65	DN65	1.260	2.755
DN14SDM-DN80	DN80	1.460	3.346
DN14SDM-DN100	DN100	1.732	4.094

DN14WMPMAS - DN 32676 CLAMP X METRIC TUBE WELD



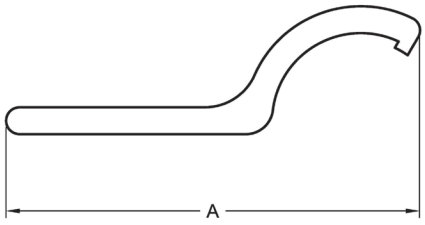
PART NUMBER	SIZE	A	B	C
DN14WMPMAS-DN20	DIN 20	1.339	.709	.906
DN14WMPMAS-DN25	DIN 25	1.988	.846	1.142
DN14WMPMAS-DN40	DIN 40	1.988	.846	1.614
DN14WMPMAS-DN50	DIN 50	2.520	.846	2.087
DN14WMPMAS-DN80	DIN 80	4.173	1.102	3.346
DN14WMPMAS-DN100	DIN 100	4.685	1.102	4.094

DN13R - DIN ROUND NUT



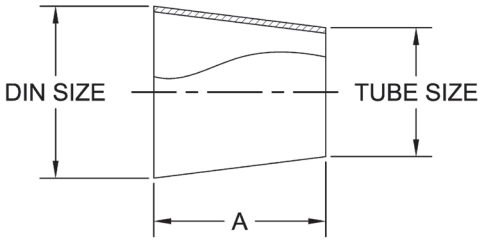
PART NUMBER	SIZE	A	B
DN13R-DN25	DN25	.827	2.480
DN13R-DN40	DN40	.827	3.071
DN13R-DN50	DN50	.866	3.622
DN13R-DN65	DN65	.984	4.409
DN13R-DN80	DN80	1.142	5.000
DN13R-DN100	DN100	1.220	5.827

25HD - DIN SPANNER WRENCH



PART NUMBER	SIZE	A
25HD-25-50	DN25 - DN50	9.5
25HD-65-100	DN65 - DN100	10.0
25HD-100-150	DN100 - DN150	11.0

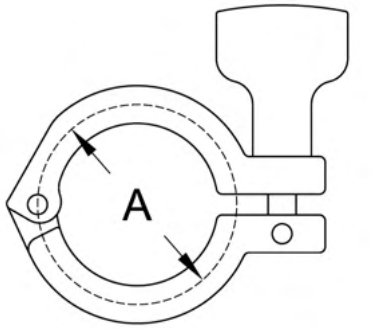
DIN31W - DIN X SANITARY TUBE BW



PART NUMBER	DIN SIZE	TUBE SIZE	A
DN31W-DN20X1	DN20 - (.905)	1.000	.380
DN31W-DN25X1	DN25 - (1.142)	1.000	.567
DN31W-DN40X1.5	DN40 - (1.614)	1.500	1.000
DN31W-DN50X2	DN50 - (2.087)	2.000	1.250
DN31W-DN65X2.5	DN65 - (2.756)	2.500	1.024
DN31W-DN80X3	DN80 - (3.346)	3.000	1.125

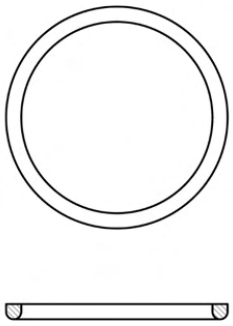
OTHER SIZES AVAILABLE UPON REQUEST

DN13MHHM - SINGLE PIN CLAMP



PART NUMBER	SIZE	A
DN13MHHM-DN10	DIN 10, 15, 20	1.481
DN13MHHM-DN25	DIN 25, 40	2.122
DN13MHHM-DN50	DIN 50	2.654
DN13MHHM-DN65	DIN 65	3.717
DN13MHHM-DN80	DIN 80	4.260
DN13MHHM-DN100	DIN 100	4.820

DIN 11851 - DIN GASKET



PART NUMBER	SIZE
DIN11851-DN25	DN25 - 1"
DIN11851-DN40	DN40 - 1 1/2"
DIN11851-DN50	DN50 - 2"
DIN11851-DN65	DN65 - 2 1/2"
DIN11851-DN80	DN80 - 3"
DIN11851-DN100	DN100 - 4"

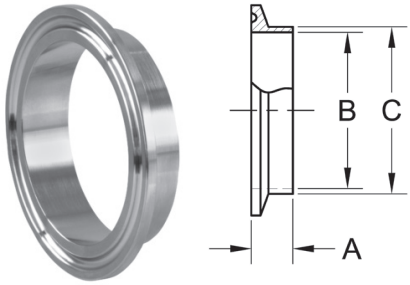
AVAILABLE IN BUNA, EPDM AND FKM/SFY MATERIALS.
FOR USE WITH THREADED DIN FITTINGS.



PIPE SIZE SANITARY FITTINGS

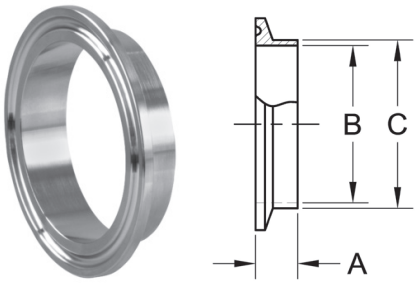
Steel & O'Brien stocks a broad assortment of 304 and 316L stainless steel Pipe Size sanitary fittings in a wide variety of shapes, configurations and sizes. These fittings are made of the highest-quality materials so they perform consistently for your sanitary applications.

14WMV - SCHEDULE 5 SHORT WELD FERRULE



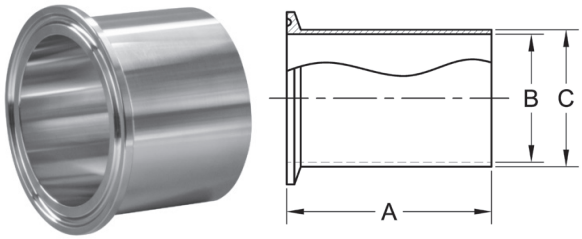
PART NUMBER	SIZE	A	B	C
14WMV-1	1	.500	1.185	1.315
14WMV-1.5	1-1/2	.500	1.770	1.900
14WMV-2	2	.500	2.245	2.375
14WMV-2.5	2-1/2	.500	2.709	2.875
14WMV-3	3	.500	3.334	3.500
14WMV-4	4	.625	4.334	4.500
14WMV-6	6	.875	6.407	6.625
14WMV-8	8	.875	8.407	8.625
14WMV-10	10	1.000	10.482	10.750
14WMV-12	12	1.000	12.420	12.750

14WMX - SCHEDULE 10 SHORT WELD FERRULE



PART NUMBER	SIZE	A	B	C
14WMX-1	1	.500	1.097	1.315
14WMX-1.5	1-1/2	.500	1.682	1.900
14WMX-2	2	.500	2.157	2.375
14WMX-2.5	2-1/2	.500	2.635	2.875
14WMX-3	3	.500	3.260	3.500
14WMX-4	4	.625	4.260	4.500
14WMX-6	6	.875	6.375	6.625
14WMX-8	8	.875	8.329	8.625
14WMX-10	10	1.000	10.420	10.750
14WMX-12	12	1.000	12.390	12.750

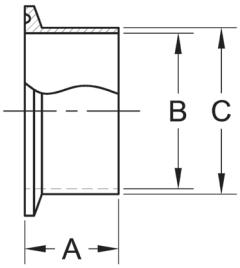
14WLMV - SCHEDULE 5 TANK SPUD (LIGHT)



PART NUMBER	SIZE	A	B	C
14WLMV-1	1	3.000	1.185	1.315
14WLMV-1.5	1-1/2	3.000	1.770	1.900
14WLMV-2	2	3.000	2.245	2.375
14WLMV-2.5	2-1/2	4.000	2.709	2.875
14WLMV-3	3	4.000	3.334	3.500
14WLMV-4	4	4.000	4.334	4.500
14WLMV-6	6	6.000	6.407	6.625
14WLMV-8	8	8.000	8.407	8.625

L14AMV - SCHEDULE 5 WELD FERRULE

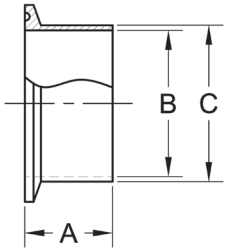




PART NUMBER	SIZE	A	B	C
L14AMV-1	1	1.125	1.185	1.315
L14AMV-1.5	1-1/2	1.125	1.770	1.900
L14AMV-2	2	1.125	2.245	2.375
L14AMV-2.5	2-1/2	1.125	2.709	2.875
L14AMV-3	3	1.125	3.334	3.500
L14AMV-4	4	1.125	4.334	4.500
L14AMV-6	6	1.500	6.407	6.625
L14AMV-8	8	1.500	8.407	8.625
L14AMV-10	10	1.500	10.482	10.750
L14AMV-12	12	1.500	12.420	12.750

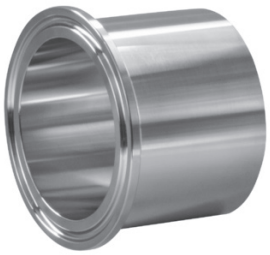
L14AMX - SCHEDULE 10 WELD FERRULE

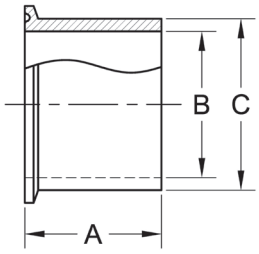




PART NUMBER	SIZE	A	B	C
L14AMX-1	1	1.125	1.097	1.315
L14AMX-1.5	1-1/2	1.125	1.682	1.900
L14AMX-2	2	1.125	2.157	2.375
L14AMX-2.5	2-1/2	1.125	2.635	2.875
L14AMX-3	3	1.125	3.260	3.500
L14AMX-4	4	1.125	4.260	4.500
L14AMX-6	6	1.500	6.357	6.625
L14AMX-8	8	1.500	8.329	8.625
L14AMX-10	10	1.500	10.420	10.750
L14AMX-12	12	1.500	12.390	12.750

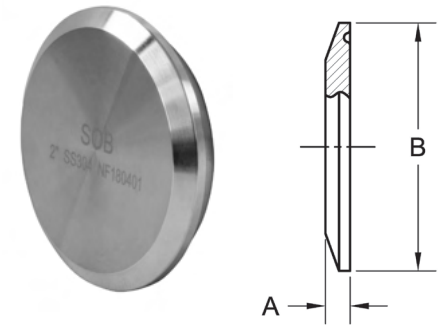
14MVW - SCHEDULE 5 TANK TANK SPUD (HEAVY)





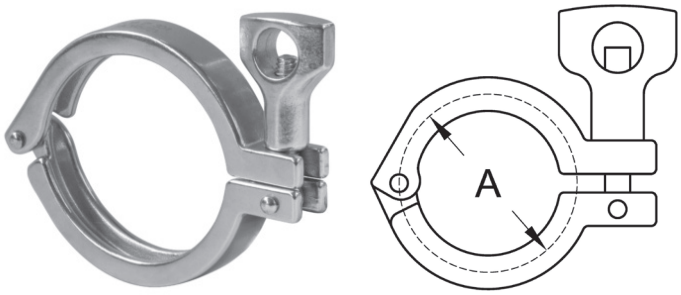
PART NUMBER	SIZE	A	B	C
14MVW-1	1	1.625	1.185	1.531
14MVW-1.5	1-1/2	1.625	1.770	2.109
14MVW-2	2	1.750	2.245	2.594
14MVW-2.5	2-1/2	1.750	2.709	3.109
14MVW-3	3	1.812	3.334	3.562
14MVW-4	4	2.125	4.334	4.562

16AMV - SCHEDULE 5 SOLID END CAP



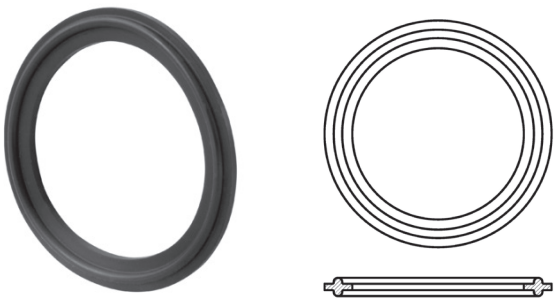
PART NUMBER	SIZE	A	B
16AMV-1	1	.250	1.984
16AMV-1.5	1-1/2	.250	2.516
16AMV-2	2	.250	3.047
16AMV-2.5	2-1/2	.250	3.579
16AMV-3	3	.313	4.125
16AMV-4	4	.313	5.125
16AMV-6	6	.460	7.195
16AMV-8	8	.500	9.200
16AMV-10	10	.500	11.320

13MHHV - SCHEDULE 5 CLAMP



PART NUMBER	SIZE	A
13MHHV-1	1	2.122
13MHHV-1.5	1-1/2	2.654
13MHHV-2	2	3.185
13MHHV-2.5	2-1/2	3.717
13MHHV-3	3	4.263
13MHHV-4	4	5.263
13MHHV-6	6	7.333
13MHHV-8	8	9.320
13MHHV-10	10	11.450
13MHHV-12	12	13.310

SCHEDULE 5 GASKETS

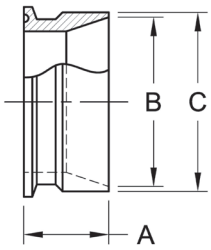


PART NUMBER	SIZE
40MPV-1	1
40MPV-1.5	1-1/2
40MPV-2	2
40MPV-2.5	2-1/2
40MPV-3	3
40MPV-4	4

AVAILABLE IN THE FOLLOWING MATERIALS:
BUNA-N, EPDM, PTFE, FKM/SFY, & SILICONE

19MPV - SANITARY CLAMP X SCHEDULE 5 PIPE ADAPTER



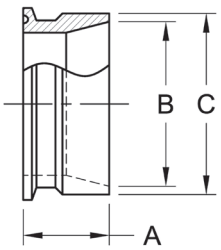


PART NUMBER	SIZE	A	B	C
19MPV-.50	1/2	1.500	.710	.840
19MPV-.75	3/4	1.500	.920	1.050
19MPV-1	1	1.125	1.185	1.315
19MPV-1.5	1-1/2	1.125	1.770	1.900
19MPV-2	2	1.125	2.245	2.375
19MPV-2.5	2-1/2	1.125	2.709	2.875
19MPV-3	3	1.125	3.334	3.500
19MPV-4	4	1.125	4.334	4.500
19MPV-6	6	1.125	6.407	6.625

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

19MPX - SANITARY CLAMP X SCHEDULE 10 PIPE ADAPTER



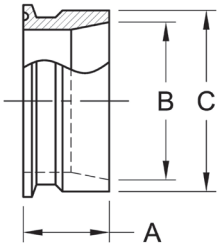


PART NUMBER	SIZE	A	B	C
19MPX-.50	1/2	1.500	.674	.840
19MPX-.75	3/4	1.500	.884	1.050
19MPX-1	1	1.125	1.097	1.315
19MPX-1.5	1-1/2	1.125	1.682	1.900
19MPX-2	2	1.125	2.157	2.375
19MPX-2.5	2-1/2	1.125	2.635	2.875
19MPX-3	3	1.125	3.260	3.500
19MPX-4	4	1.125	4.260	4.500
19MPX-6	6	1.125	6.357	6.625

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

19MP40 - SANITARY CLAMP X SCHEDULE 40 PIPE ADAPTER

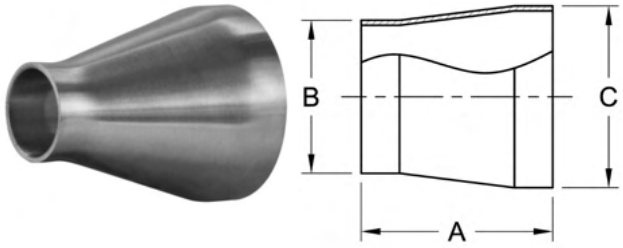




PART NUMBER	SIZE	A	B	C
19MP40-.50	1/2	1.500	.622	.840
19MP40-.75	3/4	1.500	.824	1.050
19MP40-1	1	1.125	1.049	1.315
19MP40-1.5	1-1/2	1.125	1.610	1.900
19MP40-2	2	1.125	2.067	2.375
19MP40-2.5	2-1/2	1.125	2.469	2.875
19MP40-3	3	1.125	3.068	3.500
19MP40-4	4	1.125	4.026	4.500
19MP40-6	6	1.125	6.065	6.625

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

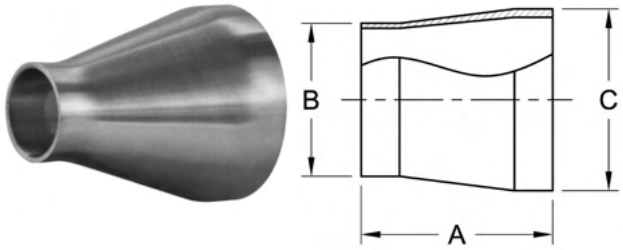
19WV - TUBE X SCHEDULE 5 PIPE ADAPTER



PART NUMBER	SIZE	A	B	C
19WV-.50	1/2	1.500	.500	.840
19WV-.75	3/4	1.500	.750	1.050
19WV-1	1	1.500	1.000	1.315
19WV-1.5	1-1/2	1.500	1.500	1.900
19WV-2	2	2.500	2.000	2.375
19WV-2.5	2-1/2	2.500	2.500	2.875
19WV-3	3	3.000	3.000	3.500
19WV-4	4	3.000	4.000	4.500

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

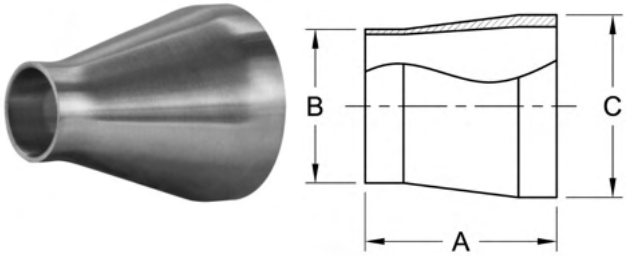
19WX - TUBE X SCHEDULE 10 PIPE ADAPTER



PART NUMBER	SIZE	A	B	C
19WX-.50	1/2	1.500	.500	.840
19WX-.75	3/4	2.000	.750	1.050
19WX-1	1	2.000	1.000	1.315
19WX-1.5	1-1/2	2.500	1.500	1.900
19WX-2	2	2.500	2.000	2.375
19WX-2.5	2-1/2	2.500	2.500	2.875
19WX-3	3	2.500	3.000	3.500
19WX-4	4	3.000	4.000	4.500

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

19W40 - TUBE X SCHEDULE 40 PIPE ADAPTER



PART NUMBER	SIZE	A	B	C
19W40-.50	1/2	1.500	.500	.840
19W40-.75	3/4	1.000	.750	1.050
19W40-1	1	2.000	1.000	1.315
19W40-1.5	1-1/2	2.000	1.500	1.900
19W40-2	2	2.500	2.000	2.375
19W40-2.5	2-1/2	2.500	2.500	2.875
19W40-3	3	3.000	3.000	3.500
19W40-4	4	3.000	4.000	4.500

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST



TUBING & HANGERS

As a premier sanitary tube supplier, we offer electropolished options that meet ASME BPE standards required for high purity applications. Our sanitary tubing comes in a variety of sizes from ½” O.D. to 6” O.D meeting ASTM A213, A249, A269, and A270 requirements. Our most popular line of ASTM A270 tubing provides our customers with sanitary tubing that is validated through mechanical and hydrostatic testing prior to shipping.

