

Steel &
O'Brien®
Manufacturing
Sanitary Simplified™

SANITARY PRODUCTS CATALOG

Simplifying Sanitary Through Superior Service™

Home of
TOP-FLO®



INTRODUCTION

Headquartered in Arcade, NY, Steel & O'Brien is a manufacturer of stainless-steel process equipment, including sanitary fittings, BPE fittings, tubing and valves for industries with strict hygienic and high-purity standards. Steel & O'Brien is also an ISO-certified custom stainless steel manufacturer. Our experienced team of engineers, machinists, welders and polishers specialize in finding the best solutions for our customers.

Founded in 1990, Steel & O'Brien specializes in quick turn around, custom fittings and very competitive pricing. The 205,000 square foot facility maintains over \$25 million in finished goods inventory as well as over one million dollars in raw materials inventory.

We are excited to announce our new Fresno Fulfillment Center. The over 20,000 square foot facility houses more inventory – 3 times the number of SKUs than any previous location – and Steel & O'Brien's broad product offering. We can now offer one-day shipping to most of California. Steel & O'Brien agents are available from 8 AM-8 PM Eastern Standard Time, allowing us to better serve our distributor partners with the superior service that our company was built upon.

We're simplifying sanitary from coast to coast!

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Steel & O'Brien is your source for stainless-steel process equipment, including sanitary fittings, BPE fittings, tubing and valves for industries with strict hygienic and high-purity standards.

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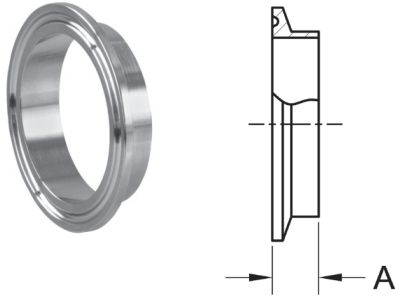


TRI-CLAMP FITTINGS

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

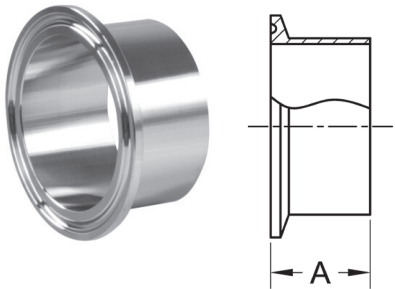


14WMP - WELD FERRULE, SHORT



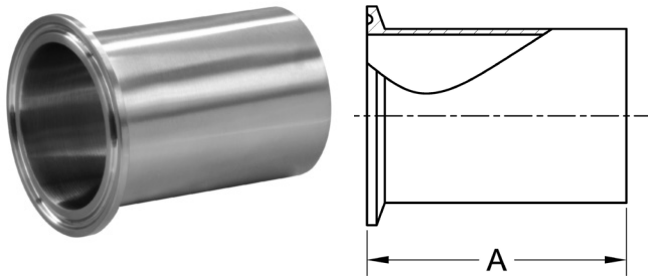
| PART NUMBER | SIZE | A |
|---------------|---------------|-------|
| 14WMP-.50x.25 | 1/4 (.035 WT) | .500 |
| 14WMP.50x.375 | 3/8 (.049 WT) | .500 |
| 14WMP-.50 | 1/2 | .500 |
| 14WMP-.75 | 3/4 | .500 |
| 14WMP-1-A | 1 (TYPE A) | .500 |
| 14WMP-1 | 1 | .500 |
| 14WMP-1.5 | 1-1/2 | .500 |
| 14WMP-2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

L14AM7 - WELD FERRULE, MEDIUM



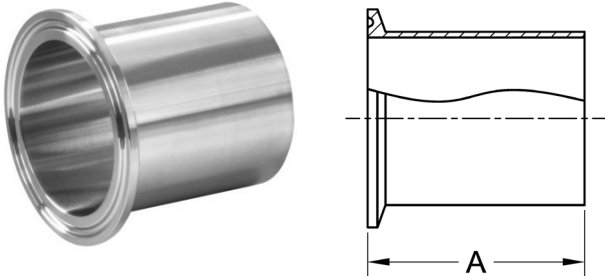
| PART NUMBER | SIZE | A |
|-----------------|---------------|-------|
| L14AM7-.50x.25 | 1/4 (.035 WT) | 1.125 |
| L14AM7-.50x.375 | 3/8 (.049 WT) | 1.125 |
| L14AM7-.50 | 1/2 | 1.125 |
| L14AM7-.75 | 3/4 | 1.125 |
| L14AM7-1-A | 1 (TYPE A) | 1.125 |
| L14AM7-1 | 1 | 1.125 |
| L14AM7-1.5 | 1-1/2 | 1.125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

