

Steel &
O'Brien
Manufacturing
Sanitary Simplified™

SANITARY PRODUCTS CATALOG

Simplifying Sanitary Through Superior Service™

Home of
TOP-FLO®
Trusted Performance – Top Speed Turnaround



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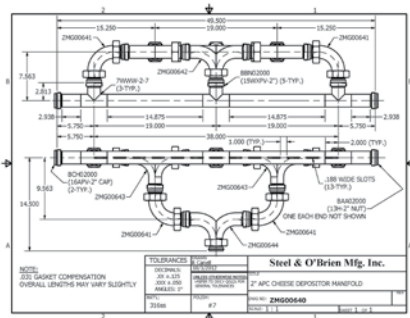
OUR CAPABILITIES

Member of:



Engineering

Our full-time engineering staff works with the latest 3D CAD/CAM software to turn your designs into quality products. With over 40 years of combined experience, our Engineering department can typically provide customer approval drawings within 24 hours of receiving an order.



FROM DRAWING



TO MODEL



TO FINAL PART

Machining

Steel & O'Brien utilizes the very latest in CNC and CAM technologies to produce high-quality parts. Our machine inventory includes Swiss-turn lathes as well as 4-axis and large diameter lathes. Our numerous CNC lathes, machining centers and automatic bar feeders, paired with three shift production, allow for quick setups and fast turn-around on custom parts. In addition, to reduce our lead times, we stock over \$1 million in raw material.



Service

Our Customer Service Representatives are ready to set up blanket orders for you. Blanket orders save processing time and money.



OUR CAPABILITIES

Member of:



Fabrication & Polishing

Our AWS D18.1 certified welders can fabricate tubular assemblies from 1/2" up to 12" O.D. Orbital welding equipment is available for high-purity welds that require no additional finishing. We can also furnish weld maps and logs where required. Steel & O'Brien's expert polishers can provide finishes as low as 15 Ra, with electropolishing and passivation available upon request. Manifolds and special tees can be pulled to create unique, high quality finished parts.



Manual Welding



Tee Pulling



Polishing



Orbital Welding

Sanitary Polish Definitions				
Finish Code	I.D. (Product Contact Surface)		O.D. (Non-Product Contact)	
	Ra (microinches) (μ -inch)	Ra (micrometers) (μ m)	Ra (microinches) (μ -inch)	Ra (micrometers) (μ m)
#1	Unpolished	Unpolished	Unpolished	Unpolished
#3	32	0.8	Unpolished	Unpolished
#5	Unpolished	Unpolished	32	0.8
#7	32	0.8	32	0.8

OTHER SURFACE FINISHES ARE AVAILABLE UPON REQUEST

Warehousing

At any given time, our expansive 60,000 sq. ft. of inventory space at Steel & O'Brien Mfg. carries approximately \$25 million in finished goods inventory. This equates to approximately 1.5 million parts on the shelf, ready to ship around the globe.



OUR CAPABILITIES

Member of:



Quality Assurance

Steel & O'Brien takes quality assurance very seriously. ISO 9001 Certified, our quality management system provides a comprehensive framework for quality assurance throughout the production cycle. We utilize a Niton analyzer for positive material grade inspection on incoming raw material and on every finished part we ship. Boroscoping services are available upon request.



NEW PRODUCTS

In order to provide the best service possible Steel & O'Brien Mfg. has added more product lines to our standard product offering. These parts include, Bardiani valves, Behringer hangers, tee strainers, actuated butterfly valves, and 3-way ball valves.

3-Way Ball Valves
(P.116)

Tee Strainers (P.138)

Bardiani Valves



Actuated Butterfly Valves (P.110)



Behringer Hangers



OUR CAPABILITIES

Member of:



Special Fabrications

Steel & O'Brien Mfg. provides custom fabrications for your specific needs in the Sanitary, Pharmaceutical and other various industries with sizes ranging up to and including, 12".

Material offerings include 316/316L and 304 stainless steel as well as other alloys such as; Hastelloy, AL6XN, Duplex, Titanium, Monel and Inconel. We also offer fittings from Teflon, PVC, Lexan, Acrylic, and Engineered Plastics.

Our experienced team of engineers, machinists, welders, and polishers can take your design from drawing to finished part while meeting and often exceeding customer expectations.

Give us a call for a prompt quote on your custom fabrication needs.

6-Way Tee



Camlock Tee Assembly



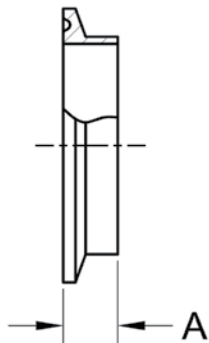
Dip Tube Assembly



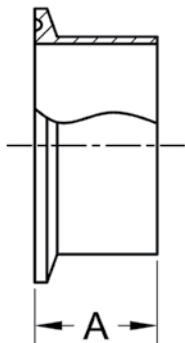
Cheese Extraction Assembly

Don't See What You Need?



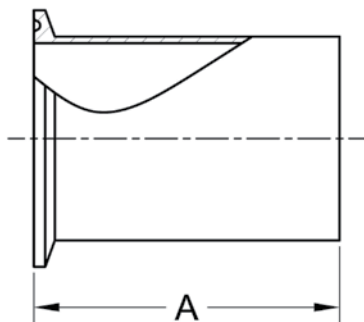
14WMP - WELD FERRULE, SHORT

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

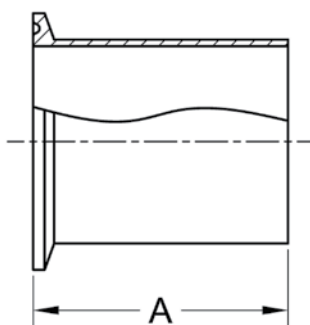
PART NUMBER	SIZE	A
L14AM7-.50x.25	1/4 (.035 WT)	1.125
L14AM7-.50x.375	3/8 (.049 WT)	1.125
L14AM7-.50	1/2	1.125
L14AM7-.75	3/4	1.125
L14AM7-1-A	1 (TYPE A)	1.125
L14AM7-1	1	1.125
L14AM7-1.5	1-1/2	1.125
L14AM7-2	2	1.125
L14AM7-2.5	2-1/2	1.125
L14AM7-3	3	1.125
L14AM7-4	4	1.125
L14AM7-5X1.5	5	1.500
L14AM7-6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

14WLMP - TANK WELDING SPUD (LIGHT)



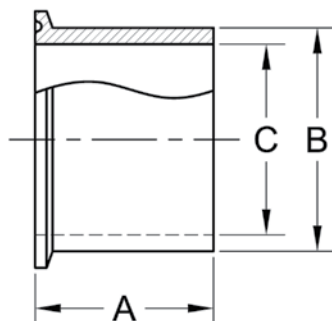
PART NUMBER	SIZE	A
14WLMP-.50	1/2	3.000
14WLMP-.75	3/4	3.000
14WLMP-1	1	3.000
14WLMP-1.5	1-1/2	3.000
14WLMP-2	2	3.000
14WLMP-2.5	2-1/2	3.000
14WLMP-3	3	4.000
14WLMP-4	4	4.000
14WLMP-6	6	6.000
14WLMP-8	8	6.000
14WLMP-10	10	6.000
14WLMP-12	12	6.000

TL14AM7 - WELD FERRULE



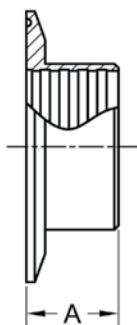
PART NUMBER	SIZE	A
TL14AM7-.50	1/2	2.000
TL14AM7-.75	3/4	2.000
TL14AM7-1	1	2.000
TL14AM7-1.5	1-1/2	2.000
TL14AM7-2	2	2.500
TL14AM7-2.5	2-1/2	2.500
TL14AM7-3	3	2.500
TL14AM7-4	4	2.500

14MPW - TANK WELDING SPUD (HEAVY)

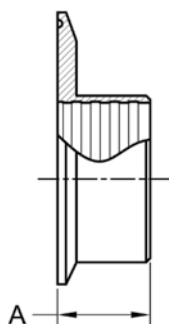


PART NUMBER	SIZE	A	B	C
14MPW-.50	1/2	2.000	.626	.370
14MPW-.75	3/4	2.000	.875	.625
14MPW-1	1	1.625	1.160	.870
14MPW-1.5	1-1/2	1.625	1.676	1.370
14MPW-2	2	1.750	2.192	1.870
14MPW-2.5	2-1/2	1.750	2.708	2.370
14MPW-3	3	1.813	3.224	2.870
14MPW-4	4	2.125	4.256	3.834
14MPW-6	6	2.500	6.192	5.758
14MPW-8	8	2.500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

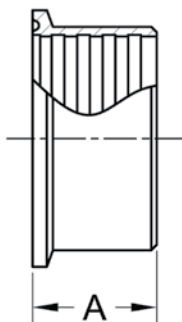
NOTE: FOR MORE HEAVY WALL FERRULE OPTIONS
SEE ASME FERRULES ON PAGE 12.

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

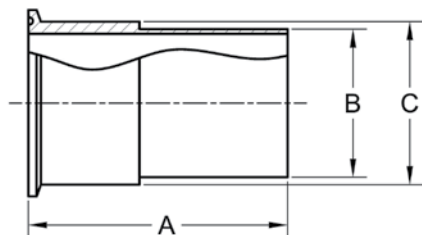
32RMP- REDUCING ECCENTRIC ROLL-ON FERRULE

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

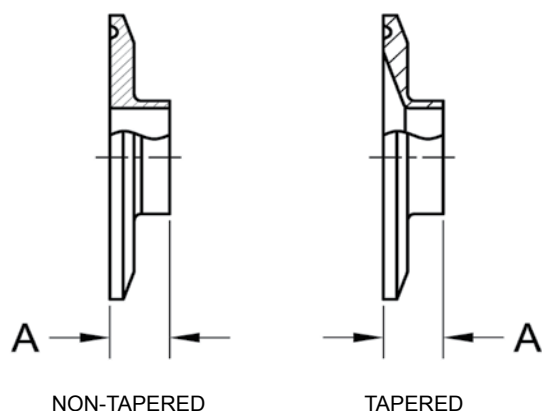
FLOWVERTER FERRULE



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

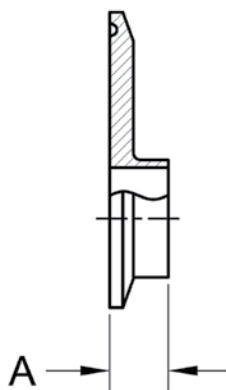
31WMP - REDUCING FERRULE



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

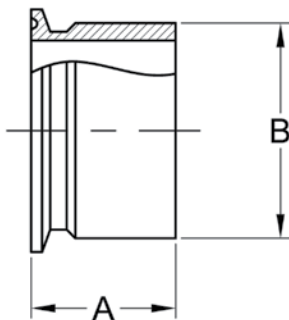
NOTE: AVAILABLE IN TAPERED AND NON-TAPERED STYLES
(PART NUMBERS SHOWN ARE TAPERED STYLE)

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

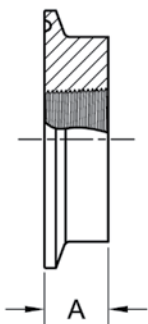


NOTE: FERRULES ARE MADE FROM
ASME CERTIFIED MATERIAL

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

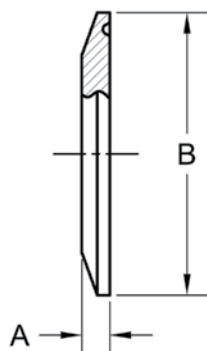
23BMP - THERMOMETER CAP



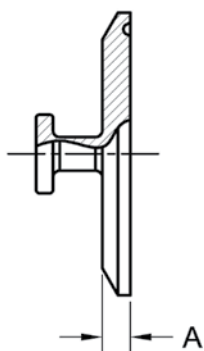
NOTE: SIZES ARE LISTED CLAMP SIZE X NPT SIZE

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

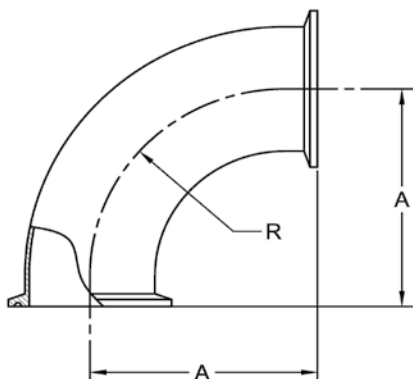


EASY OFF

NOTE:
END CAPS AVAILABLE IN STANDARD OR EASY OFF STYLE.
STANDARD CAPS ALSO AVAILABLE IN ACRYLIC AND LEXAN.
SEE PAGE 120

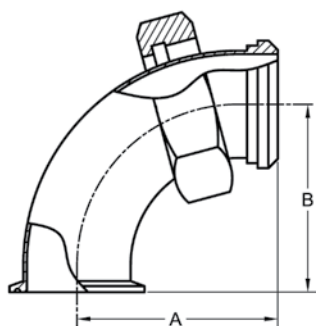
PART NUMBER	SIZE	A	B
16AMP-.50	1/2 & 3/4	.188	.984
16AMP-1-A	1 (TYPE A)	.250	1.339
16AMP-1	1 & 1-1/2	.250	1.984
16AMP-2	2	.250	2.516
16AMP-2.5	2-1/2	.250	3.047
16AMP-3	3	.250	3.579
16AMP-4	4	.312	4.682
16AMP-5	5	.375	5.687
16AMP-6	6	.438	6.570
16AMP-8	8	.480	8.570
16AMP-10	10	.480	10.570
16AMP-12	12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

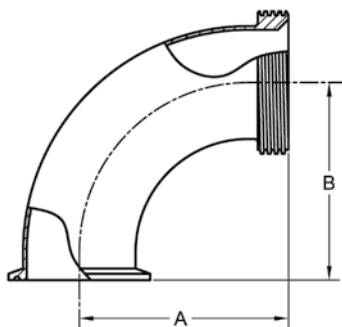
2FMP-14 - 90 DEGREE ELBOW, CLAMP X PLAIN BEVEL SEAT



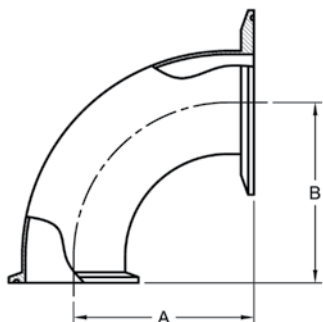
NOTE: HEX NUT INCLUDED

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

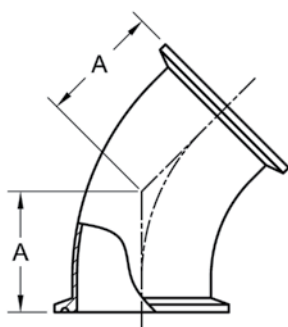
2FMP-15 - 90 DEGREE ELBOW, CLAMP X THREADED BEVEL SEAT



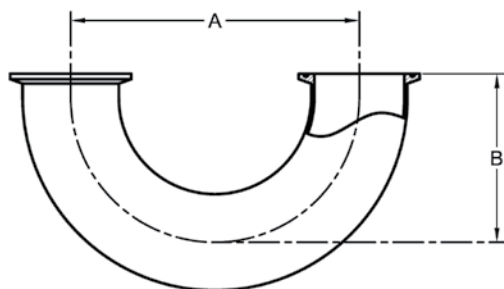
PART NUMBER	SIZE	A	B
2FMP-15-1	1	2.188	2.000
2FMP-15-1.5	1-1/2	2.969	2.750
2FMP-15-2	2	3.750	3.500
2FMP-15-2.5	2-1/2	4.594	4.250
2FMP-15-3	3	5.438	5.000
2FMP-15-4	4	7.219	6.625

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 X 1	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

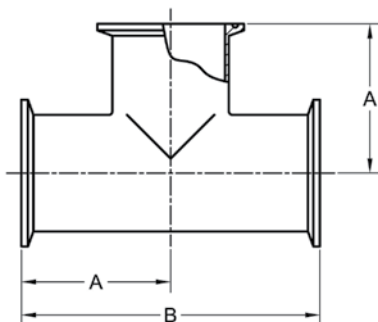
2KMP - 45 DEGREE ELBOW, CLAMP ENDS

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

2UMP - 180 DEGREE RETURN BEND, CLAMP ENDS

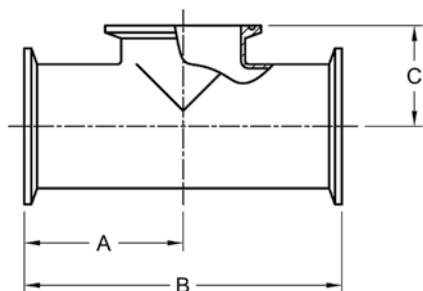
PART NUMBER	SIZE	A	B
2UMP-.50	1/2	1.500	1.250
2UMP-.75	3/4	2.250	1.625
2UMP-1	1	3.000	2.000
2UMP-1.5	1-1/2	4.500	2.750
2UMP-2	2	6.000	3.500
2UMP-2.5	2-1/2	7.500	4.250
2UMP-3	3	9.000	5.000
2UMP-4	4	12.000	6.625
2UMP-6	6	18.000	9.750

7MP - TEE, CLAMP ENDS



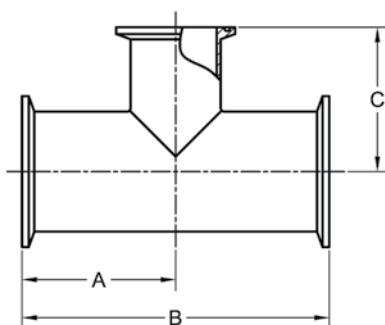
PART NUMBER	SIZE	A	B
7MP-.50	1/2	1.250	2.500
7MP-.75	3/4	2.375	4.750
7MP-1	1	2.375	4.750
7MP-1.5	1-1/2	2.750	5.500
7MP-2	2	3.500	7.000
7MP-2.5	2-1/2	3.500	7.000
7MP-3	3	3.750	7.500
7MP-4	4	4.500	9.000
7MP-6	6	6.375	12.750
7MP-8	8	7.875	15.750

7MPS - SHORT OUTLET TEE, CLAMP ENDS



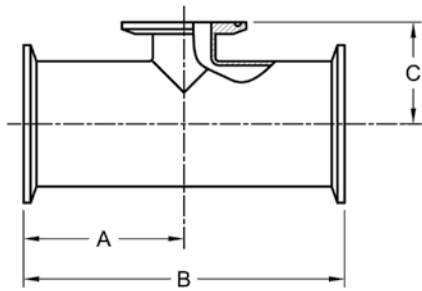
PART NUMBER	SIZE	A	B	C
7MPS-1	1	2.375	4.750	1.125
7MPS-1.5	1-1/2	2.750	5.500	1.375
7MPS-2	2	3.500	7.000	1.625
7MPS-2.5	2-1/2	3.500	7.000	1.875
7MPS-3	3	3.750	7.500	2.125
7MPS-4	4	4.500	9.000	2.750
7MPS-6	6	6.375	12.750	3.875

7RMP - REDUCING TEE, CLAMP ENDS



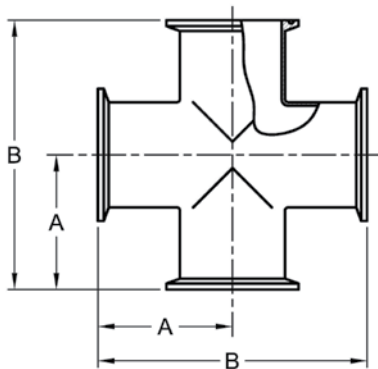
PART NUMBER	SIZE	A	B	C
7RMP-1.5X.75	1-1/2 X 3/4	2.875	5.750	2.875
7RMP-1.5X1	1-1/2 X 1	2.156	4.312	1.875
7RMP-2X1	2 X 1	2.562	5.125	2.125
7RMP-2X1.5	2 X 1-1/2	2.562	5.125	2.406
7RMP-2.5X1	2-1/2 X 1	2.844	5.688	2.375
7RMP-2.5X1.5	2-1/2 X 1-1/2	2.844	5.688	2.656
7RMP-2.5X2	2-1/2 X 2	2.844	5.688	2.812
7RMP-3X1	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



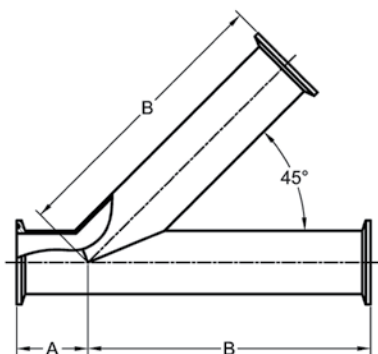
PART NUMBER	SIZE	A	B	C
7RMPS-1.5X.75	1-1/2 X 3/4	2.875	5.750	1.375
7RMPS-1.5X1	1-1/2 X 1	2.156	4.312	1.375
7RMPS-2X1	2 X 1	2.563	5.125	1.625
7RMPS-2X1.5	2 X 1-1/2	2.563	5.125	1.625
7RMPS-2.5X1	2-1/2 X 1	2.844	5.688	1.875
7RMPS-2.5X1.5	2-1/2 X 1-1/2	2.844	5.688	1.875
7RMPS-2.5X2	2-1/2 X 2	2.844	5.688	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



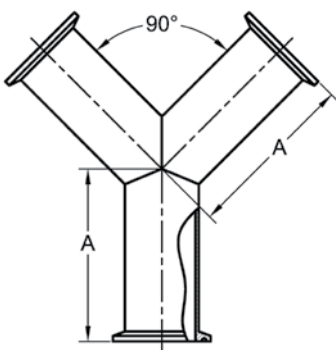
PART NUMBER	SIZE	A	B
9MP-.50	1/2	2.250	4.500
9MP-.75	3/4	2.375	4.750
9MP-1	1	2.375	4.750
9MP-1.5	1-1/2	2.750	5.500
9MP-2	2	3.500	7.000
9MP-2.5	2-1/2	3.500	7.000
9MP-3	3	3.750	7.500
9MP-4	4	4.500	9.000
9MP-6	6	6.375	12.750

28AMP - LATERAL WYE, CLAMP ENDS



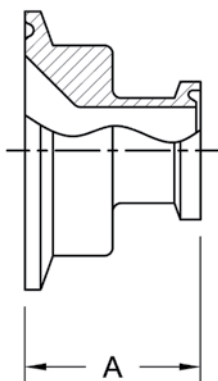
PART NUMBER	SIZE	A	B
28AMP-.50	1/2	1.500	5.500
28AMP-.75	3/4	1.500	5.500
28AMP-1	1	1.500	5.500
28AMP-1.5	1-1/2	1.687	6.688
28AMP-2	2	2.125	7.625
28AMP-2.5	2-1/2	2.000	9.000
28AMP-3	3	2.375	9.375
28AMP-4	4	2.687	11.375
28AMP-6	6	4.375	13.250

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

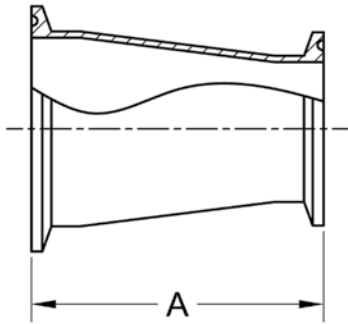
31-14MP - SHORT CONICAL INSTRUMENT REDUCER, CLAMP ENDS



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

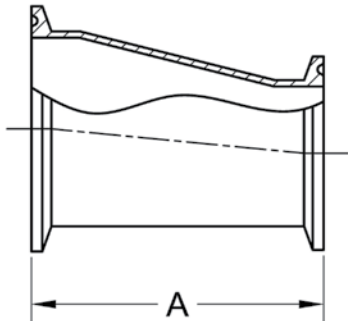
31-14MP - CONCENTRIC REDUCER, CLAMP ENDS



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

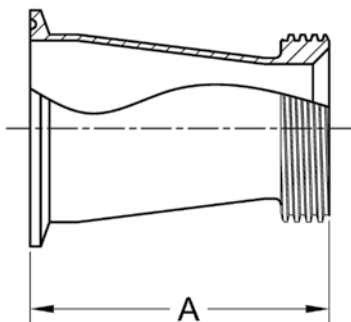
OTHER SIZES AVAILABLE UPON REQUEST

32-14MP - ECCENTRIC REDUCER, CLAMP ENDS

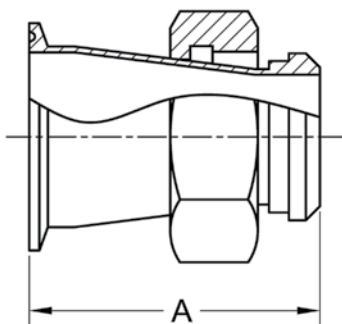


PART NUMBER	SIZE	A
32-14MP-.75X.50	3/4 X 1/2	2.000
32-14MP-1X.50	1 X 1/2	2.500
32-14MP-1X.75	1 X 3/4	2.000
32-14MP-1.5X1	1-1/2 X 1	3.000
32-14MP-2X1	2 X 1	5.000
32-14MP-2X1.5	2 X 1-1/2	3.000
32-14MP-2.5X1.5	2-1/2 X 1-1/2	5.000
32-14MP-2.5X2	2-1/2 X 2	3.000
32-14MP-3X1.5	3 X 1-1/2	7.000
32-14MP-3X2	3 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

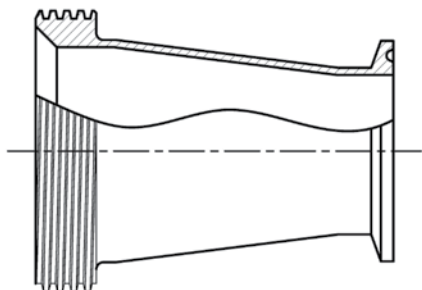
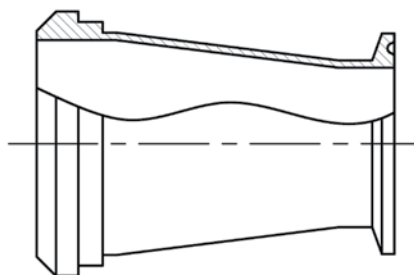
31MPT - CONCENTRIC REDUCER, CLAMP X THREADED BEVEL SEAT

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

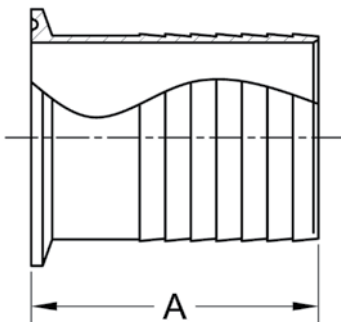
31MPP - CONCENTRIC REDUCER, CLAMP X PLAIN BEVEL SEAT

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)**

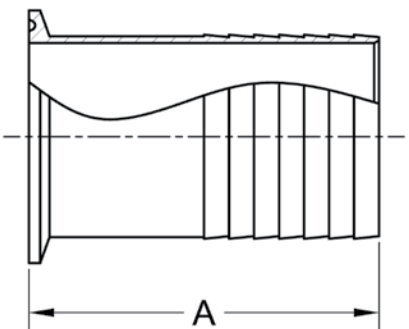
14MPHR - RUBBER HOSE ADAPTER



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

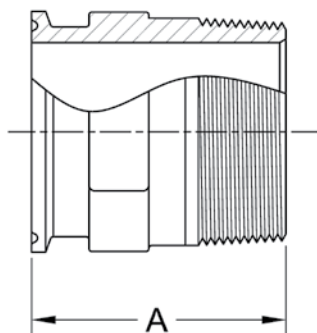
NOTE: SIZES ARE LISTED CLAMP SIZE X HOSE BARB
OTHER LENGTHS AND SIZES AVAILABLE UPON REQUEST.

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



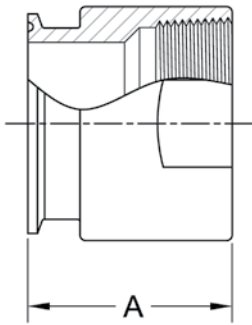
NOTE: SIZES ARE LISTED CLAMP SIZE X NPT

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



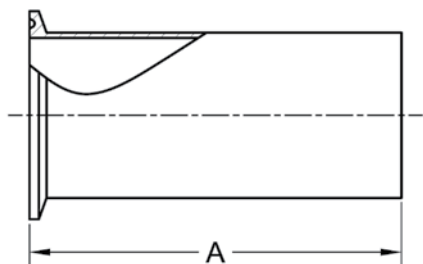
NOTE: SIZES ARE LISTED CLAMP SIZE X NPT

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

HEX SHAPE PROVIDED ON OTHER SIZES UPON REQUEST

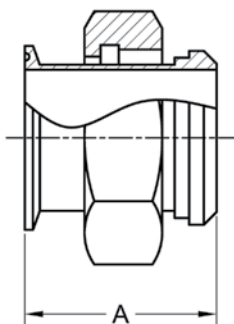
PART NUMBER	SIZE	A
22MP-.50X.125	1/2 X 1/8	1.250
22MP-.50X.25	1/2 X 1/4	1.500
22MP-.50X.375	1/2 X 3/8	1.500
22MP-.50	1/2 X 1/2	1.500
22MP-.50X.75	1/2 X 3/4	1.625
22MP-.50X1	1/2 X 1	1.625
22MP-.75X.125	3/4 X 1/8	1.250
22MP-.75X.25	3/4 X 1/4	1.500
22MP-.75X.375	3/4 X 3/8	1.500
22MP-.75X.50	3/4 X 1/2	1.500
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

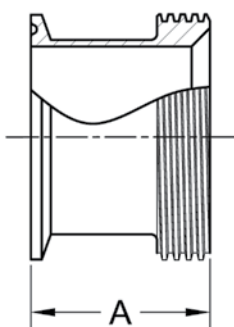
17MP-14 - ADAPTER, CLAMP X PLAIN BEVEL SEAT



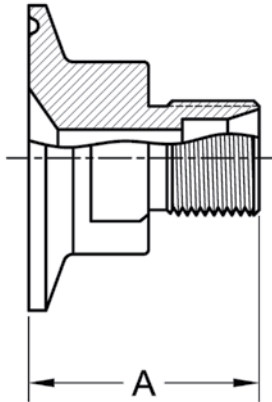
PART NUMBER	SIZE	A
17MP-14-1	1	2.500
17MP-14-1.5	1-1/2	2.625
17MP-14-2	2	2.625
17MP-14-2.5	2-1/2	2.875
17MP-14-3	3	2.875
17MP-14-4	4	2.875

NOTE: HEX NUT INCLUDED

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

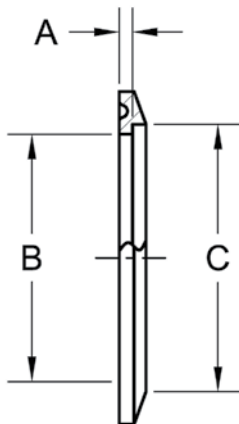


PART NUMBER	SIZE	A
17MP-15-1	1	1.813
17MP-15-1.5	1-1/2	1.844
17MP-15-2	2	1.875
17MP-15-2.5	2-1/2	1.969
17MP-15-3	3	2.062
17MP-15-4	4	2.344

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

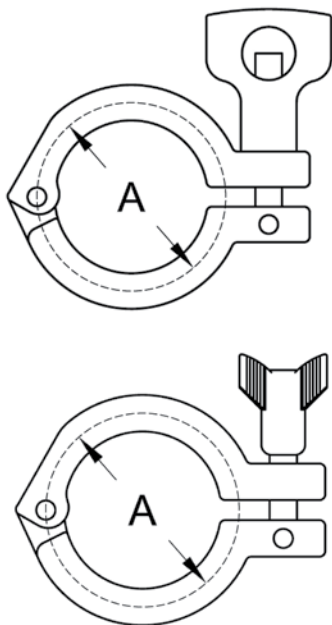
PART NUMBER	SIZE	A	B	C
16AAS-1	1	.188	.870	1.010
16AAS-1.5	1-1/2	.100	1.370	1.510
16AAS-2	2	.100	1.870	2.010
16AAS-2.5	2-1/2	.124	2.370	2.510
16AAS-3	3	.100	2.870	3.010
16AAS-4	4	.100	3.834	4.010
16AAS-6	6	.220	5.782	6.010

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

CLAMP WING NUT TIGHTENING TOOL

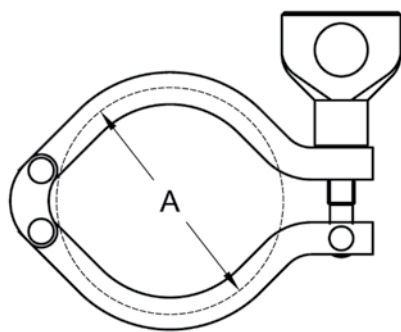
The wing nut tightening tool fits "most" clamp wing nuts for all sizes. This tool eases in the tightening and loosening of clamp wing nuts, while protecting the user from hot wing nuts.