DOMESTIC ASTM A270 TUBING - POLISHED (20RA ID / 32RA OD) - 304 & 316L

PART NUMBER	OD SIZE (IN.)	WALL (IN.)	OD TOLERANCE	WALL TOLERANCE	OVALITY TOLERANCE	BOX QTY. (FT.)	ASTM STANDARDS
SAN00507**	.500	.065	+.002 / -.008	± .008	*	300	A213/A270
SAN00757**	.750	.065	+.002 / -.008	± .008	*	300	A213/A270
SAN01007	1.000	.065	+.002 / -.008	± .008	*	300	A249/A269/A270
SAN01507	1.500	.065	+.002 / -.008	± .008	*	300	A249/A269/A270
SAN02007	2.000	.065	+.002 / -.011	± .008	*	300	A249/A269/A270
SAN02507	2.500	.065	+.002 / -.011	± .008	*	300	A249/A269/A270
SAN03007	3.000	.065	+.003 / -.012	± .008	*	200	A249/A269/A270
SAN04007	4.000	.083	+.003 / -.015	± .010	*	100	A249/A269/A270
SAN06007	6.000	.109	+.030 / -.030	± .010	*	20	A249/A269/A270
SAN08007	8.000	.109	+.030/-.030	+/-.010	*	20	A269/A270
SAN10007	10.000	.109	+.030/-.030	+/-.010	*	20	A269/A270
SAN12007	12.000	.109	+.030/-.030	+/-.010	*	20	A269/A270

* OVALITY CANNOT EXCEED THE OD RANGE
** 1/2" X 3/4" OD TUBING AVAILABLE IN SEAMLESS 316L MATERIAL ONLY

IMPORT ASTM A270 TUBING - POLISHED (32RA ID / 32RA OD) - 304 & 316L

PART NUMBER	OD SIZE (IN.)	WALL (IN.)	OD TOLERANCE	WALL TOLERANCE	OVALITY TOLERANCE	BOX QTY. (FT.)	ASTM STANDARDS
SAN00507i	.500	.065	+.002 / -.008	± .008	*	300	A270
SAN00757i	.750	.065	+.002 / -.008	± .008	*	300	A270
SAN01007i	1.000	.065	+.002 / -.008	± .008	*	300	A270
SAN01507i	1.500	.065	+.002 / -.008	± .008	*	300	A270
SAN02007i	2.000	.065	+.002 / -.011	± .008	*	300	A270
SAN02507i	2.500	.065	+.002 / -.011	± .008	*	300	A270
SAN03007i	3.000	.065	+.003 / -.012	± .008	*	200	A270
SAN04007i	4.000	.083	+.003 / -.015	± .010	*	100	A270
SAN06007i	6.000	.109	+.030 / -.030	± .010	*	20	A270
SAN08007i	8.000	.109	+.030/-.030	+/-.010	*	20	A270

* OVALITY CANNOT EXCEED THE OD RANGE

ASTM A269 TUBING - UNPOLISHED (BRIGHT ANNEALED)

PART NUMBER	OD SIZE (IN.)	WALL (IN.)	OD TOLERANCE	WALL TOLERANCE	OVALITY TOLERANCE	BOX QTY. (FT.)	ASTM STANDARDS
SAN01001	1.000	.065	+.002 / -.008	± .008	*	300	A249/A269
SAN01501	1.500	.065	+.002 / -.008	± .008	*	300	A249/A269
SAN02001	2.000	.065	+.002 / -.011	± .008	*	300	A249/A269
SAN02501	2.500	.065	+.002 / -.011	± .008	*	300	A249/A269
SAN03001	3.000	.065	+.003 / -.012	± .008	*	200	A249/A269
SAN04001	4.000	.083	+.003 / -.015	± .010	*	100	A249/A269
SAN06001	6.000	.109	+.030 / -.030	± .010	*	20	A249/A269

Tubing available in numerous sizes and wall thicknesses not listed including rectangular shapes, call for details and pricing. Standard length of tubing is 20 ft., cut lengths available at an additional charge. Box quantity discounts are available. Surcharges apply at time of shipment.

MECHANICAL TESTS

In addition to the standards listed, the following tests are also performed: flare, flatten, flange, reverse bend, and eddy current Surface roughness is measured per ASME/ANSI B46.1 requirements These measurements are derived from four readings taken at cross sections approximately 90 degrees apart.



24PVC
HANGER
W/ PVC INSERT



24RG
HANGER
W/ RUBBER GROMMET



24PCP
HANGER
W/ 3/8 ROD COUPLING



26CB
HANGER TAKE DOWN STYLE
W/ EPDM SLEEVE



26LC
HANGER TAKE DOWN
W/ EPDM INSERT



BEHRINGER HANGERS

WALL FLANGES



Tube Size (16 GA)
Available with Flush or Lip Edge
(Part No. Example: WF01000)



VALVES, SIGHT GLASSES & SPRAY BALLS

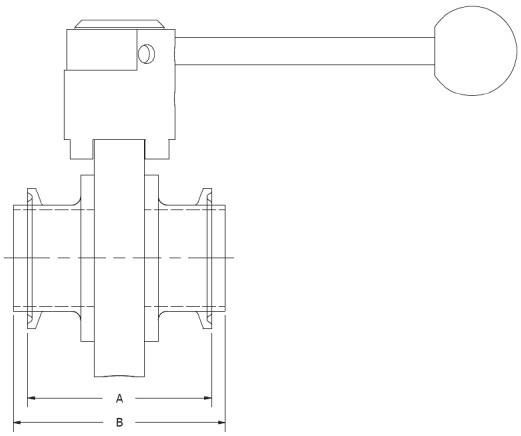
Steel & O'Brien carries a vast assortment of stainless steel valve and actuator types to meet sanitary and high purity applications.

Steel & O'Brien sight glass body materials are stainless steel and borosilicate glass with Buna-N gaskets. Other viewport materials, including acrylic and polycarbonate, along with gaskets made of EPDM, FKM, silicone, and PTFE are also available.

Stationary spray balls are stocked in various spray patterns. Made with heavy gauge material for longer life, they are available in both 304 & 316L grades.

MANUAL BUTTERFLY VALVES





Butterfly valves from Steel & O'Brien are available in clamp and butt weld ends. Other end connections can be furnished upon request.

- Available in sizes 1/2" - 6"
- Available in 304ss or 316L ss
- Handle options:
  - 4-position Pull Handle w/ Knob
  - 12-position Trigger Handle (Plastic vs.Stainless)
  - 12-position Trigger Handle (Full Stainless)
- FDA seat materials: Silicone-Red, EPDM, FKM/SFY
- Pressure Rating: 145 PSI @ 68°F
- Polished to 32Ra I.D./O.D.
- Low resistance to product flow
- Suitable for low to high viscosity fluids
- Field serviceable
- Self-draining
- 100% pressure tested
- Actuator kit available (easily installed in the field)
- Temperature range +15° to 200°F (-10° to 95°C)

SIZE	A	B
1/2"	2.68	---
3/4"	2.68	---
1"	2.60	2.68
1-1/2"	2.60	2.99
2"	2.75	3.15
2-1/2"	2.75	3.15
3"	3.00	3.23
4"	3.00	3.47
6"	5.50	3.15

EXAMPLE

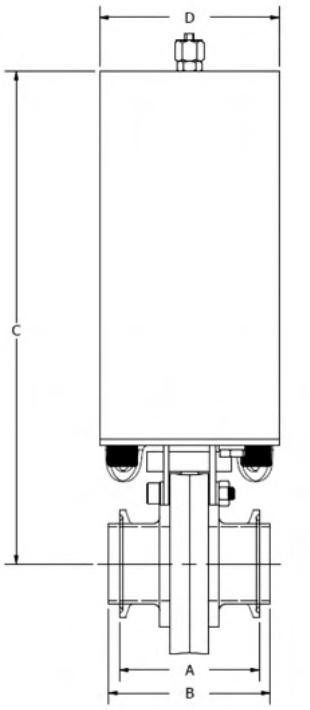
PART #: BFVTC-1.5-316-EPDM

S&O 1-1/2" BUTTERFLY VALVE - CLAMP ENDS, FDA EPDM SEAL, 316L BODY & DISC, 12-POSITION PLASTIC/SS TRIGGER HANDLE

VALVE TYPE		END CONNECTION & HANDLE TYPE	SIZE		BODY/DISC MATERIAL		SEAT MATERIAL	
BFV	PC	CLAMP END - PULL HANDLE + KNOB (4-POSITION)	.50	1/2"	304	304 SS	EPDM	FDA EPDM (BLACK)
	TC	CLAMP END - TRIGGER HANDLE PLASTIC/SS (12 POSITION)	.75	3/4"				
	MTC	CLAMP END - TRIGGER HANDLE STAINLESS (12 POSITION)	1	1"			VITON	FDA FKM (BLACK)
	PW	WELD END - PULL HANDLE + KNOB (4-POSITION)	1.5	1-1/2"	316	316L SS		
	TW	WELD END - TRIGGER HANDLE PLASTIC/SS (12 POSITION)	2	2"			SILICONE RED	FDA SILICONE (RED)
	MTW	WELD END - TRIGGER HANDLE STAINLESS (12 POSITION)	2.5	2-1/2"				
			3	3"				
			4	4"				
			6	6"				

ACTUATED BUTTERFLY VALVES





Acutated butterfly valves offer the same features and benfits of our manual butterfly valves, along with pneumatic actuation.

- C3# Actuator - 1/2" through 3" Valves
- Available in Spring Return and Double Acting
- Air supply pressure: Min 73PSI (5bar) Max 130PSI (9bar)
- Air Consumption: 0.266 Liter at 5bar
- Shut-Off time: 1.5 seconds
- Material: 304 stainless steel
- (2) M12x1 threaded holes for proxmity sensor mounting
- Actuators are able to be field installed on existing manual valves
- ¼" to M10x1 compression fitting for ¼" airline included, (1) for Spring Return and (2) for Double Acting

SIZE	A	B	C	D
1/2"	2.68	N/A	8.91	3.35
3/4"	2.68	N/A	8.91	3.35
1"	2.60	2.68	8.91	3.35
1-1/2"	2.60	2.99	9.02	3.35
2"	2.75	3.15	9.53	3.35
2-1/2"	2.75	3.15	9.58	3.35
3"	3.00	3.23	9.81	3.35
4"	3.00	3.47	15.44	4.73
6"	See TOP-FLO®			

EXAMPLE

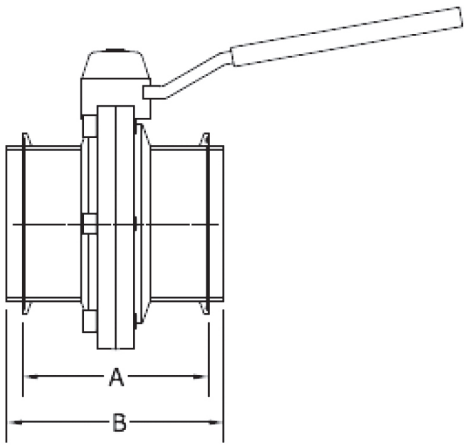
PART #: BFVAC-1.5-NC-316-EPDM

S&O 1-1/2" BUTTERFLY VALVE - CLAMP ENDS, FDA EPDM SEAL, 316L BODY & DISC, 304SS SPRING RETURN CANISTER ACTUATOR, NORMALLY CLOSED

VALVE TYPE & END CONNECTION		SIZE		ACTUATOR & FAIL POSITION		BODY/DISC MATERIAL		SEAT MATERIAL	
BFVAC	CLAMP END - CANISTER ACTUATOR (304SS)	.50	1/2"	NC	SPRING RETURN - NORMALLY CLOSED	304	304 SS	EPDM	FDA EPDM (BLACK)
BFVAW	WELD END - CANISTER ACTUATOR (304SS)	.75	3/4"						
		1	1"	NO	SPRING RETURN - NORMALLY OPEN	316	316L SS	VITON	FDA FKM (BLACK)
		1.5	1-1/2"						
		2	2"	DA	DOUBLE ACTING			SILICONE-RED	FDA SILICONE (RED)
		2.5	2-1/2"						
		3	3"						
		4	4"						

TOP-FLO® MANUAL BUTTERFLY VALVES





- Sizes: 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”, 6", 8"*
- Materials: 304 or 316L SS
- Seals available: platinum cured silicone (standard), EPDM or FKM
- Connections: clamp, butt weld and other connections available upon request.
- Multi-position spring loaded flat handle is standard
- Optional 13 position SS trigger handle with padlock provisions suitable for lock-out/tag-out

SIZE	A	B
1"	3.50	1.88
1-1/2"	3.50	1.88
2”	3.75	2.06
2-1/2"	3.81	2.13
3”	4.13	2.44
4”	4.81	3.13
6”	6.13	3.13
8”	4.88	CF

M9 13 POSITION SS TRIGGER HANDLE IS NOT AVAILABLE IN 6" OR 8".

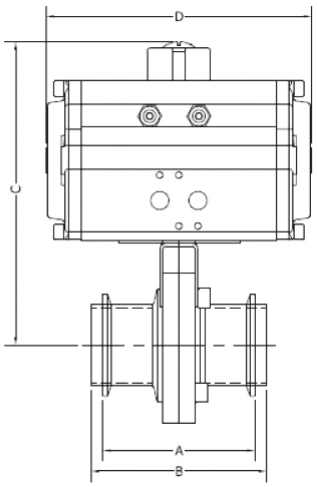
EXAMPLE

PART #: 3820115V

TOP-FLO® 1-1/2" BUTTERFLY VALVE - CLAMP ENDS. FDA FKM SEAL. 316L BODY & DISC, FLAT 4-POSITION HANDLE

	END CONNECTION & MATERIAL	SIZE			SEAT MATERIAL		HANDLE TYPE
32201	CLAMP END - 304 BODY/DISC	10	1"	EP	FDA EPDM (BLACK)	---	BLANK - FLAT 4-POSITION HANDLE
38201	CLAMP END - 316L BODY/DISC	15	1-1/2"	V	FDA FKM (BLACK)	M12	TRIGGER HANDLE STAINLESS (12 POSITION)
35128	WELD END - 304 BODY/DISC	20	2"	S	P/C SILICONE CLEAR	PH4	PULL HANDLE + KNOB (4-POSITION) 8" ONLY
39128	WELD END - 316L BODY/DISC	25	2-1/2"				
		30	3"				
		40	4"				
		60	6"				
		80	8"				

8" VALVE IS ONLY AVAILABLE IN 316L, CLAMP WITH EPDM SEAL.



SIZE	A	B	C	D
1/2”	SEE S&O			
3/4"				
1”	3.50	1.88	6.62	6.28
1-1/2”	3.50	1.88	6.62	7.10
2”	3.75	2.06	6.62	7.36
2-1/2”	3.81	2.13	7.40	7.68
3”	4.13	2.44	8.74	7.92
4”	4.81	3.13	10.16	10.77
6”	6.13	3.13	14.57	13.53
8"	4.88	CF	15.63	15.83

DEFINOX BUTTERFLY VALVES

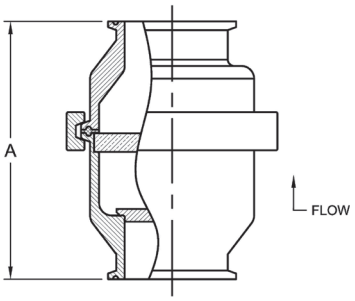


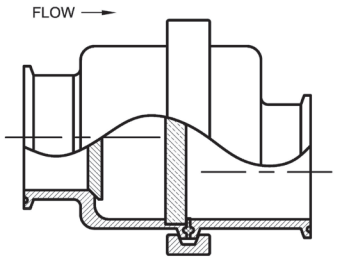
- Sizes - 1”, 1-1/2”, 2”, 2-1/2”. 3”, 4”, 6”
- Material: 316L SS
- Seal Material: 1”-2” HNBR, EPDM, or FKM 2-1/2”-6” Silicon, EPDM, or FKM
- Connections: clamp or butt weld
- Four position spring loaded flat handle
- Nine position trigger handle
- 2-pc or between flanges available
- Air and electric actuators available
- Flanged ends available

FOR ASSISTANCE CONFIGURING AUTOMATED BUTTERFLY VALVES PLEASE CONTACT YOUR STEEL & O’BRIEN REPRESENTATIVE

DISC CHECK VALVES (LONG)







Horizontal style available
(Example part no. 45EMP-1)

Fully automatic, the line pressure keeps the plunger in the valve open. When line pressure drops or there is reverse flow, the spring will cause the plunger to firmly seat thus returning the valve to the closed position. The angled design of the plunger prevents leakage in low pressure systems. Available in a variety of end configurations.

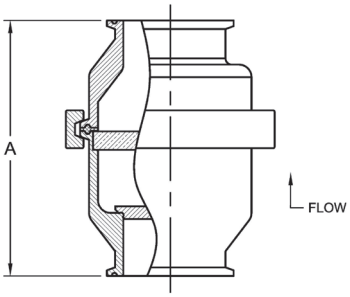
- Works well in high or low pressure systems
- All wetted surfaces polished to 32Ra or better
- Field serviceable with no special tools required
- Available with or without o-ring seal
- Assembled with EPDM seals
- 3A certified
- Working Pressure - 150 psi

PART NUMBER	SIZE	A	* Cracking Pressure (psi)
45MP-.50	1/2	3.500	10
45MP-.75	3/4	3.500	4
45MP-1	1	5.125	2
45MP-1.5	1-1/2	5.125	1.6
45MP-2	2	5.063	1.4
45MP-2.5	2-1/2	6.266	0.9
45MP-3	3	6.125	0.5
45MP-4	4	8.125	0.5

* VALUES FOR VERTICAL VALVE ONLY
NOTE: TEMPERATURE AND PRESSURE RATINGS VARY BASED ON GASKET MATERIAL. DRAWING, PART NUMBERS, AND DIMENSIONS SHOWN ARE FOR CLAMP END STYLE CHECK VALVE.

DISC CHECK VALVES (COMPACT)



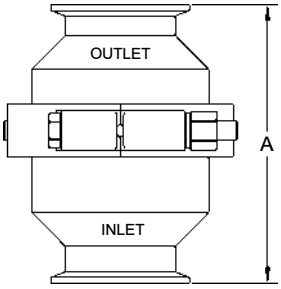


- All wetted surfaces polished to 32Ra or better
- Space-saving and lightweight
- Assembled with EPDM o-ring seal
- 316L Stainless Steel
- Working Pressure - 150 psi

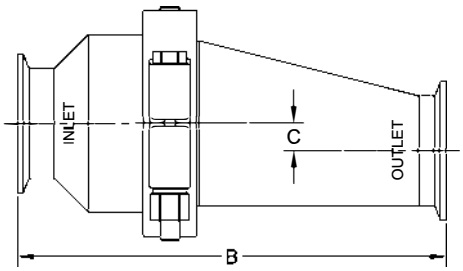
PART NUMBER	SIZE	A
45MP-.50-CD	1/2	2.70
45MP-.75-CD	3/4	2.70
45MP-1-CD	1	3.29
45MP-1.5-CD	1-1/2	3.36
45MP-2-CD	2	3.36
45MP-2.5-CD	2-1/2	3.36
45MP-3-CD	3	3.36
45MP-4-CD	4	4.03

NOTE: TEMPERATURE AND PRESSURE RATINGS VARY BASED ON GASKET MATERIAL. REPAIR KIT INCLUDES: SPRING, PLUNGER O-RING, EPDM BODY ORING(S). (VITON BODY ORINGS AVAILABLE)

TOP-FLO® T45/T45E & MC/ME DISC CHECK VALVES



T45 / MC45



T45E / ME45

The TOP-FLO® 3A & BPE disc type 316L check valve can be used in a variety of hygienic processes depending on valve construction. Valves can be supplied either with clamp or extended butt weld type to facilitate orbital welding. Configurations in both concentric (T45/MC45) for vertical and eccentric outlet (T45E/ME45) for horizontal installation. Internal surface finishes available are BPE SF1, SF4, and SF5. Oxygen clean/cap/bag also available.

- Suitable for use in process and finished product lines, clean in place (CIP) and clean steam
- Material traceability on all wetted parts
- FDA compliant seal materials & USP Class VI certified
- 3A Certified
- Conforms to ASME BPE
- Operating temperature: T45/T45E - up to 250°F
  MC45/ME45 - up to 366° F
- Operating pressure: T45/T45E - up to 150 PSIG
  MC45/ME45 - up to 349 PSIG
- Clamp or extended butt weld connections
- Materials: 316L, AL6XN, Hastelloy, 2205
- Seals: FKM, EPDM, Silicone, PTFE, FFKM
- Disc: Flat or Guide Finger type
- Body Clamp: Single Pin (T45/T45E), High Pressure (MC/ME)
- ID Finish: 20RA (SF1), 20RA EP (SF5), 15RA EP (SF4)

VALVE SIZE	T45 / MC45 A	T45E / ME45 B	T45E / ME45 OFFESET C	EST. Cv	CRACKING PRESSURE STANDARD SPRING	CRACKING PRESSURE LOW PRESSURE
1/2"	3.500	5.687	0.500	8.3	0.5 - 1 PSIG	0.72 PSIG
3/4"	3.500	5.187	0.375	17.5	0.5 - 1 PSIG	0.72 PSIG
1"	4.125	9.692	0.750	35.2	0.5 - 1 PSIG	0.72 PSIG
1-1/2"	4.563	7.623	0.500	64.6	0.5 - 1 PSIG	0.72 PSIG
2"	5.063	7.805	0.500	113.3	0.5 - 1 PSIG	0.72 PSIG
2-1/2"	5.375	10.771	0.750	167.9	0.5 - 1 PSIG	0.72 PSIG
3"	6.125	9.107	1.000	271	0.5 - 1 PSIG	0.72 PSIG
4"	8.125	11.469	1.000	377	0.5 - 1 PSIG	0.72 PSIG
6"	8.125	CF	CF	502	1 - 3 PSIG	N/A
8"	11.050	CF	CF	CF	CF	N/A

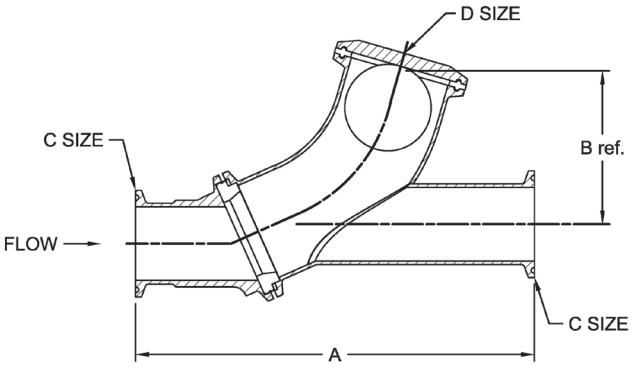
TOP-FLO® BALL CHECK VALVES



TOP-FLO® sanitary ball check valves are used to prevent the backflow of fluid in sanitary systems and to minimize pressure drop across the valve. The vertical installation orientation of TOP-FLO® ball check valves utilizes the fluid head pressure behind the ball when there is zero flow and valve is in the closed position to ensure positive shut off across the elastomer seat.