14WLMP - TANK WELDING SPUD (LIGHT)



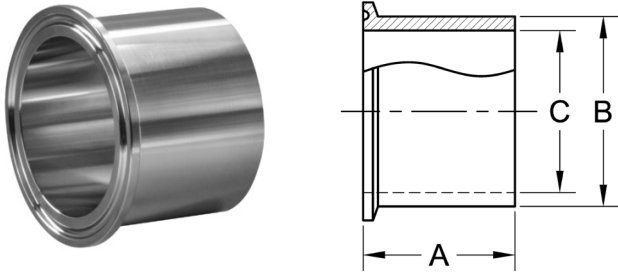
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14WLMP-.50 | 1/2 | 3.000 |
| 14WLMP-.75 | 3/4 | 3.000 |
| 14WLMP-1 | 1 | 3.000 |
| 14WLMP-1.5 | 1-1/2 | 3.000 |
| 14WLMP-2 | 2 | 3.000 |
| 14WLMP-2.5 | 2-1/2 | 3.000 |
| 14WLMP-3 | 3 | 4.000 |
| 14WLMP-4 | 4 | 4.000 |
| 14WLMP-6 | 6 | 6.000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

TL14AM7 - WELD FERRULE



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

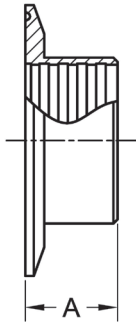
14MPW - TANK WELDING SPUD (HEAVY)



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

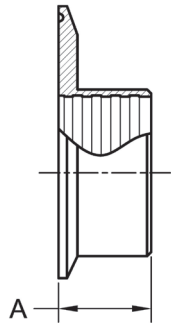
NOTE: FOR MORE HEAVY WALL FERRULE OPTIONS, SEE ASME FERRULES ON PG. 10.

31RMP - REDUCING CONCENTRIC ROLL-ON FERRULE



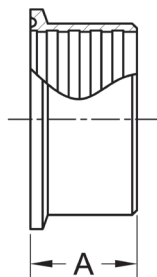
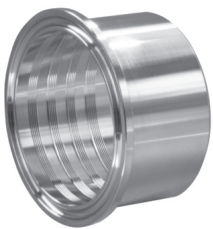
| PART NUMBER | SIZE | A |
|---------------|---------------|-------|
| 31RMP-1.5X1 | 1-1/2 X 1 | .750 |
| 31RMP-2X1 | 2 X 1 | .750 |
| 31RMP-2X1.5 | 2 X 1-1/2 | 1.125 |
| 31RMP-2.5X1.5 | 2-1/2 X 1-1/2 | 1.313 |
| 31RMP-2.5X2 | 2-1/2 X 2 | 1.313 |
| 31RMP-3X2 | 3 X 2 | 1.313 |
| 31RMP-3X2.5 | 3 X 2-1/2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

32RMP - REDUCING ECCENTRIC ROLL-ON FERRULE



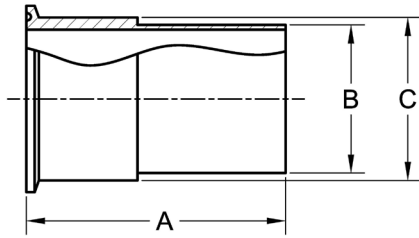
| PART NUMBER | SIZE | A |
|-------------|-----------|-------|
| 32RMP-1.5X1 | 1-1/2 X 1 | .750 |
| 32RMP-2X1 | 2 X 1 | .750 |
| 32RMP-2X1.5 | 2 X 1-1/2 | 1.125 |
| 32RMP-3X1.5 | 3 X 1-1/2 | 1.313 |
| 32RMP-3X2 | 3 X 2 | 1.313 |
| 32RMP-3X2.5 | 3 X 2-1/2 | 1.375 |
| 32RMP-4X2.5 | 4 X 2-1/2 | 1.375 |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