Part number - 13WNTT-.50-12

13MHM - SINGLE PIN CLAMP

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

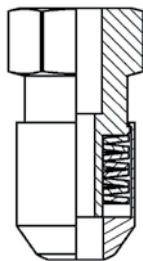
NOTES: ALSO AVAILABLE WITH ROCKET WING NUT
 AVAILABLE IN 304 OR 316 MATERIAL
 PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
 PRESSURE RATINGS PERTAIN TO THE CLAMP "UNION"

13MHM-DP - DOUBLE PIN CLAMP

AVAILABLE IN 304 MATERIAL ONLY

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

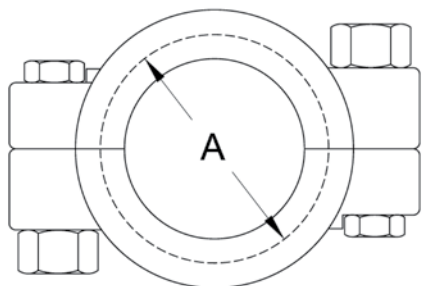
NOTES: ROCKET WING NUTS ALSO AVAILABLE
 PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
 PRESSURE RATINGS PERTAIN TO THE CLAMP "UNION"

13WLL - 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.

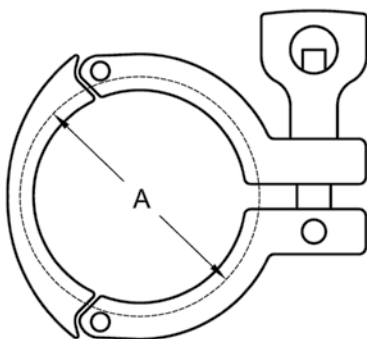
The assembly consists of a two-piece outer housing with springs contained inside, once the nut is tightened to 50 inch/pounds on the clamp, the springs are compressed. Steel & O'Brien part number is 13WMLL-.3125.

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

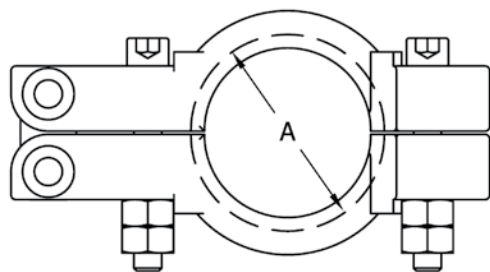
NOTES: PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
PRESSURE RATINGS PERTAIN TO THE CLAMP "UNION"
SUPPLIED WITH BRASS HEX NUTS

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

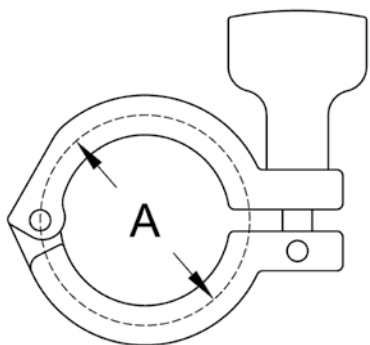
NOTES: ROCKET WING NUTS ALSO AVAILABLE
PRESSURE RATINGS ARE MAXIMUM WORKING PRESSURE ONLY
PRESSURE RATINGS PERTAIN TO THE CLAMP "UNION"

13ASME - ASME DOUBLE BOLT CLAMP

AVAILABLE 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

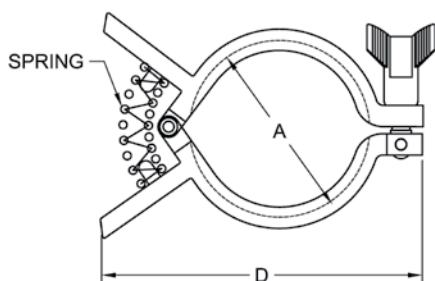
NOTE: TO MEET THE PSI RATINGS ABOVE THE FERRULE (HUB) USED
SHALL BE DESIGNED IN ACCORDANCE WITH ASME SECTION 8
DIVISION 1 MANDATORY APPENDIX 24
STANDARD FERRULES AND FULL FACE GASKET CAN BE USED
HOWEVER PERFORMANCE MAY NOT MEET THE ABOVE RATINGS

P13MHM - PURITY CLAMP

AVAILABLE IN 304 MATERIAL ONLY

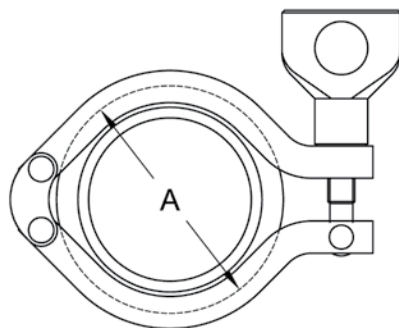
PART NUMBER	SIZE	A	PSI RATING @ 70° F	PSI RATING @ 250° F
P13MHM-.50	1/2 & 3/4	1.125	1500	1200
P13MHM-1	1 & 1-1/2	2.122	500	300
P13MHM-2	2	2.654	450	300
P13MHM-2.5	2-1/2	3.185	400	200
P13MHM-3	3	3.717	350	195
P13MHM-4	4	4.820	300	150

TRUE SPHERICAL DESIGN
LOBE WING NUT
POLISHED

13MHMQ - SQUEEZE CLAMP

AVAILABLE IN 304 MATERIAL ONLY

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

NOTES:

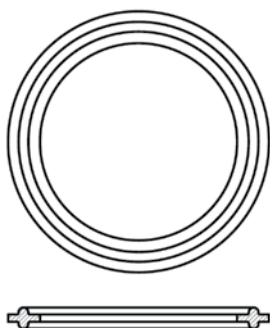
"A" DIMENSION DOES NOT INCLUDE TEFLON COLLAR
ASSEMBLY INCLUDES PTFE COLLAR AND
PTFE/EPDM ENVELOPE GASKET

CLAMP GASKET PERFORMANCE CHART

PROPERTY	BUNA-N	EPDM	TEFLON	VITON	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	GOOD (250° F)	EXCELLENT (300° F)	EXCELLENT (500° F)	EXCELLENT (400° F)	EXCELLENT (450° F)
COLD RESISTANCE	GOOD (-30° F)	GOOD - EXCELLENT (-20° F)	EXCELLENT (-100° F)	GOOD (-30° F)	EXCELLENT (-40° F)
STEAM RESISTANCE	EXCELLENT	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	GOOD (INTERMITTENT)
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 GUIDELINE, ACUTAL PERFORMANCE MAY VARY WITH EACH APPLICATION.

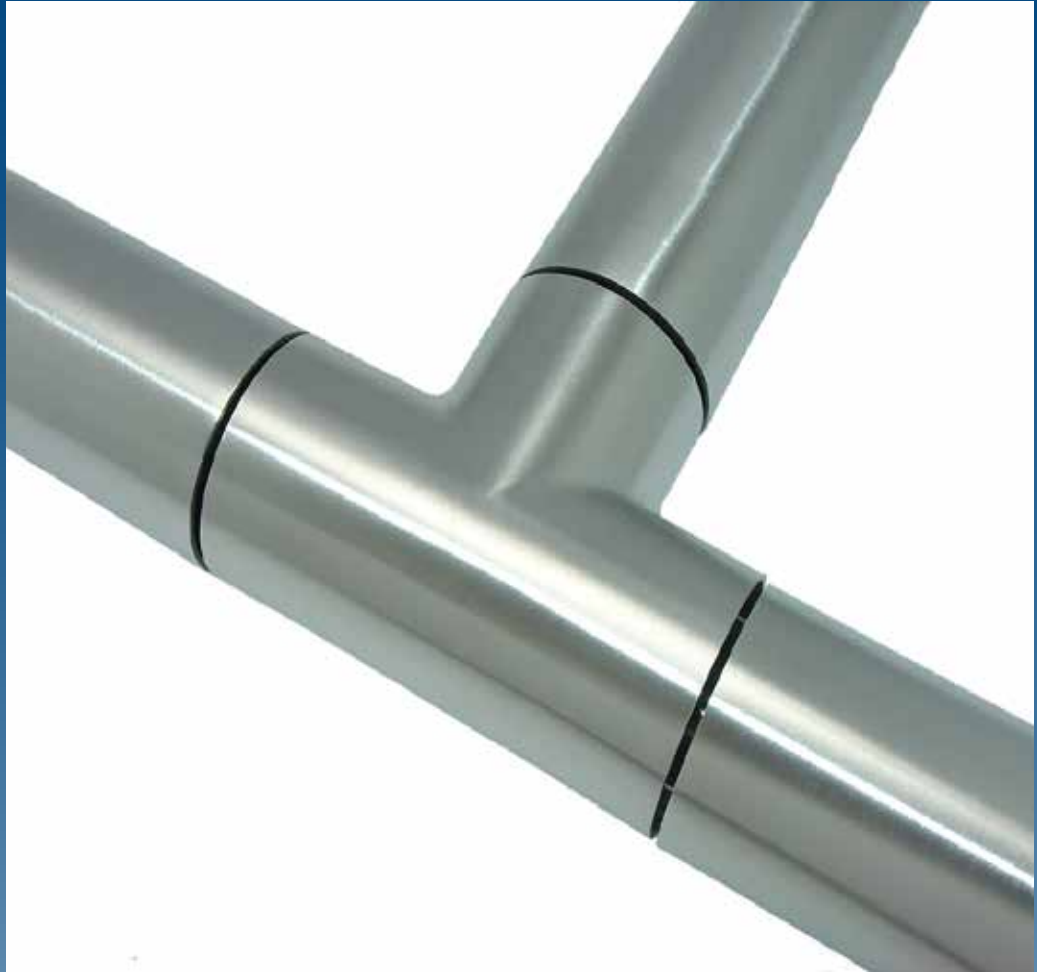
40MP - CLAMP GASKET



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

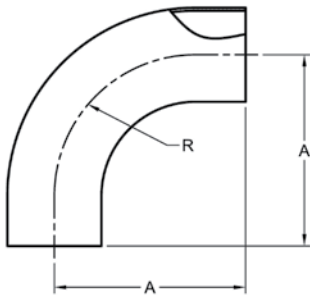
STEEL & O'BRIEN MANUFACTURING



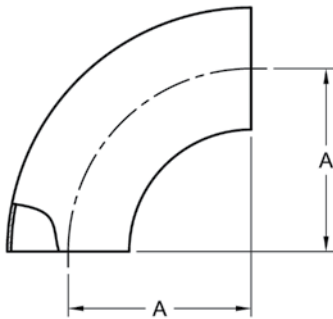
WELD FITTINGS

Don't See What You Need?

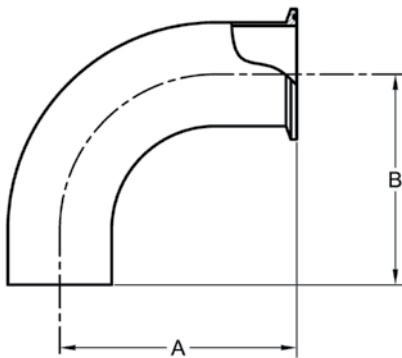
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

L2S - 90 DEGREE ELBOW, TANGENT WELD ENDS

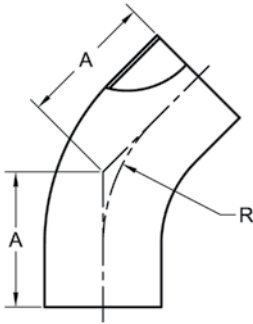
PART NUMBER	SIZE	A	R
L2S-.50	1/2	3.000	.750
L2S-.50L	1/2	3.000	1.125
L2S-.75	3/4	3.000	1.125
L2S-1	1	2.062	1.500
L2S-1.5	1-1/2	2.937	2.250
L2S-2	2	4.062	3.000
L2S-2.5	2-1/2	5.187	3.750
L2S-3	3	6.312	4.500
L2S-4	4	8.312	6.000
L2S-6	6	11.000	9.000
L2S-8	8	15.000	12.000

2WCL - 90 DEGREE ELBOW, WELD ENDS

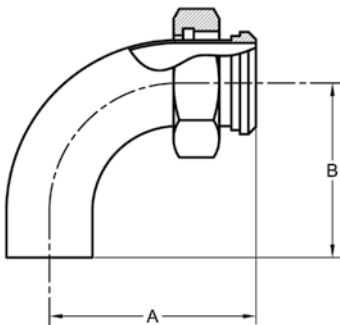
PART NUMBER	SIZE	A
2WCL-.50	1/2	.750
2WCL-.50L	1/2	1.125
2WCL-.75	3/4	1.125
2WCL-1	1	1.500
2WCL-1.5	1-1/2	2.250
2WCL-2	2	3.000
2WCL-2.5	2-1/2	3.750
2WCL-3	3	4.500
2WCL-4	4	6.000
2WCL-6	6	9.000
2WCL-8	8	12.000
2WCL-10	10	15.000
2WCL-12	12	18.000

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

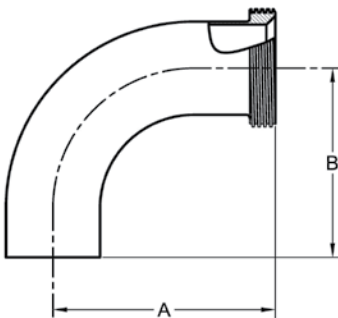
L2KS - 45 DEGREE ELBOW, TANGENT WELD ENDS

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

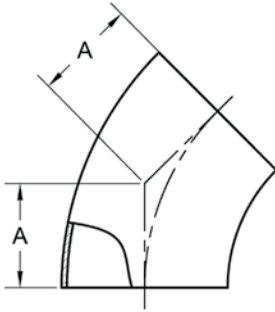
PART NUMBER	SIZE	A	B
L2F-1	1	2.749	2.062
L2F-1.5	1-1/2	3.656	2.937
L2F-2	2	4.785	4.062
L2F-2.5	2-1/2	6.031	5.187
L2F-3	3	7.218	6.312
L2F-4	4	9.312	8.312

NOTE: HEX NUT INCLUDED

L2C - 90 DEGREE ELBOW, WELD X THREADED BEVEL SEAT

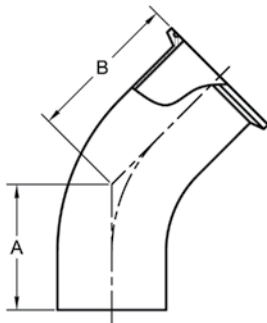
PART NUMBER	SIZE	A	B
L2C-1	1	2.750	2.062
L2C-1.5	1-1/2	3.656	2.937
L2C-2	2	4.812	4.062
L2C-2.5	2-1/2	6.031	5.187
L2C-3	3	7.245	6.312
L2C-4	4	9.531	8.312

2WK - 45 DEGREE ELBOW, WELD ENDS



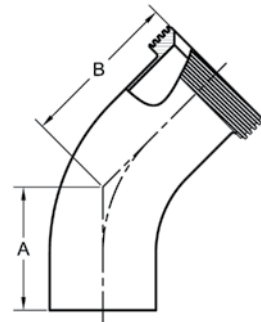
PART NUMBER	SIZE	A
2WK-.50	1/2	.313
2WK-.50L	1/2	.466
2WK-.75	3/4	.466
2WK-1	1	.625
2WK-1.5	1-1/2	.937
2WK-2	2	1.250
2WK-2.5	2-1/2	1.562
2WK-3	3	1.875
2WK-4	4	2.500
2WK-6	6	3.750
2WK-8	8	5.000
2WK-10	10	6.250
2WK-12	12	7.500

L2KM - 45 DEGREE ELBOW, WELD X CLAMP

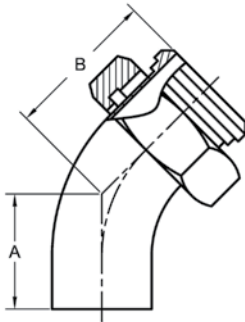


PART NUMBER	SIZE	A	B
L2KM-1	1	1.188	1.688
L2KM-1.5	1-1/2	1.625	2.125
L2KM-2	2	2.312	2.812
L2KM-2.5	2-1/2	3.000	3.500
L2KM-3	3	3.688	4.188
L2KM-4	4	4.812	5.437

L2K - 45 DEGREE ELBOW, WELD X THREADED BEVEL SEAT

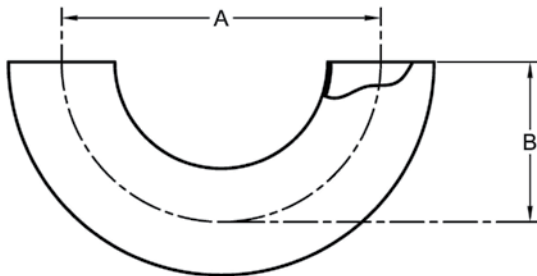


PART NUMBER	SIZE	A	B
L2K-1	1	1.188	1.907
L2K-1.5	1-1/2	1.625	2.344
L2K-2	2	2.312	3.031
L2K-2.5	2-1/2	3.000	3.719
L2K-3	3	3.688	4.406
L2K-4	4	4.812	5.531

L2P - 45 DEGREE ELBOW, WELD X PLAIN BEVEL SEAT

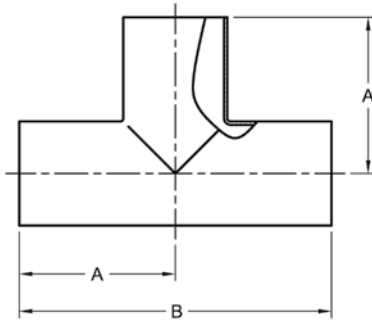
NOTE: HEX NUT INCLUDED

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

2WU - 180 DEGREE RETURN BEND, WELD ENDS

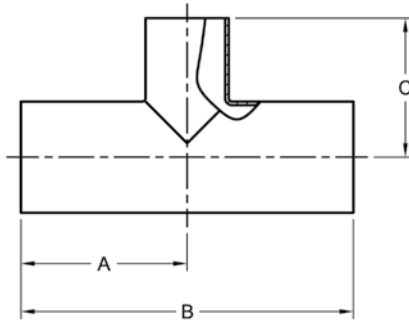
PART NUMBER	SIZE	A	B
2WU-1	1	3.000	1.500
2WU-1.5	1-1/2	4.500	2.250
2WU-2	2	6.000	3.000
2WU-2.5	2-1/2	7.500	3.750
2WU-3	3	9.000	4.500
2WU-4	4	12.000	6.000

7W - TEE, WELD ENDS (LONG)



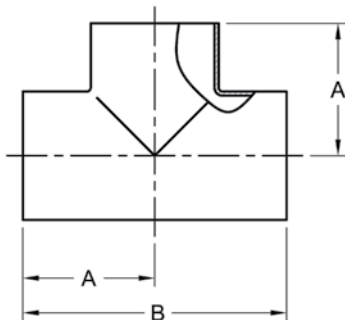
PART NUMBER	SIZE	A	B
7W-.50	1/2	1.875	3.750
7W-.75	3/4	1.875	3.750
7W-1	1	1.875	3.750
7W-1.5	1-1/2	2.250	4.500
7W-2	2	3.000	6.000
7W-2.5	2-1/2	3.000	6.000
7W-3	3	3.250	6.500
7W-4	4	3.875	7.750

7RW - REDUCING TEE, WELD ENDS (LONG)



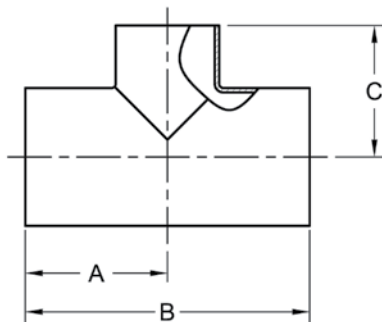
PART NUMBER	SIZE	A	B	C
7RW-1X.50	1 X 1/2	2.125	4.250	2.125
7RW-1X.75	1 X 3/4	2.125	4.250	2.125
7RW-1.5X1	1-1/2 X 1	2.250	4.500	2.125
7RW-2X1	2 X 1	3.000	6.000	2.375
7RW-2X1.5	2 X 1-1/2	3.000	6.000	2.500
7RW-2.5X1.5	2-1/2 X 1-1/2	3.000	6.000	2.750
7RW-2.5X2	2-1/2 X 2	3.000	6.000	3.250
7RW-3X1.5	3 X 1-1/2	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-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)



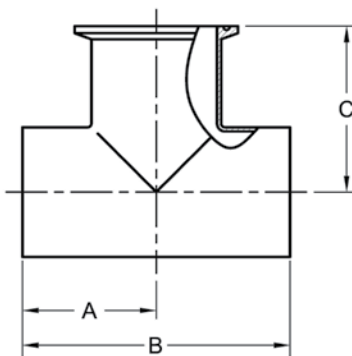
PART NUMBER	SIZE	A	B
7WWW-1	1	1.125	2.250
7WWW-1.5	1-1/2	1.656	3.312
7WWW-2	2	2.063	4.125
7WWW-2.5	2-1/2	2.344	4.688
7WWW-3	3	2.594	5.188
7WWW-4	4	3.438	6.875
7WWW-6	6	5.625	11.250
7WWW-8	8	7.000	14.000
7WWW-10	10	8.500	17.000
7WWW-12	12	10.000	20.000

7RWWW - REDUCING TEE, WELD ENDS (SHORT)



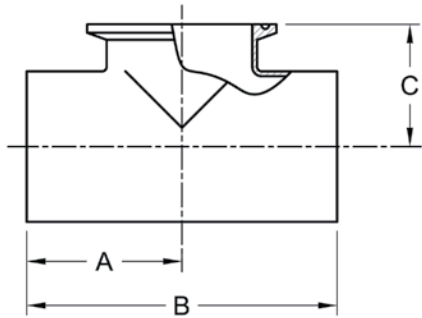
PART NUMBER	SIZE	A	B	C
7RWWW-1.5X1	1-1/2 X 1	1.656	3.312	1.375
7RWWW-2X1	2 X 1	2.062	4.125	1.625
7RWWW-2X1.5	2 X 1-1/2	2.062	4.125	1.905
7RWWW-2.5X1	2-1/2 X 1	2.344	4.688	1.875
7RWWW-2.5X1.5	2-1/2 X 1-1/2	2.344	4.688	2.156
7RWWW-2.5X2	2-1/2 X 2	2.344	4.688	2.312
7RWWW-3X1	3 X 1	2.594	5.188	2.125
7RWWW-3X1.5	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



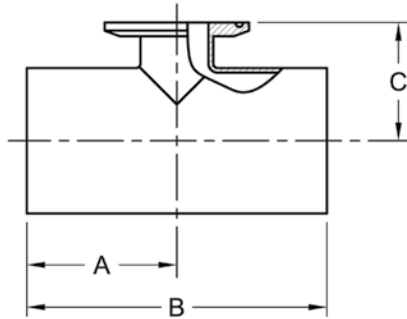
PART NUMBER	SIZE	A	B	C
7WWM-.75	3/4	1.875	3.750	2.375
7WWM-1	1	1.125	2.250	1.625
7WWM-1.5	1-1/2	1.656	3.312	2.156
7WWM-2	2	2.063	4.125	2.563
7WWM-2.5	2-1/2	2.344	4.688	2.844
7WWM-3	3	2.594	5.188	3.094
7WWM-4	4	3.438	6.875	4.063
7WWM-6	6	5.625	11.250	6.375

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



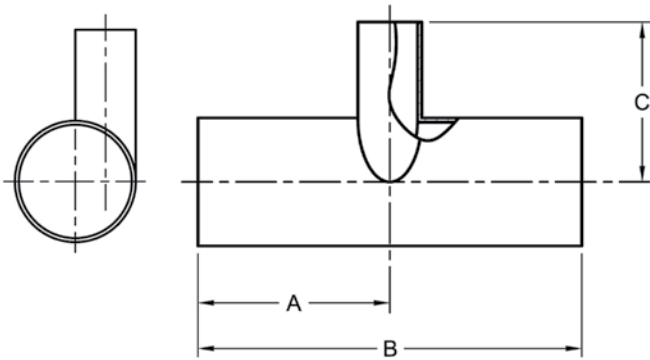
PART NUMBER	SIZE	A	B	C
7WWMS-1	1	1.125	2.250	1.125
7WWMS-1.5	1-1/2	1.656	3.312	1.375
7WWMS-2	2	2.063	4.125	1.625
7WWMS-2.5	2-1/2	2.344	4.688	1.875
7WWMS-3	3	2.594	5.188	2.125
7WWMS-4	4	3.438	6.876	2.750
7WWMS-6	6	5.625	11.250	4.500

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



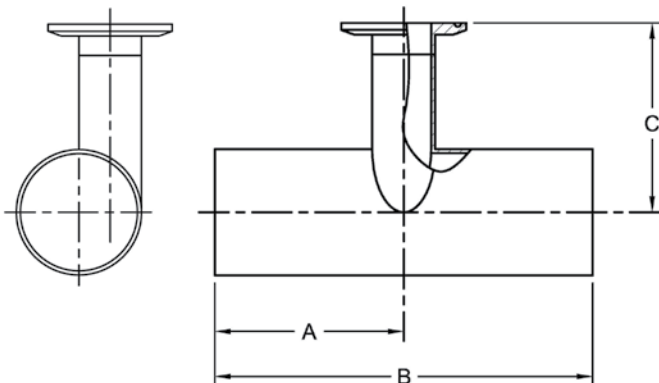
PART NUMBER	SIZE	A	B	C
7RWWMS-1.5X1	1-1/2 X 1	1.656	3.312	1.375
7RWWMS-2X1	2 X 1	2.062	4.125	1.625
7RWWMS-2X1.5	2 X 1-1/2	2.062	4.125	1.625
7RWWMS-2.5X1	2-1/2 X 1	2.344	4.688	1.875
7RWWMS-2.5X1.5	2-1/2 X 1-1/2	2.344	4.688	1.875
7RWWMS-2.5X2	2-1/2 X 2	2.344	4.688	1.875
7RWWMS-3X1	3 X 1	2.594	5.188	2.125
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



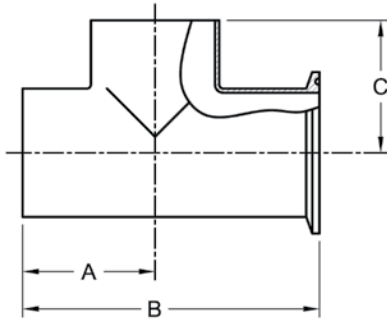
PART NUMBER	SIZE	A	B	C
7ERWWW-1.5X1	1-1/2 X 1	1.656	3.312	1.375
7ERWWW-2X1	2 X 1	2.062	4.125	1.625
7ERWWW-2X1.5	2 X 1-1/2	2.062	4.125	1.905
7ERWWW-2.5X1	2-1/2 X 1	2.344	4.688	1.875
7ERWWW-2.5X1.5	2-1/2 X 1 1/2	2.344	4.688	2.156
7ERWWW-2.5X2	2-1/2 X 2	2.344	4.688	2.312
7ERWWW-3X1	3 X 1	2.594	5.188	2.125
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



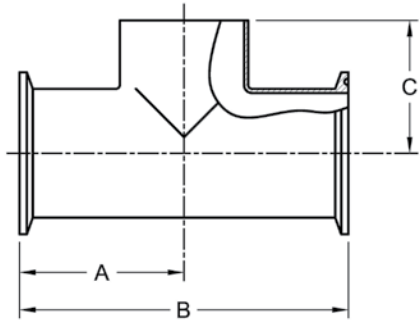
PART NUMBER	SIZE	A	B	C
7ERWWK-1.5X1	1-1/2 X 1	1.656	3.312	1.875
7ERWWK-2X1	2 X 1	2.062	4.125	2.125
7ERWWK-2X1.5	2 X 1-1/2	2.062	4.125	2.406
7ERWWK-2.5X1	2-1/2 X 1	2.344	4.688	2.375
7ERWWK-2.5X1.5	2-1/2 X 1-1/2	2.344	4.688	2.656
7ERWWK-2.5X2	2-1/2 X 2	2.344	4.688	2.812
7ERWWK-3X1	3 X 1	2.594	5.188	2.625
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



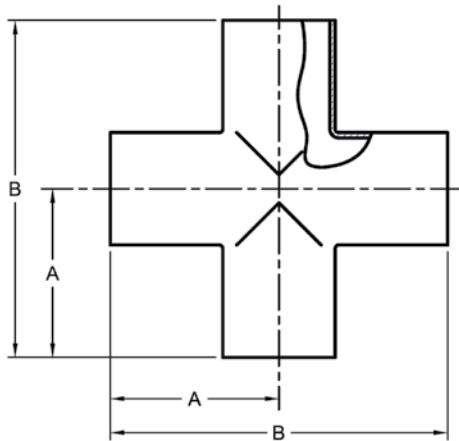
PART NUMBER	SIZE	A	B	C
7WMW-1	1	1.125	2.750	1.125
7WMW-1.5	1-1/2	1.656	3.812	1.656
7WMW-2	2	2.063	4.625	2.063
7WMW-2.5	2-1/2	2.344	5.188	2.344
7WMW-3	3	2.594	5.688	2.594
7WMW-4	4	3.438	7.500	3.438
7WMW-6	6	5.625	12.000	5.625
7WMW-8	8	7.000	14.875	7.000