Features:

- 3-A Certified
- Replaceable elastomer seat due to 2-pc design
- Suitable for both process and CIP fluids
- Wetted construction in 316L SS material
- Standard size seat & body clamp



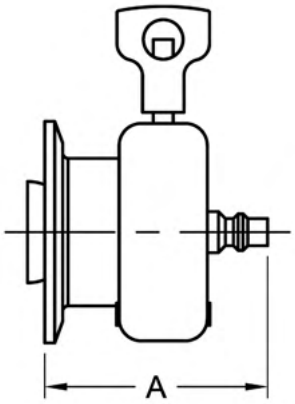
Specifications:

- End Connections: Clamp
- Seat & Seal Material: FDA FKM (Standard)
  FDA EPDM (Optional)
- Ball Material: FDA Virgin PTFE
- Surface Finish: ID: 25-30Ra
  OD: 32Ra
- Maximum Operating Pressure: 150 PSIG
- Operating Temperature: 30° F Min.
  200° F Max.

PART NUMBER	SEAT & GASKET MAT'L	SIZE	A	B	C	D	SEAL REPAIR KIT (BALL/SEAT/GASKET)	REPLACEMENT PTFE BALL
45BYMP-1.5-EPDM	EPDM/CF8M - EPDM	1-1/2"	7.50	3.30	1-1/2"	2"	45BYSK-1.5-EPDM	45BY-B-1.5-TEF
45BYMP-1.5-FKM	FKM/CF8M - FKM	1-1/2"	7.50	3.30	1-1/2"	2"	45BYSK-1.5-FKM	45BY-B-1.5-TEF
45BYMP-2-EPDM	EPDM/CF8M - EPDM	2"	8.50	3.90	2"	2-1/2"	45BYSK-2-EPDM	45BY-B-2-TEF
45BYMP-2-FKM	FKM/CF8M - FKM	2"	8.50	3.90	2"	2-1/2"	45BYSK-2-FKM	45BY-B-2-TEF
45BYMP-2.5-EPDM	EPDM/CF8M - EPDM	2-1/2"	10.00	4.50	2-1/2"	3"	45BYSK-2.5-EPDM	45BY-B-2.5-TEF
45BYMP-2.5-FKM	FKM/CF8M - FKM	2-1/2"	10.00	4.50	2-1/2"	3"	45BYSK-2.5-FKM	45BY-B-2.5-TEF
45BYMP-3-EPDM	EPDM/CF8M - EPDM	3"	11.50	5.30	3"	4"	45BYSK-3-EPDM	45BY-B-3-TEF
45BYMP-3-FKM	FKM/CF8M - FKM	3"	11.50	5.30	3"	4"	45BYSK-3-FKM	45BY-B-3-TEF

AIR BLOW CHECK VALVES





Air blow check valves are used to clean CIP solution or product through the use of pressurized air.

The simple design uses the supplied pressurized air to open and when the air supply is removed, a spring closes the valve. The clamp connection allows for quick assembly and disassembly for cleaning and replacement of filter media.

Steel & O'Brien offers these valves in various air supply configurations.

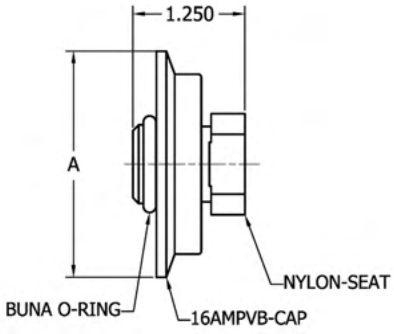
- Available standard with quick disconnect, female NPT, or hose barb style air supply connections.
- Field serviceable with no special tools required, repair kits available.
- Approved for 3A Accepted Practice 64-05 for supplying air under pressure in contact with milk products when filter disc is used.

PART NUMBER	SIZE	A
45AB-1.5	1-1/2	2.589
45AB-2	2	2.589
45AB-2.5	2-1/2	2.589
45AB-3	3	2.589
45AB-4	4	2.589

NOTE: DRAWING, PART NUMBERS, AND DIMENSIONS SHOWN ARE FOR CLAMP END STYLE AIR BLOW CHECK VALVE WITH QUICK DISCONNECT CONNECTION. CALL STEEL & O'BRIEN FOR DETAILS ON OTHER CONFIGURATIONS.

16AMPVB - VACUUM BREAKER VALVE

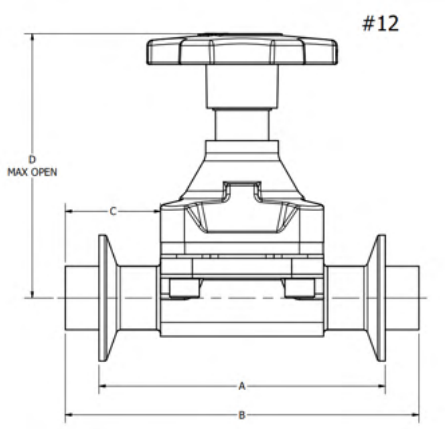




Vacuum breaker valve prevents the formation of a vacuum in the process line. Offered in 1-1/2" to 4" clamp sizes. Generally installed at the highest point in the system. Not for use in tanks.

TOP-FLO® BIOPRO® FORGED DIAPHRAGM VALVES





TOP-FLO® diaphragm valves, because of their unique design, reliability, versatility, and ease of maintenance have been the ideal choice for high purity process piping applications. Steel & O'Brien competes with the major suppliers in the industry in North and South America for weir-type diaphragm valves.

The forged body has always been the optimum choice for applications within the bioprocessing and pharmaceutical industries. BIOPRO® & regular forged body diaphragm valves will be the valves of choice when high purity mechanical and electropolished surface finishes are required. 100% BPE Compliant with full material traceability.

- Manufactured from ASTM A182 GR F316L material
- Sulfur content is maintained to meet and exceed the stringent requirements of BPE.
- All forgings are solution annealed to maintain the ferrite content to be .05% or less.
- Machining of the contours is performed by using state of the art cad/cam system assuring repeatability of the weir and valve cavity profiles for full drainability.
- Each forging contains two hash marks clearly indicating the drain angle plane for ease of installation.
- FDA compilant
- Available in sizes ranging from 1/2" through 6" with clamp or weld end connections and surface finishes ranging through 10 RA.

PART NUMBER	SIZE	A CLAMP END	B OD TUBE END	C WELD TANGENT	D CENTER TO TOP	DRAIN ANGLE
74L3-12-1K-50-20RA-316L-A	1/2	3.50	N/A	N/A	3.27	30°
74L3-12-1K-75-20RA-316L-A	3/4	4.00	N/A	N/A	3.66	25°
74L3-12-1K-10-20RA-316L-A	1	4.50	N/A	N/A	4.17	28°
74L3-12-1K-15-20RA-316L-A	1-1/2	5.50	N/A	N/A	6.10	20°
74L3-12-1K-20-20RA-316L-A	2	6.25	N/A	N/A	7.07	20°
74L3-12-2E-50-20RA-316L-A	1/2	3.50	N/A	N/A	3.27	30°
74L3-12-2E-75-20RA-316L-A	3/4	4.00	N/A	N/A	3.66	25°
74L3-12-2E-10-20RA-316L-A	1	4.50	N/A	N/A	4.17	28°
74L3-12-2E-15-20RA-316L-A	1-1/2	5.50	N/A	N/A	6.10	20°
74L3-12-2E-20-20RA-316L-A	2	6.25	N/A	N/A	7.07	20°
78L3-12-1K-50-20RA-316L-A	1/2	N/A	4.88	1.50	3.27	30°
78L3-12-1K-75-20RA-316L-A	3/4	N/A	5.31	1.50	3.66	25°
78L3-12-1K-10-20RA-316L-A	1	N/A	5.56	1.50	4.17	28°
78L3-12-1K-15-20RA-316L-A	1-1/2	N/A	6.63	1.50	6.10	20°
78L3-12-1K-20-20RA-316L-A	2	N/A	7.50	1.63	7.07	20°

FOR ADDITIONAL DETAILS AND VALVE SIZES, SEE FULL DIAPHRAGM VALVE CATALOG

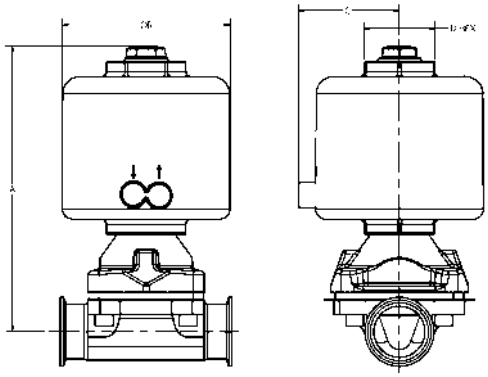
TOP-FLO® EZ SERIES DIAPHRAGM VALVE ACTUATOR



STANDARD MOUNT
2-WAY BODIES



STUD MOUNT
ZERODL BLOCK BODIES



Designed to be both rugged and economical, EZ series piston type actuators are ideally suited for automatic control of hygienic weir type BioPro® 2-way and ZeroDL block style diaphragm valves.

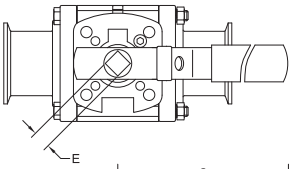
Size: Fits Valve Sizes 1/2" Thru 2"
Type: Piston Type
Function: Fail Close, Fail Open, Double Acting
Construction: Polyamide Plastic Head, 304ss Mounting Base, Yellow Visual Position Indicator, 1/4" Fnpt Air Supply Connections
Operation: Operating Air Supply 80-100 Psig (5.5 Bar - 7 Bar), Maximum Air Supply 116 Psig (8 Bar), Maximum Temperature 120 Deg F (49 Deg C) **Not For Outdoor Use*
Topworks: Stonel, Westlock, and Burkert Controls Available

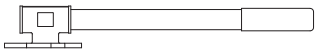
PART NUMBER	SIZE	A	B	C	D
74L3-E4-1K-50-20RA-316L-A	1/2	6.24	3.50	2.24	1.38
74L3-E4-1K-50-20RA-316L-A	1/2	6.24	3.50	2.24	1.38
74L3-E4-1K-75-20RA-316L-A	3/4	7.20	4.28	2.61	1.69
74L3-E4-1K-10-20RA-316L-A	1	7.49	4.28	2.61	1.69
74L3-E4-1K-15-20RA-316L-A	1-1/2	10.05	6.13	3.68	2.56
74L3-E4-1K-20-20RA-316L-A	2	10.39	6.13	3.68	2.56
74L3-E4-2E-50-20RA-316L-A	1/2	6.24	3.50	2.24	1.38
74L3-E4-2E-75-20RA-316L-A	3/4	7.20	4.28	2.61	1.69
74L3-E4-2E-10-20RA-316L-A	1	7.49	4.28	2.61	1.69
74L3-E4-2E-15-20RA-316L-A	1-1/2	10.05	6.13	3.68	2.56
74L3-E4-2E-20-20RA-316L-A	2	10.39	6.13	3.68	2.56
74L3-E7-1K-50-20RA-316L-A	1/2	6.24	3.50	2.24	1.38
74L3-E7-1K-75-20RA-316L-A	3/4	7.20	4.28	2.61	1.69
74L3-E7-1K-10-20RA-316L-A	1	7.49	4.28	2.61	1.69
74L3-E7-1K-15-20RA-316L-A	1-1/2	10.05	6.13	3.68	2.56
74L3-E7-1K-20-20RA-316L-A	2	10.39	6.13	3.68	2.56
78L3-E4-1K-50-20RA-316L-A	1/2	6.24	3.50	2.24	1.38
78L3-E4-1K-75-20RA-316L-A	3/4	7.20	4.28	2.61	1.69
78L3-E4-1K-10-20RA-316L-A	1	7.49	4.28	2.61	1.69
78L3-E4-1K-15-20RA-316L-A	1-1/2	10.05	6.13	3.68	2.56
78L3-E4-1K-20-20RA-316L-A	2	10.39	6.13	3.68	2.56

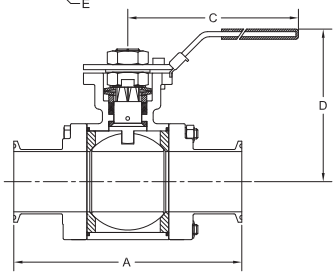
FOR ADDITIONAL DETAILS AND VALVE SIZES, SEE FULL DIAPHRAGM VALVE CATALOG

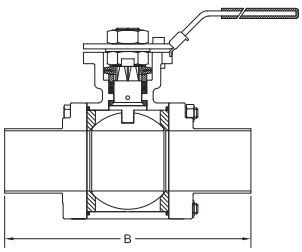
TOP-FLO® SERIES 77 BALL VALVES











Series 77 3-pc ball valves feature a high-quality CF3M investment casting of center body and end caps with 316L ball & stem and are an excellent choice for use in clean steam systems.

Valve end connections are hygienic clamp or extended butt weld type for orbital welding. Standard seals are non-cavity filled modified PTFE (MPTFE) that are FDA conforming and USP Class VI certified. Internal surface finishes available are BPE codes SF1, SF4, and SF5. All stainless valve components are fully traceable with MTR's for the center body, end caps, ball, and stem. All valves feature direct mount ISO5211 mounting pad for easy automation and stem extension installation.

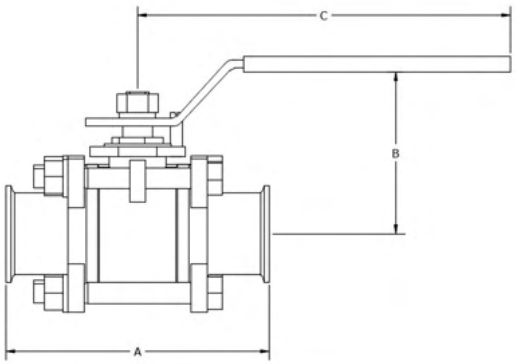
- **Features**
  CF3M/316L Wetted construction
  BPE controlled sulfur content - orbital weld ends
  Full traceability on all wetted parts
  Non-cavity filled MPTFE seats/seals ideal for clean steam systems
  Direct mount ISO pad, easy to automate
  Locking handle
- **Options**
  Pneumatic or electric actuation
  Stem extensions for insulation clearance
  Other seat materials (PTFE, 50/50 SS-PTFE)
  Tank bottom weld flange
  V-Port Ball (30 or 60 degree)
- **Compliance**
  ASME BPE & B16.34
  API 598 pressure testing
  FDA & USP CLASS VI Seats/Seals

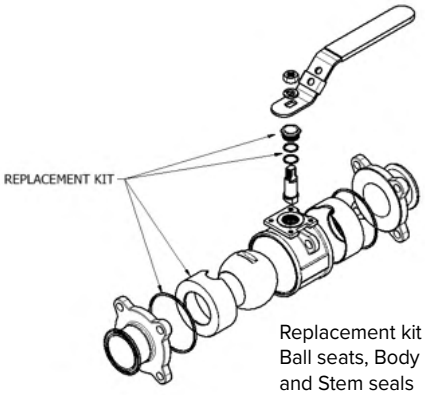
SIZE	A	B	C	D	E	ISO MOUNTING PAD	NCF TORQUE (IN/LBS)	PRESSURE RATING (PSI)
1/2"	3.51	5.50	6.06	3.03	9MM	F03/F04/F05	80	1000
3/4"	4.00	5.75	6.16	3.28	9MM	F03/F04/F05	89	1000
1"	4.51	6.25	6.50	3.79	11MM	F04/F05	127	1000
1-1/2"	5.52	7.50	8.55	4.93	14MM	F05/F07	210	600
2"	6.26	8.50	8.52	5.28	14MM	F05/F07	354	600
2-1/2"	6.85	9.75	11.97	6.67	17MM	F07/F10	580	600
3"	7.61	10.50	14.44	7.13	17MM	F07/F10	755	507
4"	8.90	12.50	14.50	7.61	19MM	F07/F10	1317	393
6"	12.6	22.00	31.50	10.53	27MM	F12/F14	2255	250

FOR ADDITIONAL DETAILS AND VALVE SIZES, SEE FULL SERIES 77 CATALOG.

MANUAL 2-WAY BALL VALVES







Replacement kit includes:
Ball seats, Body gaskets, Thrust washer and Stem seals

Ball valves are quarter-turn, straight through valves that utilize a ball to restrict flow by sealing around matching seats. Ball valves are utilized in situations where complete shut-off is required. Ball valves offer ease of operation and can maintain and regulate high-pressure, high-volume, and high-temperature flow.

Steel & O'Brien offers these rugged and dependable valves in a variety of end configurations.

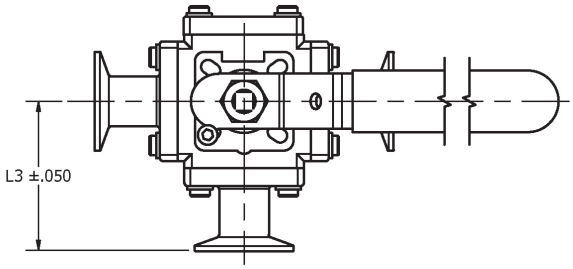
- Nylon handle cover allows hand operation at higher temperatures.
- Available in a wide variety of end connections including clamp, weld, and flange style.
- 3-piece construction
- Cavity filled PTFE seats
- ISO 5211 Mounting Pad
- Available only in 316L
- 32Ra Finish on wetted surfaces
- Includes locking handle
- 3A Certified

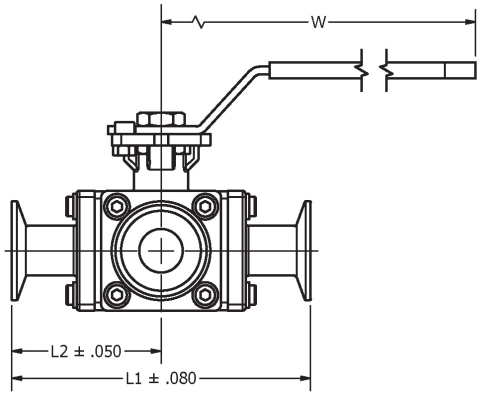
PART NUMBER	SIZE	A	PRESSURE RATING @ 70°F	PRESSURE RATING @ 300°F	REPLACEMENT KIT
BLV2C-.50	1/2	3.50	1,000 PSI	100 PSI	BLV2-REPLKIT-.50
BLV2C-.75	3/4	3.98	1,000 PSI	100 PSI	BLV2-REPLKIT-.75
BLV2C-1	1	4.49	1,000 PSI	100 PSI	BLV2-REPLKIT-1
BLV2C-1.5	1-1/2	5.51	1,000 PSI	100 PSI	BLV2-REPLKIT-15
BLV2C-2	2	6.14	1,000 PSI	100 PSI	BLV2-REPLKIT-2
BLV2C-2.5	2-1/2	7.76	600 PSI	100 PSI	BLV2-REPLKIT-25
BLV2C-3	3	9.02	600 PSI	100 PSI	BLV2-REPLKIT-3
BLV2C-4	4	9.57	600 PSI	100 PSI	BLV2-REPLKIT-4

NOTE: DRAWING, PART NUMBERS, AND DIMENSIONS SHOWN ARE FOR 2-WAY CLAMP END STYLE BALL VALVE.
CALL STEEL & O'BRIEN FOR DETAILS ON OTHER CONFIGURATIONS.

BLV3/TF1 - MANUAL & AUTOMATED 3-WAY BALL VALVES







3-Way Ball Valves offer a diverting and mixing flow pattern that eliminates the need for two valves. The “L” port option is used to divert flow and the “T” port option often serves for mixing applications.

Steel & O’Brien offers these rugged and dependable valves in a variety of end configurations.