14RMP - ROLL-ON FERRULE



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

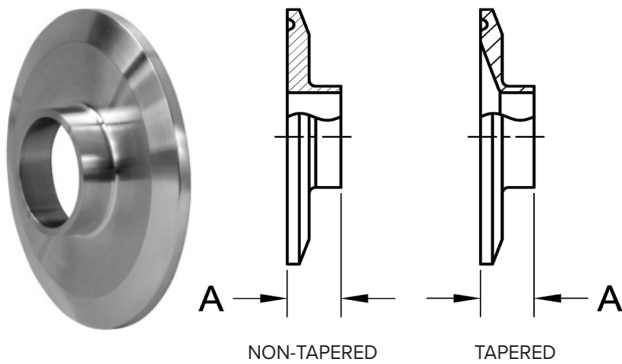
FLOWVERTER FERRULE



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

NOTE: AVAILABLE IN OTHER END CONNECTIONS & LENGTHS

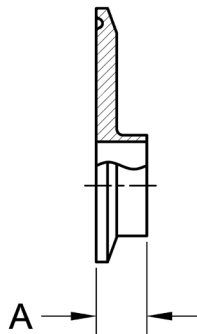
31WMP - REDUCING FERRULE



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

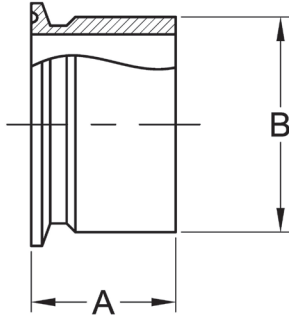
NOTE: AVAILABLE IN TAPERED AND NON-TAPERED STYLES (PART NUMBERS SHOWN ARE TAPERED STYLE)

32WMP - ECCENTRIC REDUCING FERRULE



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

14ASME - ASME WELDING FERRULE

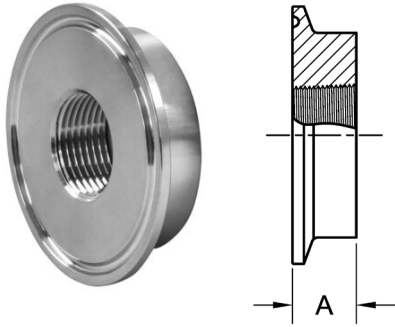


NOTE: FERRULES ARE MADE FROM ASME CERTIFIED MATERIAL

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

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

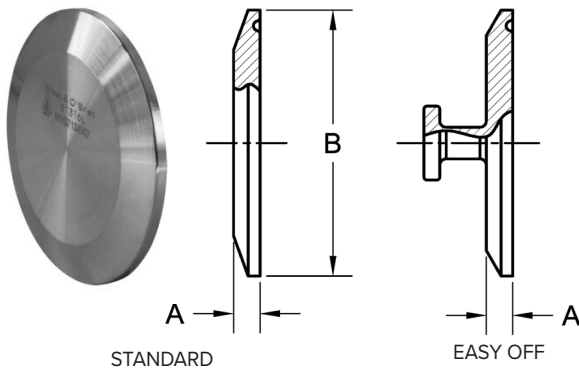
23BMP - THERMOMETER CAP



NOTE: SIZES ARE LISTED CLAMP SIZE X NPT SIZE

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

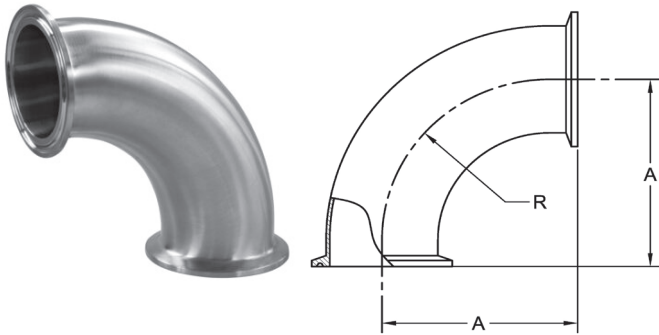
16AMP - SOLID END CAP



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

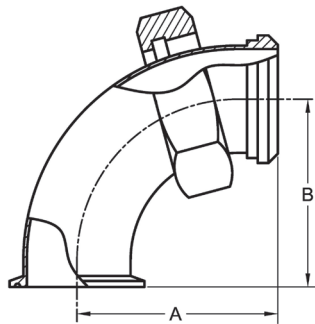
| PART NUMBER | SIZE | A | B |
|-------------|------------|------|--------|
| 16AMP-.50 | 1/2 & 3/4 | .188 | .984 |
| 16AMP-1-A | 1 (TYPE A) | .250 | 1.339 |
| 16AMP-1 | 1 & 1-1/2 | .250 | 1.984 |
| 16AMP-2 | 2 | .250 | 2.516 |
| 16AMP-2.5 | 2-1/2 | .250 | 3.047 |
| 16AMP-3 | 3 | .250 | 3.579 |
| 16AMP-4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