7MMW - TEE, CLAMP X CLAMP X WELD OUTLET



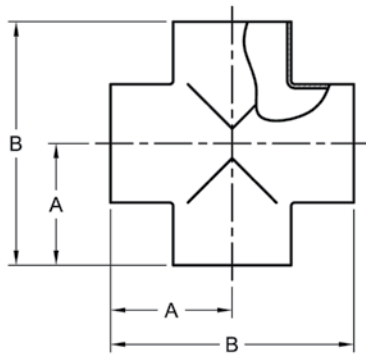
PART NUMBER	SIZE	A	B	C
7MMW-1	1	1.625	3.250	1.125
7MMW-1.5	1-1/2	2.156	4.312	1.656
7MMW-2	2	2.563	5.125	2.063
7MMW-2.5	2-1/2	2.844	5.688	2.344
7MMW-3	3	3.094	6.188	2.594
7MMW-4	4	4.063	8.125	3.438
7MMW-6	6	6.375	12.750	5.625
7MMW-8	8	7.875	15.750	7.000

9W - CROSS, WELD ENDS (LONG)



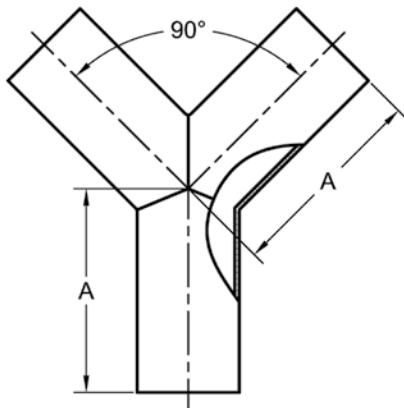
PART NUMBER	SIZE	A	B
9W-.50	1/2	1.875	3.750
9W-.75	3/4	1.875	3.750
9W-1	1	1.875	3.750
9W-1.5	1-1/2	2.250	4.500
9W-2	2	3.000	6.000
9W-2.5	2-1/2	3.000	6.000
9W-3	3	3.250	6.500
9W-4	4	3.875	7.750

9WWW - CROSS, WELD ENDS (SHORT)



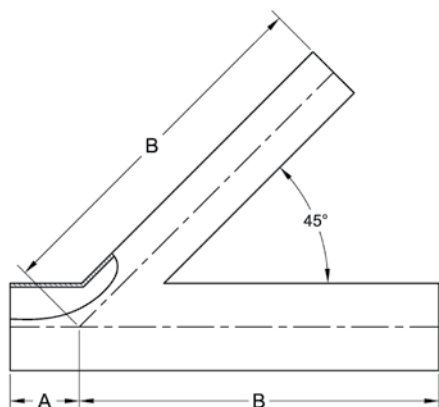
PART NUMBER	SIZE	A	B
9WWW-.50	1/2	.750	1.500
9WWW-.75	3/4	1.125	2.250
9WWW-1	1	1.125	2.250
9WWW-1.5	1-1/2	1.656	3.312
9WWW-2	2	2.063	4.125
9WWW-2.5	2-1/2	2.344	4.688
9WWW-3	3	2.594	5.188
9WWW-4	4	3.438	6.875
9WWW-6	6	5.625	11.250

28WB - TRUE WYE, WELD ENDS



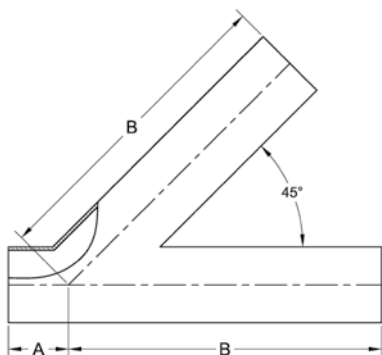
PART NUMBER	SIZE	A
28WB-.50	1/2	2.000
28WB-.75	3/4	2.000
28WB-1	1	3.000
28WB-1.5	1-1/2	3.000
28WB-2	2	4.000
28WB-2.5	2-1/2	5.000
28WB-3	3	6.000
28WB-4	4	8.000
28WB-6	6	8.000
28WB-8	8	9.000

28WAR - REDUCING LATERAL WYE, WELD ENDS



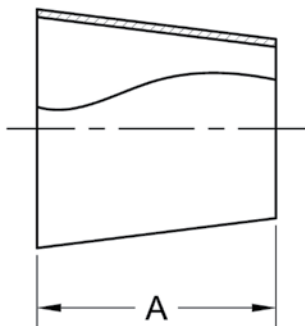
PART NUMBER	SIZE	A	B
28WAR-1X.50	1 X 1/2	1.000	5.000
28WAR-1X.75	1 X 3/4	1.000	5.000
28WAR-1.5X.50	1-1/2 X 1/2	1.188	6.188
28WAR-1.5X.75	1-1/2 X 3/4	1.188	6.188
28WAR-1.5X1	1-1/2 X 1	1.188	6.188
28WAR-2X.50	2 X 1/2	1.625	7.125
28WAR-2X.75	2 X 3/4	1.625	7.125
28WAR-2X1	2 X 1	1.625	7.125
28WAR-2X1.5	2 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



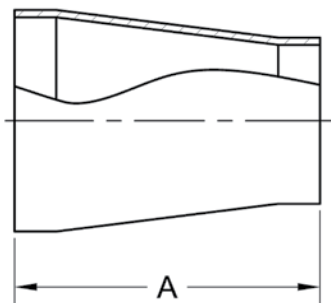
PART NUMBER	SIZE	A	B
28WA-.50	1/2	1.000	5.000
28WA-.75	3/4	1.000	5.000
28WA-1	1	1.000	5.000
28WA-1.5	1-1/2	1.188	6.188
28WA-2	2	1.625	7.125
28WA-2.5	2-1/2	1.500	8.500
28WA-3	3	1.875	8.875
28WA-4	4	2.063	10.750
28WA-6	6	3.500	14.500

31W - CONCENTRIC REDUCER, WELD ENDS



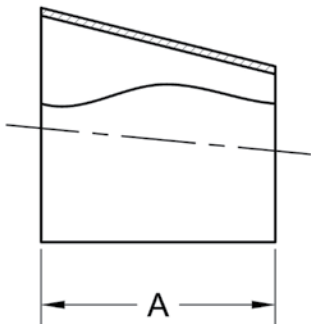
PART NUMBER	SIZE	A	PART NUMBER	SIZE	A
31W-.50X.25	1/2 X 1/4	.750	31W-2.5X2	2-1/2 X 2	2.000
31W-.50X.375	1/2 X 3/8	1.000	31W-3X1.5	3 X 1-1/2	6.000
31W-.75X.50	3/4 X 1/2	1.000	31W-3X2	3 X 2	4.000
31W-1X.50	1 X 1/2	2.000	31W-3X2.5	3 X 2-1/2	2.000
31W-1X.75	1 X 3/4	1.000	31W-4X2	4 X 2	8.000
31W-1.5X.50	1-1/2 X 1/2	4.000	31W-4X3	4 X 3	4.000
31W-1.5X.75	1-1/2 X 3/4	3.000	31W-6X3	6 X 3	5.500
31W-1.5X1	1-1/2 X 1	2.000	31W-6X4	6 X 4	5.500
31W-2X1	2 X 1	4.000	31W-8X4	8 X 4	6.000
31W-2X1.5	2 X 1-1/2	2.000	31W-8X6	8 X 6	6.000
31W-2.5X1.5	2-1/2 X 1-1/2	4.000			

31WT-CONCENTRIC REDUCER, TANGENT WELD ENDS



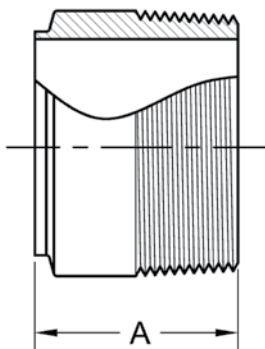
PART NUMBER	SIZE	A	PART NUMBER	SIZE	A
31WT-1X.50	1 X 1/2	2.375	31WT-3X1.5	3 X 1-1/2	3.625
31WT-1X.75	1 X 3/4	2.375	31WT-3X2	3 X 2	3.625
31WT-1.5X1	1-1/2 X 1	2.375	31WT-3X2.5	3 X 2-1/2	3.625
31WT-2X1	2 X 1	2.375	31WT-4X2	4 X 2	3.625
31WT-2X1.5	2 X 1-1/2	2.375	31WT-4X2.5	4 X 2-1/2	3.625
31WT-2.5X1.5	2-1/2 X 1-1/2	2.375	31WT-4X3	4 X 3	3.625
31WT-2.5X2	2-1/2 X 2	2.375			

32W - ECCENTRIC REDUCER, WELD ENDS



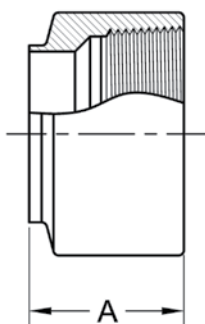
PART NUMBER	SIZE	A	PART NUMBER	SIZE	A
32W-.75X.50	3/4 X 1/2	1.000	32W-2.5X2*	2-1/2 X 2	2.000
32W-1X.50	1 X 1/2	1.500	32W-3X2*	3 X 2	4.000
32W-1X.75	1 X 3/4	1.000	32W-3X2.5*	3 X 2-1/2	2.000
32W-1.5X.50	1-1/2 X 1/2	2.500	32W-4X2*	4 X 2	8.000
32W-1.5X.75	1-1/2 X 3/4	2.000	32W-4X3*	4 X 3	4.000
32W-1.5X1*	1-1/2 X 1	2.000	32W-6X3*	6 X 3	5.500
32W-2X1*	2 X 1	4.000	32W-6X4*	6 X 4	5.500
32W-2X1.5*	2 X 1-1/2	2.000	32W-8X4*	8 X 4	6.000
32W-2.5X1.5*	2-1/2 X 1-1/2	4.000	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

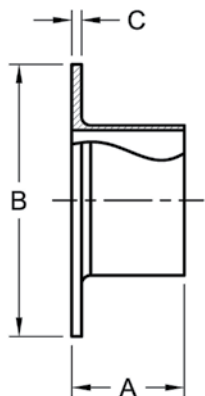
PART NUMBER	SIZE	A
19WB-.25	1/4	1.000
19WB-.375	3/8	1.500
19WB-.50	1/2	1.625
19WB-.75	3/4	1.625
19WB-1	1	1.750
19WB-1.5	1-1/2	1.750
19WB-2	2	1.812
19WB-2.5	2-1/2	2.312
19WB-3	3	2.500
19WB-4	4	2.562
19WB-6	6	3.000
19WB-8	8	2.875

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

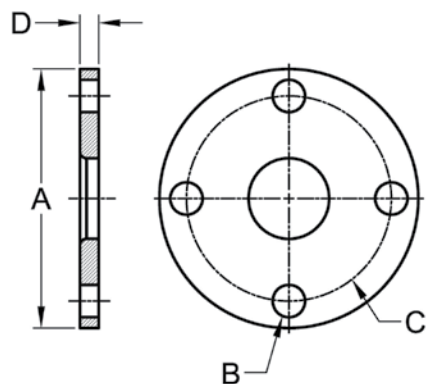
REDUCING SIZES AVAILABLE UPON REQUEST

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

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

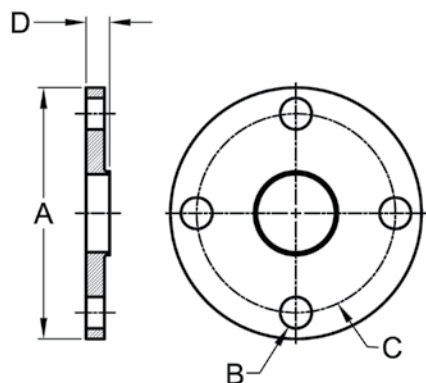
38SL - SLIP-ON FLANGE



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

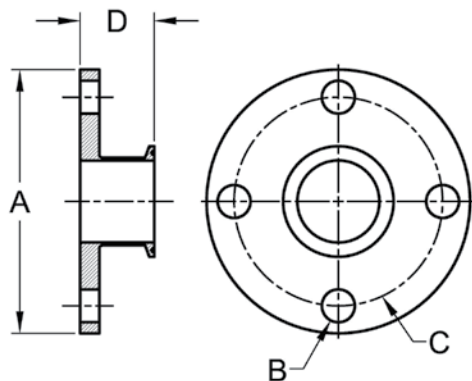
38W - WELD NECK FLANGE (light duty)



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

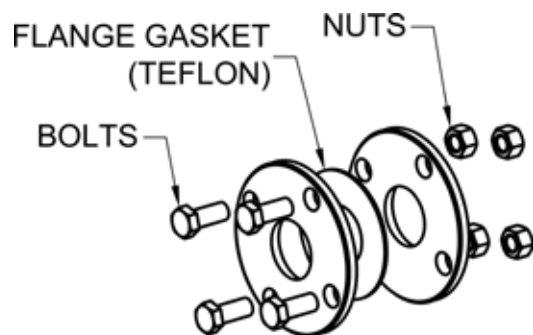
38MP - FLANGE ADAPTER



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

Flange Gasket Kit Available
Flanges are Flat Face Light Duty
4" and up have 8 - Bolt Holes (150lb. Bolt Hole Pattern All Sizes)

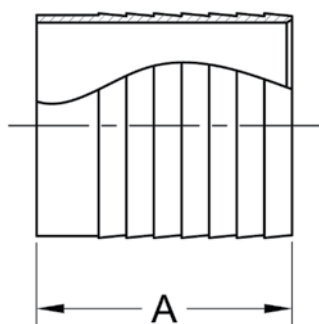
40RFK - FLANGE GASKET KIT



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

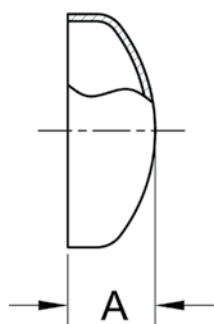
NOTE: KIT CONSISTS OF BOLTS, NUTS AND TEFLON RING STYLE FLANGE GASKET (OTHER GASKET MATERIALS AVAILABLE)

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

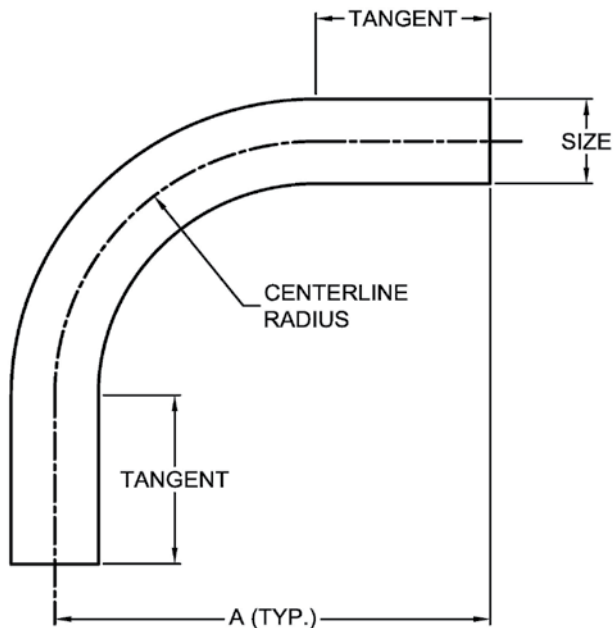
16W - WELD CAP



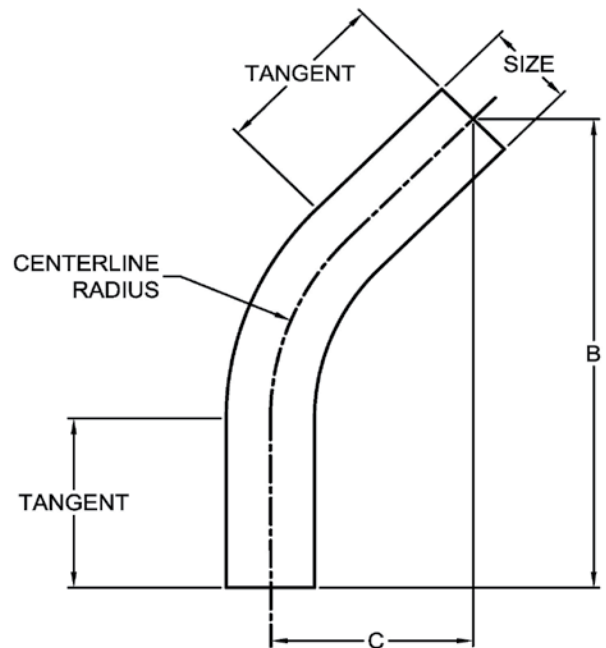
Available Polished ID/OD
Available with Center Hole Upon Request

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

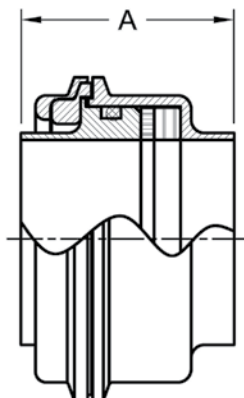


SIZE	CENTERLINE RADIUS	A	B	C	TANGENT
1-1/2 - 4	12.000	20.000	22.142	9.172	8.000
1-1/2 - 4	18.000	26.000	26.388	10.929	8.000
1-1/2 - 6	24.000	32.000	30.627	12.686	8.000
1-1/2 - 6	36.000	44.000	39.113	16.201	8.000
1-1/2 - 6	48.000	56.000	47.598	19.716	8.000

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

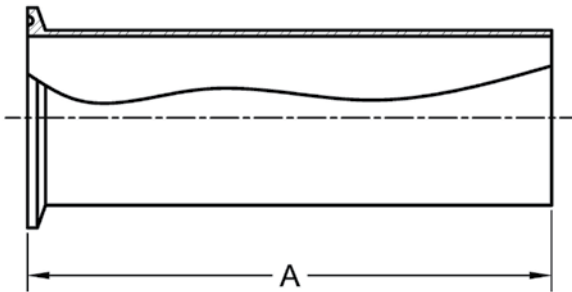
CONNECTING CLAMP NOT SHOWN
ABILITY TO ROTATE ELBOW OR JUMPER CONNECTIONS
WITHOUT CLAMP DISASSEMBLY



SPOOL ASSEMBLIES

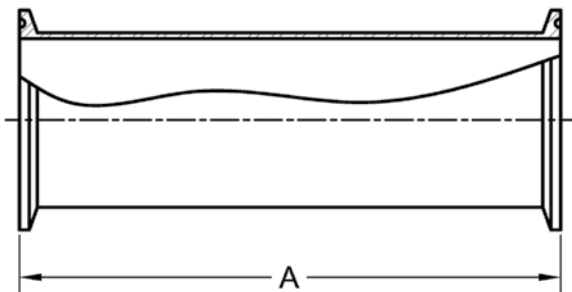
Don't See What You Need?

We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

X17EMW - WELD X CLAMP

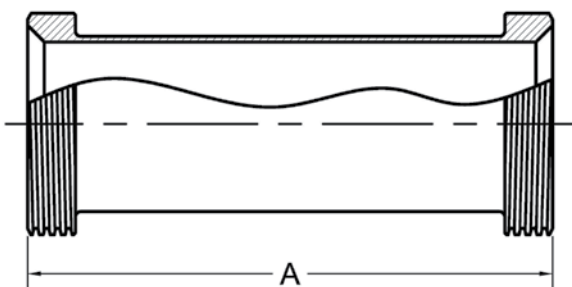
SIZE	A (Minimum Length)
1/2	.500
3/4	.500
1	.500
1-1/2	.500
2	.500
2-1/2	.500
3	.500
4	.625
6	.750

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

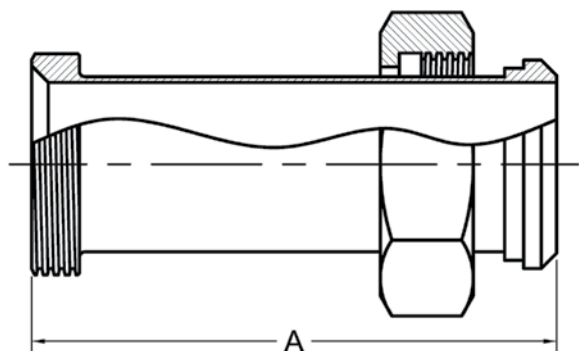
MAXIMUM LENGTH UP TO APPROX. 20 FEET

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

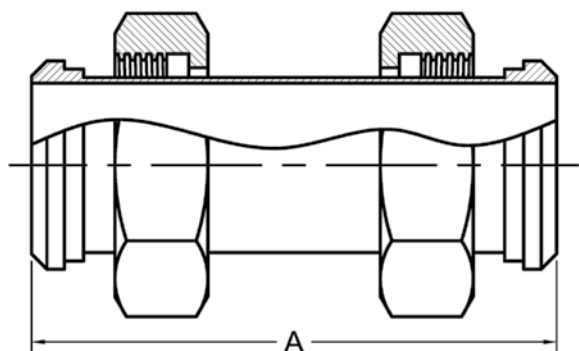
17D - ACME THREAD X BEVEL SEAT



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

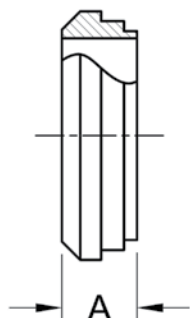
MAXIMUM LENGTH UP TO APPROX. 20 FEET



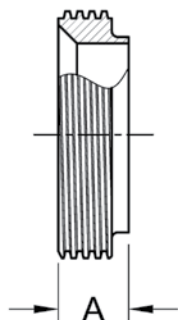
BEVEL SEAT FITTINGS

Don't See What You Need?

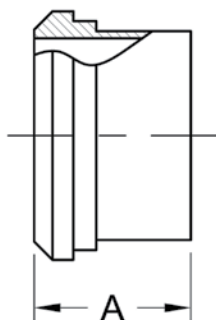
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

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

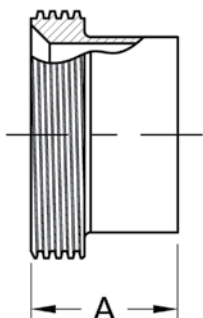
15TRF - SHORT WELD FERRULE, THREADED

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

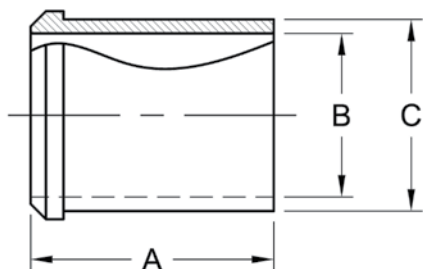
PART NUMBER	SIZE	A
L14A7-1	1	1.375
L14A7-1.5	1-1/2	1.500
L14A7-2	2	1.500
L14A7-2.5	2-1/2	1.750
L14A7-3	3	1.750
L14A7-4	4	1.750

L15A7 - TUBE FERRULE, THREADED



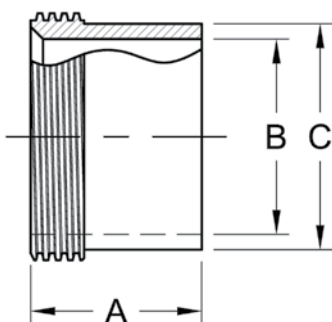
PART NUMBER	SIZE	A
L15A7-1	1	1.375
L15A7-1.5	1-1/2	1.500
L15A7-2	2	1.500
L15A7-2.5	2-1/2	1.750
L15A7-3	3	1.750
L15A7-4	4	1.750

14W - TANK SPUD (HEAVY), PLAIN

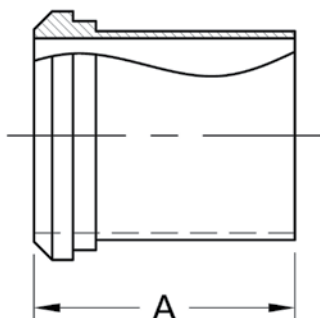


PART NUMBER	SIZE	A	B	C
14W-1	1	2.375	.870	1.156
14W-1.5	1-1/2	2.531	1.370	1.672
14W-2	2	2.781	1.870	2.187
14W-2.5	2-1/2	3.062	2.370	2.703
14W-3	3	3.531	2.870	3.218
14W-4	4	4.312	3.834	4.247

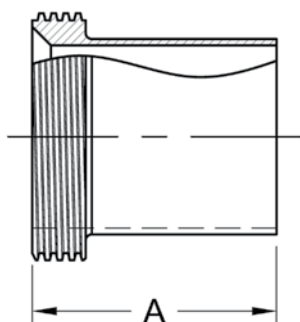
15W - TANK SPUD (HEAVY), THREADED



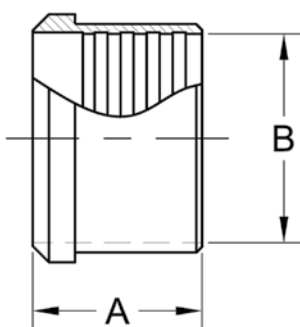
PART NUMBER	SIZE	A	B	C
15W-1	1	1.500	.870	1.250
15W-1.5	1-1/2	1.625	1.370	1.750
15W-2	2	1.750	1.870	2.312
15W-2.5	2-1/2	1.750	2.370	2.875
15W-3	3	1.812	2.870	3.375
15W-4	4	2.125	3.834	4.250

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

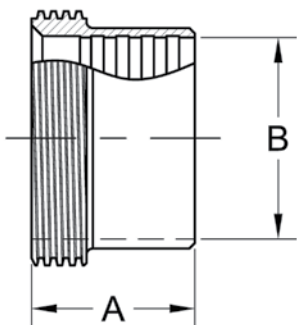
15WL - TANK SPUD (LIGHT), THREADED

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

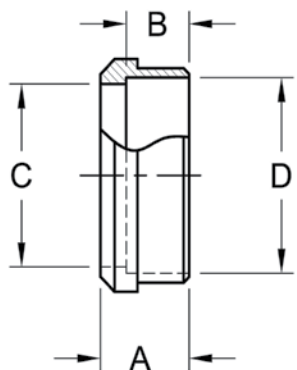
PART NUMBER	SIZE	A	B
14R-1	1	.750	1.000
14R-1.5	1-1/2	1.125	1.500
14R-2	2	1.313	2.000
14R-2.5	2-1/2	1.375	2.500
14R-3	3	1.438	3.000
14R-4	4	1.500	4.000

15R - ROLL-ON FERRULE, THREADED



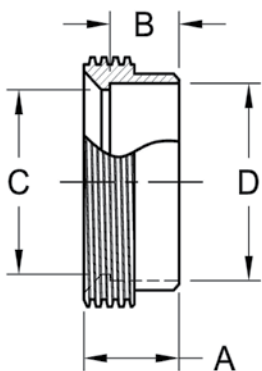
PART NUMBER	SIZE	A	B
15R-1	1	.813	1.007
15R-1.5	1-1/2	1.625	1.507
15R-2	2	1.375	2.007
15R-2.5	2-1/2	1.500	2.507
15R-3	3	1.625	3.007
15R-4	4	1.625	4.007

14 - RECESSED FERRULE, PLAIN



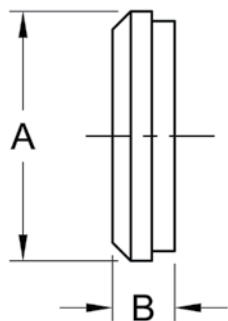
PART NUMBER	SIZE	A	B	C	D
14-1	1	.750	.500	.870	1.000
14-1.5	1-1/2	.875	.625	1.370	1.500
14-2	2	.969	.688	1.870	2.000
14-2.5	2-1/2	.938	.750	2.370	2.500
14-3	3	1.125	.813	2.870	3.000
14-4	4	1.250	.938	3.834	4.000

15 - RECESSED FERRULE, THREADED



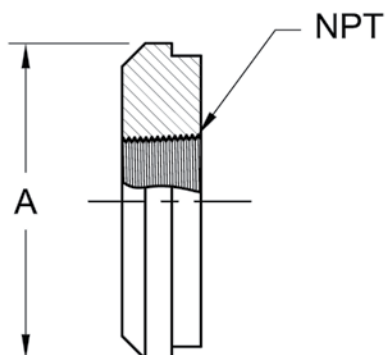
PART NUMBER	SIZE	A	B	C	D
15-1	1	.812	.500	.870	1.000
15-1.5	1-1/2	.875	.625	1.370	1.500
15-2	2	1.031	.688	1.870	2.000
15-2.5	2-1/2	1.125	.750	2.370	2.500
15-3	3	1.250	.813	2.870	3.000
15-4	4	1.375	.938	3.834	4.000

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

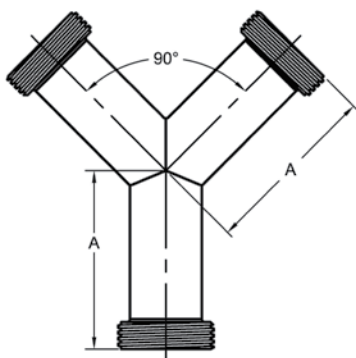
23B - THERMOMETER CAP



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

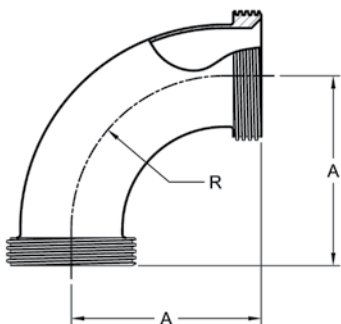
NOTE: SIZES ARE LISTED BEVEL SEAT SIZE X NPT SIZE

28B - TRUE WYE, THREADED ENDS



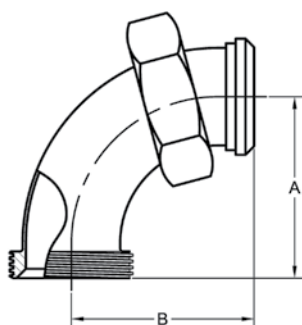
PART NUMBER	SIZE	A
28B-1	1	3.688
28B-1.5	1-1/2	3.718
28B-2	2	4.750
28B-2.5	2-1/2	5.844
28B-3	3	6.933
28B-4	4	9.219

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

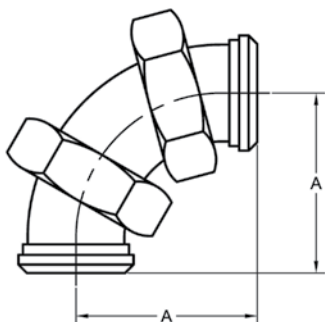
2F - 90 DEGREE ELBOW, THREADED X PLAIN ENDS