- Nylon handle cover allows hand operation at higher temperatures.
- Stocked with clamp end connections. Other end connections available upon request.
- 3A Certified
- Available in L and T port flow options
- Cavity filled PTFE seats
- ISO 5211 Mounting Pad
- 32Ra Finish on wetted surfaces
- SIZE 1/2" - 3" (Full Port)
  SIZE 4" (Reduced Port)
- Replacement Kits include: Ball Seats, Body Gasket, Thrust Washer, Stem Seal
- CF8M (316) Construction
- Includes locking handle

PART NUMBER	SIZE	L1	L2	L3	W	PRESSURE RATING @ 70°F	PRESSURE RATING @ 300°F
BLV3CL-.50	1/2	4.65	2.32	2.32	5.60	1000 PSI	175 PSI
BLV3CL-.75	3/4	5.00	2.50	2.50	5.60	1000 PSI	175 PSI
BLV3CL-1	1	6.00	2.99	3.00	6.40	1000 PSI	175 PSI
BLV3CL-1.5	1-1/2	6.89	3.45	3.45	7.67	1000 PSI	175 PSI
BLV3CL-2	2	7.48	3.74	3.74	7.67	1000 PSI	175 PSI
BLV3CL-2.5	2-1/2	8.98	4.22	4.22	14.88	800 PSI	175 PSI
BLV3CL-3	3	10.24	4.80	4.80	16.25	800 PSI	175 PSI
BLV3CL-4	4	11.38	6.26	6.26	16.25	800 PSI	175 PSI

NOTE: PART NUMBERS, AND DIMENSIONS SHOWN ARE FOR 3-WAY “L” PORT STYLE
DIMENSIONS ARE IDENTICAL FOR “T” PORT STYLE, PART NUMBER EXAMPLE: BLV3CT-.50

MANUAL & AUTOMATED TOP-FLO® TF4 2-WAY BALL VALVES



ALTERNATE END CONNECTIONS AVAILABLE UPON REQUEST

Features 360° installation - valve may be installed in any position. PTFE cavity fillers are precision machined to maintain sanitary environment. Easy “in-line” service. Unique design allows valve ends to remain attached while servicing valve body. No special tools are required. Minimal turbulence - maximum flow through ISO 5211.

- Mounting pad
- Surface finish ID: 20Ra
- Sizes - 1/2”- 6"
- Materials - 316 SS
- PTFE seating
- Connections - clamp & butt weld
  (other connections available upon request)
- Locking handle
- Pressure - 1,000 psi @ 170°F sizes 1/2" - 2"
  800 psi @ 150°F sizes 2-1/2" - 4"
  250 psi @ 150°F size 6"
- Full port to ID of tubing for reduced pressure drop
- Pneumatic and electric actuators available

MANUAL - PART NUMBER MATRIX

MATERIAL	END CONNECTIONS	VALVE SERIES	SIZE	SEAT MATERIAL	HANDLE TYPE
3 316 SS	8 C x C	43 TF4	05 1/2	TEF4 CAVITY FILLED PTFE	- STANDARD HANDLE
	9 BW x BW		07 3/4	NCF4 NON-CAVITY FILLED PTFE	G GEAR OPERATOR
	C C x BW		10 1	SCF4 NON-CAVITY FILLED 50/50 PTFE	
	T WELD TANK FLANGE X C		15 1-1/2		
			20 2		
			25 2-1/2		
			30 3		
			40 4		
			60 6		

TOP-FLO® TA SERIES FOR BALL & BUTTERFLY VALVES



Features:

- Double acting and spring return models
- ISO 5211 valve mounting dimensions
- Corrosion resistant hard anodized finish
- Dual travel stops
- Various feedback switches & controls available

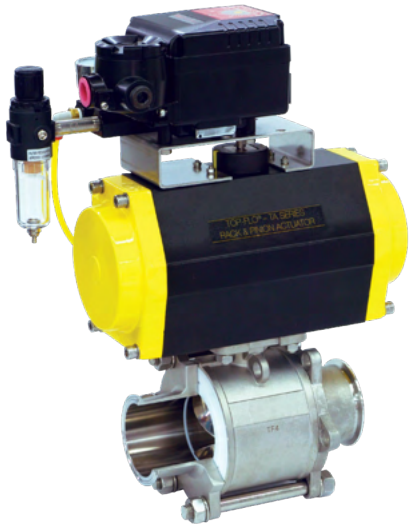
TOP-FLO® ELECTRIC FOR BALL & BUTTERFLY VALVES



Features:

- Multiple voltages available: 24VAC, 24VDC, and 115VAC single phase
- Nema 4, 4X & IP67 lightweight polyester powder coated aluminum housing
- External manual override
- Four limit switches – two for operation and two auxiliary dry contacts
- Anti-condensation space heater
- Visual position indicator
- Captive cover bolts

TOP-FLO® T4V-V PORT CONTROL BALL VALVES



Features:

- 360° Installation – valve may be installed in any position
- Easy “In-Line” servicing, 3-piece design allows valve ends to remain attached while servicing center valve components
- Surface finish ID: 20Ra
- ID of valve is full port to OD Tubing dimensions
- 30° or 60° V-port ball options for desired flow characteristics
- Direct Mount ISO 5211 mounting pad
- Available in sizes 1/2” - 4”

PART NUMBER MATRIX

MATERIAL	END CONNECTIONS	V-PORT BALL DEGREE	SERIES	SIZE	SEAT MATERIAL & TYPE	HANDLE TYPE
3 316 SS	8 C x C	V3 30° V-BALL	43	05 1/2	TEF4 CAVITY FILLED PTFE	- STANDARD
	9 BW x BW	V6 60° V-BALL		07 3/4	NCF4 NON-CAVITY FILLED PTFE	G GEAR OPERATOR
	C C x BW			10 1	SCF4 NON-CAVITY FILLED 50/50 PTFE	
				15 1-1/2		
				20 2		
				25 2-1/2		
				30 3		
				40 4		

FOR ASSISTANCE CONFIGURING AUTOMATED BALL VALVES PLEASE CONTACT YOUR STEEL & O’BRIEN REPRESENTATIVE

TOP-FLO® DEFINOX® ADJUSTABLE RELIEF DCX3



Size range: 1/2”, 3/4, 1”, 1-1/2”, 2”, 2-1/2”, 3”, 4”
Working pressure: 0 - 150 psi for 1” - 4”; 0 - 174 psi for 1/2” & 3/4”
Pressure tolerance: +/- 15% of set pressure
Max./Min. temperature: 248°F (based on seal type); 23°F
Body: 316L SS
Stem: 316L SS
Operator: 304 SS
Valve seals: PFA floating plug seal; FKM stem seal & body seal
Optional seals: EPDM, FKM, or Silicone plug seal; EPDM or Silicone stem & body seal
Connections: OD Tube Butt Weld
Sanitary clamp

TOP-FLO® DEFINOX® MANUAL PRESSURE RELIEF



Available springs: #1 0-51 psi relief pressure; #2 44-110 psi relief pressure; #3 110-175 psi relief pressure
Max./Min. temperature: +120°C/+248°F; 0°C/+32°F
Adjustment range: 0 to 13 bar (1300kPa)/0 to 189 psi
Body: 316L SS
Stem: 316L SS
Operator: 304 SS
Valve seals: FKM plug seal
FKM stem seal & body seal
Optional seals: EPDM plug seal
EPDM stem & body seal
Connections: OD Tube Butt Weld
Sanitary clamp

TOP-FLO® DEFINOX® TANK SERVICE VACUUM-PRESSURE RELIEF

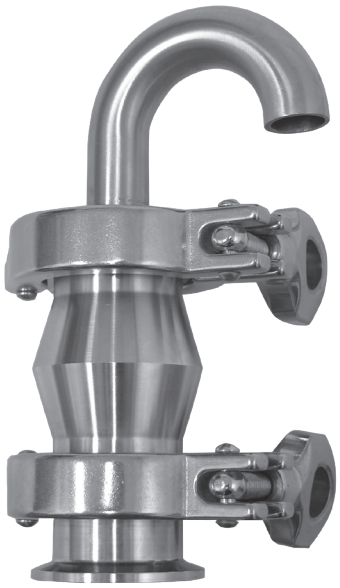


Size range: 2”, 2-1/2”, 4”
Body: 316L SS
Plug: PTFE
Valve seals: Silicone
Connections: Sanitary clamp
Max./Min. temperature: +80°c/+176°F; 0°C/+32°F
Vacuum: 30 mbar

SIZE	SPRING	RELIEF PRESSURE
2 & 2-1/2	#1	10psi
	#2	15psi
	#3	20psi
	#4	25psi
4	#1	15psi
	#2	25psi
	#3	35psi

NOTE: PRESSURE RELIEF SPRING # MUST BE SPECIFIED AT TIME OF ORDER.

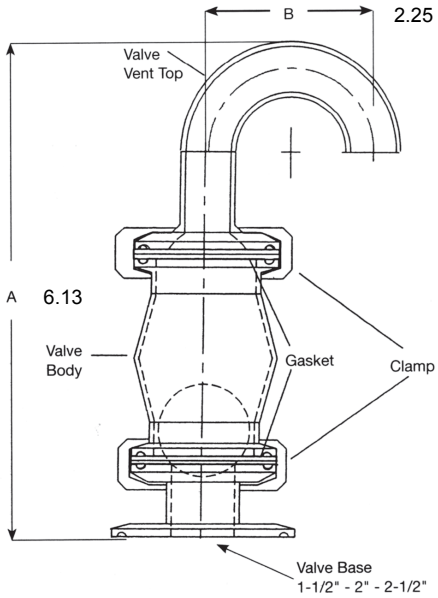
TOP-FLO® TL60ARV AIR RELIEF VALVE



The TL60ARV Air Relief Valve is used primarily when removal of air from a line without loss of product is a concern. The design of the TL60ARV is simple: a ferrule, a housing with a plastic ball, and a vent pipe all connected using 2 standard heavy duty clamps. This design will not let air enter the line or container under negative pressure.

The TL60ARV is double seated. The lightweight ball is freely moving and depending on pressure conditions will close against upper or lower seat. This valve is not designed for use in operation with liquids having less than 1.0 specific gravity.

The valve can be mounted on the top of a pipeline or container to bleed a pipeline where an air pocket may have formed during operation. Bleeding a pipe on the suction side of a pump will be automatic. Air binding will be prevented. These valves are found mounted on the top of the inlet pipe in front of the pump.

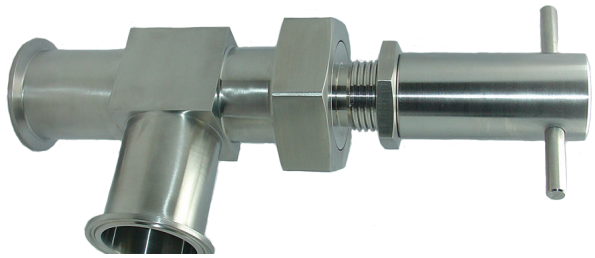


1-1/2" 386015ARV		
DESCRIPTION	**PART NUMBER**	**QTY.**
Vent Top	38601525VT	1
Body	38601525	1
Base – 1-1/2"	386015	1
Clamp	3299915	2
Gasket (FKM)	321010V	2
Ball 1.25"	38601525B	1

2" 386020ARV		
DESCRIPTION	**PART NUMBER**	**QTY.**
Vent Top	38601525VT	1
Body	38601525	1
Base – 2"	386020	1
Clamp	3299915	2
Gasket (FKM)	321010V	2
Ball 1.25"	38601525B	1

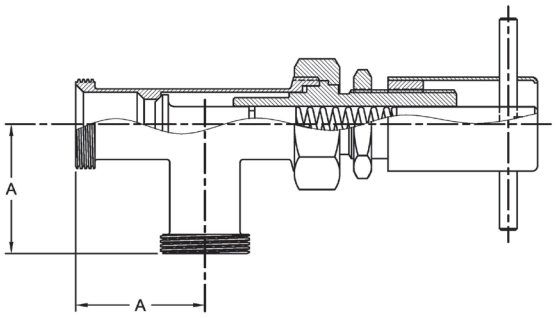
2-1/2" 386025ARV		
DESCRIPTION	**PART NUMBER**	**QTY.**
Vent Top	38601525VT	1
Body	38601525	1
Base – 2-1/2"	386025	1
Clamp	3299915	2
Gasket (FKM)	321010V	2
Ball 1.25"	38601525B	1

KRV RELIEF VALVES

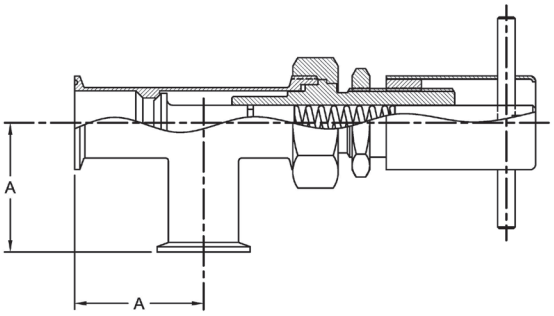


KRV Relief valves allow for adjustable manual pressure control with the choice of metal/metal seat or elastomer seat.

- Meets 3-A standards
- 316LSS construction
- Compression rating can be varied using Light, Medium or Heavy springs
- Available in a variety of end connections



	CLAMP ENDS	THREADED ENDS
SIZE	A	A
1/2	2.750	N/A
3/4	2.750	N/A
1	2.375	1.813
1-1/2	2.750	2.375
2	3.500	2.875
2-1/2	3.500	3.188
3	3.750	3.500



VALVE SPRING VALUES (psi)						
	LIGHT		MEDIUM		HEAVY	
SIZE	MIN	MAX	MIN	MAX	MIN	MAX
3/4	6	55	18	90	44	150
1	6	55	18	90	44	150
1-1/2	4	35	12	60	30	100
2	2	15	6	30	15	50
2-1/2	1	10	4	15	9	30
3	.5	5	2	10	5	15

NOTE: RATINGS BASED ON AMBIENT TEMPERATURE WATER.
CALL STEEL & O'BRIEN FOR OTHER CONFIGURATIONS.

PART NUMBER MATRIX

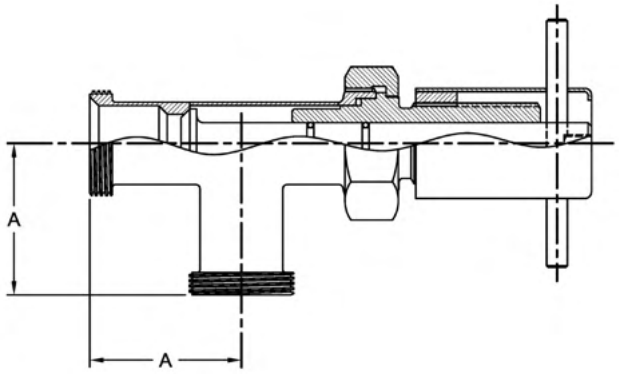
TYPE	END CONNECTIONS	BODY	STEM TYPE	SPRING	ELASTOMERS	SIZE
KRV	C CLAMP	L L-BODY	M METAL/METAL SEAT - LEAKAGE CLASS 1	L LIGHT	E EPDM	50 1/2"
	B BEVEL SEAT	T T-BODY	E ELASTOMER SEAT - LEAKAGE CLASS 4	M MEDIUM	V FKM/SFY	75 3/4"
	I I-LINE			H HEAVY		10 1"
	J JOHN PERRY					15 1-1/2"
						20 2"
						25 2-1/2"
						30 3"

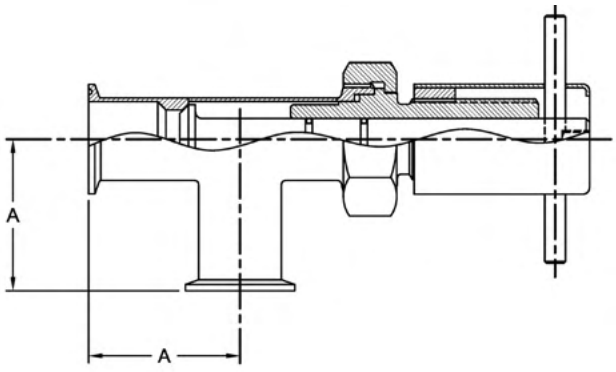
COMPRESSION VALVES



Compression valves allow manual flow control with a metal to metal seat.

- Meets 3-A standards.
- 316LSS construction.
- Available in clamp end and acme thread end connections.



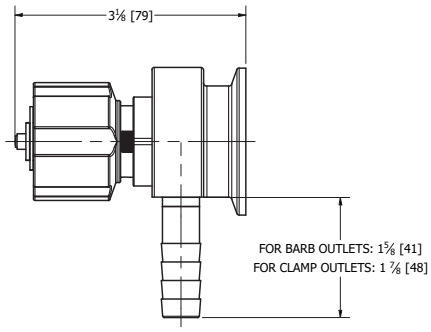


THREADED ENDS		
PART NUMBER	**SIZE**	**A**
KCVB01000	1	1.813
KCVB01500	1-1/2	2.375
KCVB02000	2	2.875
KCVB02500	2-1/2	3.188
KCVB03000	3	3.500
CLAMP ENDS		
PART NUMBER	**SIZE**	**A**
KCVC00750	3/4	2.375
KCVC01000	1	2.375
KCVC01500	1-1/2	2.750
KCVC02000	2	3.500
KCVC02500	2-1/2	3.500
KCVC03000	3	3.750

NOTE: CALL STEEL & O'BRIEN FOR OTHER CONFIGURATIONS.

SVN TYPE SAMPLE VALVE





Kynar® is a registered trademark of Arkema
ULTEM® is a registered trademark of SABIC Global

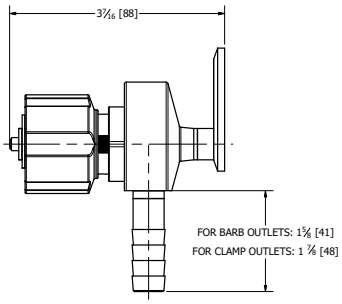
Right-angle concentric (SVN) models are available in ½" – 4" sanitary clamp inlet sizes and right-angle eccentric (EVN) models are available in 1" – 4" sanitary clamp inlet sizes. Both valve types offer a variety of outlet connections. Fully autoclaveable without disassembly.

- **Product Contact Surfaces**
  Body: 316L Stainless Steel
  Stem: FDA/USP Class VI Certified Kynar® PVDF
  O-Ring: FDA/USP Class VI Certified EPDM or FKM
- **Non Product Contact Surfaces**
  Knob: ULTEM® Polytherimide/PEI
  Indicator: High temp yellow PVC
  Upper Stem: Alloy 218 non-galling stainless steel
  Bearing Washer: Virgin PTFE
  Hardware/Other Misc. Parts: Stainless Steel
- **Finish Specifications**
  Internal surface finishes per ASME BPE
  SF1: 20Ra maximum
  SF5: 20Ra maximum with Electropolish
  SF4: 15Ra maximum with Electropolish
  External surface finish: 32Ra maximum
- **Service Conditions**
  Maximum operating temperature: 300°F
  Maximum operating pressure: 250 PSIG
  Maximum SWP: 50 PSIG @ 298°F

TYPE	STEM MATERIAL	O-RING MATERIAL	INLET CONNECTION	OUTLET CONNECTION	ID SURFACE FINISH
SVN - RIGHT ANGLE CONCENTRIC	Y - PVDF	E - EPDM	50 - 1/2" TC	A - 1/4" HB	SF1 - 20Ra
			75 - 3/4" TC		
			10 - 1" TC	B - 3/8" HB	SF4 - 15Ra W/ EP
			15 - 1-1/2" TC		
		V - FKM	20 - 2" TC	C - 1/2" HB	SF5 - 20Ra W/ EP
			25 - 2-1/2" TC		
			30 - 3" TC	D - 1/2" TC	
			40 - 4" TC		

EVN TYPE SAMPLE VALVE

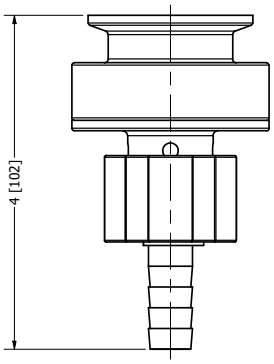




TYPE	STEM MATERIAL	O-RING MATERIAL	INLET CONNECTION	OUTLET CONNECTION	ID SURFACE FINISH
EVN - RIGHT ANGLE ECCENTRIC	Y - PVDF	E - EPDM	10 - 1" TC	A - 1/4" HB	SF1 - 20Ra
			15 - 1-1/2" TC	B - 3/8" HB	
			20 - 2" TC	C - 1/2" HB	SF4 - 15Ra W/ EP
		V - FKM	25 - 2-1/2" TC	D - 1/2" TC	
			30 - 3" TC		SF5 - 20Ra W/ EP
			40 - 4" TC		

INN TYPE SAMPLE VALVE





Tecapeek® is a registered trademark of Ensinger
ULTEM® is a registered trademark of SABIC Global

Inline (INN) models are available in ½" – 4" sanitary clamp inlet sizes and offer a variety of hose barb outlet sizes. Fully autoclaveable without disassembly.