2CMP - 90 DEGREE ELBOW, CLAMP ENDS



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

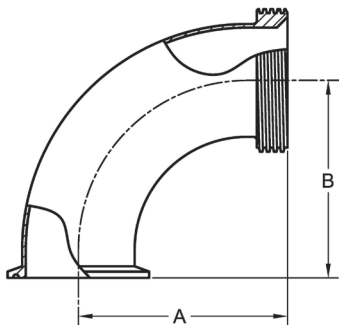
2FMP-14 - 90 DEGREE ELBOW, CLAMP X PLAIN BEVEL SEAT



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

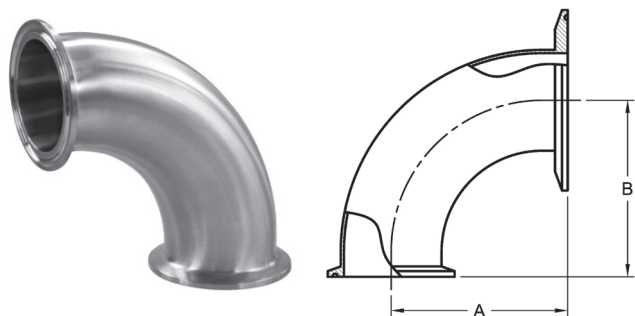
NOTE: HEX NUT INCLUDED

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



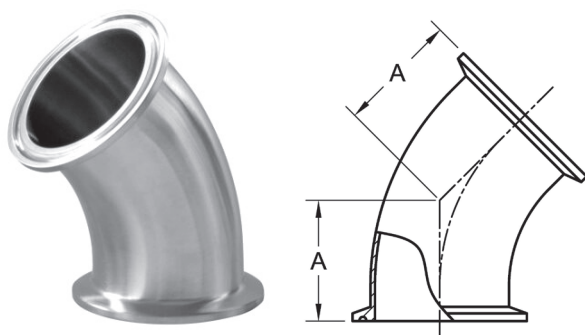
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| 2FMP-15-1 | 1 | 2.188 | 2.000 |
| 2FMP-15-1.5 | 1-1/2 | 2.969 | 2.750 |
| 2FMP-15-2 | 2 | 3.750 | 3.500 |
| 2FMP-15-2.5 | 2-1/2 | 4.594 | 4.250 |
| 2FMP-15-3 | 3 | 5.438 | 5.000 |
| 2FMP-15-4 | 4 | 7.219 | 6.625 |

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



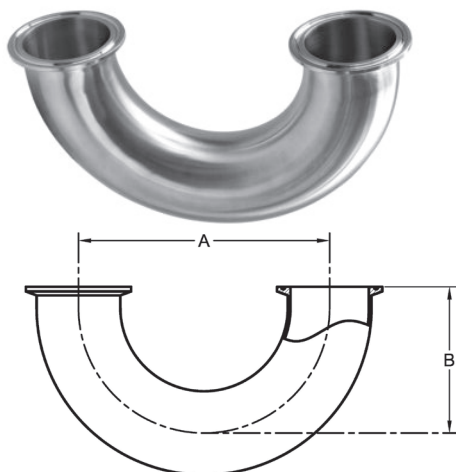
| PART NUMBER | SIZE | A | B |
|-------------------|---------------|-------|-------|
| 2CMP-31MP-1.5X1 | 1-1/2 X 1 | 2.000 | 2.000 |
| 2CMP-31MP-2X1 | 2 X 1 | 2.000 | 2.000 |
| 2CMP-31MP-2X1.5 | 2 X 1-1/2 | 2.750 | 2.750 |
| 2CMP-31MP-2.5X1.5 | 2-1/2 X 1-1/2 | 2.750 | 2.750 |
| 2CMP-31MP-2.5X2 | 2-1/2 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



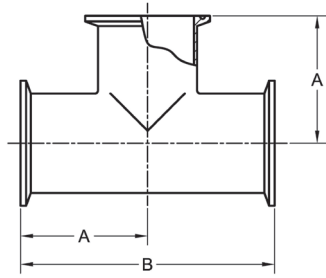
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 2KMP-.50 | 1/2 | .966 |
| 2KMP-.75 | 3/4 | .966 |
| 2KMP-1 | 1 | 1.125 |
| 2KMP-1.5 | 1-1/2 | 1.437 |
| 2KMP-2 | 2 | 1.750 |
| 2KMP-2.5 | 2-1/2 | 2.063 |
| 2KMP-3 | 3 | 2.375 |
| 2KMP-4 | 4 | 3.125 |
| 2KMP-6 | 6 | 4.500 |
| 2KMP-8 | 8 | 5.846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