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

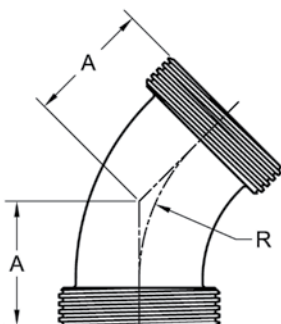
2E - 90 DEGREE ELBOW, PLAIN ENDS



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

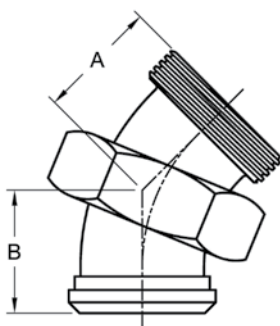
NOTE: HEX NUTS INCLUDED

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

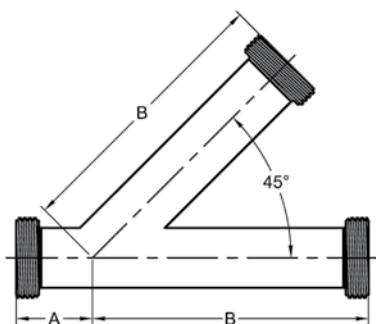
2P - 45 DEGREE ELBOW, THREADED X PLAIN ENDS



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

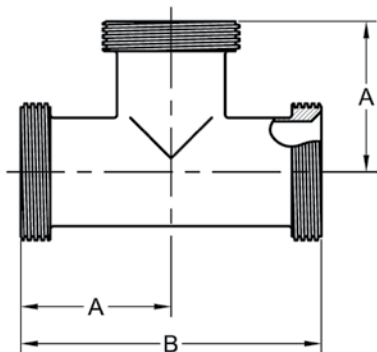
NOTE: HEX NUT INCLUDED

28A - LATERAL WYE, THREADED ENDS



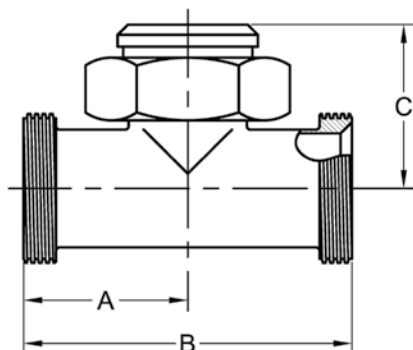
PART NUMBER	SIZE	A	B
28A-1	1	1.688	5.688
28A-1.5	1-1/2	1.908	6.906
28A-2	2	2.370	7.875
28A-2.5	2-1/2	2.375	9.344
28A-3	3	2.808	9.808
28A-4	4	3.282	12.006

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

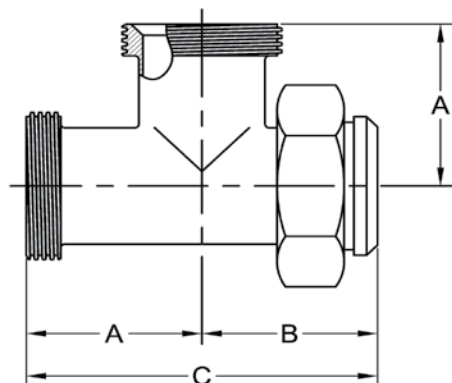
7A - TEE, THREADED X THREADED X PLAIN OUTLET



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

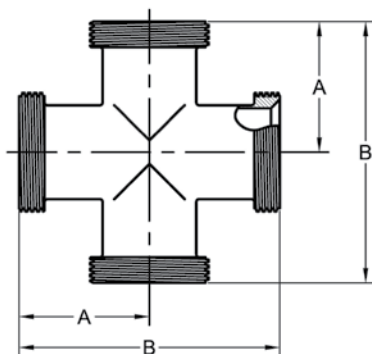
7B - TEE, THREADED X PLAIN X THREADED OUTLET



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

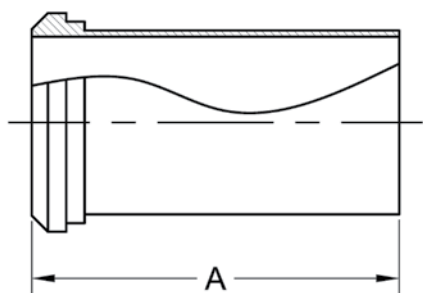
NOTE: HEX NUT INCLUDED

9 - CROSS, THREADED ENDS



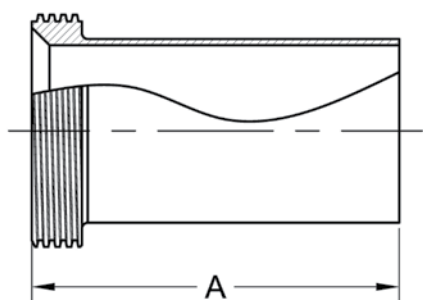
PART NUMBER	SIZE	A	B
9-1	1	1.813	3.626
9-1.5	1-1/2	2.375	4.750
9-2	2	2.813	5.626
9-2.5	2-1/2	3.188	6.376
9-3	3	3.527	7.054
9-4	4	4.657	9.314

14AHT - TYGON HOSE ADAPTER, PLAIN

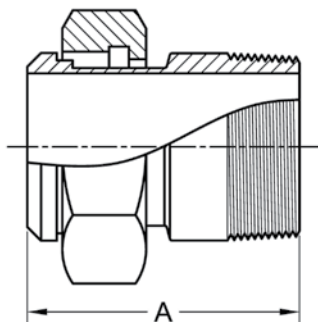


PART NUMBER	SIZE	A
14AHT-1	1	4.688
14AHT-1.5	1-1/2	4.719
14AHT-2	2	4.719
14AHT-2.5	2-1/2	4.843
14AHT-3	3	4.906
14AHT-4	4	5.219

15AHT- TYGON HOSE ADAPTER, THREADED

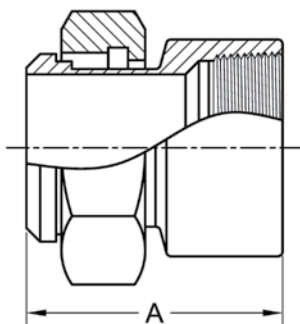


PART NUMBER	SIZE	A
15AHT-1	1	4.688
15AHT-1.5	1-1/2	4.719
15AHT-2	2	4.719
15AHT-2.5	2-1/2	4.844
15AHT-3	3	4.906
15AHT-4	4	5.272

14-19 - ADAPTER, PLAIN X MALE NPT

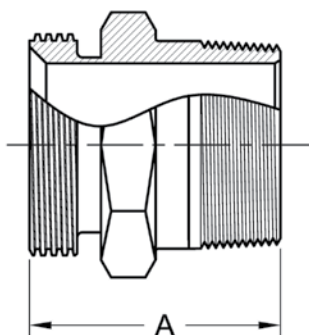
PART NUMBER	SIZE	A
14-19-1	1	3.125
14-19-1.5	1-1/2	3.250
14-19-2	2	3.312
14-19-2.5	2-1/2	4.062
14-19-3	3	4.250
14-19-4	4	4.312

NOTE: HEX NUT INCLUDED

14-18 - ADAPTER, PLAIN X FEMALE NPT

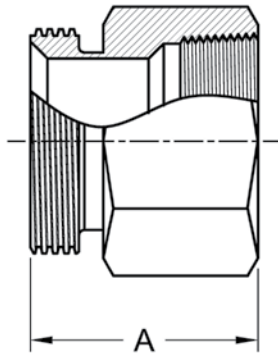
PART NUMBER	SIZE	A
14-18-1	1	3.125
14-18-1.5	1-1/2	3.250
14-18-2	2	3.312
14-18-2.5	2-1/2	4.000
14-18-3	3	4.250
14-18-4	4	4.312

NOTE: HEX NUT INCLUDED

21 - ADAPTER, ACME THREAD X MALE NPT

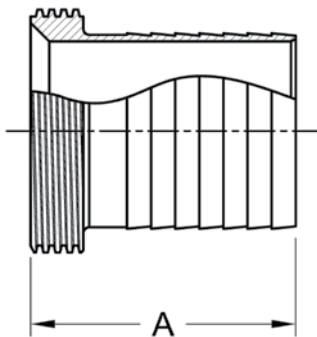
PART NUMBER	SIZE	A
21-1	1	2.250
21-1.5	1-1/2	2.437
21-2	2	2.562
21-2.5	2-1/2	3.281
21-3	3	3.500
21-4	4	3.813

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

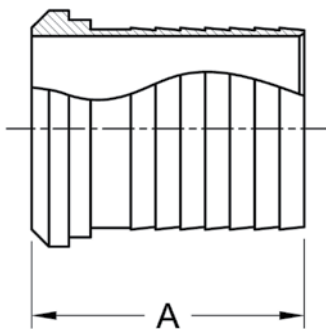
22 - ADAPTER, ACME THREAD X FEMALE NPT

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

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

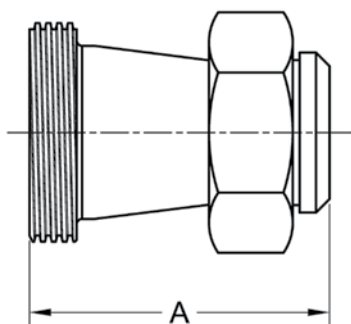
15AHR - ADAPTER, ACME THREAD X RUBBER HOSE

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	4.000
14AHR-4	4	4.411

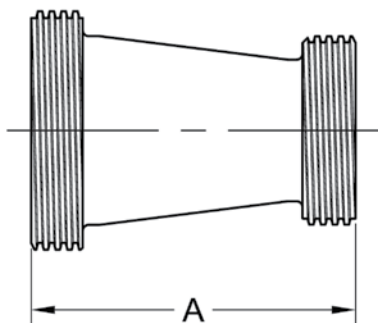
31TP - CONCENTRIC REDUCER, THREADED X PLAIN ENDS



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

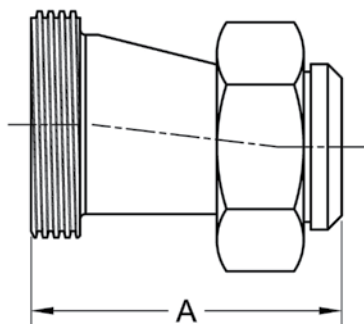
NOTE: HEX NUT INCLUDED

31TT - CONCENTRIC REDUCER, THREADED ENDS

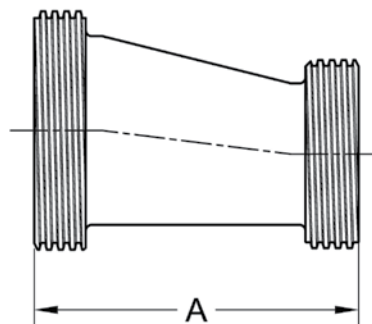


PART NUMBER	SIZE	A
31TT-1.5X1	1-1/2 X 1	3.407
31TT-2X1.5	2 X 1-1/2	3.468
31TT-2.5X2	2-1/2 X 2	3.594
31TT-3X2	3 X 2	5.683
31TT-3X2.5	3 X 2-1/2	3.777
31TT-4X3	4 X 3	6.152

OTHER BEVEL SEAT REDUCERS AVAILABLE FROM STEEL & O'BRIEN:

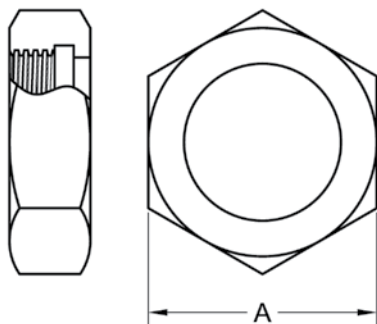


32TP (ECCENTRIC)



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

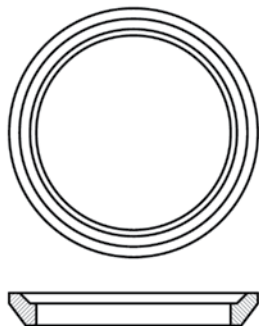
25H -ALUMINUM HEX WRENCH, SINGLE-SIDED



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, TEFLON, VITON, & SILICONE

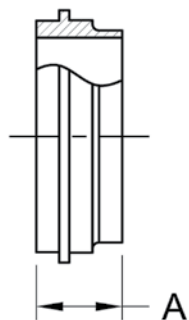
STEEL & O'BRIEN MANUFACTURING



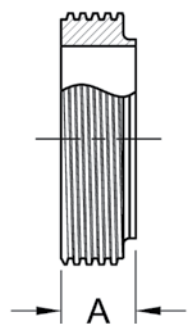
JOHN PERRY FITTINGS

Don't See What You Need?

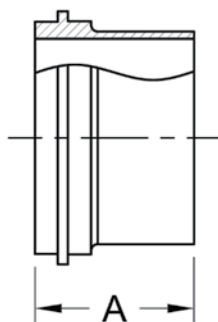
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

14PRFJP - SHORT WELD FERRULE, PLAIN

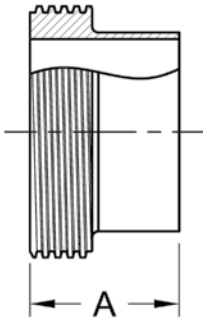
PART NUMBER	SIZE	A
14PRFJP-1	1	.688
14PRFJP-1.5	1-1/2	.719
14PRFJP-2	2	.719
14PRFJP-2.5	2-1/2	.844
14PRFJP-3	3	.906
14PRFJP-4	4	1.218

15TRFJP - SHORT WELD FERRULE, THREADED

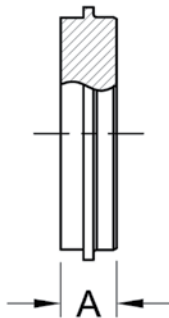
PART NUMBER	SIZE	A
15TRFJP-1	1	.688
15TRFJP-1.5	1-1/2	.719
15TRFJP-2	2	.750
15TRFJP-2.5	2-1/2	.844
15TRFJP-3	3	.938
15TRFJP-4	4	1.218

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

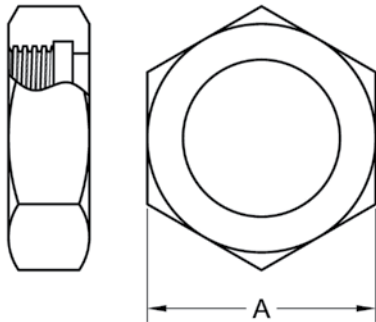
L15AJP - LONG WELD FERRULE, THREADED

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

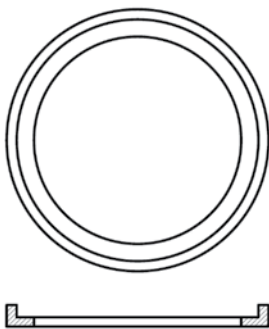
25H -ALUMINUM HEX WRENCH, SINGLE-SIDED



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

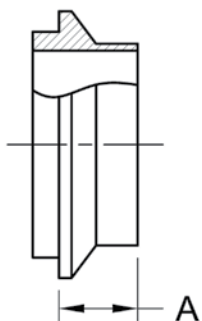


PART NUMBER	SIZE
40JP-1	1
40JP-1.5	1-1/2
40JP-2	2
40JP-2.5	2-1/2
40JP-3	3
40JP-4	4

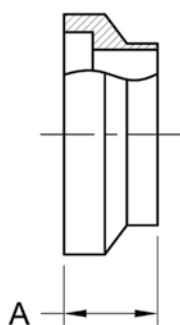
AVAILABLE IN THE FOLLOWING MATERIALS:
BUNA-N, EPDM, TEFLON, VITON, & SILICONE

Don't See What You Need?

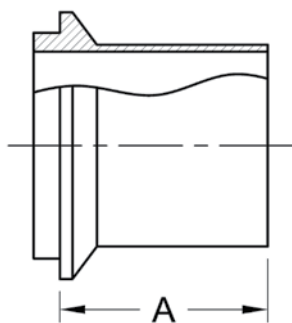


14WI - SHORT WELD FERRULE, MALE

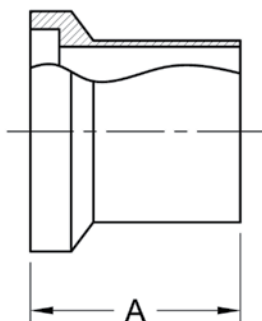
PART NUMBER	SIZE	A
14WI-1	1	.589
14WI-1.5	1-1/2	.746
14WI-2	2	.780
14WI-2.5	2-1/2	.850
14WI-3	3	.912
14WI-4	4	1.037
14WI-6	6	.818
14WI-8	8	.818

15WI - SHORT WELD FERRULE, FEMALE

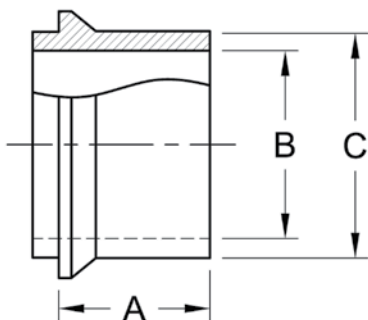
PART NUMBER	SIZE	A
15WI-1	1	.786
15WI-1.5	1-1/2	.942
15WI-2	2	1.036
15WI-2.5	2-1/2	1.161
15WI-3	3	1.223
15WI-4	4	1.348
15WI-6	6	1.130
15WI-8	8	1.130

14WLI - LONG WELD FERRULE, MALE

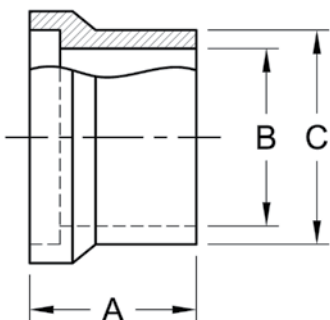
PART NUMBER	SIZE	A
14WLI-1	1	1.562
14WLI-1.5	1-1/2	1.843
14WLI-2	2	2.062
14WLI-2.5	2-1/2	2.500
14WLI-3	3	2.375
14WLI-4	4	2.688
14WLI-6	6	3.813

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

15WHI - TANK WELD FERRULE, FEMALE

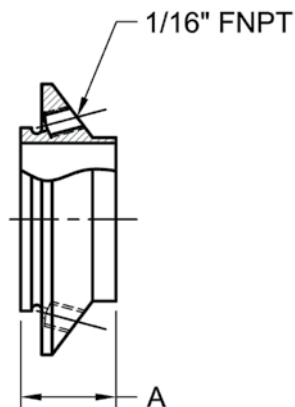
PART NUMBER	SIZE	A	B	C
15WHI-1	1	1.500	.870	1.250
15WHI-1.5	1-1/2	1.625	1.370	1.688
15WHI-2	2	1.750	1.870	2.250
15WHI-2.5	2-1/2	1.750	2.370	2.750
15WHI-3	3	1.812	2.870	3.313
15WHI-4	4	2.125	3.834	4.250
15WHI-6	6	2.000	5.782	6.500

15WNI - ASEPTIC, FEMALE



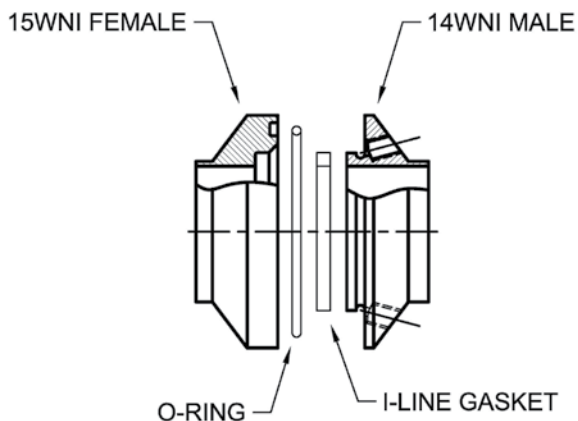
PART NUMBER	SIZE	A
15WNI-1	1	.942
15WNI-1.5	1-1/2	1.036
15WNI-2	2	1.161
15WNI-2.5	2-1/2	1.223
15WNI-3	3	1.348
15WNI-4	4	1.348

14WNI - ASEPTIC, MALE



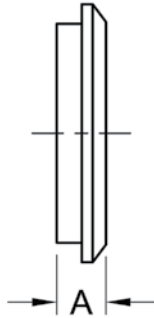
PART NUMBER	SIZE	A
14WNI-1	1	.942
14WNI-1.5	1-1/2	1.036
14WNI-2	2	1.161
14WNI-2.5	2-1/2	1.223
14WNI-3	3	1.348
14WNI-4	4	1.348

ASEPTIC UNION



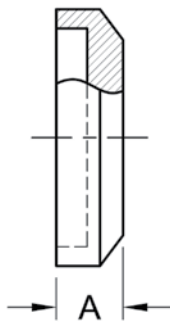
PART NUMBER	SIZE
29WNI-1	1
29WNI-1.5	1-1/2
29WNI-2	2
29WNI-2.5	2-1/2
29WNI-3	3
29WNI-4	4

CLAMP NOT SHOWN FOR CLARITY

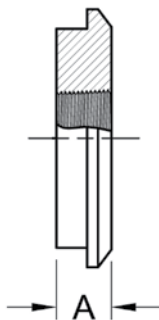
16AI-14I - SOLID END CAP, MALE

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

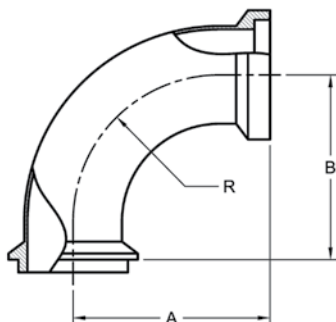
NOTE: AVAILABLE IN ACRYLIC AND LEXAN

16AI-15I - SOLID END CAP, FEMALE

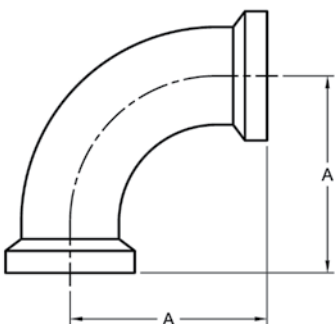
PART NUMBER	SIZE	A
16AI-15I-1	1	.500
16AI-15I-1.5	1-1/2	.500
16AI-15I-2	2	.687
16AI-15I-2.5	2-1/2	.687
16AI-15I-3	3	.687
16AI-15I-4	4	.750
16AI-15I-6	6	.750
16AI-15I-8	8	.750

23BI - THERMOMETER CAP, MALE

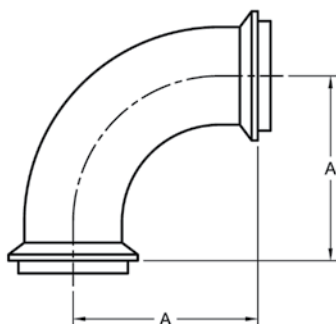
PART NUMBER	SIZE	A
23BI-1	1 X 1/2 NPT	.505
23BI-1.5	1-1/2 X 3/4 NPT	.505
23BI-2	2 X 3/4 NPT	.505
23BI-2.5	2-1/2 X 3/4 NPT	.692
23BI-3	3 X 3/4 NPT	.692
23BI-4	4 X 3/4 NPT	.755
23BI-6	6 X 3/4 NPT	.755

2FI - 90 DEGREE ELBOW, FEMALE X MALE ENDS

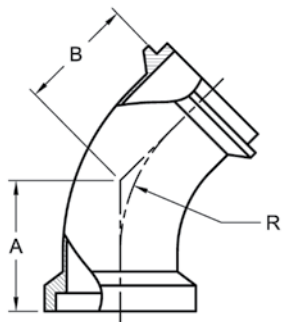
PART NUMBER	SIZE	A	B	R
2FI-1	1	2.286	2.089	1.500
2FI-1.5	1-1/2	3.192	2.996	2.250
2FI-2	2	4.036	3.780	3.000
2FI-2.5	2-1/2	4.911	4.600	3.750
2FI-3	3	5.723	5.412	4.500
2FI-4	4	7.348	7.037	6.000

2CI - 90 DEGREE ELBOW, FEMALE ENDS

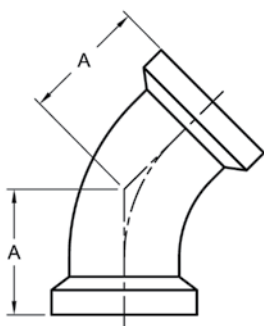
PART NUMBER	SIZE	A
2CI-1	1	2.286
2CI-1.5	1-1/2	3.192
2CI-2	2	4.036
2CI-2.5	2-1/2	4.911
2CI-3	3	5.723
2CI-4	4	7.348

2EI - 90 DEGREE ELBOW, MALE ENDS

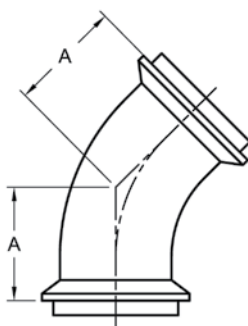
PART NUMBER	SIZE	A
2EI-1	1	2.089
2EI-1.5	1-1/2	2.996
2EI-2	2	3.780
2EI-2.5	2-1/2	4.600
2EI-3	3	5.412
2EI-4	4	7.037

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

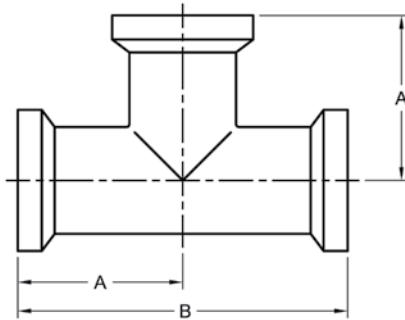
2KI - 45 DEGREE ELBOW, FEMALE ENDS

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

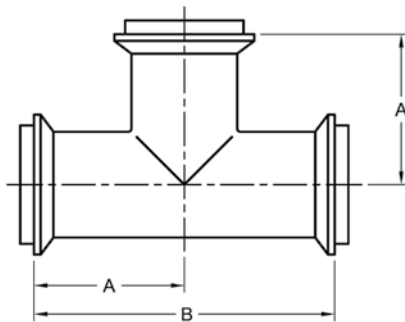
PART NUMBER	SIZE	A
2HI-1	1	1.214
2HI-1.5	1-1/2	1.526
2HI-2	2	2.030
2HI-2.5	2-1/2	2.412
2HI-3	3	2.787
2HI-4	4	3.537

7I - TEE, FEMALE ENDS



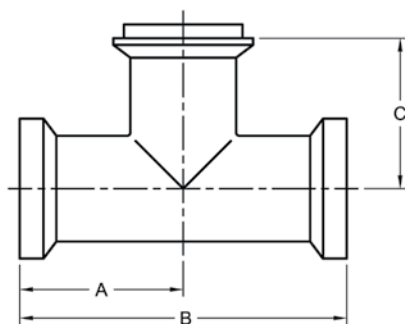
PART NUMBER	SIZE	A	B
7I-1	1	1.911	3.822
7I-1.5	1-1/2	2.598	5.196
7I-2	2	3.099	6.198
7I-2.5	2-1/2	3.505	7.010
7I-3	3	3.817	7.634
7I-4	4	4.786	9.572

7HI - TEE, MALE ENDS



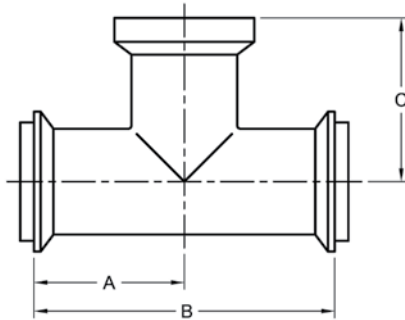
PART NUMBER	SIZE	A	B
7HI-1	1	1.714	3.428
7HI-1.5	1-1/2	2.402	4.804
7HI-2	2	2.843	5.686
7HI-2.5	2-1/2	3.194	6.388
7HI-3	3	3.506	7.012
7HI-4	4	4.475	8.950

7AI - TEE, FEMALE RUN X MALE OUTLET



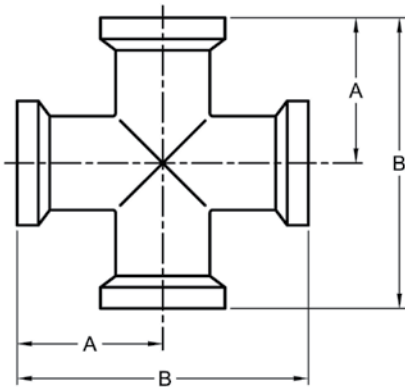
PART NUMBER	SIZE	A	B	C
7AI-1	1	1.911	3.822	1.714
7AI-1.5	1-1/2	2.598	5.196	2.402
7AI-2	2	3.099	6.198	2.843
7AI-2.5	2-1/2	3.505	7.010	3.194
7AI-3	3	3.817	7.634	3.506
7AI-4	4	4.786	9.572	4.475

7EI - TEE, MALE RUN X FEMALE OUTLET



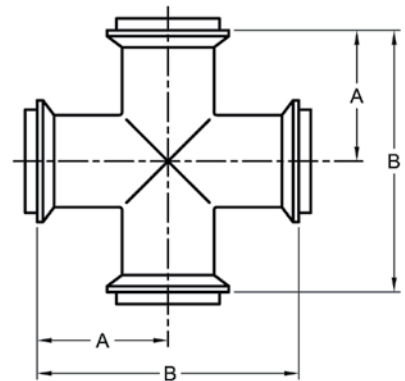
PART NUMBER	SIZE	A	B	C
7EI-1	1	1.714	3.428	1.911
7EI-1.5	1-1/2	2.402	4.804	2.598
7EI-2	2	2.843	5.686	3.099
7EI-2.5	2-1/2	3.194	6.388	3.505
7EI-3	3	3.506	7.012	3.817
7EI-4	4	4.475	8.950	4.786

9I - CROSS, FEMALE ENDS

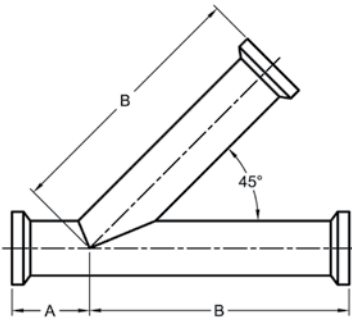


PART NUMBER	SIZE	A	B
9I-1	1	1.911	3.822
9I-1.5	1-1/2	2.598	5.196
9I-2	2	3.099	6.198
9I-2.5	2-1/2	3.505	7.010
9I-3	3	3.817	7.634
9I-4	4	4.786	9.572

9HI - CROSS, MALE ENDS

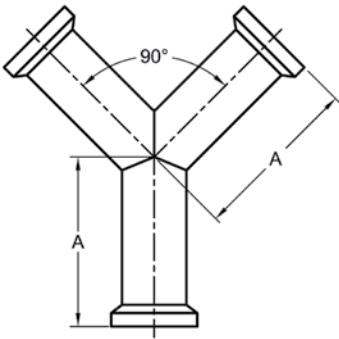


PART NUMBER	SIZE	A	B
9HI-1	1	1.714	3.428
9HI-1.5	1-1/2	2.402	4.804
9HI-2	2	2.843	5.686
9HI-2.5	2-1/2	3.194	6.388
9HI-3	3	3.506	7.012
9HI-4	4	4.475	8.950