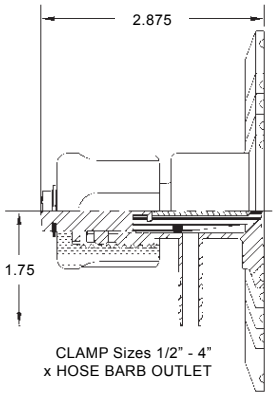
- **Product Contact Surfaces**
  Body: 316L Stainless Steel
  Stem: FDA/USP Class VI Certified Tecapeek® (PEEK)
  O-Ring: FDA/USP Class VI EPDM or FKM
- **Non Product Contact Surfaces**
  Knob: ULTEM® Polytherimide/PEI
  Indicator: High temp yellow PVC
  Hardware/Other Misc. Parts: Stainless Steel
- **Finish Specifications**
  Internal surface finishes per ASME BPE
  SF1: 20Ra maximum
  SF5: 20Ra maximum with Electropolish
  SF4: 15Ra maximum with Electropolish
  External surface finish: 32Ra maximum
- **Service Conditions**
  Maximum operating temperature: 300°F
  Maximum operating pressure: 250 PSIG
  Maximum SWP: 50 PSIG @ 298°F

TYPE	STEM MATERIAL	O-RING MATERIAL	INLET CONNECTION	OUTLET CONNECTION	ID SURFACE FINISH
INN - INLINE	K - PEEK	E - EPDM	50 - 1/2" TC	A - 1/4" HB	SF1 - 20Ra
			75 - 3/4" TC	B - 3/8" HB	SF4 - 15Ra W/ EP
			10 - 1" TC	C - 1/2" HB	SF5 - 20Ra W/ EP
			15 - 1-1/2" TC		
		V - FKM	20 - 2" TC		
			25 - 2-1/2" TC		
			30 - 3" TC		
			40 - 4" TC		

TOP-FLO® SAMPLE VALVES

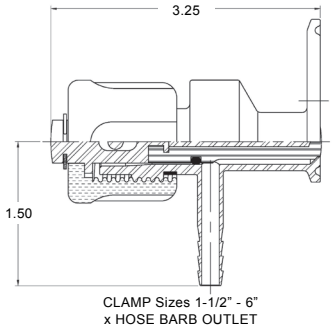


SV2



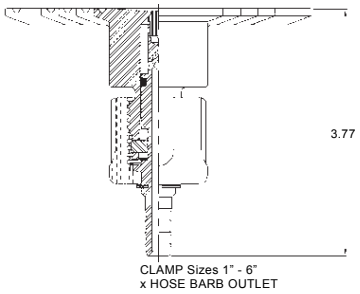


EV2





IN2



Standard Features:

- 316l ss wetted part construction
- Standard finish: 20Ra, ID (SF1)/32Ra OD
- Replaceable tapered FDA/USP Class VI, PTFE stem for positive closure
- FDA/USP Class VI, FKM O-ring stem seal
- Positive open stop to prevent accidental stem removal during operation
- Fully autoclaveable without disassembly
- Thermoplastic black operator nut
- Full material traceability

Optional Features:

- Upgraded internal finish to 20Ra W/EP (SF5) or 15Ra W/EP (SF4)
- Other material grades available upon request
- FDA/USP Class VI, EPDM O-ring stem seal
- Alternative end connections upon request
- Eccentric

Service Conditions:

- Maximum operating temperature: 300°F
- Maximum operating pressure: 400 PSIG
- Maximum SWP: 35 PSIG SWP @ 280°F

TYPE	MATERIAL	INTERNAL STEM	STEM O-RING	MAIN VALVE CONNECTION	OUTLET CONNECTION	ID SURFACE FINISH
SV2 RIGHT ANGLE CONCENTRIC	6 316L	T FDA/USP PTFE	E FDA/USP EPDM	50 1/2	A 1/4 HOSE BARB	SF1 20Ra
EV2* RIGHT ANGLE CONCENTRIC			V FDA/USP FKM	75 3/4	B 3/8 HOSE BARB	SF4 15Ra W/EP
IN2**	IN-LINE			10 1	C 1/2 HOSE BARB	SF5 20Ra W/EP
				15 1-1/2	D 1/2 Clamp	
				20 2		
				25 2-1/2		
				30 3		
				40 4		
				60 6		

* EV2 VALVES ONLY AVAILABLE WITH MAIN CONNECTION SIZE 1-1/2" - 6"
** IN2 VALVES ONLY AVAILABLE WITH HOSE BARB OUTLET CONNECTION

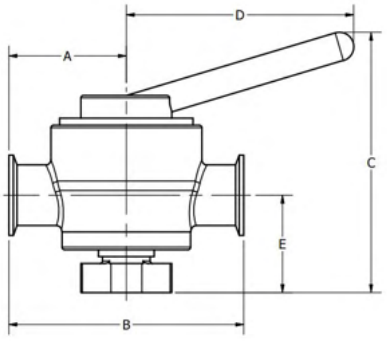
TOP-FLO® PLUG VALVES



- Rubber (Silicone) or stainless steel plug
- Materials type 316L SS
- Meets 3-A sanitary finish
- Temperature to 100° F
- Butt Weld and Bevel Seat ends available on request

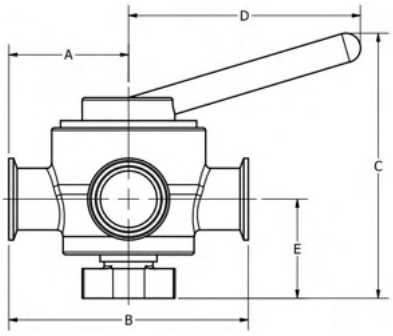
NOTE: Plug Valves, because of their inherent design, are recommended only for low-pressure applications. 25 PSI maximum; for use with non-hazardous products, and at temperatures not to exceed 100 degrees Fahrenheit They are subject to leakage almost from the initial time of installation because of normal operating, maintenance, and cleaning procedures.

D10MP & D10MPR - 2-WAY PLUG VALVE CLAMP



PART NUMBER	SIZE (INCHES)	A	B	C	D	E
389610-316	1	2-9/16	4-9/16	5-1/16	4-39/64	2-19/64
389610R-316	1	2-9/16	4-9/16	5-1/16	4-39/64	2-19/64
389615-316	1-1/2	2-29/32	5-13/16	6-7/16	5-5/8	2-13/32
389615R-316	1-1/2	2-29/32	5-13/16	6-7/16	5-5/8	2-13/32
389620-316	2	3-13/32	6-13/16	7-1/16	5-43/64	2-27/32
389620R-316	2	3-13/32	6-13/16	7-1/16	5-43/64	2-27/32
389625-316	2-1/2	4-1/8	8-1/4	8-51/64	5-59/64	3-25/64
389625R-316	2-1/2	4-1/8	8-1/4	8-51/64	5-59/64	3-25/64
389630-316	3	4-23/32	9-7/16	9-1/2	7-7/8	3-9/16
389630R-316	3	4-23/32	9-7/16	9-1/2	7-7/8	3-9/16

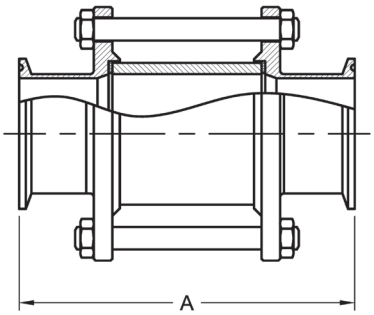
D11MP & DM11MPR - 3-WAY PLUG VALVE CLAMP



PART NUMBER	SIZE (INCHES)	A	B	C	D	E
389710-316	1	2-9/16	4-9/16	5-1/16	4-39/64	2-19/64
389710R-316	1	2-9/16	4-9/16	5-1/16	4-39/64	2-19/64
389715-316	1-1/2	2-29/32	5-13/16	6-7/16	5-5/8	2-13/32
389715R-316	1-1/2	2-29/32	5-13/16	6-7/16	5-5/8	2-13/32
389720-316	2	3-13/32	6-13/16	7-1/16	5-43/64	2-27/32
389720R-316	2	3-13/32	6-13/16	7-1/16	5-43/64	2-27/32
389725-316	2-1/2	4-1/8	8-1/4	8-51/64	5-59/64	3-25/64
389725R-316	2-1/2	4-1/8	8-1/4	8-51/64	5-59/64	3-25/64
389730-316	3	4-23/32	9-7/16	9-1/2	7-7/8	3-9/16
389730R-316	3	4-23/32	9-7/16	9-1/2	7-7/8	3-9/16

54BMP – SIGHT GLASS





Made with borosilicate glass and sealed with buna gaskets, various end configurations are available including: clamp, bevel seat, I-line, Q-line, and John Perry.

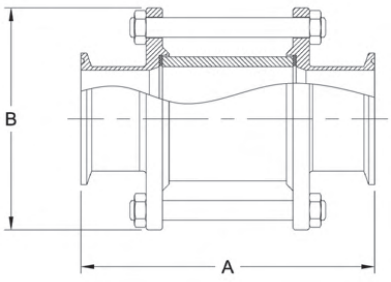
- Made in the USA
- Wide range of viewport materials are available including acrylic and polycarbonate.
- Other gasket materials also available. (PTFE not recommended)
- Ratings depend on related components in the system, absence of thermal shock, proper expansion of ferrules, assembly of joints, and installation. For temperatures above 250°F (121°C), use only 13MHP clamps.
- 3A Certified

PART NUMBER	SIZE	A	WORKING PRESSURE
54BMP-1	1	5.875	145 PSI
54BMP-1.5	1-1/2	5.875	145 PSI
54BMP-2	2	5.875	145 PSI
54BMP-2.5	2-1/2	6.375	120 PSI
54BMP-3	3	7.500	120 PSI
54BMP-4	4	7.625	95 PSI
54BMP-6	6	7.625	80 PSI

NOTE: DRAWING, PART NUMBERS, AND DIMENSIONS SHOWN ARE FOR BOLT STYLE CLAMP END SIGHT GLASS, ONLY.
CALL STEEL & O'BRIEN FOR DETAILS ON OTHER END CONFIGURATIONS.

54BMPS – SIGHT GLASS





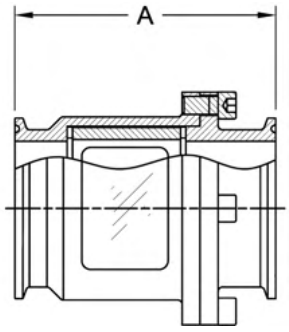
Steel & O'Brien is pleased to announce an economical bolt style sight glass. This in-line sight glass is comprised of a stainless steel frame and glass. Made with borosilicate glass and sealed with FKM gaskets and clamp end connections.

- 316L SS end connection material
- Finish ID/OD is 32Ra per 3A requirements
- Borosilicate glass viewport
- FDA FKM gasket material
- 304 SS hardware material
- Maximum temperature 250° F (121° C)
- 3A Certified

PART NUMBER	SIZE	A	B	WORKING PRESSURE
54BMPS-1.00-VP-316L	1	5.875	2.28	145 PSI (10 BAR)
54BMPS-1.50-VP-316L	1-1/2	5.875	2.91	145 PSI (10 BAR)
54BMPS-2.00-VP-316L	2	5.875	3.31	145 PSI (10 BAR)
54BMPS-2.50-VP-316L	2-1/2	6.375	3.94	120 PSI (8.28 BAR)
54BMPS-3.00-VP-316L	3	7.500	4.33	120 PSI (8.28 BAR)
54BMPS-4.00-VP-316L	4	7.625	5.51	95 PSI (6.55 BAR)
54BMPS-6.00-VP-316L	6	7.625	8.78	80 PSI (3.15 BAR)

SOCKET HEAD CAP SCREW STYLE SIGHT GLASS





- Various end connections available upon request.
- Pyrex or acrylic available.
- Install with bolt heads facing down.
- 3A Certified

PART NUMBER	SIZE	A
54CMP-.50	1/2	3.000
54CMP-.75	3/4	3.000
54CMP-1	1	3.625
54CMP-1.5	1-1/2	3.625
54CMP-2	2	3.625
54CMP-2.5	2-1/2	3.625
54CMP-3	3	3.625
54CMP-4	4	3.625
54CMP-6	6	4.625

CLEAR ACRYLIC SIGHT TUBES

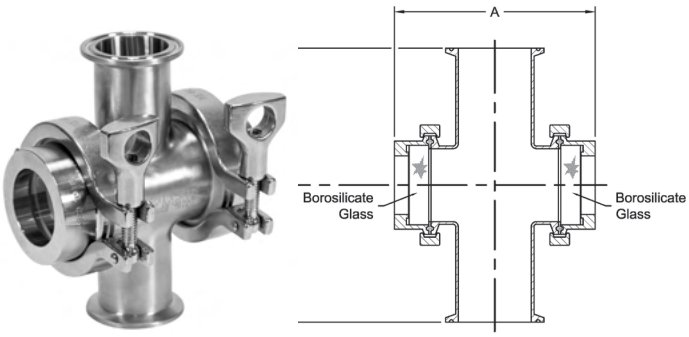


Steel & O'Brien's see-through spool sections are ideal for simple and quick sight requirements. Made from ASTM 5436-D, FDA-conforming acrylic, our tubes can be clamped into your sanitary line seamlessly.

PART NUMBER	CLAMP SIZE	LENGTH	INSIDE DIAMETER	OUTSIDE DIAMETER
54SPOOLMP-1.5X5.875	1-1/2	5.875"	1.295"	2"
54SPOOLMP-2X5.875	2	5.875"	1.835"	2.625"
54SPOOLMP-3X7.500	3	7.500"	2.817"	3.625"
54SPOOLMP-4X7.625	4	7.625"	3.750"	4.750"

NOTE: STANDARD LENGTHS SHOWN, OTHER LENGTHS AVAILABLE UPON REQUEST. NOT RECOMMENDED FOR USE WITH ABRASIVE PRODUCTS. DO NOT USE 2-BOLT HIGH-PRESSURE CLAMPS.

CROSS STYLE SIGHT GLASS



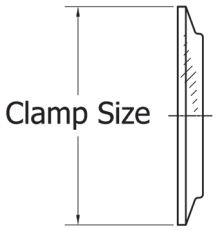
Cross style sight glasses provide a clear view of your process Same dimensions as standard clamp tees and crosses, makes for quick installation. Made with borosilicate glass and sealed with buna gaskets.

PART NUMBER	SIZE	A	B
54MPSW-1	1	4.625	2.375
54MPSW-1.5	1-1/2	4.625	2.750
54MPSW-2	2	5.125	3.500
54MPSW-2.5	2-1/2	6.500	3.500
54MPSW-3	3	6.125	3.750
54MPSW-4	4	7.625	4.500

NOTE: TEMPERATURE AND PRESSURE RATINGS ARE EQUAL TO THE LOWEST RATED CLAMP UNION

CLAMP CAP STYLE SIGHT GLASS



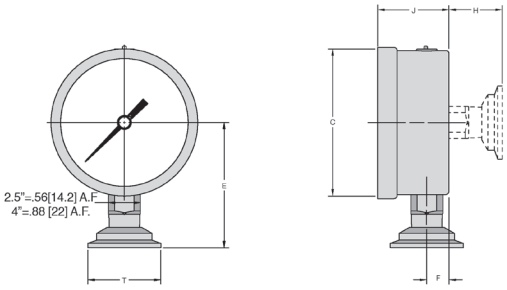


Clamp cap sight glass is available in lexan and acrylic materials. Offered in 1” to 12” TC sizes.

PART NUMBER	SIZE	MATERIAL
5416AMP-.50	1/2" X .35" OAL	Acrylic
5416AMP-.75	3/4" X .35" OAL	Acrylic
5416AMP-1	1" & 1-1/2" x .35" OAL	Acrylic or Lexan
5416AMP-2	2" X .35" OAL	Acrylic or Lexan
5416AMP-2.5	2-1/2" X .35" OAL	Acrylic or Lexan
5416AMP-3	3" X .35" OAL	Acrylic or Lexan
5416AMP-4	4" X .35" OAL	Lexan
5416AMP-6	6"	Acrylic or Lexan
5416AMP-8	8"	Acrylic or Lexan
5416AMP-10	10"	Acrylic or Lexan
5416AMP-12	12"	Acrylic or Lexan

SANITARY PRESSURE GAUGES





Hygienic pressure gauges have been specifically designed for applications in the food, dairy, pharmaceutical, and biotechnology industries. These gauges meet 3-A, USDA and FDA sanitary standards.

Specifications:

Case: polished AISI 304 SS

Ring: polished AISI 304 SS

Dial sizes: 2-1/2” and 4”

Process connection (T): polished AISI 316L SS with 1-1/2” and 2” clamp connections.

Diaphragm: polished AISI 316L SS

Polycarbonate face

Pointer: black anodized aluminum

Case fill: glycerine

Seal fill: oil for food service

Process temperature: 150°F max

Accuracy: as a percentage of full scale
as per ASME B40.100 ± 1% (4” Dial)
as per ASME B40.100 ± 1.6% (2-1/2” Dial)

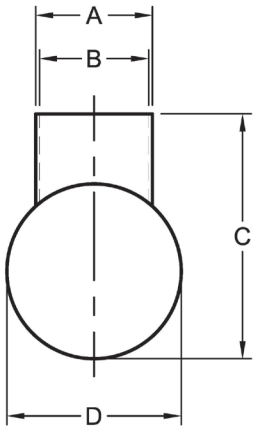
RANGES

			2-1/2 DIAL FACE		4 DIAL FACE	
PSI	**BAR**	**MOUNT**	**1-1/2 CLAMP**	**2 CLAMP**	**1-1/2 CLAMP**	**2 CLAMP**
30"HG/30	-1/2	bottom back	4500A •	• •	4566A •	• •
0/30	0/2	bottom back	4501A •	4533A •	4517A •	4549A 4557A
0/60	0/4	bottom back	4502A •	4534A •	4518A •	4550A 4558A
0/100	0/7	bottom back	4503A •	4535A •	4519A •	4551A 4559A
0/160	0/11	bottom back	4504A •	4536A •	4520A •	4552A 4560A
0/200	0/14	bottom back	4505A •	4537A •	4521A •	4553A 4561A
0/300	0/21	bottom back	4506A •	• •	4522A •	4554A 4562A
0/400	0/28	bottom back	4507A •	• •	4523A •	4555A 4563A
0/600	0/42	bottom back	4508A •	• •	4524A •	4556A 4564A

NOTE: OTHER PRESSURE RANGES & NO FILL (DRY) AVAILABLE UPON REQUEST.

SPRAY BALLS

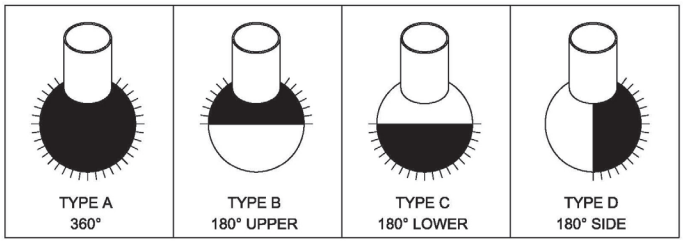




Spray Balls are available in various spray patterns as shown. They are stationary and meant to be mounted to a tube or pipe. Typical uses are in the food and beverage industries for cleaning storage tanks.

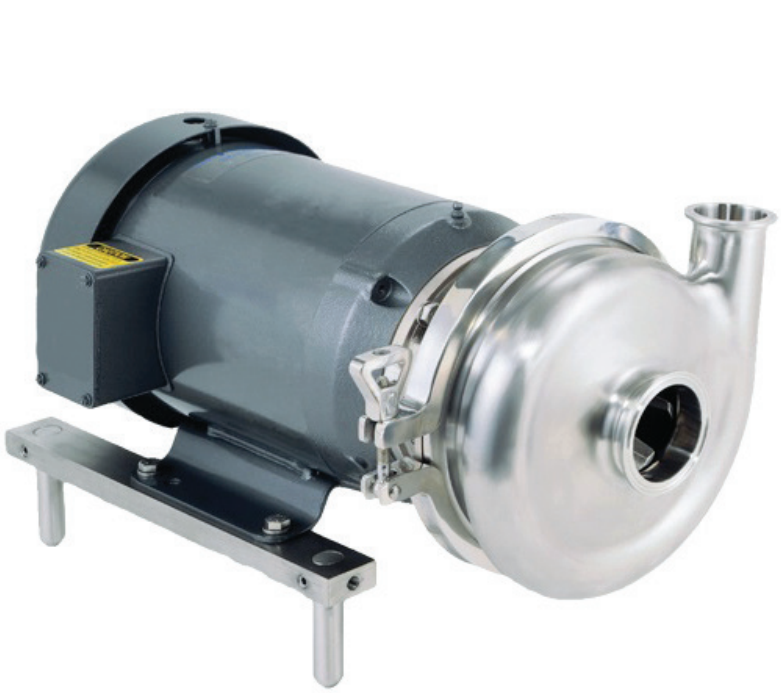
Made with heavy gauge material for longer life, they are available in both 304 & 316L grades.