28AI - LATERAL WYE, FEMALE ENDS

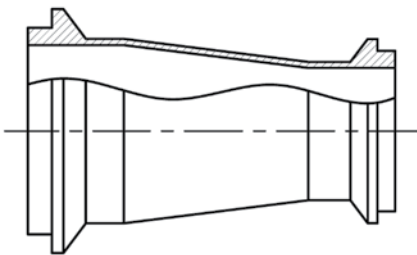
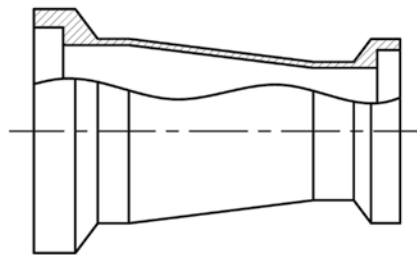
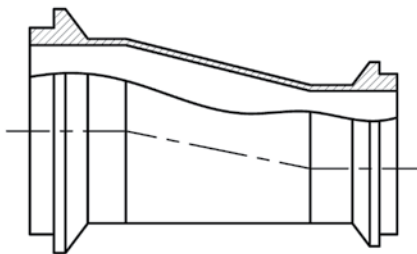
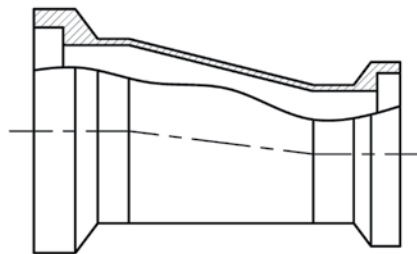
PART NUMBER	SIZE	A	B
28AI-1	1	1.786	5.786
28AI-1.5	1-1/2	2.132	7.132
28AI-2	2	2.656	8.156
28AI-2.5	2-1/2	2.661	9.661
28AI-3	3	3.103	10.103
28AI-4	4	3.408	12.148

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

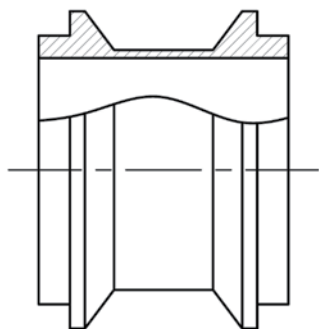
28BI - TRUE WYE, FEMALE ENDS

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

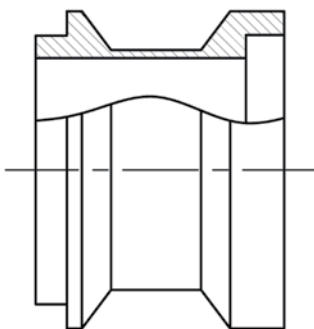
ALSO AVAILABLE WITH MALE I-LINE ENDS
OTHER CONFIGURATIONS AVAILABLE UPON REQUEST

I-LINE REDUCERS AVAILABLE FROM STEEL & O'BRIEN:**31-14I-14I (CONCENTRIC)****31-15I-15I (CONCENTRIC)****32-14I-14I (ECCENTRIC)****32-15I-15I (ECCENTRIC)**

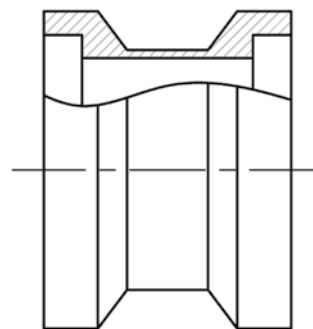
I-LINE ADAPTERS AVAILABLE FROM STEEL & O'BRIEN:



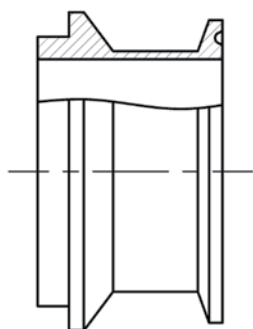
17-14I-14I
(Male I-Line x Male I-Line)



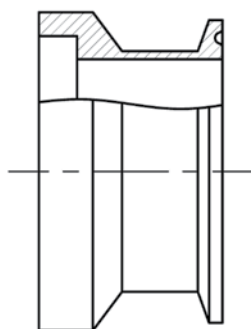
17-14I-15I
(Male I-Line x Female I-Line)



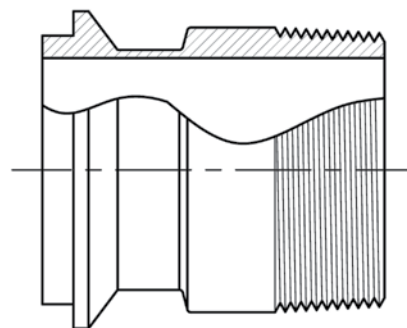
17-15I-15I
(Female I-Line x Female I-Line)



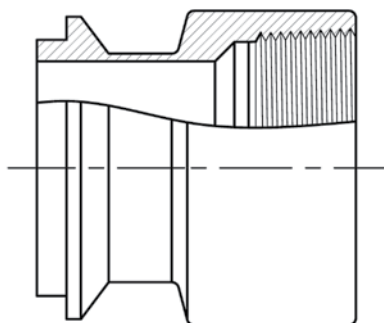
17-14I-14MP
(Male I-Line x Clamp)



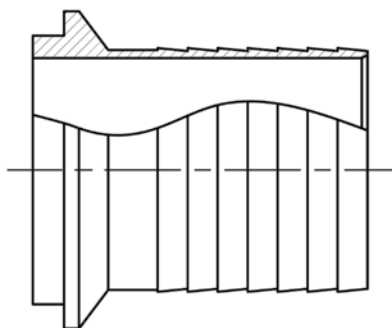
17-15I-14MP
(Female I-Line x Clamp)



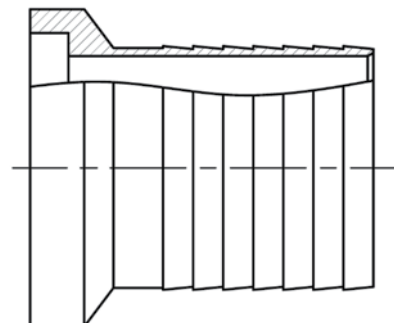
21FI-14I
(Male I-Line x Male NPT)
(also available w/Female I-Line)



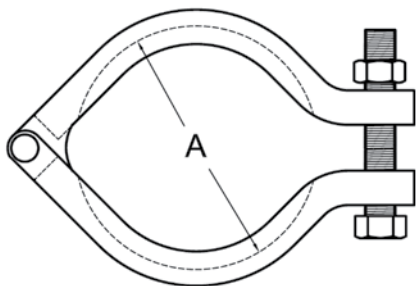
22FI-14I
(Male I-Line x Female NPT)
(also available w/Female I-Line)



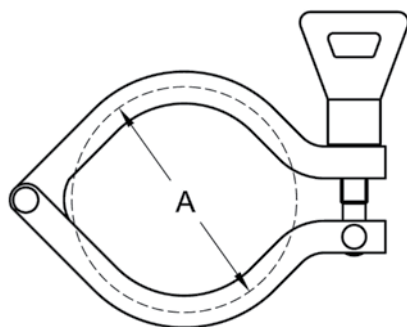
14HRI
(Male I-Line x Rubber Hose)



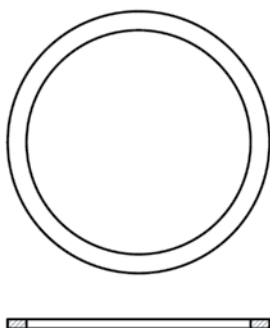
15HRI
(Female I-Line x Rubber Hose)

13I - I-LINE CLAMP, BOLTED STYLE

PART NUMBER	SIZE	A	PSI RATING @ 70° F	PSI RATING @ 250° F
13I-1	1 & 1-1/2	2.124	1220	1100
13I-2	2	2.843	900	830
13I-2.5	2-1/2	3.468	720	660
13I-3	3	4.031	600	550
13I-4	4	5.031	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

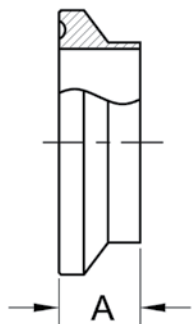
STEEL & O'BRIEN MANUFACTURING



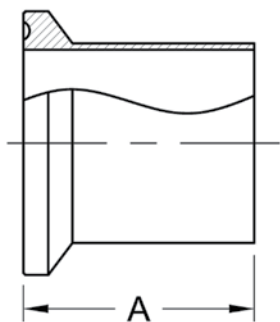
Q-LINE FITTINGS

Don't See What You Need?

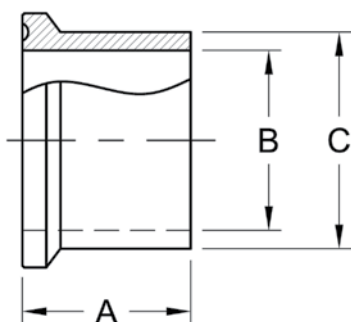
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

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

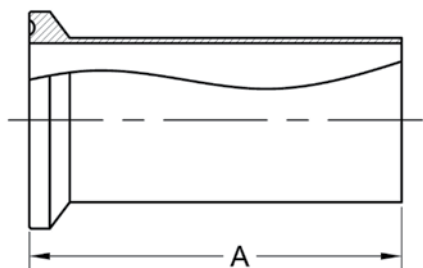
14WLQ - LONG WELD FERRULE

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

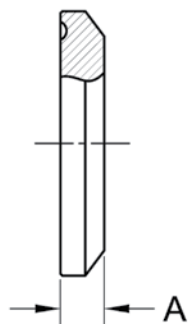
PART NUMBER	SIZE	A	B	C
14WHQ-1	1	1.500	.870	1.250
14WHQ-1.5	1-1/2	1.625	1.370	1.688
14WHQ-2	2	1.750	1.870	2.250
14WHQ-2.5	2-1/2	1.750	2.370	2.750
14WHQ-3	3	1.813	2.870	3.313
14WHQ-4	4	2.125	3.834	4.250
14WHQ-6	6	2.125	5.782	6.500

14HTQ - TYGON HOSE ADAPTER



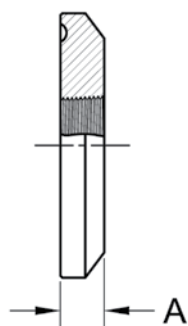
PART NUMBER	SIZE	A
14HTQ-1	1	4.000
14HTQ-1.5	1-1/2	4.500
14HTQ-2	2	4.531
14HTQ-2.5	2-1/2	4.906
14HTQ-3	3	5.093
14HTQ-4	4	5.156

16AQ-14Q - SOLID END CAP



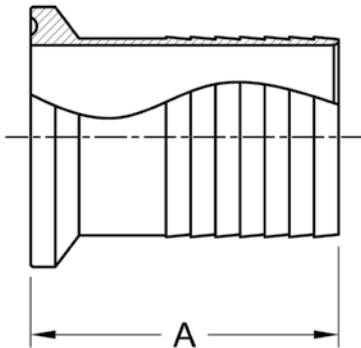
PART NUMBER	SIZE	A
16AQ-14Q-1	1	.313
16AQ-14Q-1.5	1-1/2	.313
16AQ-14Q-2	2	.438
16AQ-14Q-2.5	2-1/2	.500
16AQ-14Q-3	3	.500
16AQ-14Q-4	4	.625
16AQ-14Q-6	6	.675

23BQ - THERMOMETER CAP

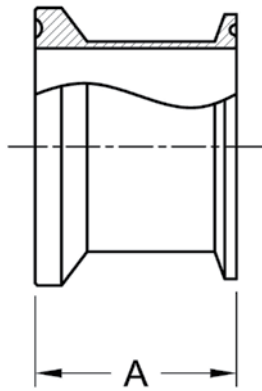


PART NUMBER	SIZE	A
23BQ-1	1	.625
23BQ-1.5	1-1/2	.625
23BQ-2	2	.438
23BQ-2.5	2-1/2	.500
23BQ-3	3	.625
23BQ-4	4	.625

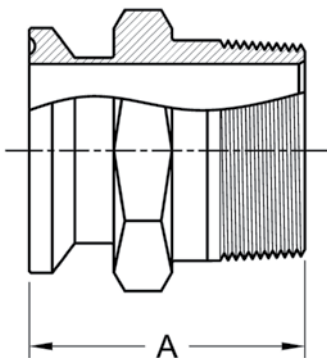
NOTE: 3/4" FEMALE NPT THREAD SIZE IS STANDARD
OTHER SIZES AVAILABLE UPON REQUEST

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

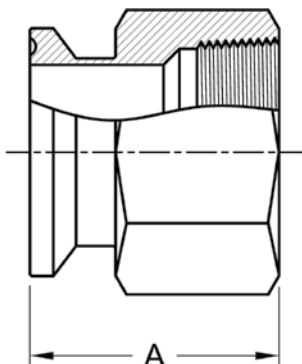
PART NUMBER	SIZE	A
17MP-14Q-1	1	1.656
17MP-14Q-1.5	1-1/2	1.687
17MP-14Q-2	2	1.942
17MP-14Q-2.5	2-1/2	2.062
17MP-14Q-3	3	2.062
17MP-14Q-4	4	2.125

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

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

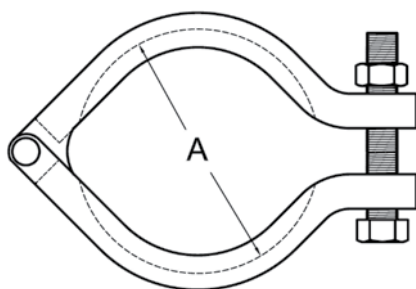
22Q - ADAPTER, Q-LINE x FEMALE NPT



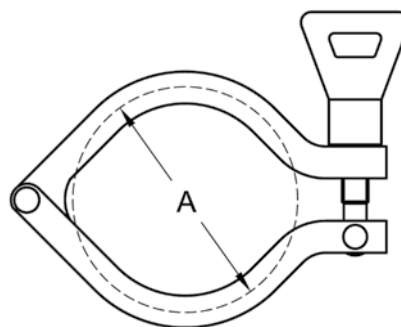
PART NUMBER	SIZE	A
22Q-1	1	1.625
22Q-1.5	1-1/2	2.250
22Q-2	2	2.343
22Q-2.5	2-1/2	2.094
22Q-3	3	2.187
22Q-4	4	2.625

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

13I BOLT STYLE

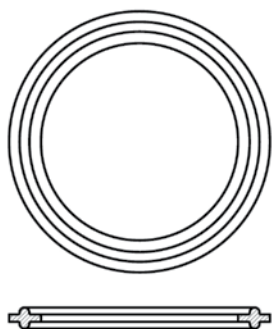


13IS WING NUT STYLE



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

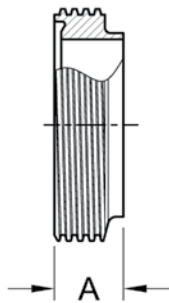
MOST COMMON MATERIAL IS BUNA
OTHER MATERIALS AVAILABLE UPON
REQUEST



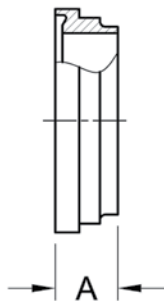
APC/APV FITTINGS

Don't See What You Need?

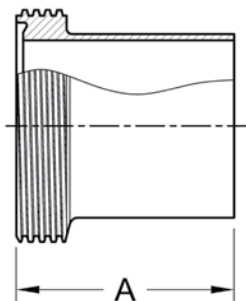
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

PV15WX - APC SHORT WELD FERRULE, THREADED

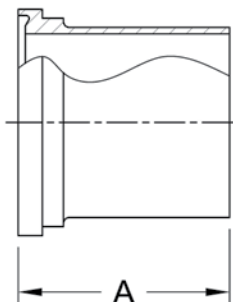
PART NUMBER	SIZE	A
PV15WX-1	1	.690
PV15WX-1.5	1-1/2	.690
PV15WX-2	2	.750
PV15WX-2.5	2-1/2	.844
PV15WX-3	3	.906
PV15WX-4	4	1.000

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

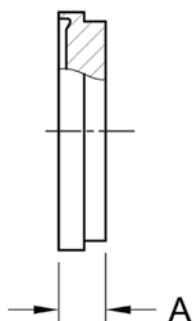
PV15A - APC LONG WELD FERRULE, THREADED

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

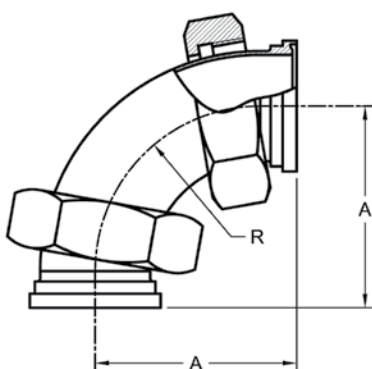
PART NUMBER	SIZE	A
PV14A-1	1	1.297
PV14A-1.5	1-1/2	1.770
PV14A-2	2	2.218
PV14A-2.5	2-1/2	2.375
PV14A-3	3	2.562
PV14A-4	4	2.578

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

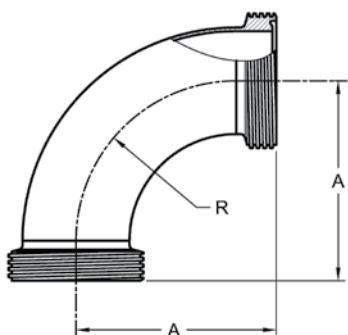
PV2E - APC 90 DEGREE ELBOW, PLAIN ENDS



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

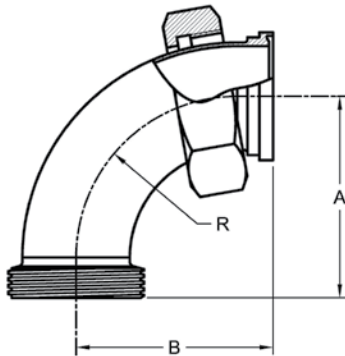
SEE 13H STANDARD HEX NUT PAGE 60

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

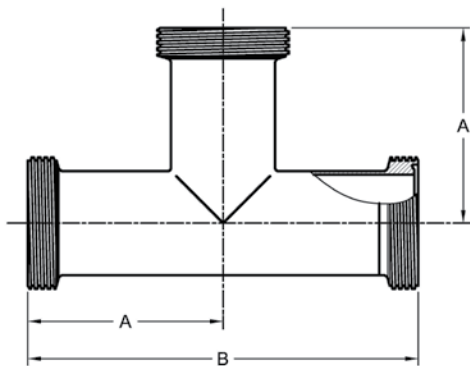
PV2F - APC 90 DEGREE ELBOW, THREADED X PLAIN ENDS



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

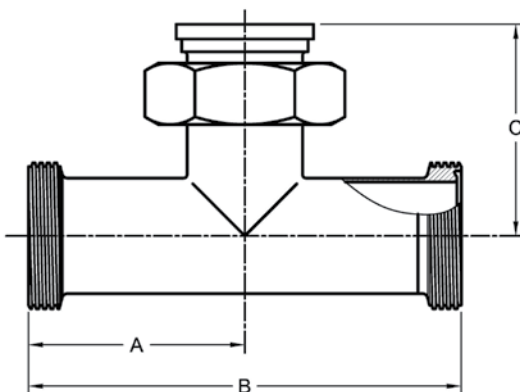
CAPTIVE NUT IS INCLUDED
FOR 13H HEX NUT DETAILS SEE PG. 89

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

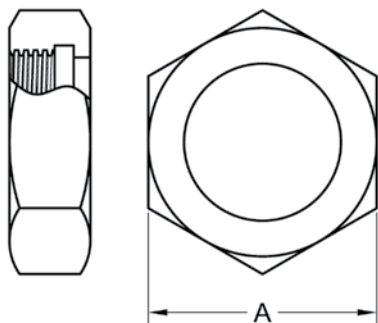
PV7A - APC TEE, THREADED X THREADED X PLAIN OUTLET



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. 89

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

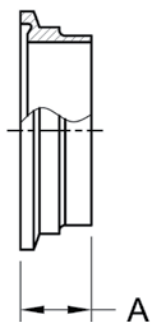
40APC - GASKET



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,
SEE PAGE 26 FOR CLAMPS

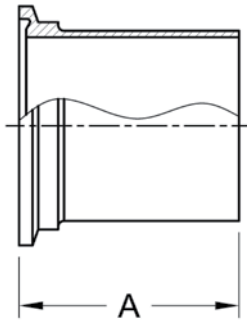
PV14WMP - APC WELD FERRULE, SHORT



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

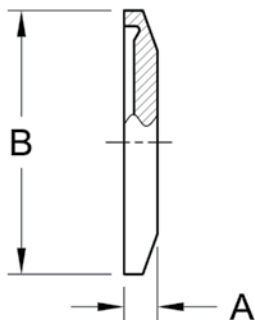
PV14AMP - APC WELD FERRULE, LONG



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

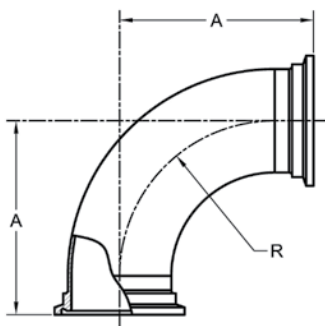
PV16AMP - APC SOLID END CAP



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

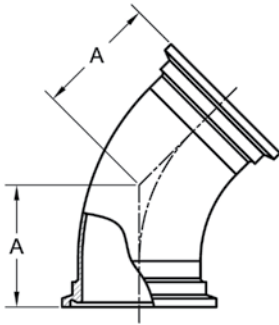
PV2CMP - APC 90 DEGREE ELBOW, APV CLAMP ENDS



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

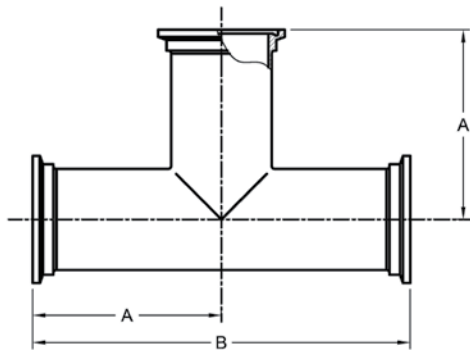
PV2KMP - APC 45 DEGREE ELBOW, APV CLAMP ENDS



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

STEEL & O'BRIEN MANUFACTURING

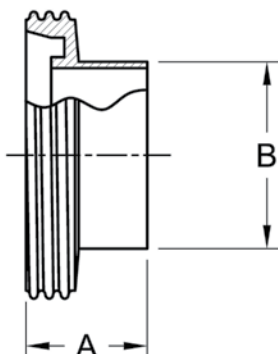


EUROPEAN DIN FITTINGS

Don't See What You Need?

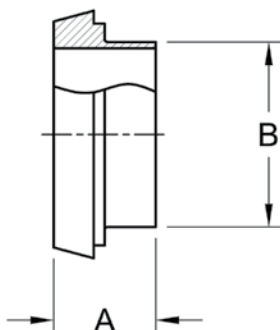
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

DIN CONNECTION x TUBE O.D. WELD CONNECTION
DN15SC - 15DIN THREAD (DIN 11851) X SANITARY TUBE WELD



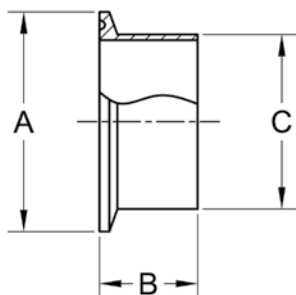
PART NUMBER	SIZE	A	B
DN15SC-1	DN25 X 1	1.143	1.000
DN15SC-1.5	DN40 X 1-1/2	1.300	1.500
DN15SC-2	DN50 X 2	1.378	2.000
DN15SC-2.5	DN65 X 2-1/2	1.575	2.500
DN15SC-3	DN80 X 3	1.772	3.000
DN15SC-4	DN100 X 4	2.126	4.000

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



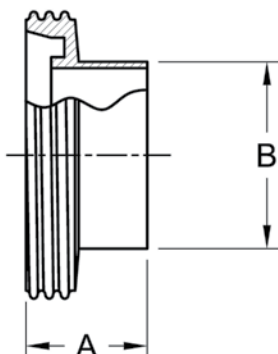
PART NUMBER	SIZE	A	B
DN14SD-1	DN25 X 1	.866	1.000
DN14SD-1.5	DN40 X 1-1/2	1.025	1.500
DN14SD-2	DN50 X 2	1.102	2.000
DN14SD-2.5	DN65 X 2-1/2	1.260	2.500
DN14SD-3	DN80 X 3	1.460	3.000
DN14SD-4	DN100 X 4	1.732	4.000

DN14WMPAS - DIN 32676 CLAMP X SANITARY TUBE WELD



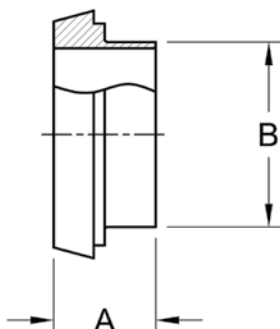
PART NUMBER	SIZE	A	B	C
DN14WMPAS-DN20	DN20 X 3/4	1.339	.625	.750
DN14WMPAS-DN25	DN25 X 1	1.988	.846	1.000
DN14WMPAS-DN40	DN40 X 1-1/2	1.988	.846	1.500
DN14WMPAS-DN50	DN50 X 2	2.539	.500	2.000
DN14WMPAS-DN80	DN80 X 3	4.173	.500	3.000
DN14WMPAS-DN100	DN100 X 4	4.685	1.102	4.000

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



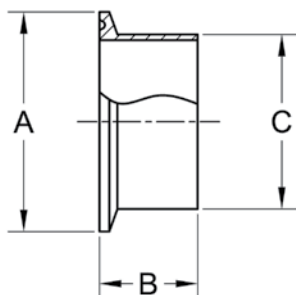
PART NUMBER	SIZE	A	B
DN15SCM-DN25	DN25	1.143	1.142
DN15SCM-DN40	DN40	1.300	1.614
DN15SCM-DN50	DN50	1.378	2.087
DN15SCM-DN65	DN65	1.575	2.755
DN15SCM-DN80	DN80	1.772	3.346
DN15SCM-DN100	DN100	2.126	4.094

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



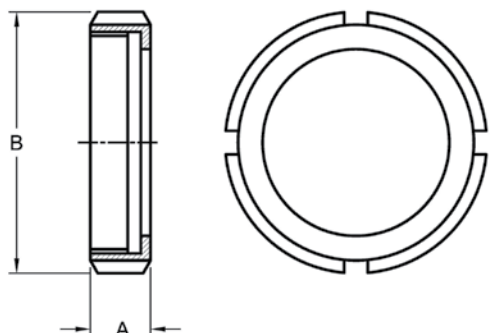
PART NUMBER	SIZE	A	B
DN14SDM-DN25	DN25	.866	1.142
DN14SDM-DN40	DN40	1.025	1.614
DN14SDM-DN50	DN50	1.102	2.087
DN14SDM-DN65	DN65	1.260	2.755
DN14SDM-DN80	DN80	1.460	3.346
DN14SDM-DN100	DN100	1.732	4.094

DN14WMPMAS - DN 32676 CLAMP X METRIC TUBE WELD



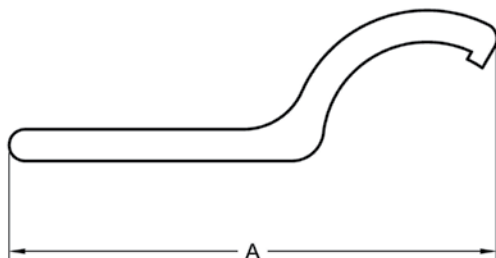
PART NUMBER	SIZE	A	B	C
DN14WMPMAS-DN20	DIN 20	1.339	.709	.906
DN14WMPMAS-DN25	DIN 25	1.988	.846	1.142
DN14WMPMAS-DN40	DIN 40	1.988	.846	1.614
DN14WMPMAS-DN50	DIN 50	2.520	.846	2.087
DN14WMPMAS-DN80	DIN 80	4.173	1.102	3.346
DN14WMPMAS-DN100	DIN 100	4.685	1.102	4.094

DN13R - DIN ROUND NUT



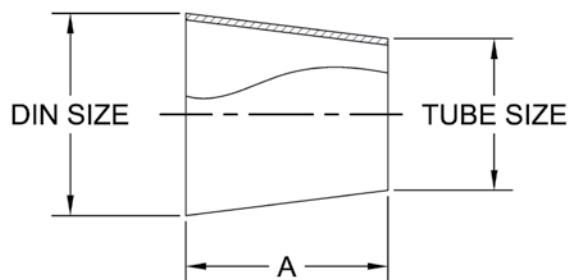
PART NUMBER	SIZE	A	B
DN13R-DN25	DN25	.827	2.480
DN13R-DN40	DN40	.827	3.071
DN13R-DN50	DN50	.866	3.622
DN13R-DN65	DN65	.984	4.409
DN13R-DN80	DN80	1.142	5.000
DN13R-DN100	DN100	1.220	5.827

25HD - DIN SPANNER WRENCH



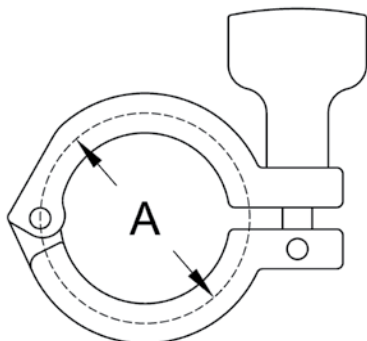
PART NUMBER	SIZE	A
25HD-25-50	DN25 - DN50	9.5
25HD-65-100	DN65 - DN100	10.0
25HD-100-150	DN100 - DN150	11.0

DIN31W - DIN X SANITARY TUBE BW



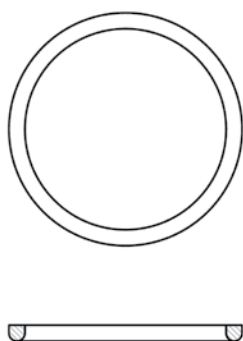
PART NUMBER	DIN SIZE	TUBE SIZE	A
DN31W-DN20X1	DN20 - (.905)	1.000	.380
DN31W-DN25X1	DN25 - (1.142)	1.000	.567
DN31W-DN40X1.5	DN40 - (1.614)	1.500	1.000
DN31W-DN50X2	DN50 - (2.087)	2.000	1.250
DN31W-DN65X2.5	DN65 - (2.756)	2.500	1.024
DN31W-DN80X3	DN80 - (3.346)	3.000	1.125
DN31W-DN100X4	DN100 - (4.094)	4.000	2.000

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 VITON MATERIALS.
FOR USE WITH THREADED DIN FITTINGS.

STEEL & O'BRIEN MANUFACTURING

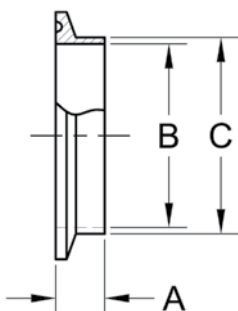


PIPE SIZE SANITARY FITTINGS

Don't See What You Need?

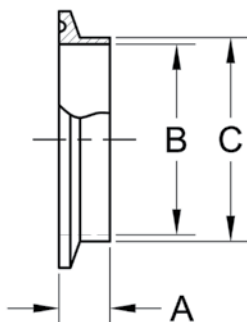
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

14WMV - SCHEDULE 5 SHORT WELD FERRULE



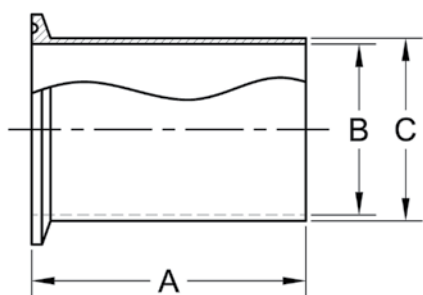
PART NUMBER	SIZE	A	B	C
14WMV-1	1	.500	1.185	1.315
14WMV-1.5	1-1/2	.500	1.770	1.900
14WMV-2	2	.500	2.245	2.375
14WMV-2.5	2-1/2	.500	2.709	2.875
14WMV-3	3	.500	3.334	3.500
14WMV-4	4	.625	4.334	4.500
14WMV-6	6	.875	6.407	6.625
14WMV-8	8	.875	8.407	8.625
14WMV-10	10	1.000	10.482	10.750
14WMV-12	12	1.000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

14WMX - SCHEDULE 10 SHORT WELD FERRULE

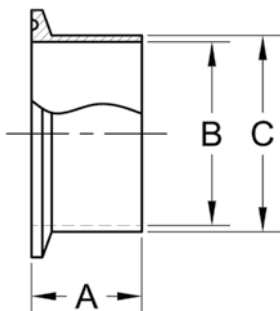


PART NUMBER	SIZE	A	B	C
14WMX-1	1	.500	1.097	1.315
14WMX-1.5	1-1/2	.500	1.682	1.900
14WMX-2	2	.500	2.157	2.375
14WMX-2.5	2-1/2	.500	2.635	2.875
14WMX-3	3	.500	3.260	3.500
14WMX-4	4	.625	4.260	4.500
14WMX-6	6	.875	6.375	6.625
14WMX-8	8	.875	8.329	8.625
14WMX-10	10	1.000	10.420	10.750
14WMX-12	12	1.000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

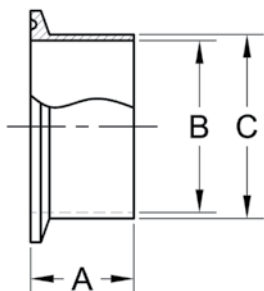
14WLMV - SCHEDULE 5 TANK SPUD (LIGHT)



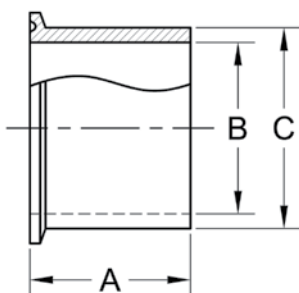
PART NUMBER	SIZE	A	B	C
14WLMV-1	1	3.000	1.185	1.315
14WLMV-1.5	1-1/2	3.000	1.770	1.900
14WLMV-2	2	3.000	2.245	2.375
14WLMV-2.5	2-1/2	4.000	2.709	2.875
14WLMV-3	3	4.000	3.334	3.500
14WLMV-4	4	4.000	4.334	4.500
14WLMV-6	6	6.000	6.407	6.625
14WLMV-8	8	8.000	8.407	8.625

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

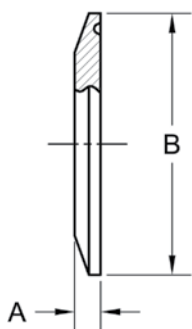
L14AMX - SCHEDULE 10 WELD FERRULE

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)

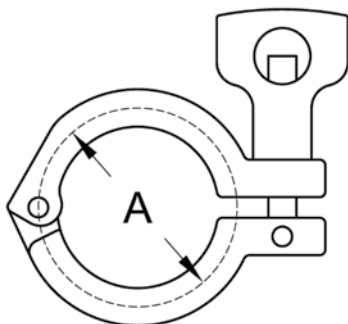
PART NUMBER	SIZE	A	B	C
14MVW-1	1	1.625	1.185	1.531
14MVW-1.5	1-1/2	1.625	1.770	2.109
14MVW-2	2	1.750	2.245	2.594
14MVW-2.5	2-1/2	1.750	2.709	3.109
14MVW-3	3	1.812	3.334	3.562
14MVW-4	4	2.125	4.334	4.562

16AMV - SCHEDULE 5 SOLID END CAP



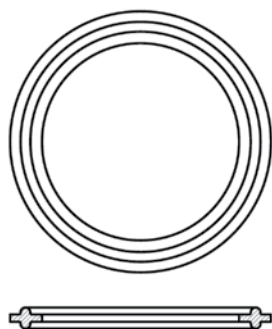
PART NUMBER	SIZE	A	B
16AMV-1	1	.250	1.984
16AMV-1.5	1-1/2	.250	2.516
16AMV-2	2	.250	3.047
16AMV-2.5	2-1/2	.250	3.579
16AMV-3	3	.313	4.125
16AMV-4	4	.313	5.125
16AMV-6	6	.460	7.195
16AMV-8	8	.500	9.200
16AMV-10	10	.500	11.320
16AMV-12	12	.500	13.312

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

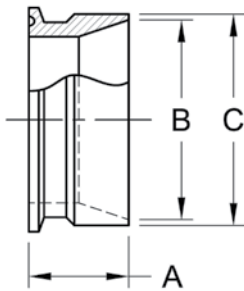
SCHEDULE 5 GASKETS



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
40MPV-6	6
40MPV-8	8

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

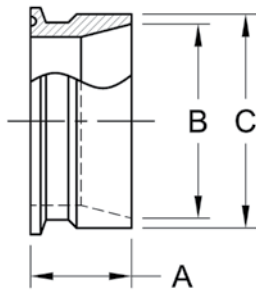
19MPV - SANITARY CLAMP X SCHEDULE 5 PIPE ADAPTER



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

VARIOUS OVERALL LENGTHS AVAILABLE UPON REQUEST

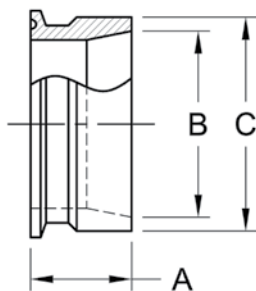
19MPX - SANITARY CLAMP X SCHEDULE 10 PIPE ADAPTER



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

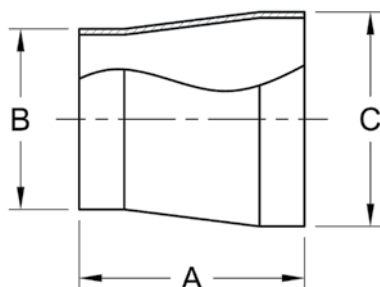
VARIOUS OVERALL LENGTHS AVAILABLE UPON REQUEST

19MP40 - SANITARY CLAMP X SCHEDULE 40 PIPE ADAPTER



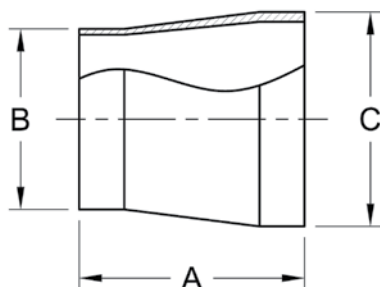
PART NUMBER	SIZE	A	B	C
19MP40-.50	1/2	1.500	.622	.840
19MP40-.75	3/4	1.500	.824	1.050
19MP40-1	1	1.125	1.049	1.315
19MP40-1.5	1-1/2	1.125	1.610	1.900
19MP40-2	2	1.125	2.067	2.375
19MP40-2.5	2-1/2	1.125	2.469	2.875
19MP40-3	3	1.125	3.068	3.500
19MP40-4	4	1.125	4.026	4.500
19MP40-6	6	1.125	6.065	6.625

VARIOUS OVERALL LENGTHS AVAILABLE UPON REQUEST

19WV - TUBE X SCHEDULE 5 PIPE ADAPTER


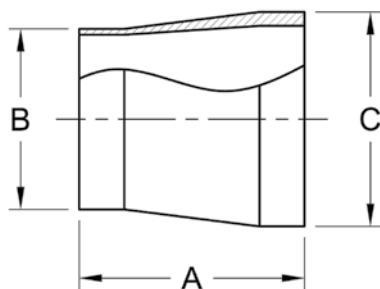
PART NUMBER	SIZE	A	B	C
19WV-.50	1/2	1.500	.500	.840
19WV-.75	3/4	1.500	.750	1.050
19WV-1	1	1.500	1.000	1.315
19WV-1.5	1-1/2	1.500	1.500	1.900
19WV-2	2	2.500	2.000	2.375
19WV-2.5	2-1/2	2.500	2.500	2.875
19WV-3	3	3.000	3.000	3.500
19WV-4	4	3.000	4.000	4.500
19WV-5	5	3.000	5.000	5.563
19WV-6	6	4.000	6.000	6.625
19WV-8	8	2.000	8.000	8.625
19WV-10	10	2.500	10.000	10.750

VARIOUS OVERALL 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
19WX-5	5	3.000	5.000	5.563
19WX-6	6	3.000	6.000	6.625
19WX-8	8	2.000	8.000	8.625
19WX-10	10	2.000	10.000	10.750
19WX-12	12	2.000	12.000	12.750

VARIOUS OVERALL 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
19W40-6	6	2.500	6.000	6.625
19W40-8	8	1.500	8.000	8.625
19W40-10	10	3.000	10.000	10.750

VARIOUS OVERALL LENGTHS AVAILABLE UPON REQUEST

STEEL & O'BRIEN MANUFACTURING



TUBING & HANGERS

Don't See What You Need?

We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

TUBING & HANGERS

ASTM-A270 TUBING - POLISHED (20RA ID/32RA OD)

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

* OVALITY CANNOT EXCEED THE OD RANGE

** 1/2" X 3/4" OD TUBING AVAILABLE IN SEAMLESS 316L MATERIAL ONLY

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 above, 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.

TUBING HANGERS AVAILABLE FROM S&O:



24PCP
HANGER W/ 3/8 ROD COUPLING



26CB
HANGER TAKE DOWN STYLE
W/ EPDM SLEEVE



24RG
HANGER W/ RUBBER GROMMET



26LC
HANGER TAKE DOWN
W/ EPDM INSERT



BEHRINGER HANGERS



24PVC
HANGER W/ PVC INSERT

WALL FLANGES



Tube Size (16 GA)
Available with Flush or Lip Edge

STEEL & O'BRIEN MANUFACTURING



VALVES, SIGHT GLASSES & SPRAY BALLS

Don't See What You Need?

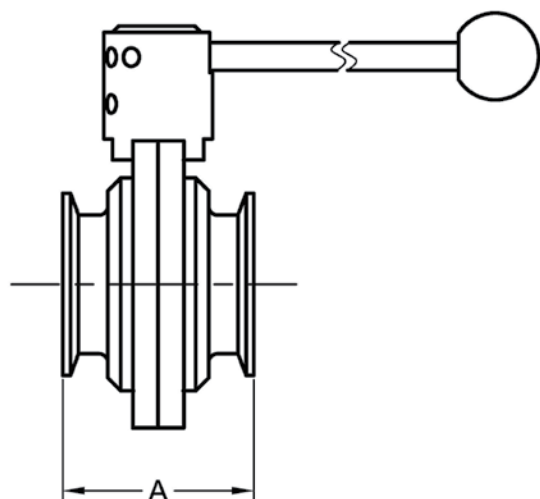
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

S&O SERIES BUTTERFLY VALVES



Butterfly valves are ideal for food and beverage applications. They are offered in a wide range of sizes and connection standards to meet many diverse applications. These valves are proven to be reliable with high viscous products, high temperatures, and corrosive environments.

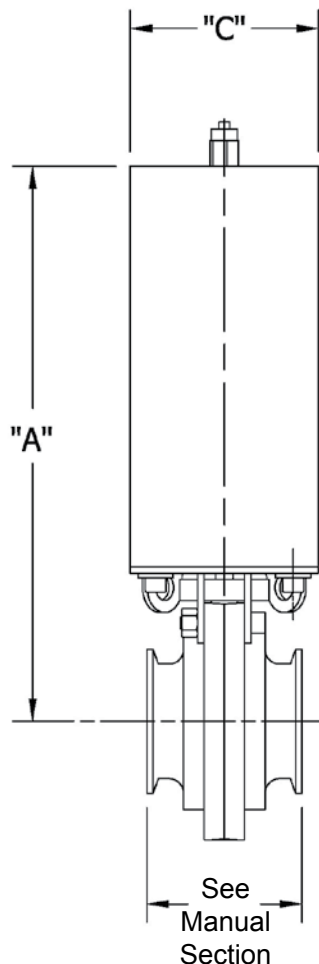
Butterfly valves from Steel & O'Brien are available in clamp and butt weld ends. Other end connections can be furnished upon request.



- Available in 4-position pull handle or 12-position trigger handle
12-position metal (304ss) trigger handle
- Low resistance to product flow
- Suitable for low to high viscosity fluids
- Field serviceable
- Self-draining
- Available in 304 and 316L.
- Silicone, EPDM and Viton seals available
- Polished to 32Ra I.D./O.D.

VALVE SIZE	A (CLAMP ENDS)	B (WELD ENDS)	PRESSURE RATING (@68°F)	SEAT REPLACEMENT (SUFFIX: -SILICONE, -EPDM, -VITON)
1	2.60	2.68	145 PSIG (10 BAR)	BFV-SEAT-1
1-1/2	2.60	2.99		BFV-SEAT-1.5
2	2.75	3.15		BFV-SEAT-2
2-1/2	2.75	3.15		BFV-SEAT-2.5
3	3.00	3.23		BFV-SEAT-3
4	3.00	3.47		BFV-SEAT-4
6	5.50	N/A		BFV-SEAT-6

S&O SERIES BUTTERFLY VALVES



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

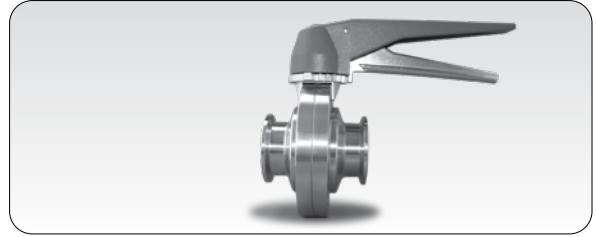
- Required Actuation Air Pressure:
73 psi (min.) - 130 psi (max.)
- Actuator material: 304ss
- Actuator spare parts available, includes:
Lock wire clip
Contact seal
PTFE gaskets
SS E Circlip
X-Ring Seal
O-Rings
- Available in "Normally Open", "Normally Closed" and "Dual Acting" actuation.
- 1" - 3" is low mount actuator
4" requires adapter for mounting (included).
- Available in 304 and 316L. (actuator 304)
- Silicone, EPDM and Viton seals available.
- Polished to 32Ra I.D./O.D.
- Actuators provided with 1/4" airline to M10 x 1 threaded adapter
- Proximity switch mounting ports on Actuators
1" - 3" = (2) M12 x 1 female thread
4" = (2) 12.5mm dia.
- Available with various end connections
- Actuator can mount to existing butterfly valves

SIZE	A	C
1	8.91	3.35
1-1/2	9.02	3.35
2	9.53	3.35
2-1/2	9.58	3.35
3	9.81	3.35
4	15.44	4.73

TOP-FLO® BUTTERFLY VALVES

TOP-FLO® Value

- Ideally suited for the beer and wine industries
- Sizes: 1", 1-1/2", 2", 2-1/2", 3", 4"
- Material: 316L SS
- Seal Material: EPDM
- Connections: clamp only
- 12 position trigger handle
- Manual operation only
- Part numbers listed in short URL



TOP-FLO® VALUE - Manual Butterfly Valve							
Body/Disc Material & End Connections		Valve Size		Seal Material		Manual Handle Type	
38301	316L MATERIAL - CLAMP ENDS	10	1	EP	EPDM	M12	12-POSITION PLASTIC/SS TRIGGER HANDLE
		15	1-1/2	NOTES: AUTOMATION IS NOT AVAILABLE FOR VALUE SERIES BVF			
		20	2				
		25	2-1/2				
		30	3				
		40	4				

TOP-FLO® Standard

- Sizes: 1/2", 3/4", 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 bevel seat (optional)
(other connections available upon request)
- Four position spring loaded flat handle
- Optional 13 position SS trigger handle
- Air and electric actuators available
- Variety of controls available
- Part numbers listed in short URL



TOP-FLO® STANDARD - Manual Butterfly Valve							
Body/Disc Material & End Connections		Valve Size		Seal Material		Manual Handle Type	
32201	304 MATERIAL - CLAMP ENDS	05	1/2	S	P/C Silicone	--	4-POSITION FLAT HANDLE
35128	304 MATERIAL - WELD ENDS	07	3/4	EP	EPDM	M9	9-POSITION LOCKABLE TRIGGER HANDLE (304SS)
38201	316L MATERIAL - CLAMP ENDS	10	1	V	FKM	PH4	4-POSITION PULL HANDLE W/ KNOB
39128		15	1-1/2	NOTES: M9 9-POSITION HANDLES ARE FOR SIZES 1" - 4" ONLY *8" VALVE ONLY AVAILABLE IN CLAMP ENDS / EPDM SEAL / PH4 HANDLE PH4 HANDLE NOT AVAILABLE FOR 6" VALVE			
		20	2				
		25	2-1/2				
		30	3				
		40	4				
		60	6				
		80	8				

TOP-FLO® STANDARD - Automated Butterfly Valve						80	8	
Body/Disc Material & End Connections		Series	Valve Size		Seal Material		Automation Type	
32	304 MATERIAL - CLAMP ENDS	S	10	1	S	P/C Silicone	A1	TA SERIES DOUBLE ACTING - 80 PSI AIR SUPPLY
35	304 MATERIAL - WELD ENDS		15	1-1/2	E	EPDM	A2	TA SERIES DOUBLE ACTING - 60 PSI AIR SUPPLY
38	316L MATERIAL - CLAMP ENDS		20	2	V	FKM	S1	TA SERIES SPRING RETURN - 80 PSI AIR SUPPLY
39	316L MATERIAL - WELD ENDS		25	2-1/2			S2	TA SERIES SPRING RETURN - 60 PSI AIR SUPPLY
			30	3			E1	WE SERIES - 115VAC - NEMA 4,4X,6 - OPEN/CLOSE
			40	4			E2	WE SERIES - 24VDC - NEMA 4,4X,6 - OPEN/CLOSE
			60	6			E3	WE SERIES - 220VAC - NEMA 4,4X,6 - OPEN/CLOSE
			80	8			C1	SS CANISTER - S/R - 80 PSI AIR SUPPLY
						C2	SS CANISTER - D/A - 80 PSI AIR SUPPLY	
						EM1	WEM SERIES - 115VAC - NEMA 4,4X,6 - 4-20mA MODULATING	
						EM2	WEM SERIES - 24VDC - NEMA 4,4X,6 - 4-20mA MODULATING	
							EM3	WEM SERIES - 220VAC - NEMA 4,4X,6 - 4-20mA MODULATING

NOTES:

ACTUATOR OPTION CODES C1 & C2 ARE FOR VALVE SIZES 1" - 4" ONLY

NOTES:
ACTUATOR OPTION CODES C1 & C2 ARE FOR VALVE SIZES 1" - 4" ONLY

Premium - Definox

- 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" Silicone, 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 part numbers consult factory

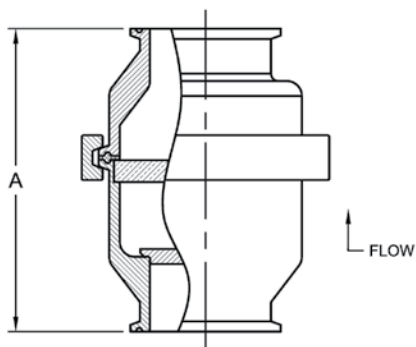
DISC CHECK VALVES (LONG)



Check valves are designed to allow product flow in one direction while preventing flow in the opposite direction.

Check valves are 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 minimizes leakage in low pressure systems.

Steel & O'Brien manufactures these precision machined valves in a variety of end configurations.



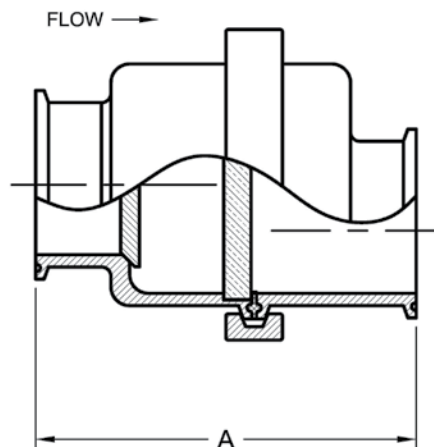
- Works well in high or low pressure systems
- All wetted surfaces polished to 32Ra or better
- Field serviceable with no special tools required
- Available with or without o-ring seal
- Other than the clamp and spring, all stainless steel components are manufactured at Steel & O'Brien
- Assembled with 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.
CALL STEEL & O'BRIEN FOR DETAILS ON OTHER CONFIGURATIONS.

For biopharm applications - reference 45MP sub-variant Top-Flo T45MP product data.



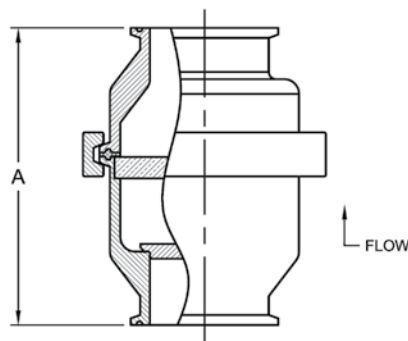
- Horizontal style available
(Example part no. 45EMP-1)

DISK CHECK VALVES (COMPACT)



Steel & O'Brien's compact check valves are designed to work in various sanitary markets where increased pressure drop is not a concern. Functionality is identical to the standard check valve offering, while lightweight and using less space.

The spring loaded design makes this valve fully automatic. Designed to allow flow in one direction while preventing flow in the opposite direction.



- Works well in high or low pressure systems
- All wetted surfaces polished to 32Ra or better
- Field serviceable with no special tools required
- 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

REPAIR KIT INCLUDES:

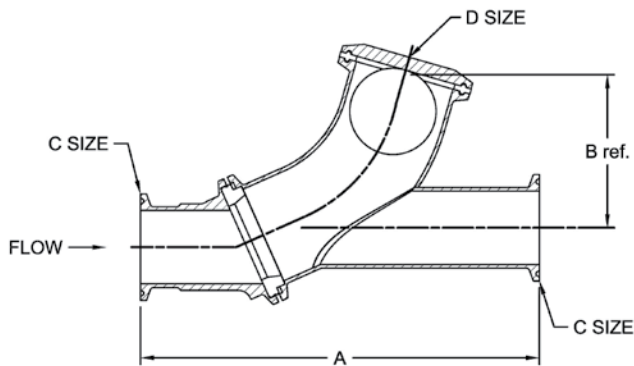
SPRING, PLUNGER O-RING, EPDM BODY ORING(S)
(VITON BODY ORINGS AVAILABLE)

NOTE: TEMPERATURE AND PRESSURE RATINGS VARY BASED ON
GASKET MATERIAL.

BALL CHECK VALVES



Ball check valves prevent back flow, while allowing full flow of product during processing. Product flow pushes the ball into the larger trap and out of the product stream. When product flow stops, the ball returns to the closed position preventing back flow.



- PTFE Ball
- 316L stainless steel body construction
- EPDM/CF8M Stainless Seat
- Two-Piece construction
- Various end connections available upon request
- 32Ra Finish on Wetted Surfaces
- Replacement Seats Available in:
EPDM/CF8M and Viton/CF8M
- Replacement Ball Available in:
Teflon

PART NUMBER	SIZE	A	B	C SIZE	D SIZE
45BYMP-1.5	1-1/2	7.500	3.300	1-1/2	2
45BYMP-2	2	8.500	3.900	2	2-1/2
45BYMP-2.5	2-1/2	10.000	4.500	2-1/2	3
45BYMP-3	3	11.500	5.300	3	4

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.

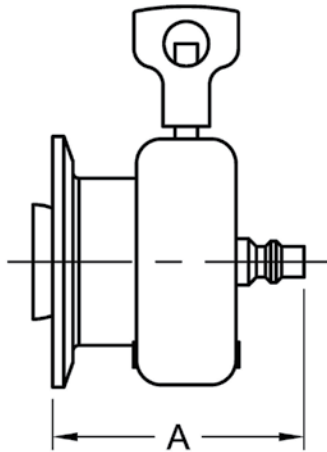
Steel & O'Brien offers these valves in various air supply configurations.

• Available standard with quick disconnect, female NPT, or hose barb style air supply connections.

• FDA EPDM STOPPER

• 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

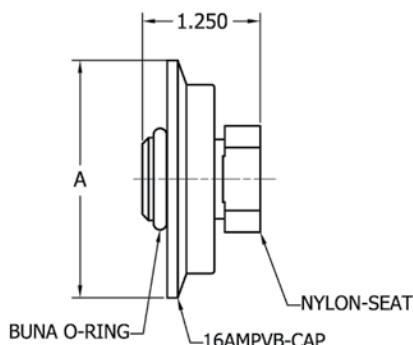
NOTE: DRAWING, PART NUMBERS, AND DIMENSIONS SHOWN ARE FOR CLAMP END STYLE AIR BLOW CHECK VALVE WITH QUICK DISCONNECT CONNECTION. CALL STEEL & O'BRIEN FOR DETAILS ON OTHER CONFIGURATIONS.

16AMPVB - VACUUM BREAKER VENT VALVE

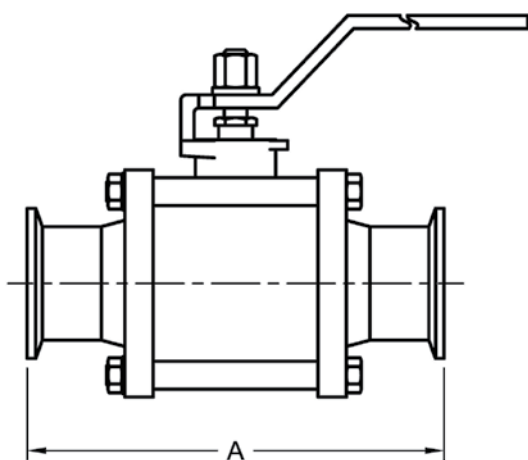
Vacuum breaker vent valve prevents the formation of a vacuum in the process line.

Offered in 1-1/2" to 4" clamp sizes.

Generally installed at the highest point in the system. Not for use in tanks.



MANUAL 2-WAY BALL VALVES

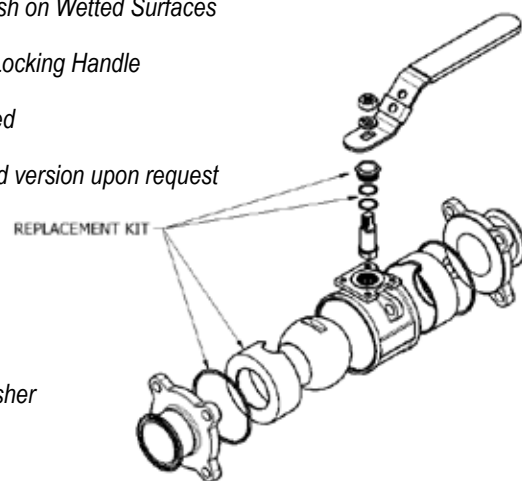


Ball valves are quarter-turn, straight through valves that utilize a ball to restrict flow by sealing around matching seats. Ball valves are utilized in situations where complete shut-off is required. Ball valves offer ease of operation and can maintain and regulate high-pressure, high-volume, and high-temperature 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
- Encapsulated Seats
- ISO 5211 Mounting Pad
- Available only in 316L
- 32Ra Finish on Wetted Surfaces
- Includes Locking Handle
- 3A Certified
- Automated version upon request

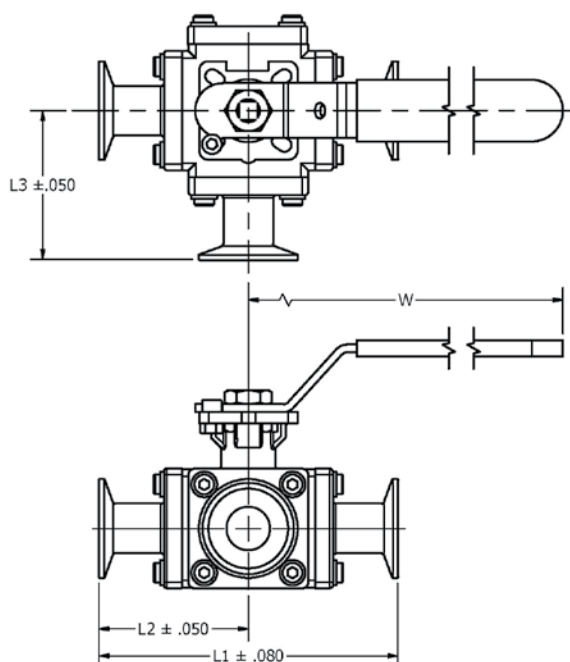
- Replacement kit includes:
Ball seats, Body gaskets, Thrust washer and Stem seals



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	800 PSI	100 PSI	BLV2-REPLKIT-25
BLV2C-3	3	9.02	800 PSI	100 PSI	BLV2-REPLKIT-3
BLV2C-4	4	9.57	800 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.