SPRAY PATTERNS:



PART NUMBER	SIZE	SPRAY PATT-TERN	SPRAY RADIUS (FT)	HOLE DIA.	FLOW RATE (GPM)	A	B	C	D
SBSA-1X2.5	1 X 2-1/2	TYPE A	6	3/32	30	1.125	1.031	3.500	2.500
SBSB-1X2.5	1 X 2-1/2	TYPE B	6	3/32	18	1.125	1.031	3.500	2.500
SBSC-1X2.5	1 X 2-1/2	TYPE C	6	3/32	18	1.125	1.031	3.500	2.500
SBSD-1X2.5	1 X 2-1/2	TYPE D	6	3/32	18	1.125	1.031	3.500	2.500
SBSA-1.5X2.5	1-1/2 X 2-1/2	TYPE A	6	3/32	28	1.630	1.515	3.500	2.500
SBSB-1.5X2.5	1-1/2 X 2-1/2	TYPE B	6	3/32	16	1.630	1.563	3.500	2.500
SBSC-1.5X2.5	1-1/2 X 2-1/2	TYPE C	6	3/32	16	1.630	1.563	3.500	2.500
SBSD-1.5X2.5	1-1/2 X 2-1/2	TYPE D	6	3/32	16	1.630	1.563	3.500	2.500
SBSA-1.5X3.5	1-1/2 X 3-1/2	TYPE A	6-1/2	3/32	48	1.630	1.515	4.750	3.500
SBSB-1.5X3.5	1-1/2 X 3-1/2	TYPE B	6-1/2	3/32	23	1.630	1.563	4.750	3.500
SBSC-1.5X3.5	1-1/2 X 3-1/2	TYPE C	6-1/2	3/32	23	1.630	1.563	4.750	3.500
SBSD-1.5X3.5	1-1/2 X 3-1/2	TYPE D	6-1/2	3/32	23	1.630	1.563	4.750	3.500

* FLOW RATE IS BASED ON 14.7 PSI (MIN.)



PUMPS & PUMP PARTS

The TOP-FLO® name represents the finest in sanitary process equipment. Designed to offer efficient transfer of product over a wide range of head and viscosity conditions, TOP-FLO sanitary pumps are easy to install, clean, and operate. Our sanitary centrifugal pumps are ideal for use in small and medium size process applications in the dairy, food, beverage, pharmaceutical and other sanitary process industries.

All sanitary pumps are available in standard inlet sizes and outlet sizes. In addition, enlarged inlet sizes are available for special applications.

TOP-FLO® TF-C SERIES CENTRIFUGAL PUMPS

TOP-FLO® pumps have been designed to offer an efficient transfer of product over a wide range of head and viscosity conditions. This centrifugal pump is ideal for use in small and medium-size process applications in the dairy, food, beverage, pharmaceutical, and other sanitary process industries. TOP-FLO pumps are easy to install, clean, and operate. Suitable for use in CIP (clean-in-place) installations, this feature enables easy self-cleaning with no dismantling or take-down. Sanitizing of all product contact areas is automatic.

All pumps are available in standard inlet sizes and outlet sizes. In addition, enlarged inlet sizes are available for special applications.


TF-C100


TF-C114


TF-C216


TF-C218


TF-C328

MECHANICAL SPECIFICATIONS

Capacity: 10gpm to 600gpm
Pressure: 135 PSIG
Viscosity: 200cp
Temperature: 212°F
Pump Casings
- Volute type - standard
- Inlet-oversizing as noted in chart

Pump Connections
- Sanitary: Clamp, Bevel Seat (ACME)
- Industrial: Threaded, Flanged

Pump Construction Materials
- All wetted parts - 316L SS
- Seals - carbon (other seals available)
- Casing gasket - Buna (standard)
- FKM and EPDM are available

Pump Finishes
- Polished or electropolished
- 32R_a standard

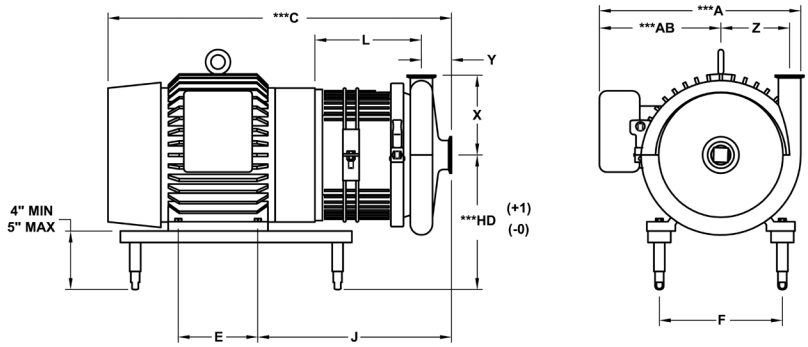
Pump Seals
- Available in D, DG, E, and F styles

Motor, Electrical
- 3 Phase - 230/460 volts - 1750 & 3500 rpm
- Single Phase - 115/230 volts - 1750 & 3500 rpm
- Other voltage available upon request

Motor Housings
- TEFC (totally enclosed fan cooled)
- Washdown duty
- Other styles available on request

MODEL	TF-C100	TF-C114	TF-C216	TF-C218	TF-C328	TF-C428
Inlet	1-1/2	1-1/2 or 2	2 or 2-1/2	2 or 3	3	4
Outlet	1	1-1/2	1-1/2	1-1/2	2	2
Max Imp.	3.68	4	6	8	8	8

PUMP MODEL	SUCTION	DISCHARGE	*X	*Y	**X	**Y	Z
TF-C100	1.500	1.000	3.500	1.554	––	––	1.453
TF-C114	1.500	1.500	3.625	1.594	3.875	1.844	2.625
TF-C216	2.000	1.500	4.500	1.906	4.750	2.156	3.688
TF-C218	2.000	1.500	5.500	1.719	5.750	1.969	4.750
TF-C328	3.000	2.000	5.500	2.219	5.750	2.719	4.750



PUMP AND MOTOR DIMENSIONS WITH "WASH DOWN" TOTALLY ENCLOSED BALDOR MOTORS

PUMP MODEL	FRAME	A	*C	**C	HD	AB	*J	E	F	L
TF-C100	56C	8.313	13.312	––	7.500	5.000	6.875	3.000	4.875	2.750
	––	––	––	––	––	––	––	––	––	––	––
TF-C114	56C	8.313	16.821	17.071	7.500	5.000	10.375	3.000	4.875	6.219
	143TC	8.563	17.813	18.063	7.500	5.250	10.844	4.000	5.500	6.219
	145TC	8.563	19.848	18.063	7.500	5.250	10.688	5.000	5.500	6.219
	182TC	9.813	20.938	21.180	8.500	5.875	12.219	4.500	7.500	6.781
	184 TC	9.813	23.790	24.915	8.500	5.875	12.000	5.500	7.500	6.781
TF-C216	56C	8.313	16.976	17.226	7.500	5.000	10.531	3.000	4.875	6.062
	143TC	8.563	17.968	18.223	7.500	5.250	10.844	4.000	5.500	6.062
	145TC	8.563	20.003	20.253	7.500	5.250	10.844	5.000	5.500	6.062
	182TC	9.813	21.157	21.399	8.500	5.875	12.219	4.500	7.500	6.688
	184 TC	9.813	24.009	24.259	8.500	5.875	12.219	5.500	7.500	6.688
	213TC	12.156	26.487	26.624	9.250	7.375	13.969	5.500	8.500	7.813
	215TC	12.156	27.864	28.114	9.250	7.375	13.969	7.000	8.500	7.813
	254 TC	16.094	28.533	28.783	10.250	9.625	14.594	8.250	10.000	8.437
	256TC	16.094	30.163	30.413	10.250	9.625	14.594	10.000	10.000	8.437
TF-C218	143TC	8.563	18.036	18.281	7.500	5.250	10.281	4.000	5.500	6.312
	145TC	8.563	20.066	18.286	7.500	5.250	10.281	5.000	5.500	6.312
	182TC	9.813	21.211	20.941	8.500	5.875	12.281	4.500	7.500	6.938
	184 TC	9.813	24.071	24.321	8.500	5.875	12.281	5.500	7.500	6.938
	213TC	12.156	25.686	25.936	9.250	7.375	13.281	5.500	8.500	7.312
	215TC	12.156	27.176	27.426	9.250	7.375	13.281	7.000	8.500	7.312
	254 TC	16.094	28.096	28.346	10.250	9.625	14.157	8.250	10.000	8.188
	256 TC	16.094	29.726	29.977	10.250	9.625	14.157	10.000	10.000	8.188
	284 TC	20.438	33.916	34.166	11.000	13.125	15.281	9.500	11.000	8.812
	286TC	20.438	33.916	34.166	11.000	13.125	15.281	11.000	11.000	8.812
TF-C328	182TC	9.813	22.024	22.524	8.500	5.875	13.094	4.500	7.500	7.250
	184 TC	9.813	24.884	25.384	8.500	5.875	13.094	5.500	7.500	7.250
	213TC	12.156	26.499	26.999	9.250	7.375	14.094	5.500	8.500	7.625
	215TC	12.156	29.664	28.489	9.250	7.375	14.094	7.000	8.500	7.625
	254 TC	16.094	28.909	29.409	10.250	9.625	15.000	8.250	10.000	8.500
	256TC	16.094	30.539	31.039	10.250	9.625	15.000	10.000	10.000	8.500
	284 TC	20.438	34.729	35.229	11.000	13.125	16.094	9.500	11.000	9.125
	286TC	20.438	34.729	35.229	11.000	13.125	16.094	11.000	11.000	9.125
	324 TC	22.375	37.311	37.811	12.000	14.125	17.156	10.500	12.500	9.812
	326TC	22.375	37.311	37.811	12.000	14.125	17.156	12.000	12.500	9.812

NOTE: ALL DIMENSIONS IN INCHES. DIMENSIONS ARE APPROXIMATE AND FOR GUIDANCE ONLY. DIMENSIONS ARE FOR PUMPS USING NEMA STANDARD 'C' FACE MOTORS.

* WITH CLAMP CONNECTIONS (STANDARD)
** WITH THREADED BEVEL SEAT CONNECTIONS
*** OTHER MANUFACTURER DIMENSIONS MAY VARY

TOP-FLO® TF-C SERIES CENTRIFUGAL PUMP PART MATRIX

EXAMPLE

Model #: PCC-6142015-3MP1PX-FF-W3-8S2.00-316L

TOP-FLO® C216 CENTRIFUGAL PUMP, 2" INLET X 1-1/2" OUTLET STANDARD CASING, CLAMP CONNECTIONS, DG SEAL CARBON VS SILICON CARBIDE, 6" DIAMETER IMPELLER, STANDARD SHAFT W/ RETAINER PIN, FDA FKM ELASTOMERS, 14TC FRAME, C/W WEG SS WASHDOWN TEFC MOTOR, 2HP, 1800 RPM, 60HZ 3-PHASE 208-230/460VAC, MINIMUM IP56 RATED

FAMILY	TYPE	DOLLY	PUMP SIZE	NEMA FRAME SIZE	INLET x OUTLET	SEAL TYPE & MATERIAL	CASING	IMPELLER Ø	SHAFT TYPE	CASING DRAIN SIZE & POSITION	MATERIAL CODES
P Pump	**CC** C-Series	**BLANK** No Dolly	**2** C100	**56** 056	**1510** 1.5"x1"	**1** D - Carbon/SS	**M** Sanitary Clamp	**A** 2.50"	**1P** TC Frame w/pin	**X** Standard Casing (No Drain)	**BB** FDA BUNA/FDA BUNA
		D1 Dolly 1	**4** C114	**14** 143/145	**1515** 1.5"x1.5"	**2** F - Carbon/SS	**B** Bevel Seat/ Threaded	**B** 2.75"	**1N** TC Frame w/nut	**A** C4V - 0.50" Vert. 90° Discharge	**EE** FDA EPDM/FDA EPDM
		D2 Dolly 2	**6** C216	**18** 182/184	**2015** 2"x1.5"	**3** DG - Carbon/ Silicon Carbide	**F** 150# ANSI Flanged	**C** 3.00"	**2P** TSC Frame w/pin	**B** C6V - 0.75" Vert. 90° Discharge	**FF** FDA FKM/FDA FKM
		D3 Dolly 3	**8** C218	**21** 213/215	**2515** 2.5"x1.5"	**4** DG - Silicon Carbide/Silicon Carbide	**N** FNPT Threaded	**D** 3.25"	**2N** TSC Frame w/nut	**C** C8V - 1.00" Vert. 90° Discharge	**ES** FDA EPDM/ FDA Silicone
			9 C328	**25** 254/256	**3015** 3"x1.5"	**5** DG - Carbon/ Tungsten	**T** TI-Line Female	**E** 3.50"		**D** C4H - 0.50" Horiz. 90° Discharge	**E6** USP CLVI EPDM/ USP CLVI EPDM
				28 284/286	**3020** 3"x2"	**6** DG - Silicon Carbide/Tungsten	**J** John Perry Threaded	**F** 3.68"		**E** C6H - 0.75" Horiz. 90° Discharge	**F6** USP CLVI FKM/ USP CLVI FKM
				32 324/326	**4020** 4"x2"	**7** DG - Carbon/ Ceramic		**G** 3.75"		**F** C8H - 1.00" Horiz. 90° Discharge	
						8 DG - Silicon Carbide/Ceramic		**H** 4.00"		**G** K4V - 0.50" Vert. 45° Discharge	
						9 E - Carbon/ SS-Carbon/SS		**I** 4.25"		**H** K6V - 0.75" Vert. 45° Discharge	
								J 4.50"		**J** K8V - 1.00" Vert. 45° Discharge	
								K 4.75"		**K** K4H - 0.50" Horiz. 45° Discharge	
								L 5.00"		**L** K6H - 0.75" Horiz. 45° Discharge	
								M 5.25"		**M** K8H - 1.00" Horiz. 45° Discharge	
								N 5.50"		**N** Z4V - 0.50" Vert. 0° Discharge	
								O 5.75"		**P** Z6V - 0.75" Vert. 0° Discharge	
								P 6.00"		**Q** Z8V - 1.00" Vert. 0° Discharge	
								Q 6.25"		**R** Z4H - 0.50" Horiz. 0° Discharge	
								R 6.50"		**S** Z6H - 0.75" Horiz. 0° Discharge	
								S 6.75"		**T** Z8H - 1.00" Horiz. 0° Discharge	
								T 7.00"			
								W 7.25"			
								X 7.5"			
								Y 7.75"			
								Z 8.00"			

MOTOR MANUFACTURER	FREQ./VOLT. /PHASE	RPM	MOTOR TYPE	HP	VFD	SURFACE FINISH ID/OD	BODY MATERIAL
B ABB/BLDR	**1** 60 Hz (1-PHASE) 115-208/230VAC	**8** 1800 RPM	**G** GPUR MTR (IP44 MIN)	**0.50** 0.50 HP (0.37 KW)	**BLANK** No VFD	**BLANK** 32RA ID/OD	**316L**
L Leeson	**2** 60 Hz (1-PHASE) 220VAC	**6** 600 RPM	**W** PAWD MTR (IP55 MIN)	**0.75** 0.75 HP (0.55 KW)	**1** CFW500A02P6B2DB66G2	**20RA** 20RA (MAX) ID/ 32RA OD	
S Sterling	**3** 60 Hz (3-PHASE) 208-230/460VAC	**5** 1500 RPM	**S** SSWD MTR (IP65 MIN)	**1.00** 1.00 HP (0.75 KW)		**15RA** 15RA (MAX) EP ID/ 32RA OD	
W Weg	**4** 60 Hz (3-PHASE) 230/460VAC	**0** 3000 RPM	**X** EXPN MTR (CL 1, DIV 1)	**1.50** 1.50 HP (1.10 KW)		**20RA** 20RA (MAX) EP ID/ 32RA OD	
	5 60 Hz (3-PHASE) 575VAC			**2.00** 2.00 HP (1.50 KW)	**2** CFW500A07P6B2DB66G2		
	6 50 Hz (3-PHASE) 190-380VAC			**3.00** 3.00 HP (2.20 KW)	**3** CFW500A10P6B2DB66G2		
	7 50 Hz (3-PHASE) 220-415VAC			**5.00** 5.00 HP (3.72 KW)	**4** CFW500A16P6B2DB66G2		
				7.50 7.50 HP (5.59 KW)			
				10.0 10.0 HP (7.50 KW)			
				15.0 15.0 HP (11.1 KW)			
				20.0 20.0 HP (14.9 KW)			
				25.0 25.0 HP (18.6 KW)			
				30.0 30.0 HP (22.3 KW)			
				40.0 40.0 HP (29.8 KW)			

TOP-FLO® CENTRIFUGAL PUMP & MOTOR ASSEMBLIES



C100 (56C)



C114 (56C)



C216 (14TC); C218 (182TC/184TC)



C328 (213TC/215TC)

TOP-FLO® Pump & Motor assemblies are now part of the TOP-FLO READY-TO-GO program! Our most popular pump & motor assemblies are always in stock and ready-to-go in just one business day or less.

TOP-FLO pumps are designed to efficiently transfer product over a wide range of head and viscosity conditions. They are suitable for use in CIP (clean-in-place) installations with no dismantling or take-down. Sanitizing of all product contact areas is automatic. Our standard pump/motor offering ranges from 0.5HP up to 10HP, based upon flow requirements.

- Wetted surfaces are 316L stainless steel with a 32Ra grit polished sanitary finish.
- Port Connection: Clamp fittings are standard.
- Power: Supplied by a standard foot-mounted C-face motor in ranges from 0.5HP through 10HP.
- Type D seal material is carbon rotating on stationary stainless steel backplate. Suitable for dairy, water, beer and vegetable oil.
- Type DG uses the standard Type D rotating seal components with a reversible silicon carbide seat. Suitable for CIP solution, wine, spirits, wort and deionized water.
- Elastomers: Buna (D) and FKM (DG)
- Maximum impeller diameter allowed per housing is standard.

MODEL	C100	C114	C216	C218	C328
Inlet	1-1/2	1-1/2	2	2	3
Outlet	1	1-1/2	1-1/2	1-1/2	2
Max Imp.	3.68	4	6	8	8

PUMPS

- Volute type pump casing
- Sanitary clamp inlet and outlet connections
- Polished to 32Ra
- 3A certified

MOTORS

- Features a stainless steel washdown motor
- 0.5HP up to 10HP NEMA premium
- Two speeds are available: 1800RPM and 3600RPM
- TENV (0.5HP) and TEFC enclosure types
- Meets IP56 enclosure protection
- Class F epoxy insulation

AVAILABLE MODELS*

Need help selecting a pump/motor combination to suit your application? Contact our sales team today for more information.

SIZE	DESCRIPTION	SEAL TYPE & MATERIAL	WEG SS MOTOR**	PART NUMBER
C100	1.50" IN x 1.00" OUT, 3.68" IMPELLER, 56C FRAME	D-TYPE / FDA BUNA	0.50 HP / 1800 RPM	PCC-2561510-1MF1PX-BB-W3-8S0.50-316L
		D-TYPE / FDA BUNA	1.50 HP / 3600 RPM	PCC-2561510-1MF1PX-BB-W3-6S1.50-316L
C114	1.50" IN x 1.50" OUT, 4" IMPELLER, 56C FRAME	D-TYPE / FDA BUNA	0.50 HP / 1800 RPM	PCC-4561515-1MH1PX-BB-W3-8S0.50-316L
		DG-TYPE / FDA FKM	0.50 HP / 1800 RPM	PCC-4561515-3MH1PX-FF-W3-8S0.50-316L
	1.50" IN x 1.50" OUT, 4" IMPELLER, 18TC FRAME	D-TYPE / FDA BUNA	3.00 HP / 3600 RPM	PCC-4181515-1MH1PX-BB-W3-6S3.00-316L
		DG-TYPE / FDA FKM	3.00 HP / 3600 RPM	PCC-4181515-3MH1PX-FF-W3-6S3.00-316L
C216	2.00" IN x 1.50" OUT, 6" IMPELLER, 14TC FRAME	D-TYPE / FDA BUNA	2.00 HP / 1800 RPM	PCC-6142015-1MP1PX-BB-W3-8S2.00-316L
		DG-TYPE / FDA FKM	2.00 HP / 1800 RPM	PCC-6142015-3MP1PX-FF-W3-8S2.00-316L
	2.00" IN x 1.50" OUT, 6" IMPELLER, 21TC FRAME	D-TYPE / FDA BUNA	10.0 HP / 3600 RPM	PCC-6212015-1MP1PX-BB-W3-6S10.0-316L
		DG-TYPE / FDA FKM	10.0 HP / 3600 RPM	PCC-6212015-3MP1PX-FF-W3-6S10.0-316L
C218	2.00" IN x 1.50" OUT, 8" IMPELLER, 18TC FRAME	D-TYPE / FDA BUNA	5.00 HP / 1800 RPM	PCC-8182015-1MZ1PX-BB-W3-8S5.00-316L
		DG-TYPE / FDA FKM	5.00 HP / 1800 RPM	PCC-8182015-3MZ1PX-FF-W3-8S5.00-316L
C328	3.00" IN x 2.00" OUT, 8" IMPELLER, 21TC FRAME	D-TYPE / FDA BUNA	7.50 HP / 1800 RPM	PCC-9213020-1MZ1PX-BB-W3-8S7.50-316L
		DG-TYPE / FDA FKM	7.50 HP / 1800 RPM	PCC-9213020-3MZ1PX-FF-W3-8S7.50-316L

** CUSTOM CONFIGURATIONS ARE AVAILABLE BUT ARE NOT PART OF THE TOP-FLO READY-TO-GO PROGRAM. CONTACT STEEL & O'BRIEN FOR DETAILS.*

*** ALL MOTORS ARE: 3-PHASE, 208-230/460VAC - 60HZ*

TOP-FLO® PUMP REPLACEMENT KITS



Designed to fit not only TOP-FLO® pumps but those of major pump suppliers.