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



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
- Encapsulated Teflon Seats
- ISO 5211 Mounting Pad
- Available only in 316ss
- 32Ra Finish on Wetted Surfaces
- Available in 1/2" to 4" sizes.
(4" has a reducing port design)
- Replacement Kits Available, Include:
Ball Seats
Body Gasket
Thrust Washer
Stem Seal
- CF8M Stainless Body, Ends and Ball
- Includes Locking Handle

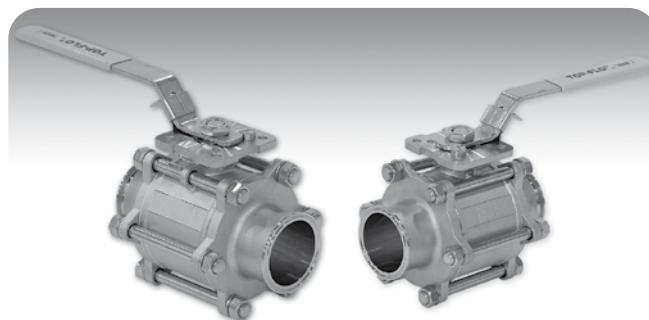
PART NUMBER	SIZE	L1	L2	L3	W	PRESSURE RATING @ 70°F	PRESSURE RATING @ 300°F
BLV3CL-.50	1/2	4.65	2.32	2.32	5.60	1000 PSI	175 PSI
BLV3CL-.75	3/4	5.00	2.50	2.50	5.60	1000 PSI	175 PSI
BLV3CL-1	1	6.00	2.99	3.00	6.40	1000 PSI	175 PSI
BLV3CL-1.5	1-1/2	6.89	3.45	3.45	7.67	1000 PSI	175 PSI
BLV3CL-2	2	7.48	3.74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

Features:

- 360° Installation - valve may be installed in any position
- PTFE cavity fillers are precision machined to maintain sanitary environment.
- Easy "In-line" servicing. Unique design allows valve ends to remain attached while servicing valve body.
- No special tools needed
- Minimal turbulence - maximum flow through
- ISO 5211 Mounting Pad
- Surface finish ID: 20Ra



ALTERNATE END CONNECTIONS UPON REQUEST -
CONSULT FACTORY FOR OPTIONS

Mechanical Specifications:

- 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 SERIES	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		

Automated - Part Number Matrix

MATERIAL	END CONNECTIONS	VALVE SERIES	SIZE	SEAT MATERIAL	AUTOMATED TYPE
3 316 SS	8 C x C	4 TF4 SERIES	05 1/2	P CAVITY FILLED PTFE	A1 DOUBLE ACTING - 80 PSI SUPPLY
	9 BW x BW		07 3/4	N NON-CAVITY FILLED PTFE	A2 DOUBLE ACTING - 60 PSI SUPPLY
	C C x BW		10 1	S NON-CAVITY FILLED 50/50 PTFE	A3 SS DOUBLE ACTING - 80 PSI SUPPLY
	T WELD TANK FLANGE X C		15 1-1/2		A4 SS DOUBLE ACTING - 80 PSI SUPPLY
			20 2		S1 SPRING RETURN - 80 PSI SUPPLY
			25 2-1/2		S2 SPRING RETURN - 60 PSI SUPPLY
			30 3		S3 SPRING RETURN - 60 PSI SUPPLY
			40 4		S4 SS SPRING RETURN - 60 PSI
			60 6		E1 115VAC - 1PH, NEMA 4, 4X, 6
					E2 24VDC, NEMA 4, 4X, 6
					E3 220VAC - 1PH, NEMA 4, 4X, 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® Stainless Steel Canister for Butterfly Valves

Features:

- 1/8" FNPT x 1/4" OD air connections for poly tube
- Stainless steel brackets & fasteners to withstand external washdown environments.
- Dual stacked coil springs that render reliable output torques to ensure valve closure.
- Visual indication is located on the coupler for easy valve position confirmation.
- Actuator operating pressure - 80 psi
- Air volume - 54 cubic inches
- Canister actuator for use on butterfly valves only



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	VALVE SERIES	SIZE	SEAT MATERIAL & TYPE	HANDLE TYPE
3 316 SS	8 C x C	V3 30° V-BALL	43 TF4 SERIES	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		

Automated Part Number Matrix

MATERIAL	END CONNECTIONS	V-PORT BALL DEGREE	VALVE SERIES	SIZE	SEAT MATERIAL & TYPE	AUTOMATION TYPE
3 316 SS	8 C x C	V3 30° V-BALL	4 TF4 SERIES	05 1/2	P CAVITY FILLED PTFE	A1 DOUBLE ACTING - 80 PSI SUPPLY
	9 BW x BW	V6 60° V-BALL		07 3/4	N NON-CAVITY FILLED PTFE	A2 DOUBLE ACTING - 60 PSI SUPPLY
	C C x BW			10 1	S NON-CAVITY FILLED 50/50 PTFE	S1 SPRING RETURN - 80 PSI SUPPLY
				15 1-1/2		S2 SPRING RETURN - 60 PSI SUPPLY
				20 2		EM1 115VAC - 1PH, NEMA 4, 4X 4-20MA MOD. CARD
				25 2-1/2		EM2 24VDC, NEMA 4, 4X 4-20MA MOD. CARD
				30 3		EM3 220VAC - 1PH, NEMA 4, 4X 4-20MA MOD. CARD
				40 4		

Positioners

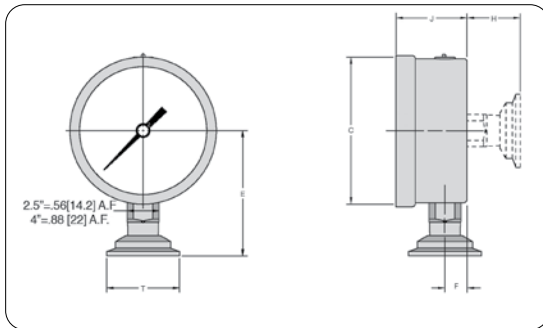
Part Number Matrix

TYPE & SERIES	SWITCHES	TRANSMITTERS	INDICATOR
PP12 PNEUMATIC 3-15 PSI INPUT	XX (0) LIMIT SWITCHES	XX NO TRANSMITTER	P POLY TUBE AIRLINE & FITTINGS
EP10 ELECTRO-PNEUMATIC (IP66) 4-20 MA INPUT	LS (2) SPDT MECHANICAL	TR 4-20MA TRANSMITTER	S SS AIRLINE & FITTINGS

* Smart positioners and other types - contact factory

Sanitary Pressure Gauges (3-A)

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.



DIAL SIZE	CLAMP SIZE	C	E	F	H	J	T
2-1/2 (63)	1-1/2	2.68 (68)	2.64 (67)	0.37 (9.5)	1.52 (38.5)	1.20 (30.5)	1.98 (50.5)
	2	2.68 (68)	2.64 (67)	0.37 (9.5)	1.52 (38.5)	1.20 (30.5)	2.51 (64.0)
4 (100)	1-1/2	4.18 (106.2)	3.35 (85)	0.46 (11.8)	1.52 (38.5)	1.32 (33.5)	1.98 (50.5)
	2	4.18 (106.2)	3.35 (85)	0.46 (11.8)	1.52 (38.5)	1.32 (33.5)	2.51 (64.0)

Ranges

			DIAL FACE			
			2-1/2		4	
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

Options available upon request:

- Other pressure ranges
- No fill (dry)

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 $\pm 1\%$ (4" Dial) as per ASME B40.100 $\pm 1.6\%$ (2-1/2" Dial)

TOP-FLO® RELIEFS

TOP-FLO® Adjustable Relief DCX3

Specifications

Size Range: 1/2", 3/4", 1", 1-1/2", 2",
2-1/2", 3", 4"

Service Conditions

Pressure tolerance: +/- 15% of set
pressure
Max. temperature: 248°F (depending on
seal type)
Min. temperature: 23°F
Working pressure: 0 - 150 psi for 1" - 4"
0 - 174 psi for 1/2" & 3/4"

Materials

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® Manual Pressure Relief

Specifications

Size Range: 1-1/2", 2"

Available springs

#1 0-51 psi relief pressure
#2 44-110 psi relief pressure
#3 110-175 psi relief pressure

Service Conditions

Max Temperature: +120°C/+248°F
Min. Temperature: 0°C/+32°F
Adjustment range: 0 to 13 bar (1300kPa)/
0 to 189 psi

Materials

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® Tank Service Vacuum-Pressure Relief

Specifications

Size Range: 2", 2-1/2", 4"

Materials

Body: 316L SS
Plug: PTFE
Valve seals: Silicone
Connections: Sanitary clamp

Service Conditions

Max. Temperature: +80°C/+176°F
Min. Temperature: 0°C/+32°F
Vacuum: 30 mbar

Optional Pressure Relief Springs

Size	Spring	Relief Pressure
2 & 2-1/2	#1	10 psi
	#2	15 psi
	#3	20 psi
	#4	25 psi
	#5	35 psi
4	#1	15 psi
	#2	25 psi
	#3	35 psi

Pressure relief spring # must be specified at time of order.



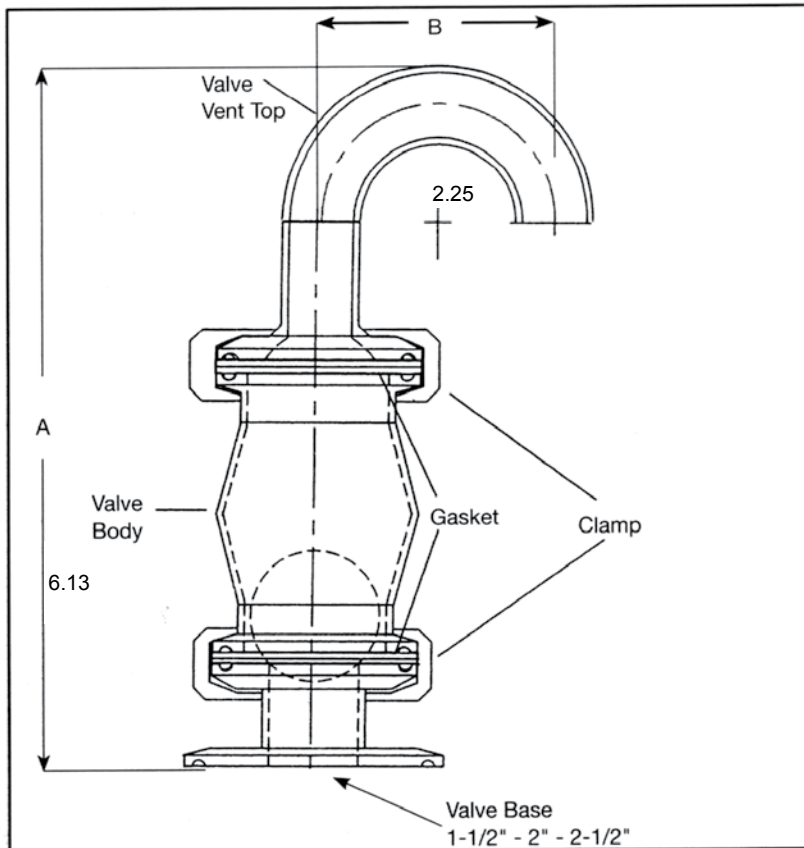
TOP-FLO® TL60ARV Air Relief Valve



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.



TL60ARV Air Relief Valve 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

TL60ARV Air Relief Valve 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

TL60ARV Air Relief Valve 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

Ordering Information

Steel gradeStainless steel, AISI 316L
 Ball.....Polypropylene
 Finish.....Polished to 32R_a

Technical Data

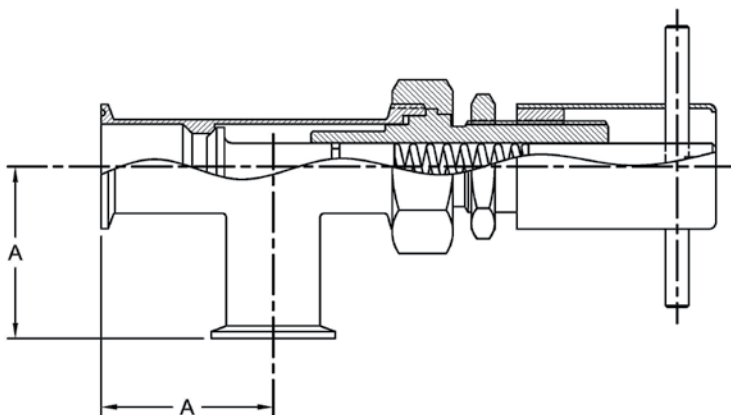
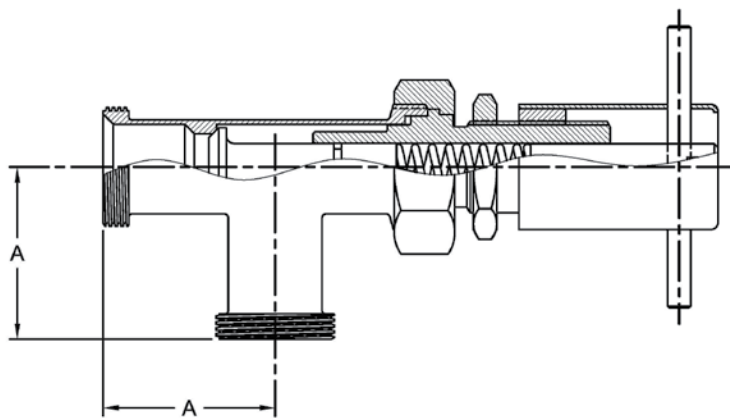
Maximum product pressure..... 150 PSI
 Maximum temperature275°F
 Net weight 19 oz. (9.5 kg)

For proper operation:

- Product density must be 1.0 or higher
- The valve must be mounted vertically

RELIEF VALVES

Relief valves allow manual pressure control with a metal to metal seat.



- Meets 3-A standards.
- 316LSS construction.
- Available in clamp end and acme thread end connections.
- Using Light, Medium and Heavy springs the compression rating can be varied.
- Medium spring is standard.

THREADED ENDS		
PART NUMBER	SIZE	A
KRVB01000	1	1.813
KRVB01500	1-1/2	2.375
KRVB02000	2	2.875
KRVB02500	2-1/2	3.188
KRVB03000	3	3.500

VALVE SPRING VALUES (psi)						
SIZE	LIGHT		MEDIUM		HEAVY	
	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

CLAMP ENDS		
PART NUMBER	SIZE	A
KRVC00750	3/4	2.750
KRVC01000	1	2.375
KRVC01500	1-1/2	2.750
KRVC02000	2	3.500
KRVC02500	2-1/2	3.500
KRVC03000	3	3.750

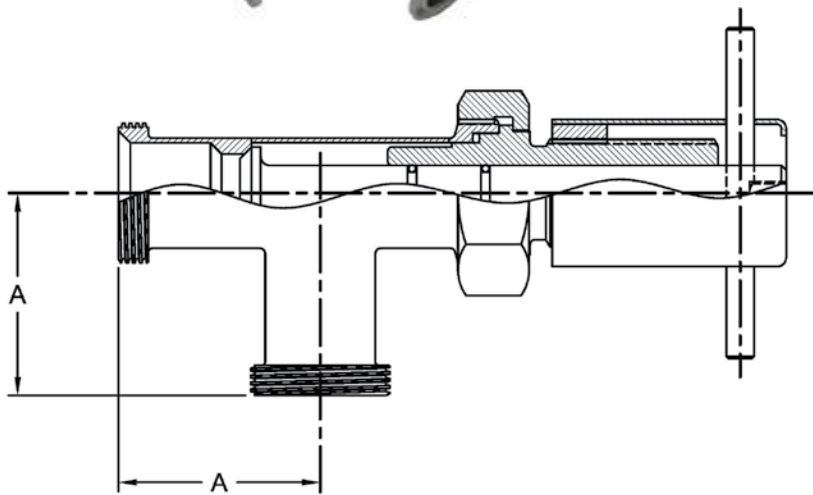
CALL STEEL & O'BRIEN FOR DETAILS ON OTHER CONFIGURATIONS.

COMPRESSION VALVES

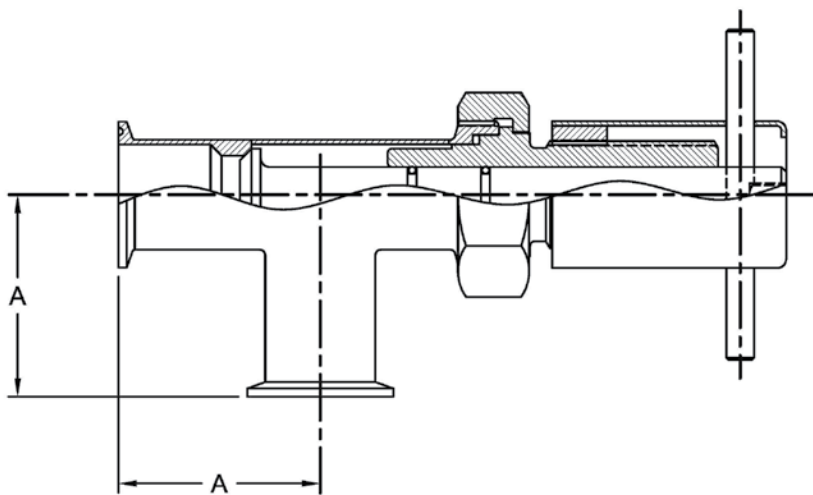
Compression valves allow manual flow control with a metal to metal seat.



- 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

CALL STEEL & O'BRIEN FOR DETAILS ON OTHER CONFIGURATIONS.

SIGHT GLASS

SOCKET HEAD CAP
SCREW STYLE
(example: 54CMP-"size")

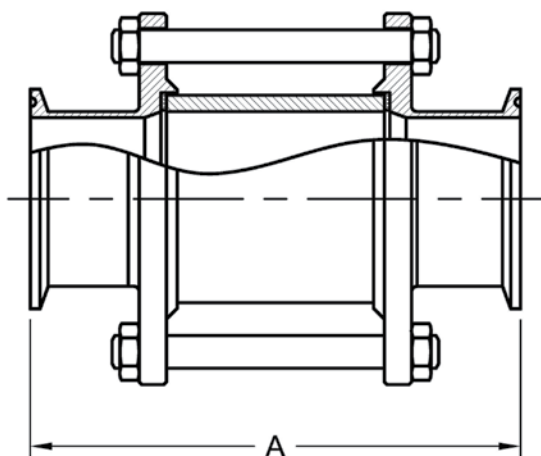
BOLT STYLE
(example: 54BMP-"size")

Sight glasses provide a clear view of product flow through process lines. 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.

Steel & O'Brien offers many styles of sight glass including bolt style and socket head cap screw style. Bolt style sight glasses can also be supplied with a protective acrylic shield to prevent breakage of the glass from inadvertent contact.

BOLT SAFETY STYLE
(example: 54MPSS-"size")

CLAMP CAP SIGHTGLASS

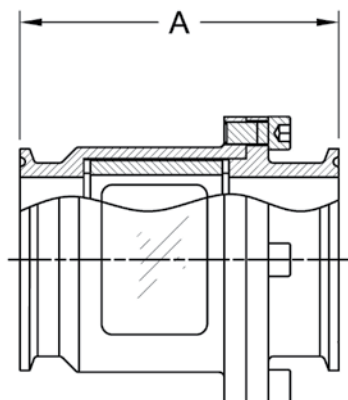


- Wide range of viewport materials are available including acrylic and polycarbonate.
- Other gasket materials also available. (PTFE not recommended)
- Ratings depend on related components in the system, absence of thermal shock, proper expansion of ferrules, assembly of joints, and installation. For temperatures above 250°F (121°C), use only 13MHP clamps. Contact Steel & O'Brien for specifications.
- 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. INSTALL SOCKET HEAD CAP SCREW STYLE SIGHTGLASS WITH BOLT HEADS FACING DOWN. CALL STEEL & O'BRIEN FOR DETAILS ON OTHER END CONFIGURATIONS.

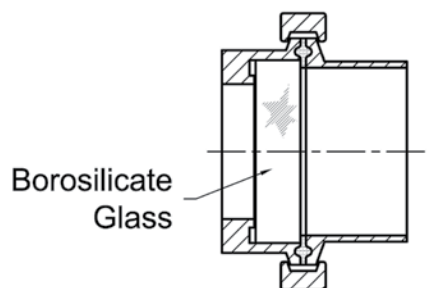
SOCKET HEAD CAP SCREW STYLE SIGHT GLASS



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

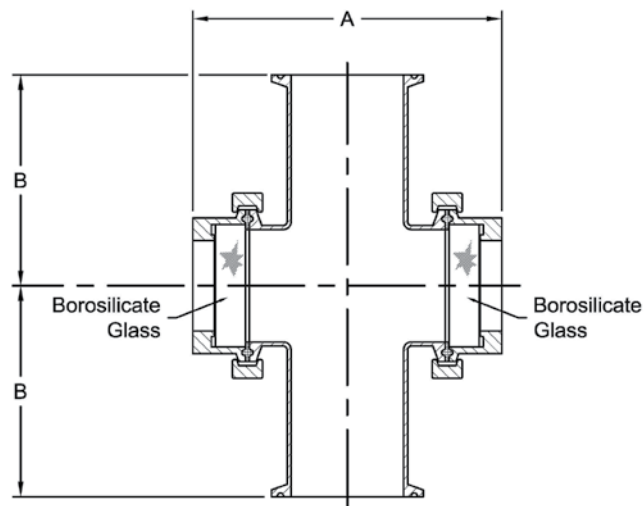
VARIOUS END CONNECTIONS AVAILABLE UPON REQUEST
PYREX OR ACRYLIC AVAILABLE
INSTALL SOCKET HEAD CAP SCREW STYLE SIGHTGLASS
WITH BOLT HEADS FACING DOWN.
3A CERTIFIED

WELD IN STYLE SIGHT GLASS



Weld In style sight glasses can be used with standard clamp or weld fittings. Clamp connections with Buna gaskets and clamps included. Compact construction with large viewing area.

CROSS STYLE SIGHT GLASS

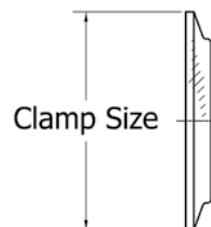


Cross style sight glasses provide a clear view of your process. Same dimensions as standard clamp tees and crosses, makes for quick installation. Made with borosilicate glass and sealed with buna gaskets.

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 6" TC sizes.

TOP-FLO® SAMPLE VALVES

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



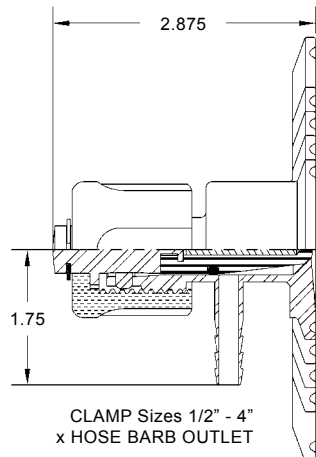
Part Number Matrix

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	
					202	
				25 2-1/2		
				30 3		
				40 4		
				60 6		

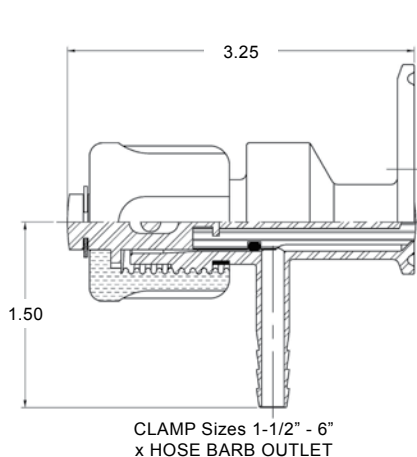
* EV2 valves only available with main connection size 1-1/2" - 6"

** IN2 valves only available with hose barb outlet connection

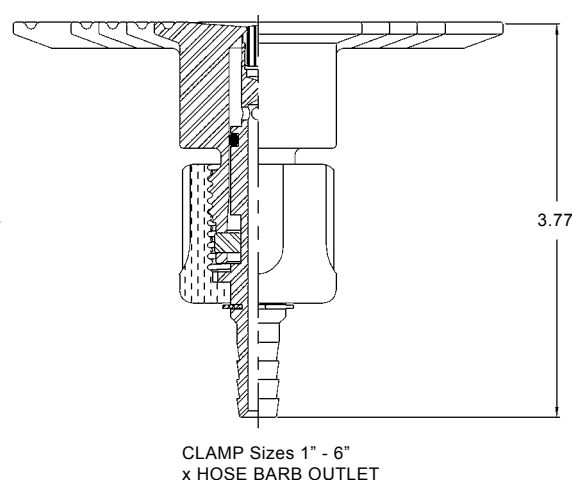
SV2 - Concentric



EV2 - Eccentric



IN2 - In-Line

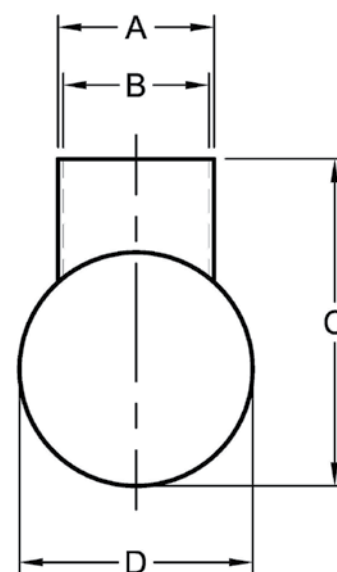
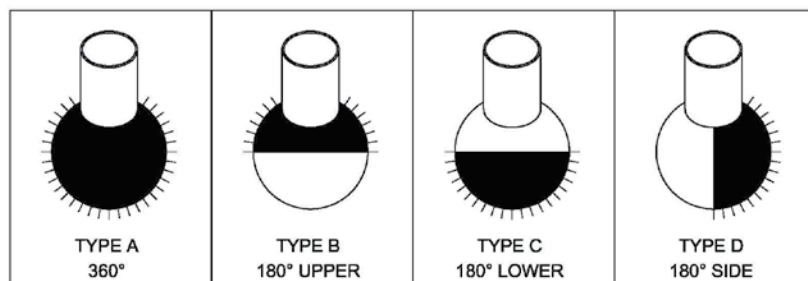




Spray Balls are available in various spray patterns as shown. They are stationary and meant to be mounted to a tube or pipe. Typical uses are in the food and beverage industries for cleaning storage tanks.

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

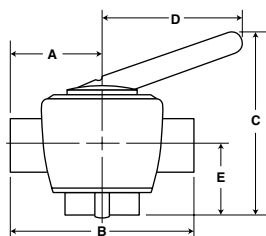
* Flow rate is based on 14.7 psi (min.)

TOP-FLO® PLUG VALVES



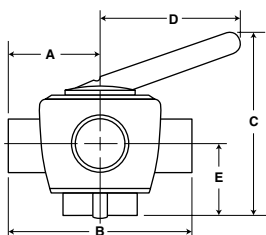
Features:

- Rubber (Silicone) or stainless steel plug
- Materials type 304 and 316L SS
- Meets 3-A sanitary finish
- Temperature to 100°F
- Bevel seat ends available upon request



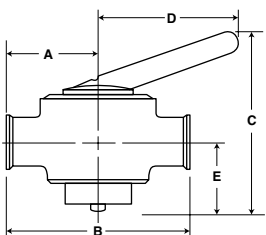
DL10WW & DL10WWR 2-WAY PLUG VALVE BUTT WELD

SIZE (TUBE O.D.)	A	B	C	D	E	304 SS STOCK NO. STAINLESS STEEL PLUG	316L SS STOCK NO. STAINLESS STEEL PLUG	304 SS STOCK NO. RUBBER PLUG	316L SS STOCK NO. RUBBER PLUG
1	3-5/8	7-1/4	5-1/16	4-39/64	2-19/64	359610	399610	359610R	399610R
1-1/2	3-29/32	7-13/16	6-7/16	5-5/8	2-13/32	359615	399615	359615R	399615R
2	4-13/32	8-13/16	7-1/64	5-43/64	2-27/32	359620	399620	359620R	399620R
2-1/2	5-1/8	10-1/4	8-51/64	5-59/64	3-25/64	359625	399625	359625R	399625R
3	5-23/32	11-7/16	9-1/2	7-1/8	3-9/16	359630	399630	359630R	399630R



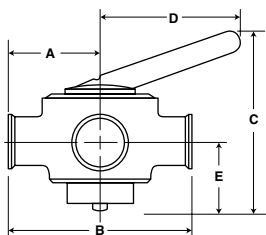
DL11WWW & DL11WWWR 3-WAY PLUG VALVE BUTT WELD

SIZE (TUBE O.D.)	A	B	C	D	E	304 SS STOCK NO. STAINLESS STEEL PLUG	316L SS STOCK NO. STAINLESS STEEL PLUG	304 SS STOCK NO. RUBBER PLUG	316L SS STOCK NO. RUBBER PLUG
1	3-5/8	7-1/4	5-1/16	4-39/64	2-19/64	359710	399710	359710R	399710R
1-1/2	3-29/32	7-13/16	6-7/16	5-5/8	2-13/32	359715	399715	359715R	399715R
2	4-13/32	8-13/16	7-1/16	5-43/64	2-27/32	359720	399720	359720R	399720R
2-1/2	5-1/8	10-1/4	8-51/64	5-59/64	3-25/64	359725	399725	359725R	399725R
3	5-23/32	11-7/16	9-1/2	7-1/8	3-9/16	359730	399730	359730R	399730R



D10MP & D10MPR 2-WAY PLUG VALVE CLAMP

SIZE (TUBE O.D.)	A	B	C	D	E	304 SS STOCK NO. STAINLESS STEEL PLUG	316L SS STOCK NO. STAINLESS STEEL PLUG	304 SS STOCK NO. RUBBER PLUG	316L SS STOCK NO. RUBBER PLUG
1	2-9/16	4-9/16	5-1/16	4-39/64	2-19/64	329610	389610	329610R	389610R
1-1/2	2-29/32	5-13/16	6-7/16	5-5/8	2-13/32	329615	389615	329615R	389615R
2	3-13/32	6-13/16	7-1/16	5-43/64	2-27/32	329620	389620	329620R	389620R
2-1/2	4-1/8	8-1/4	8-51/64	5-59/64	3-25/64	329625	389625	329625R	389625R
3	4-23/32	9-7/16	9-1/2	7-7/8	3-9/16	329630	389630	329630R	389630R



D11MP & DM11MPR 3-WAY PLUG VALVE CLAMP

SIZE (TUBE O.D.)	A	B	C	D	E	304 SS STOCK NO. STAINLESS STEEL PLUG	316L SS STOCK NO. STAINLESS STEEL PLUG	304 SS STOCK NO. RUBBER PLUG	316L SS STOCK NO. RUBBER PLUG
1	2-9/16	4-9/16	5-1/16	4-39/64	2-19/64	329710	389710	329710R	389710R
1-1/2	2-29/32	5-13/16	6-7/16	5-5/8	2-13/32	329715	389715	329715R	389715R
2	3-13/32	6-13/16	7-1/16	5-43/64	2-27/32	329720	389720	329720R	389720R
2-1/2	4-1/8	8-1/4	8-51/64	5-59/64	3-25/64	329725	389725	329725R	389725R
3	4-23/32	9-7/16	9-1/2	7-7/8	3-9/16	329730	389730	329730R	389730R

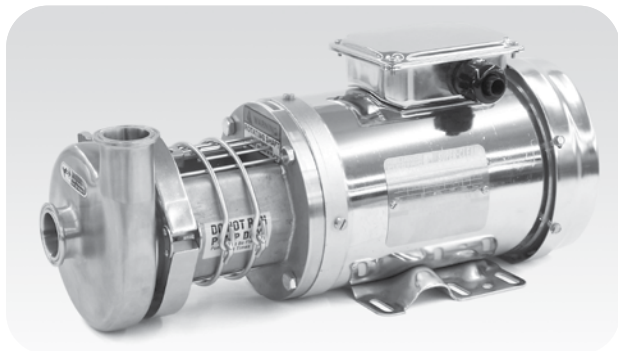


PUMPS & PUMP PARTS

Don't See What You Need?