- Rugged components
- Necessary sealing conditions under a wide range of conditions.
- Steel O'Brien offers a complete line of replacement parts, from impellers to leg brackets.

KIT #1
1 - Carbon Seal, 1 - Casing Gasket, 1 - O-ring and 1 - Retaining Pin

KIT #2
3 - Carbon Seals, 3 - Casing Gaskets and 3 - O-rings

KIT #3
1 - Carbon Seal, 1 - Spring, 1 - Cup and 1 - O-ring

"D" SEAL KITS

TF-C100			TF-C114			TF-C216			TF-C218/C328		
	BUNA	FKM		BUNA	FKM		BUNA	FKM		BUNA	FKM
Kit #1	5629K-1	5629V-1	Kit #1	5649K-1	5649V-1	Kit #1	5669K-1	5669V-1	Kit #1	5689K-1	5689V-1
Kit #2	5629K-2	5629V-2	Kit #2	5649K-2	5649V-2	Kit #2	5669K-2	5669V-2	Kit #2	5689K-2	5689V-2
Kit #3	5629K-3	5629V-3	Kit #3	5649K-3	5649V-3	Kit #3	5669K-3	5669V-3	Kit #3	5689K-3	5689V-3

"DG" SEAL KITS

TF-C114 KIT - 5649K-1DG			
	KEY #	QTY.	DESCRIPTION
564980	80	1	Carbon Seal, Rotating
564924	24	1	Impeller Retainer Pin
564980N-SC	80N	1	Stationary Seat, Silicone Carbide
564980P	80P	1	PTFE Gasket, Outboard
564980R	80R	1	PTFE Gasket, Inboard
564980V	80V	1	Seal, O-ring FKM
564990V	90V	1	Casing Gasket, FKM

TF-C216 KIT - 5669K-1DG			
	KEY #	QTY.	DESCRIPTION
566980	80	1	Carbon Seal, Rotating
566924	24	1	Impeller Retainer Pin
566980N-SC	80N	1	Stationary Seat, Silicone Carbide
566980P	80P	1	PTFE Gasket, Outboard
566980R	80R	1	PTFE Gasket, Inboard
566980V	80V	1	Seal, O-ring FKM
566990V	90V	1	Casing Gasket, FKM

TF-C218/328 KIT - 5689K-1DG			
	KEY #	QTY.	DESCRIPTION
568980	80	1	Carbon Seal, Rotating
568924	24	1	Impeller Retainer Pin
568980N-SC	80N	1	Stationary Seat, Silicone Carbide
568980P	80P	1	PTFE Gasket, Outboard
568980R	80R	1	PTFE Gasket, Inboard
568980V	80V	1	Seal, O-ring FKM
568990V	90V	1	Casing Gasket, FKM

"E" SEAL KITS

TF-C114 KIT - 5649EK-1			
	KEY #	QTY.	DESCRIPTION
564980	80	2	Carbon Seal
564980V	80V	2	Seal O-ring FKM
564980G	80G	2	Cup (E Seal)
564917B	17B	1	O-ring FKM
566917B	83E	1	O-ring FKM
564980H	80H	1	Spring (E Seal)
564990V	90V	1	Casing Gasket FKM

TF-C216 KIT - 5669EK-1			
	KEY #	QTY.	DESCRIPTION
566980	80	2	Carbon Seal
566980V	80V	2	Seal O-ring FKM
566980G	80G	2	Cup (E Seal)
566917B	17B	1	O-ring FKM
566983E	83E	1	O-ring FKM
566980H	80H	1	Spring (E Seal)
566990V	90V	1	Casing Gasket FKM

TF-C218/328 KIT - 5689EK-1			
	KEY #	QTY.	DESCRIPTION
568980	80	2	Carbon Seal
568980V	80V	2	Seal O-ring FKM
568980G	80G	2	Cup (E Seal)
568917B	17B	1	O-ring FKM
562990V	83E	1	O-ring FKM
568980H	80H	1	Spring (E Seal)
568990V	90V	1	Casing Gasket FKM

83C STUFFING BOX



PART NUMBER	DESCRIPTION
MAR00500	114E-83B-316
MAR00510	216E-83B-316
MAR00520	328E-83B-316

BACK PLATE



PART NUMBER	DESCRIPTION
MAR00400	114E-11B-316
MAR00410	216E-11B-316
MAR00420	328E-11B-316
MAR00430	SP114G-11-316/DG 11H
MAR00440	SP216G-11-316/DG 11H
MAR00450	SP328G-11-316/DG 11H
MAR00470	114D-11-316 /NON-SEAL
MAR00480	216D-11-316 /NON-SEAL
MAR00490	328D-11-316 /NON-SEAL

10-24 UNC BACKPLATE PIN AVAILABLE, PART NUMBER MAR00790

DRIVE COLLAR



PART NUMBER	DESCRIPTION
MAR00701	#80J 114E-23-316 E SEAL
MAR00711	#80J 216E-23-316 MILL
MAR00721	#80J 328E-23-316 MILL
MAR00731	#80L SP114D-23P-316 DG SEAL
MAR00736	#80L SP216D-23P-316 MILL
MAR00741	#80L SP328D-23P-316 MILL

FOLLOWER



PART NUMBER	DESCRIPTION
MAR00550	114E-17-316 #17 C114
MAR00560	216E-17-316 #17 C216
MAR00570	328E-17-316 #17 C218/C328

GLAND RING



PART NUMBER	DESCRIPTION
MAR00800	#17J SP114G-17-316
MAR00810	#17J SP216G-17-316
MAR00820	#17J SP328G-17-316

DG SEAL ASSEMBLY



PART NUMBER	DESCRIPTION
MAR00200	C114 DG SEAL ASSEMBLY
MAR00210	C216 DG SEAL ASSEMBLY
MAR00220	C218/C328 DG SEAL ASSEMBLY

E SEAL ASSEMBLY



PART NUMBER	DESCRIPTION
MAR00100	C114 E SEAL ASSEMBLY
MAR00110	C216 E SEAL ASSEMBLY
MAR00120	C218/328 E SEAL ASSEMBLY

STUB SHAFT



PART NUMBER	DESCRIPTION
MAR00600S	C114E56T-06-316
MAR00602S	C114E14T-06-316
MAR00604S	C114E18T-06-316
MAR00606S	CS216E56T-06-316
MAR00608S	CS216E14T-06-316
MAR00610S	CS216E18T-06-316
MAR00612S	CS216E21T-06-316
MAR00614S	CS216E25T-06-316
MAR00618S	CS328E14T-06-316
MAR00620S	CS328E18T-06-316
MAR00630S	CS328E21T-06-316
MAR00632S	CS328E25T-06-316

STUB SHAFTS ARE SUPPLIED WITH SET SCREWS

THREADED STUB SHAFT (ACME THREAD)



PART NUMBER	DESCRIPTION
MAT00600	C114E56TT-06-316
MAT00602	C114-14T/ C114E14TT-06-316
MAT00604	C114-14T/ C114E18TT-06-316
MAT00606	C216-56C/ C216E56TT-06A-316
MAT00608	C216-14T/ C216E14TT-06A-316
MAT00610	C216-18T/ C216E18TT-06A-316
MAT00612	C216-21TC216E21TT-06-316
MAT00614	C216-25T /C216E25TT-06-316
MAT00618	C218/C328-14T /C328E14TT-06A-316
MAT00620	C218/C328-18TC328E18TT-06A-316
MAT00630	C21821TC328E21TT-06A-316
MAT00632	C21825TC328E25TT-06A-316
MAT00634	C218/C328-28TC328E28TT-06-316

STUB SHAFTS ARE SUPPLIED WITH SET SCREWS

CASTELLATED NUT (ACME THREAD)



PART NUMBER	DESCRIPTION
MAT00510	FOR C114 THREADED STUB SHAFT
MAT00520	FOR C216 THREADED STUB SHAFT
MAT00530	FOR C218 THREADED STUB SHAFT

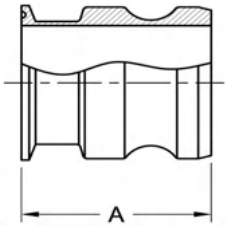


CAMLOCK FITTINGS

Steel & O'Brien is your best source for sanitary camlock fittings. These camlock couplings are used to provide fast and simple connections involving hoses, pipes or tubing. Camlock clamps may be used to connect supply lines in chemical plants as well as to connect hoses carrying product in the food and beverage industry. No matter what industry you serve, you can count on us to provide you with the best selection of sanitary camlock fittings.

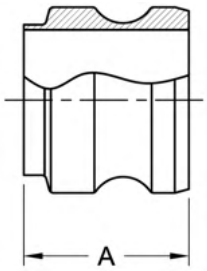
(585) 492-5800

MALE CAMLOCK X CLAMP



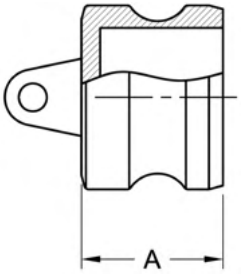
PART NUMBER	SIZE	A
MJG01000	1	2.000
MJG01500	1-1/2	2.500
MJG02000	2	2.750
MJG02500	2-1/2	3.000
MJG03000	3	3.000
MJG04040	4	4.750

MALE CAMLOCK X WELD



PART NUMBER	SIZE	A
MJG01018	1	1.750
MJG01516	1-1/2	2.000
MJG02006	2	2.250
MJG02505	2-1/2	2.250
MJG03010	3	2.250
MJG04000	4	2.500

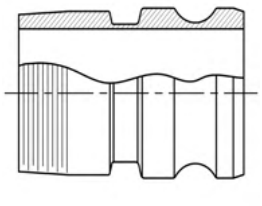
MALE CAMLOCK DUST PLUG



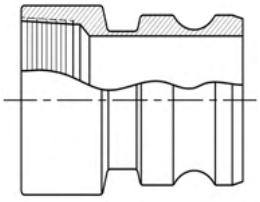
PART NUMBER	SIZE	A
MJG01001	1	1.250
MJG01502	1-1/2	1.750
MJG02030	2	2.063
MJG02510	2-1/2	1.875
MJG03015	3	2.125
MJG04010	4	2.375

LOCATION OF EYELET MAY VARY
"A" DIMENSION FOR REFERENCE ONLY

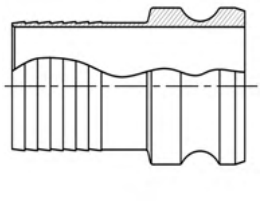
ADDITIONAL OPTIONS ARE AVAILABLE



MALE CAMLOCK X MALE NPT

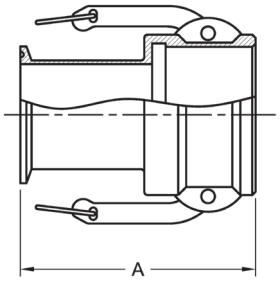


MALE CAMLOCK X FEMALE NPT



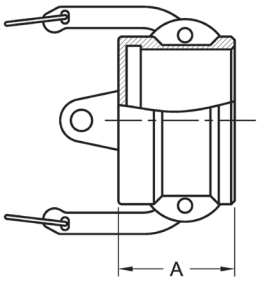
MALE CAMLOCK X HOSE BARB

FEMALE CAMLOCK X CLAMP



PART NUMBER	SIZE	A
MJG10005	1	3.255
MJG15005	1-1/2	3.625
MJG20020	2	3.937
MJG25015	2-1/2	4.435
MJG30000	3	4.435
MJG40000	4	4.500

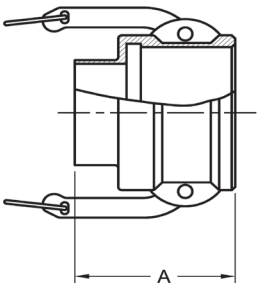
FEMALE CAMLOCK DUST CAP



PART NUMBER	SIZE	A
MJG10010	1	1.625
MJG15010	1-1/2	2.000
MJG20010	2	2.063
MJG25010	2-1/2	3.063
MJG30010	3	3.250
MJG40010	4	2.625

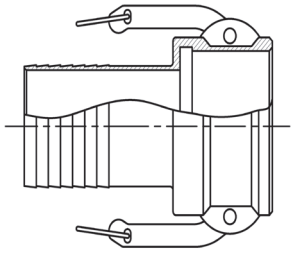
LOCATION OF EYELET MAY VARY
"A" DIMENSION FOR REFERENCE ONLY

FEMALE CAMLOCK X WELD

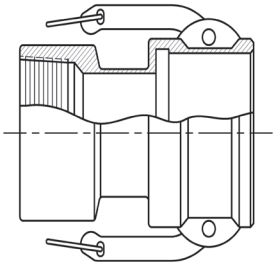


PART NUMBER	SIZE	A
MJG10000	1	2.130
MJG15000	1-1/2	2.500
MJG20000	2	2.812
MJG25000	2-1/2	3.310
MJG30005	3	3.310
MJG40005	4	3.375

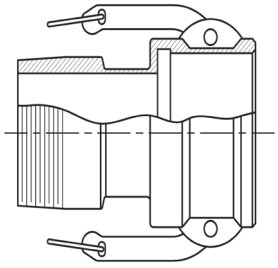
ADDITIONAL OPTIONS ARE AVAILABLE



FEMALE CAMLOCK X HOSE BARB



FEMALE CAMLOCK X FEMALE NPT



FEMALE CAMLOCK X MALE NPT



STRAINERS & FILTERS

Steel & O'Brien offers inline and side-inlet strainers and filters to meet a range of needs.

Our products easily convert from strainer to filter, are 3-A certified (without mesh), and have interchangeable parts to minimize your inventory requirements. Backup tubes with 1/4" perforations and 9 holes per square inch are standard; 1/8" perforations are available. Made from 316 stainless steel, we offer short and long models, narrow models and wide models. Filter media and dual strainer stands are also available.

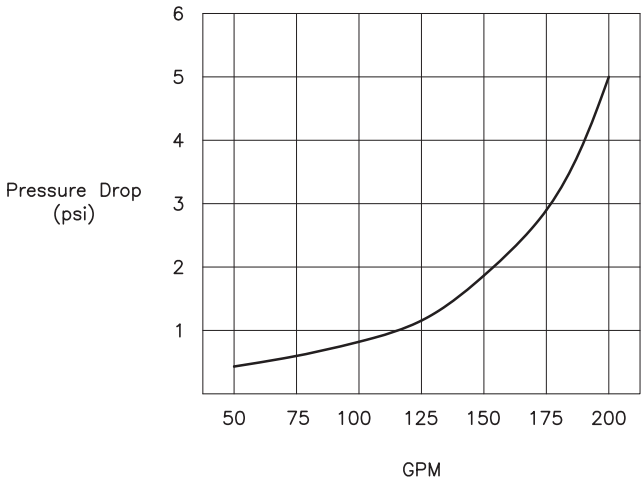
INLINE STRAINERS

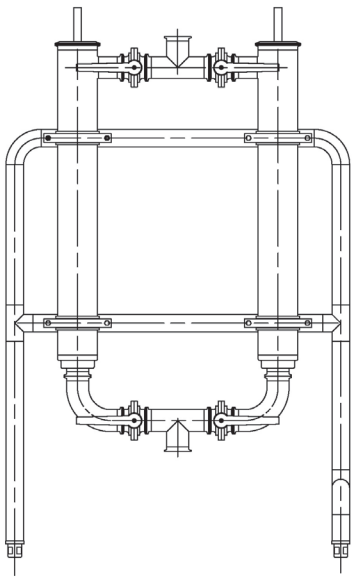


Inline strainers remove particles of various sizes from the process line providing protection for pumps, valves and other downline process equipment

- Easy to convert from strainer to filter
- Backup tube with 1/4" perforations, 9 holes per square inch, is standard. 1/8" perforations are available.
- Short and long models with 1" - 3" clamp end connections are standard.
  Narrow models are 1", 1 1/2" and 2" sizes
  Wide models are 2 1/2" and 3" sizes
- Interchangeable parts minimizes inventory requiremens.
- Max. Operating Pressure 100 psi
- 316L material
- 3A Certified (without mesh)
- Dual strainer stands available

PRESSURE DROP CURVE
Curve is based on water. Includes all sizes

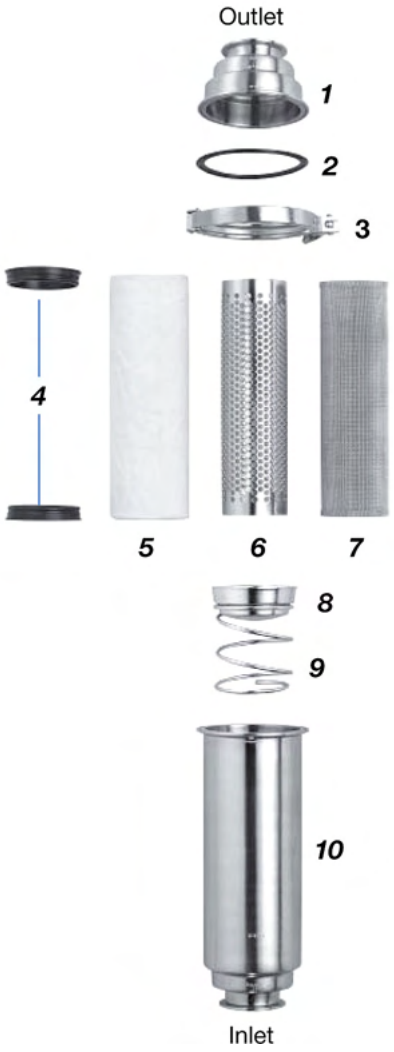




DUAL STRAINER STAND

PARTS LIST

INLINE MODEL

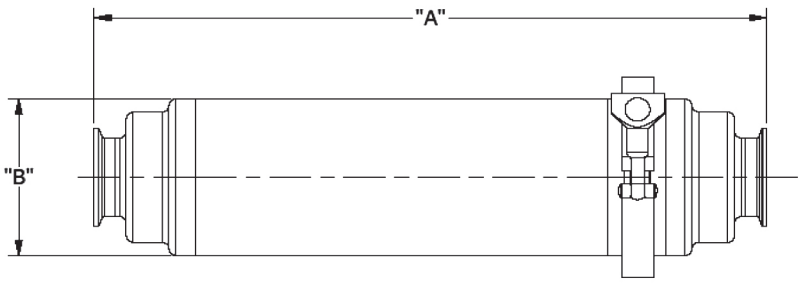


SIDE-INLET MODEL

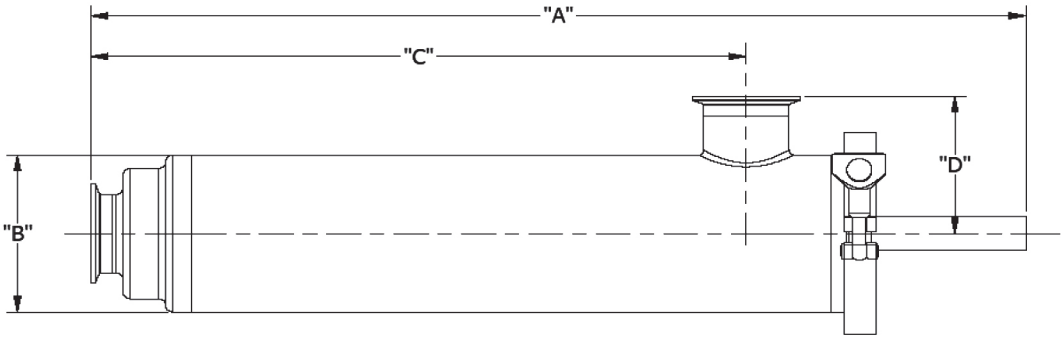


ITEM	COMPONENT	MATERIAL
1	Outlet Assembly	316ss
2	Gasket	Buna
3	Clamp	304ss
4	Retaining Rings (filters only)	Buna
5	Filter Media	Varies
6	Backup Tube	316ss
7	Overscreen (Strainers only)	316ss
8	Distributor Cap	316ss
9	Spring	316ss
10	Body	316ss
11	End Cap	316ss
12	Distributor cap, handle assembly	316ss

INLINE

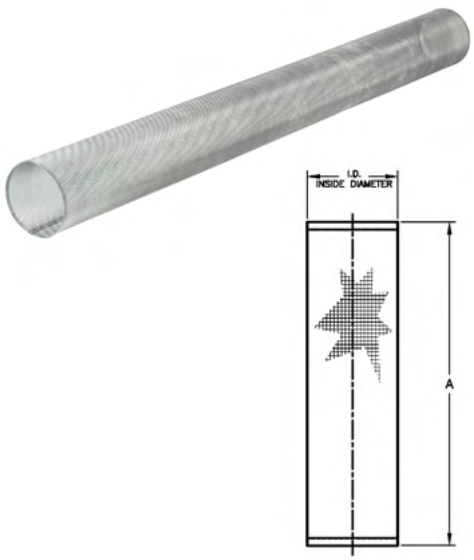


SIDE-INLET



SIZE	EFFECTIVE FILTRATION AREA ft2	A		B	C	D
		INLINE (Part Number)	SIDE-INLET (Part Number)		SIDE-INLET STYLE	
SHORT LENGTH STYLE						
1”	0.65	15.8 (KEA01000)	22.2 (KEC01000)	4	15.6	3.5
1 1/2”	0.65	15.8 (KEA01500)	22.2 (KEC01500)	4	15.6	3.5
2”	0.65	15.8 (KEA02000)	22.2 (KEC02000)	4	15.6	3.5
2 1/2”	0.75	15.8 (KEA02500)	22.2 (KEC02500)	4.5	15.8	5
3”	0.75	15.8 (KEA03000)	22.2 (KEC03000)	4.5	15.8	5
LONG LENGTH STYLE						
1”	1.95	35.4 (KEB01000)	41.9 (KED01000)	4	35.2	3.5
1 1/2”	1.95	35.4 (KEB01500)	41.9 (KED01500)	4	35.2	3.5
2”	1.95	35.4 (KEB02000)	41.9 (KED02000)	4	35.2	3.5
2 1/2”	2.25	35.4 (KEB02500)	41.9 (KED02500)	4.5	35.4	5
3”	2.25	35.4 (KEB03000)	41.9 (KED03000)	4.5	35.4	5

STRAINER OVERSCREENS (MESH)



For smaller particle removal, slide the 316ss mesh overscreen over the backup tube. Strainer mesh can be reused after cleaning.

Filter media and mesh must be ordered separately.

Part Number	Strainer Style	I.D.	A	Nominal Pore Size mm (microns)	Aperature	Mesh Size
KEM1N030	Short, Narrow	3.000	10.750	533	.021	030
KEM1N040	Short, Narrow			381	.015	040
KEM1N050	Short, Narrow			279	.011	050
KEM1N060	Short, Narrow			229	.009	060
KEM1N080	Short, Narrow			178	.007	080
KEM1N100	Short, Narrow			140	.006	100
KEM1N120	Short, Narrow			117	.005	120
KEM1N150	Short, Narrow			104	.004	150
KEM1N200	Short, Narrow	3.000	10.750	73	.0029	200
KEM1W016	Short, Wide	3.500	10.750	1130	.045	016
KEM1W020	Short, Wide			864	.034	020
KEM1W030	Short, Wide			533	.021	030
KEM1W040	Short, Wide			381	.015	040
KEM1W050	Short, Wide			279	.011	050
KEM1W080	Short, Wide			178	.007	080
KEM1W100	Short, Wide			140	.006	100
KEM1W120	Short, Wide			117	.005	120
KEM1W150	Short, Wide	3.500	10.750	104	.004	150
KEM2N016	Long, Narrow	3.000	30.750	1130	.045	016
KEM2N030	Long, Narrow			533	.021	030
KEM2N050	Long, Narrow			279	.011	050
KEM2N080	Long, Narrow			178	.007	080
KEM2N100	Long, Narrow			140	.006	100
KEM2N120	Long, Narrow			117	.005	120
KEM2N150	Long, Narrow			104	.004	150
KEM2N200	Long, Narrow	3.000	30.750	73	.0029	200
KEM2W016	Long, Wide	3.500	30.750	1130	.045	016
KEM2W020	Long, Wide			864	.034	020
KEM2W030	Long, Wide			533	.021	030
KEM2W040	Long, Wide			381	.015	040
KEM2W050	Long, Wide			279	.011	050
KEM2W060	Long, Wide			229	.009	060
KEM2W080	Long, Wide			178	.007	080
KEM2W100	Long, Wide			140	.006	100
KEM2W120	Long, Wide			117	.005	120
KEM2W150	Long, Wide			104	.004	150
KEM2W200	Long, Wide	3.500	30.750	73	.0029	200

FILTER MEDIA

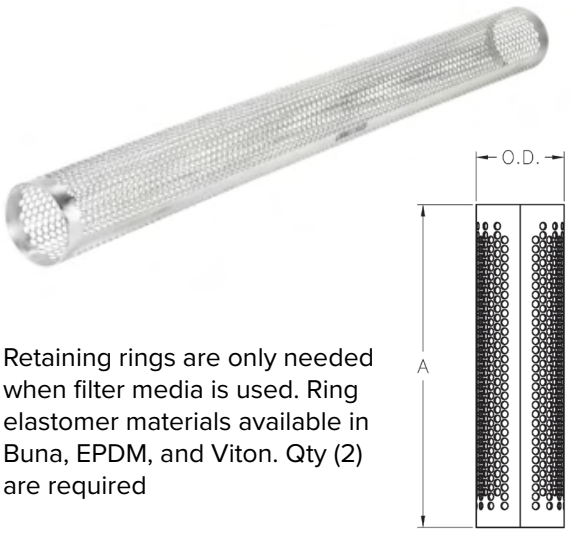


For fine particle removal (filtration), replace overscreen with filter media. Filter media must be periodically removed and disposed of. Media slides over backup tubes. Media is slightly longer than overscreens for retaining rings to hold.

Filter media and mesh must be ordered separately.

Part Number	Strainer Style	Nominal Pore Size mm (microns)	Material
KEF1N30E	Short, Narrow	40	Nonwoven rayon
KEF1N30N	Short, Narrow	250	Smooth-weave polyester fiber
KEF1N30C	Short, Narrow	300	Cotton cheesecloth
KEF1N30G	Short, Narrow	420	Woven nylon or rayon
KEF1N30B	Short, Narrow	500	Cotton flannel
KEF1N30D	Short, Narrow	765	Woven nylon or polyester
KEF1W30E	Short, Wide	40	Nonwoven rayon
KEF1W30N	Short, Wide	250	Smooth-weave polyester fiber
KEF1W30C	Short, Wide	300	Cotton cheesecloth
KEF1W30G	Short, Wide	420	Woven nylon or rayon
KEF1W30B	Short, Wide	500	Cotton flannel
KEF1W30D	Short, Wide	765	Woven nylon or polyester
KEF2N30E	Long, Narrow	40	Nonwoven rayon
KEF2N30N	Long, Narrow	250	Smooth-weave polyester fiber
KEF2N30C	Long, Narrow	300	Cotton cheesecloth
KEF2N30G	Long, Narrow	420	Woven nylon or rayon
KEF2N30B	Long, Narrow	500	Cotton flannel
KEF2N30D	Long, Narrow	765	Woven nylon or polyester
KEF2W30E	Long, Wide	40	Nonwoven rayon
KEF2W30N	Long, Wide	250	Smooth-weave polyester fiber
KEF2W30C	Long, Wide	300	Cotton cheesecloth
KEF2W30G	Long, Wide	420	Woven nylon or rayon
KEF2W30B	Long, Wide	500	Cotton flannel
KEF2W30D	Long, Wide	765	Woven nylon or polyester

BACKUP TUBES (REPLACEMENT)



Retaining rings are only needed when filter media is used. Ring elastomer materials available in Buna, EPDM, and Viton. Qty (2) are required

Part Number	Strainer Style	O.D.	A	Holes per Sq. In
KEM00010	1” - 2” Short	3.000	11.000	9 (1/4” dia. holes)
KEM00050	2 1/2” & 3” Short	3.500	11.000	9 (1/4” dia. holes)
KEM00030	1” - 2” Long	3.000	31.000	9 (1/4” dia. holes)
KEM00070	2 1/2” & 3” Long	3.500	31.000	9 (1/4” dia. holes)
KEM00020	1” - 2” Short	3.000	11.000	33 (1/8” dia. holes)
KEM00060	2 1/2” & 3” Short	3.500	11.000	33 (1/8” dia. holes)
KEM00040	1” - 2” Long	3.000	31.000	33 (1/8” dia. holes)
KEM00080	2 1/2” & 3” Long	3.500	31.000	33 (1/8” dia. holes)

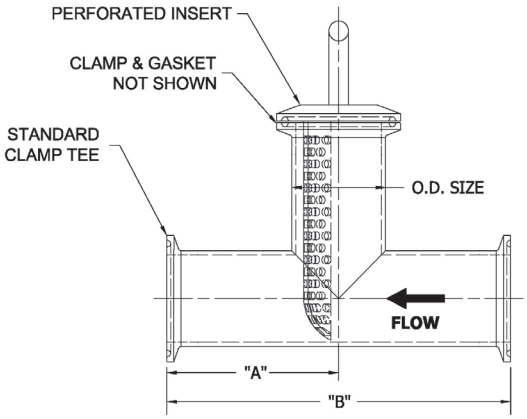
TEE STRAINERS



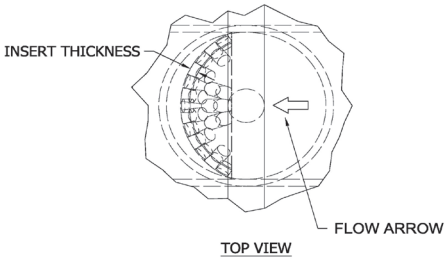
Clamp Tee Strainers are a simple and cost effective method to protect your pump and process equipment. Standard Tri-Clamp connections make installation and maintenance easy.

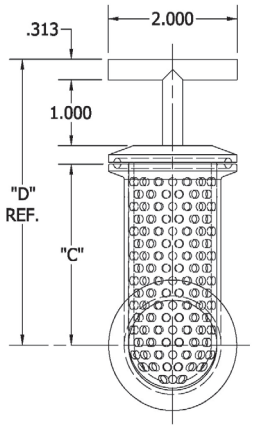
- 316L Stainless Steel Construction
- Tri-Clamp Connections
- Housing and Perf Plate are 32Ra
- Fully Assemblied w/EPDM Gasket

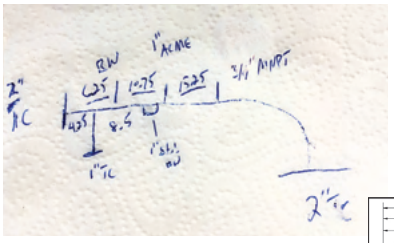
PART NUMBER	O.D. SIZE	PERF. SIZE	A	B	C	D	INSERT THICKNESS
KET01500	1-1/2	.250	2.750	5.500	2.750	4.343	.075
KET01518	1-1/2	.125	2.750	5.500	2.750	4.343	.075
KET02000	2	.250	3.500	7.000	3.500	5.093	.075
KET02018	2	.125	3.500	7.000	3.500	5.093	.075
KET02500	2-1/2	.250	3.500	7.000	3.500	5.093	.109
KET02518	2-1/2	.125	3.500	7.000	3.500	5.093	.109
KET03000	3	.250	3.750	7.500	3.750	5.343	.109
KET03018	3	.125	3.750	7.500	3.750	5.343	.109
KET04000	4	.250	4.500	9.000	4.500	6.155	.109
KET04018	4	.125	4.500	9.000	4.500	6.155	.109

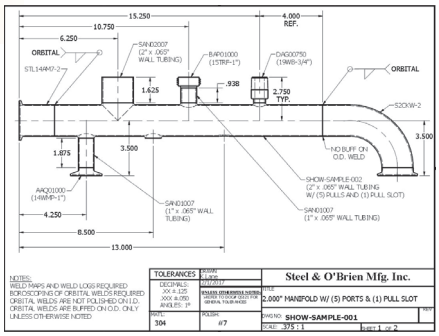


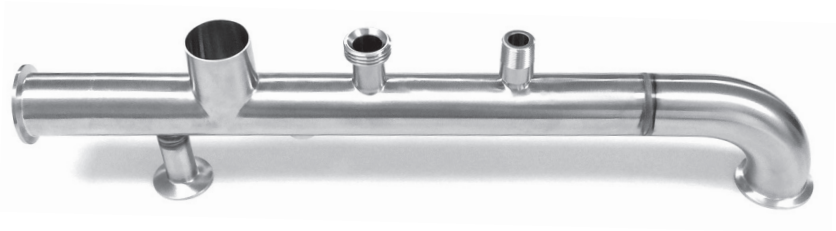
NOTE:
- TEE POLISHED TO A 32Ra ID/OD











CUSTOM FABRICATION

Steel & O'Brien can take any idea as a starting point for your design and provide approval drawings within 24 hours of receiving an order.

Our full-time engineering staff has over 60 years of experience. We perform in-bound inspection on all of our parts before we even begin the manufacturing process. In-house fabricating, machining (19 CNC lathes and 5 mills), finishing & polishing, welding inspection and documentation can take your project from idea to actuality. Our AWS D18.1 certified welders can fabricate tubular assemblies from 1/2” up to 12” O.D. Orbital welding with coupon readouts are available for high-purity welds 2” and under that require no additional finishing.

STEEL & O'BRIEN	ROBERT JAMES	JENSEN / SWAGELOK	WAUKESHA / SPX	ALFA TRI-CLOVER
CLAMP FITTINGS				
2CMP	RJ2CMP	JC2	2CMP	B2CMP
2FMP-14	RJ2FMP-14	JC2-14	2FMP-14	2FMP-14
2FMP-15	RJ2FMP-15	JC2-15	2FMP-15	2FMP-15
2FMP-31	RJ2FMP-31	JC2-31	2FMP-31	2FMP-31
2CMP-31MP	RJ2CMP-31MP	JC2-J31	2CMP-31MP	2CMP-31MP
2KMP	RJ2KMP	JC2K	2KMP	B2KMP
7MP	RJ7MP	JC7	7MP	B7MP
7MPS	---	JC7S	7MPS	B7MPS
7RMP	RJ7RMP	JC7R	7RMP	7RMP
7RMPS	RJ7RMPS	JC7RS	7RMPS	7RMPS
9MP	RJ9MP	JC9	9MP	B9MP
9MPS	---	JC9S	9MPS	9MPS
9RMP	---	JC9R	PRMP	9RMP
9RMPS	---	JC9RS	9RMPS	9RMPS
L14AM7	RJ14AMP	JC14AM7	L14AM7	L14AM
14MPHR	RJ14MPHR	JC14AHR	14MPHR	14MPHR
14MPHT	RJ14MPHT	JC14AHT	14MPHT	14MPHT
14RMP	RJ14RMP	JC14EX	14RMP	14RMP
14WMP	RJ14WMP	JC14X	14WMP	14WMPS
14MPW	RJ14MPW	JC14H	14MPW	14MPW
14WLMP	RJ14WLMP	JC14	14WLMP	14WLMP
16AMP	RJ16AMP	JC16	16AMP	16AMP
17MP-14	RJ17MP-14	JC17-14	17MP-14	17MP-14
17MP-15	RJ17MP-15	JC17-15	17MP-15	17MP-15
21MP	RJ21MP	JC21	21MP	21MP
22MP	RJ22MP	JC22	22MP	22MP
23BMP	RJ23BMP	JC23B	23BMP	23BMP
31WMP	RJ31WMP	JC14XR	---	31WMP
13MHHM	RJ13MHH	AJC13HC	13MHHM	A13MHM
13MHHS	RJ13MHHS	AJC13HS	13MHHS	A13MHS
13MHP	RJ13MHP	AJC13HP	13MHP	A13MHP
24RG	RJ24FCF-1	J24FCF	TH	B24FCF
24PVC	RJ24FCF-4	J24PVC	THP	D24FCF
31-14MP	RJ31-14MP	JC31	31-14MP	B31-14MP
31PMP	RJ31PMP	J14-C31	31PMP	31PMP
31MPP	RJ31MPP	JC31-14	31MPP	31MPP
31TMP	RJ31TMP	J15-C31	31TMP	31TMP
32-14MP	RJ32-14MP	JC32	32-14MP	B32-14MP
32PMP	RJ32PMP	J14-C32	32PMP	32PMP
32MPP	RJ32MPP	JC32-14	32MPP	32MPP
32TMP	RJ32TMP	J15-C32	32TMP	32TMP
BEVEL SEAT FITTINGS				
2C	RJ2C	2C	2C	2C
2E	RJ2E	2E	2E	2E
2F	RJ2F	2F	2F	2F
2K	RJ2K	2K	2K	2K
2P	RJ2P	2P	2P	2P

STEEL & O'BRIEN	ROBERT JAMES	JENSEN / SWAGELOK	WAUKESHA / SPX	ALFA TRI-CLOVER
BEVEL SEAT FITTINGS (CONT.)				
7	RJ7	7	7	7
7A	RJ7A	7A	7A	7A
7B	RJ7B	7B	7B	7B
9	RJ9	9	9	9
9A	RJ9A	9A	9A	9A
13H	RJ13H	13H	13H	13H
L14A7	RJ14A	14A	---	L14A7
14AHR	RJ14AHR	14AHR	14AHR	14AHR
14AHT	RJ14AHT	14AHT	14AHT	14AHT
14PRF	RJ14PRF	14WF	14PRF	14PRF
L15A7	RJ15A	15A	---	L15A7
15AHR	RJ15AHR	15AHR	15AHR	15AHR
15AHT	RJ15AHT	15AHT	15AHT	15AHT
15TRF	RJ15TRF	15WF	15TRF	15TRF
16A	RJ16A	16A	16A	16A
23B	RJ23B	23B	23B	23B
21	RJ21	21	21	21
22	RJ22	22	22	22
14-19	RJ21F	14-19	21F	14-19
14-18	RJ22F	14-18	22F	14-18
31TP	RJ31TP	31TP	31TP	31TP
31TT	RJ31TT	31TT	31TT	31TT
WELD FITTINGS				
L2S	RJL2S	J2S	2CW	L2S
L2C	RJL2C	J2C	---	L2C
L2CM	RJL2CM	J2CM	2CKW	L2CM
L2F	RJL2F	J2F	2FW	L2F
L2KS	RJL2KS	J2KS	2KW	L2KS
L2KM	RJL2KM	J2KM	---	B2KMW
L2P	RJL2P	J2P	---	L2P
2WU	RJ2WU	J2WU	2WU	2WUL
7WWW	RJL7WWW	---	---	B7WWW
7WWM	RJL7WWM	J7WWM	---	B7WWM
7WMW	RJL7WTW	J7WMW	---	---
7RWWW	RJL7RW	JASON	7RW	B7RWWW
9WWWW	RJL9WWWW	---	---	B9WWWW
31W	RJL31	J31	31W	L31
32W	RJL32	J32	32W	L32
2WCL	RJ2WC	J2SX	2WC	2WCL
2WK	RJ2WK	J2KSX	2WK	2WK
7W	RJ7W	J7W	7W	---
7RW	RJ17WR	J7WR	7WR	---
9W	RJ9W	J9W	9W	---
16W	RJ16W	J16W	16W	16W
19WB	RJ19W	19W	19W	19WB
28WB	RJ28WB	J28WB	28WB	28BW
28WA	RJ28WA	J28WA	28WA	28WA

SURFACE FINISHES

MECHANICALLY POLISHED				SURFACE FINISH CODE				
INSIDE DIAMETER		OUTSIDE DIAMETER		ASME-BPE	STEEL & O'BRIEN	VNE	DIXON	ALFA TRI-CLOVER
Ra (Max)	Surface Treatment	Ra (Max)	Surface Treatment					
-	Mill	-	Mill	SF0	PU or #1	PX		
-	Mill	32	Mech. Polish		#5			
20	Mech. Polish	-	Mill	SF1	PC	PC		
20	Mech. Polish	32	Mech. Polish	SF1	PL	PL	PL	PL
25	Mech. Polish	32	Mech. Polish	SF2				
30	Mech. Polish	32	Mech. Polish	SF3				
32	Mech. Polish	-	Mill		#3			
32	Mech. Polish	32	Mech. Polish		#7			

ELECTROPOLISHED AND MECHANICALLY POLISHED				SURFACE FINISH CODE				
INSIDE DIAMETER		OUTSIDE DIAMETER		ASME-BPE	STEEL & O'BRIEN	VNE	DIXON	ALFA TRI-CLOVER
Ra (Max)	Surface Treatment	Ra (Max)	Surface Treatment					
10	Electropolish	-	Mill					
10	Electropolish	32	Mech. Polish			PR		
15	Electropolish	-	Mill	SF4	PD	PD		
15	Electropolish	32	Mech. Polish	SF4	PM	PM	PM	PM
20	Electropolish	32	Mech. Polish	SF5				
25	Electropolish	32	Mech. Polish	SF6				

Member of:

OUR QUALITY POLICY

Steel & O'Brien Manufacturing is committed to understanding the needs of our customers and meeting or exceeding those requirements through careful attention to detail and through the continuous improvement of our processes.

We are dedicated to delivering defect-free products on-time at the most competitive cost possible through an effective Quality Management System based on sound Quality Objectives while complying with all relevant national and international requirements.

PLEASE NOTE:
Reasonable care has been taken in preparing this catalog. Steel & O'Brien Manufacturing. Inc. reserves the right to make changes or corrections to any of the product information, including dimensions, listed herein without notice.

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Form No.001 10/26