We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

TOP-FLO® TF-C Series Centrifugal Pumps



“TF-C” Series

MODEL NO.	TF-C100	TF-C114	TF-C216	TF-C218	TF-C328
Inlet	1-1/2	1-1/2 or 2	2 or 2-1/2	2 or 3	3 or 4
Outlet	1	1-1/2	1-1/2	1-1/2	2
Max Imp.	3.68	4	6	8	8

PUMP SPECIFICATIONS:

Capacity: 10gpm to 600gpm

Pressure: 135 PSIG

Viscosity: 200cp

Temperature: 212°F

Pump Casings:

- Volute type - Standard
- Inlet-oversizing as noted in chart above

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, EPDM, and PTFE are available

Pump Finishes:

- Polished or electropolished
- 32Ra standard

Pump Seals:

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

Motor, Electrical:

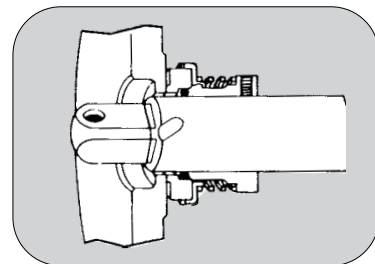
- 3 Phase - 230/460 volts - 1750 & 3500 rpm
- Single Phase - 115/230 volts - 1750 & 3500 rpm
- Other voltage available upon request

Motor Housings:

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

SEAL SPECIFICATIONS:

TYPE D
External
Balanced
Seal



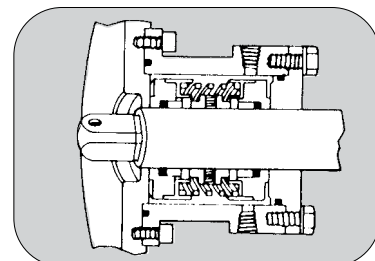
Type D seal has numerous applications but yet is extremely durable. Raw & finished milk products, beverages, and CIP cleaning solutions are among the recommended uses.

TYPE DG

External balanced seal with clamped-in seat

The DG seal uses the standard Type D rotating seal components with a reversible silicon carbide, tungsten carbide or ceramic stationary seat. Typical applications include DI & RO water, beer wort, wine, distilled spirits, and CIP cleaning solutions.

TYPE E
Water Cooled
Balanced
Double Seal

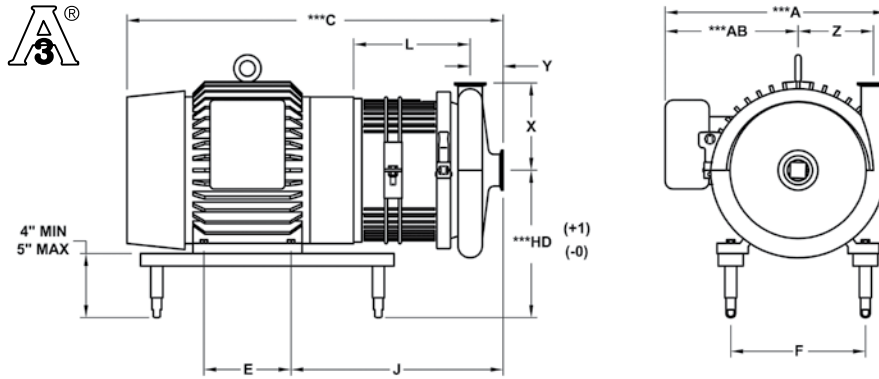


Type E seal is designed to operate with sugary & tacky products, sugar alcohols, or products up to 200°F. The seal chamber is flushed with low pressure 5 GPH maximum water flow rate. Low pressure water is used to circulate through the seal chamber for both external cleaning of the seals and to assist in cooling.

TYPE F

Type F seal is same as type D seal except includes a water cascade(not shown).

TOP-FL0® TF-C Series Close-Coupled Pump Dimensions



PUMP DIMENSIONS

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 "WASHDOWN" 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
	143 TC	8.563	17.813	18.063	7.500	5.250	10.844	4.000	5.500	6.219
	145 TC	8.563	19.848	18.063	7.500	5.250	10.688	5.000	5.500	6.219
	182 TC	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
	143 TC	8.563	17.968	18.223	7.500	5.250	10.844	4.000	5.500	6.062
	145 TC	8.563	20.003	20.253	7.500	5.250	10.844	5.000	5.500	6.062
	182 TC	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
	213 TC	12.156	26.487	26.624	9.250	7.375	13.969	5.500	8.500	7.813
	215 TC	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
	256 TC	16.094	30.163	30.413	10.250	9.625	14.594	10.000	10.000	8.437
TF-C218	143 TC	8.563	18.036	18.281	7.500	5.250	10.281	4.000	5.500	6.312
	145 TC	8.563	20.066	18.286	7.500	5.250	10.281	5.000	5.500	6.312
	182 TC	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
	213 TC	12.156	25.686	25.936	9.250	7.375	13.281	5.500	8.500	7.312
	215 TC	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
TF-C328	286 TC	20.438	33.916	34.166	11.000	13.125	15.281	11.000	11.000	8.812
	182 TC	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
	213 TC	12.156	26.499	26.999	9.250	7.375	14.094	5.500	8.500	7.625
	215 TC	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
	256 TC	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
	286 TC	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
	326 TC	22.375	37.311	37.811	12.000	14.125	17.156	12.000	12.500	9.812

* WITH CLAMP CONNECTIONS (STANDARD)

** WITH THREADED BEVEL SEAT CONNECTIONS

*** DIMENSIONS ARE FOR BALDOR WASHDOWN MOTORS
OTHER MOTOR MANUFACTURERS DIMENSIONS MAY VARY
FLANGE MOTORS

NOTE:

ALL DIMENSIONS IN INCHES

DIMENSIONS ARE APPROXIMATE AND FOR GUIDANCE ONLY

THESE DIMENSIONS ARE FOR PUMPS USING NEMA STANDARD "C" FACE MOTORS

TOP-FLO® PUMP REPLACEMENT KITS

From time to time, centrifugal pump sealing components need to be replaced. **TOP-FLO®** centrifugal pump replacement part kits are specifically designed to fit in the pumps of not only **TOP-FLO®** pumps but those of major pump suppliers. These components are rugged and will provide the necessary sealing conditions under a wide range of conditions.

In addition to the pump replacement kits, we offer a complete line of replacement parts. From impellers to leg brackets, we should be your first choice for replacement parts.

KIT #1



KIT #2



KIT #3



“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

Kit #1 (Consists of 1 - Carbon Seal, 1 - Casing Gasket, 1 - O-ring, and 1 - Retaining Pin)

Kit #2 (Consists of 3 - Carbon Seals, 3 - Casing Gaskets, and 3 - O-rings)

Kit #3 (Consists of 1 - Carbon Seal, 1 - Spring, 1 - Cup, and 1 - O-ring)

“DG” SEAL KITS

TF-C114 KIT			
5649K-1DG			
CONSISTS OF:	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			
CONSISTS OF:	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			
CONSISTS OF:	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			
CONSISTS OF:	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			
CONSISTS OF:	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			
CONSISTS OF:	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



NOTE: E SEAL SHOWN

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
MAT00600S	C114E56TT-06-316
MAT00602S	C114-14T/ C114E14TT-06-316
MAT00604S	C114-14T/ C114E18TT-06-316
MAT00606S	C216-56C/ C216E56TT-06A-316
MAT00608S	C216-14T/ C216E14TT-06A-316
MAT00610S	C216-18T/ C216E18TT-06A-316
MAT00612S	C216-21TC216E21TT-06-316
MAT00614S	C216-25T /C216E25TT-06-316
MAT00618S	C218/C328-14T /C328E14TT-06A-316
MAT00620S	C218/C328-18TC328E18TT-06A-316
MAT00630S	C21821TC328E21TT-06A-316
MAT00632S	C21825TC328E25TT-06A-316
MAT00634S	C218/C328-28TC328E28TT-06-316

STUB SHAFTS ARE SUPPLIED WITH SET SCREWS

CASTELLATED NUT (ACME THREAD)



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

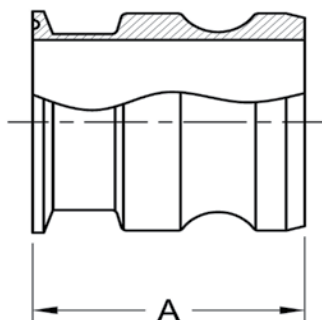


CAMLOCK FITTINGS

Don't See What You Need?

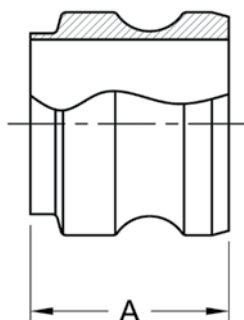
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

MALE CAMLOCK X CLAMP



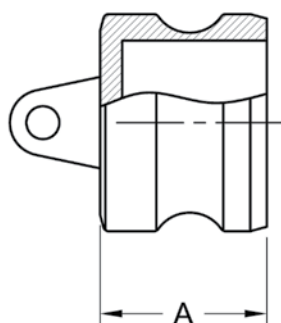
PART NUMBER	SIZE	A
MJG01000	1	2.000
MJG01500	1-1/2	2.500
MJG02000	2	2.750
MJG02500	2-1/2	3.000
MJG03000	3	3.000
MJG04040	4	4.750

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

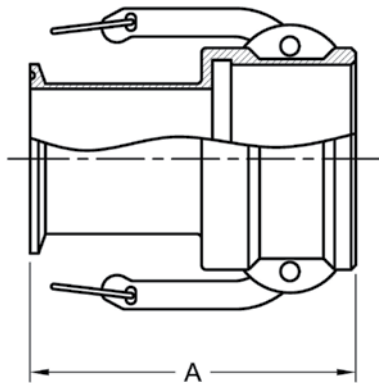
MALE CAMLOCK DUST PLUG



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

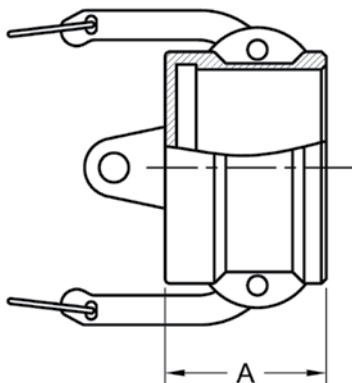
NOTE: LOCATION OF EYELET MAY VARY
"A" DIMENSION FOR REFERENCE ONLY

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

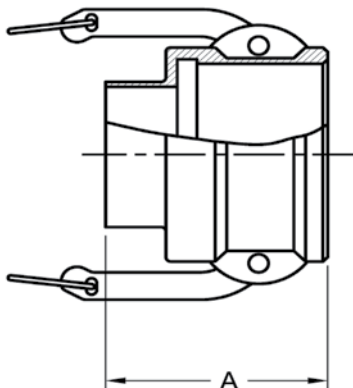
FEMALE CAMLOCK DUST CAP



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

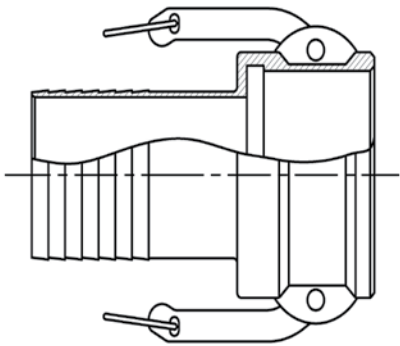
NOTES: LOCATION OF EYELET MAY VARY
"A" DIMENSION FOR REFERENCE ONLY

FEMALE CAMLOCK X WELD

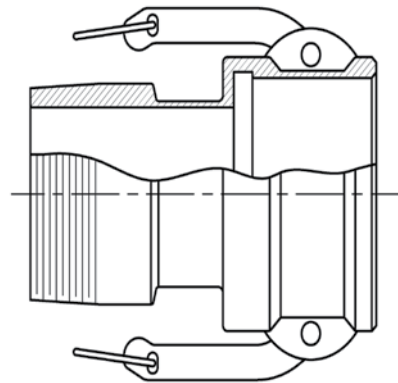


PART NUMBER	SIZE	A
MJG10000	1	2.130
MJG15000	1-1/2	2.500
MJG20000	2	2.812
MJG25000	2-1/2	3.310
MJG30005	3	3.310
MJG40005	4	3.375

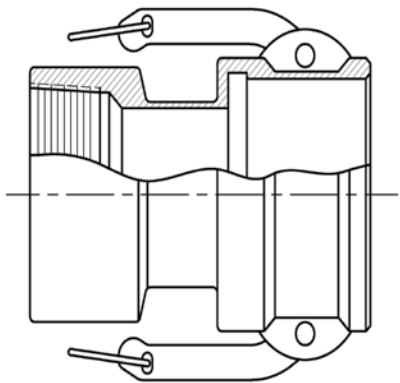
CAMLOCK OPTIONS AVAILABLE FROM STEEL & O'BRIEN



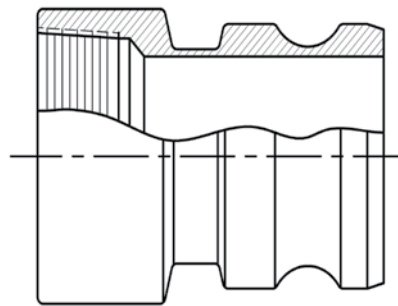
FEMALE CAMLOCK X HOSE BARB



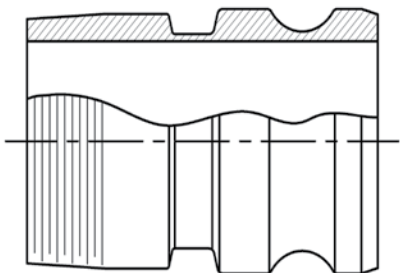
FEMALE CAMLOCK X MALE NPT



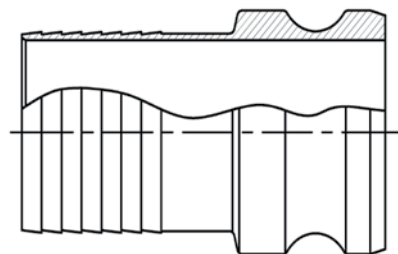
FEMALE CAMLOCK X FEMALE NPT



MALE CAMLOCK X FEMALE NPT



MALE CAMLOCK X MALE NPT



MALE CAMLOCK X HOSE BARB



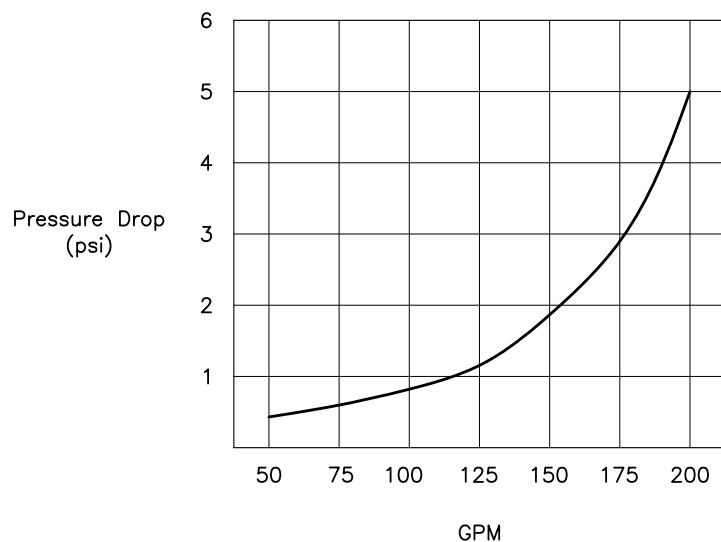
STRAINERS & FILTERS

Don't See What You Need?

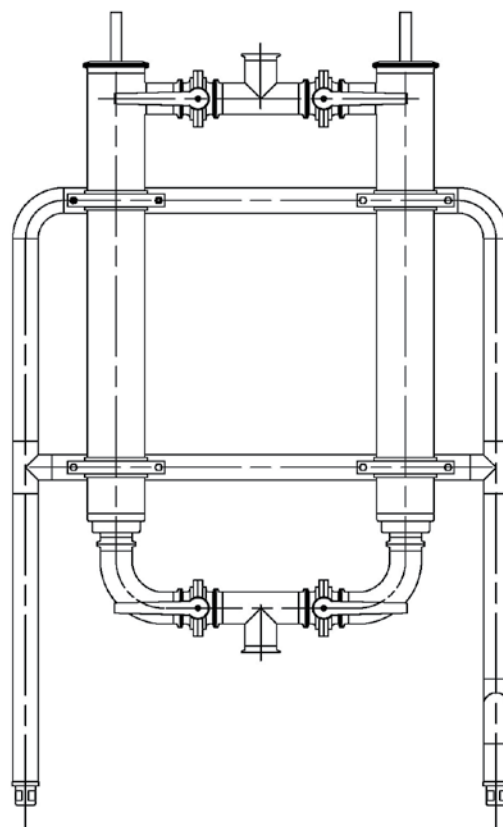
We have more than 35,000 unique part numbers in our inventory. We'll be happy to help you find what you need or we can manufacture a custom fabrication or custom machined fitting to your specification. If you don't see what you need give us a call at 1-585-492-5800

Features

- Removes particles of various sizes from the process line providing protection for pumps, valves and other down-line 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
From 316L material
- Interchangeable parts minimizes inventory requirements.
- Max. Operating Pressure 100 psi
- 3A Certified (without mesh)
- Dual strainer stands available

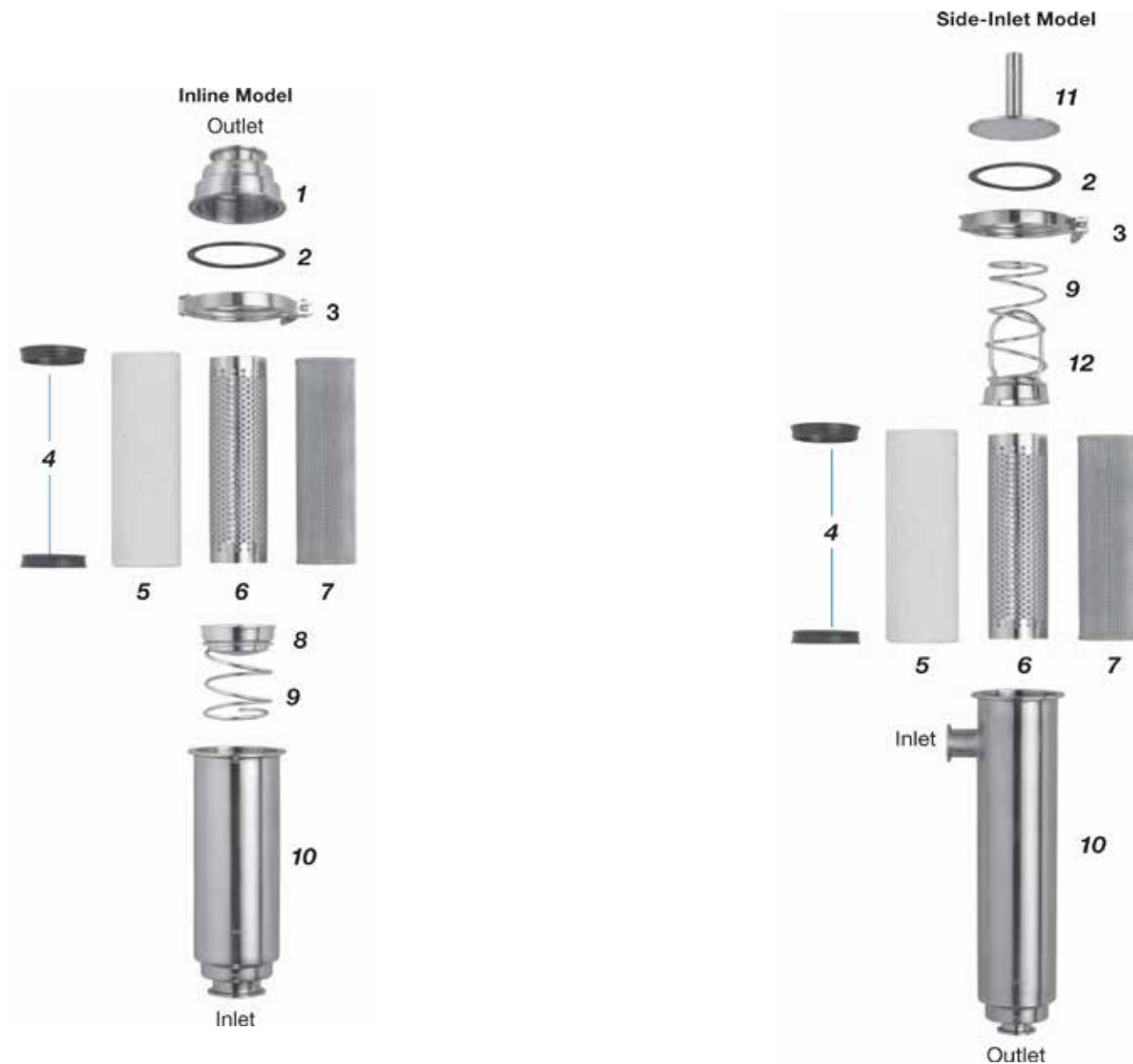


Pressure Drop Curve
Curve is based on water
Includes all sizes

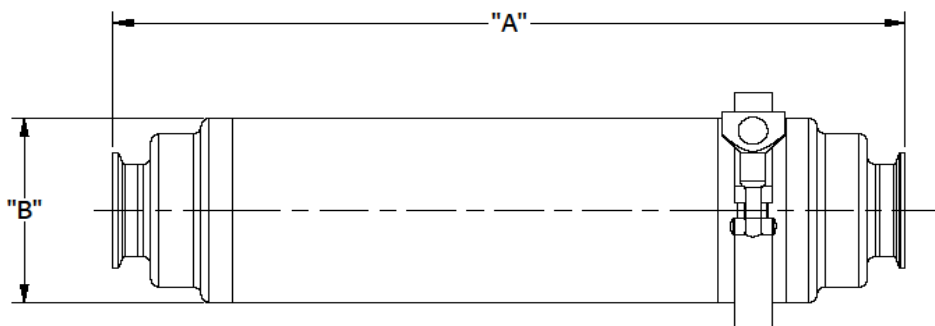
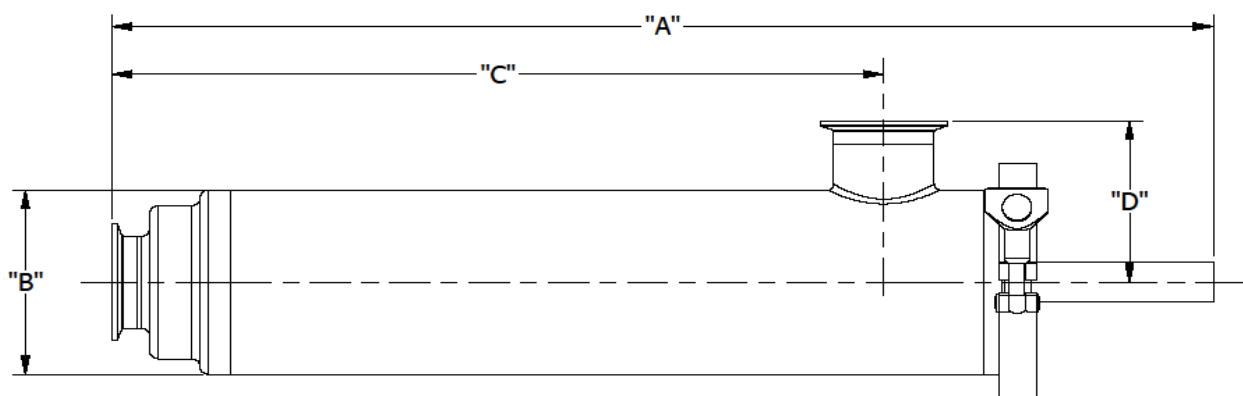


Dual Strainer Stand

Parts List



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 STYLESIDE INLET STYLE

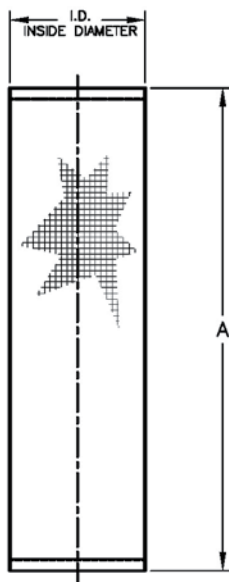
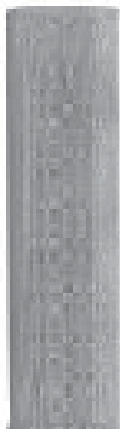
SIZE	EFFECTIVE FILTRATION AREA ft2	A		B	C	D
		INLINE STYLE (Part Number)	SIDE-INLET STYLE (Part Number)		SIDE-INLET STYLE	
Short Length Style						
1"	0.65	15.8 (KEA01000)	22.2 (KEC01000)	4	15.6	3.5
1 1/2"	0.65	15.8 (KEA01500)	22.2 (KEC01500)	4	15.6	3.5
2"	0.65	15.8 (KEA02000)	22.2 (KEC02000)	4	15.6	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 (μm) (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.

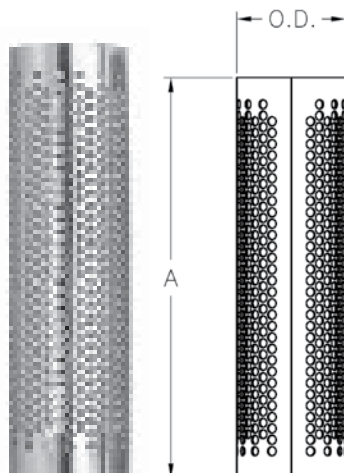
Filter media and mesh must be ordered separately.



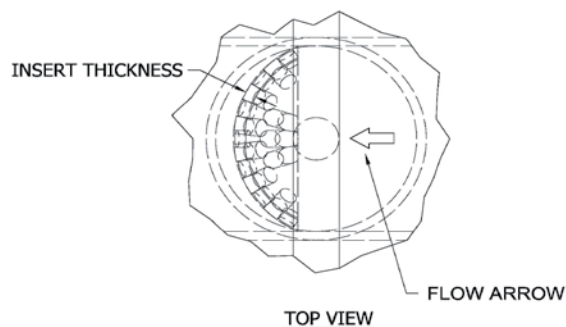
Part Number	Strainer Style	Nominal Pore Size μm (microns)	Material
KEF1N30E	Short, Narrow	40	Nonwoven rayon
KEF1N30N	Short, Narrow	250	Smooth-weave polyester fiber
KEF1N30C	Short, Narrow	300	Cotton cheesecloth
KEF1N30G	Short, Narrow	420	Woven nylon or rayon
KEF1N30B	Short, Narrow	500	Cotton flannel
KEF1N30D	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

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

Backup Tubes (Replacement)

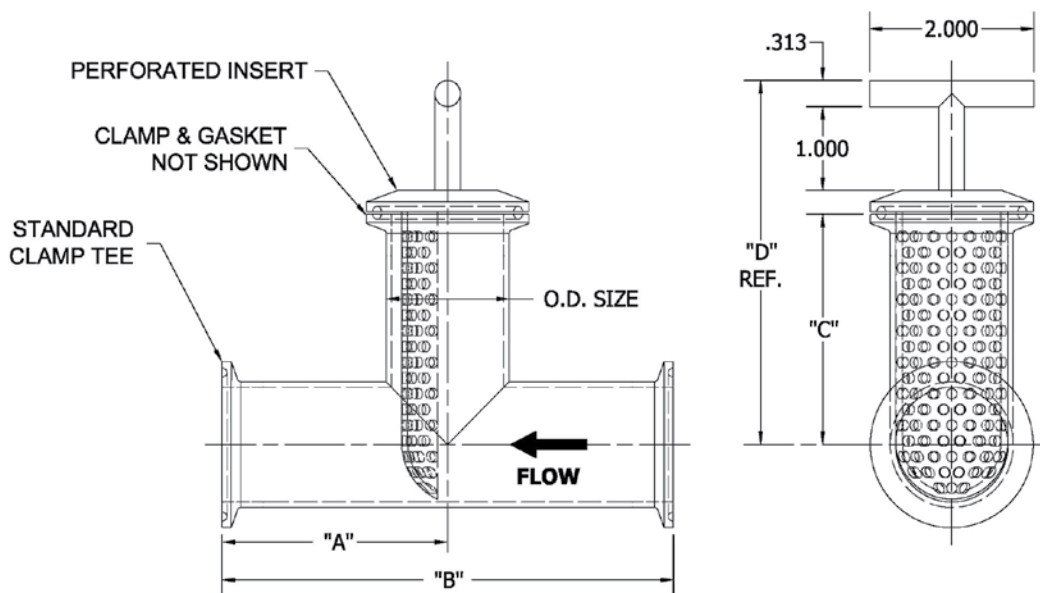


Part Number	Strainer Style	O.D.	A	Holes per Sq. In
KEM00010	1" - 2" Short	3.000	11.000	9 (1/4" dia. holes)
KEM00050	2 1/2" & 3" Short	3.500	11.000	9 (1/4" dia. holes)
KEM00030	1" - 2" Long	3.000	31.000	9 (1/4" dia. holes)
KEM00070	2 1/2" & 3" Long	3.500	31.000	9 (1/4" dia. holes)
KEM00020	1" - 2" Short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



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
- Bead Blast Finish on Insert
- Fully Assembled w/EPDM Gasket



NOTE:
 - PERFORATED PLATE BEAD BLASTED
 - TEE POLISHED TO A 32Ra ID/OD

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

INDUSTRY CROSS REFERENCE

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	A13MHHM
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

INDUSTRY CROSS REFERENCE

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
9WWWWW	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	Mechanical Polish		#5			
20	Mechanical Polish	-	Mill	SF1	PC	PC		
20	Mechanical Polish	32	Mechanical Polish	SF1	PL	PL	PL	PL
25	Mechanical Polish	32	Mechanical Polish	SF2				
30	Mechanical Polish	32	Mechanical Polish	SF3				
32	Mechanical Polish	-	Mill		#3			
32	Mechanical Polish	32	Mechanical Polish		#7			
Electropolished ID and Mechanically Polished OD				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	Mechanical Polish			PR		
15	Electropolish	-	Mill	SF4	PD	PD		
15	Electropolish	32	Mechanical Polish	SF4	PM	PM	PM	PM
20	Electropolish	32	Mechanical Polish	SF5				
25	Electropolish	32	Mechanical Polish	SF6				



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.

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