2UMP - 180 DEGREE RETURN BEND, CLAMP ENDS



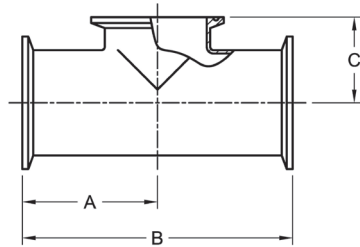
| PART NUMBER | SIZE | A | B |
|-------------|-------|--------|-------|
| 2UMP-.50 | 1/2 | 1.500 | 1.250 |
| 2UMP-.75 | 3/4 | 2.250 | 1.625 |
| 2UMP-1 | 1 | 3.000 | 2.000 |
| 2UMP-1.5 | 1-1/2 | 4.500 | 2.750 |
| 2UMP-2 | 2 | 6.000 | 3.500 |
| 2UMP-2.5 | 2-1/2 | 7.500 | 4.250 |
| 2UMP-3 | 3 | 9.000 |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

7MP - TEE, CLAMP ENDS



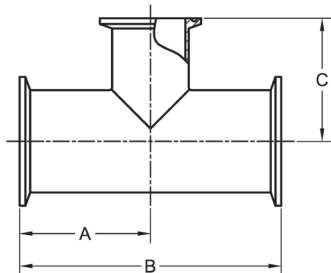
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|--------|
| 7MP-.50 | 1/2 | 1.250 | 2.500 |
| 7MP-.75 | 3/4 | 2.375 | 4.750 |
| 7MP-1 | 1 | 2.375 | 4.750 |
| 7MP-1.5 | 1-1/2 | 2.750 | 5.500 |
| 7MP-2 | 2 | 3.500 | 7.000 |
| 7MP-2.5 | 2-1/2 | 3.500 | 7.000 |
| 7MP-3 | 3 | 3.750 | 7.500 |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

7MPS - SHORT OUTLET TEE, CLAMP ENDS



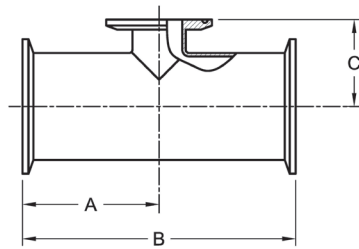
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|-------|
| 7MPS-1 | 1 | 2.375 | 4.750 | 1.125 |
| 7MPS-1.5 | 1-1/2 | 2.750 | 5.500 | 1.375 |
| 7MPS-2 | 2 | 3.500 | 7.000 | 1.625 |
| 7MPS-2.5 | 2-1/2 | 3.500 | 7.000 | 1.875 |
| 7MPS-3 | 3 | 3.750 | 7.500 | 2.125 |
| 7MPS-4 |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

7RMP - REDUCING TEE, CLAMP ENDS



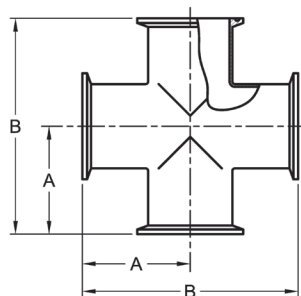
| PART NUMBER | SIZE | A | B | C |
|--------------|---------------|-------|--------|-------|
| 7RMP-1.5X.75 | 1-1/2 X 3/4 | 2.875 | 5.750 | 2.875 |
| 7RMP-1.5X1 | 1-1/2 X 1 | 2.156 | 4.312 | 1.875 |
| 7RMP-2X1 | 2 X 1 | 2.562 | 5.125 | 2.125 |
| 7RMP-2X1.5 | 2 X 1-1/2 | 2.562 | 5.125 | 2.406 |
| 7RMP-2.5X1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

7RMPS - SHORT OUTLET REDUCING TEE, CLAMP ENDS



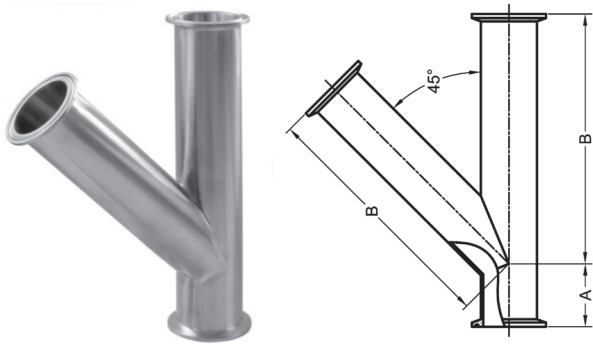
| PART NUMBER | SIZE | A | B | C |
|---------------|---------------|-------|--------|-------|
| 7RMPS-1.5X.75 | 1-1/2 X 3/4 | 2.875 | 5.750 | 1.375 |
| 7RMPS-1.5X1 | 1-1/2 X 1 | 2.156 | 4.312 | 1.375 |
| 7RMPS-2X1 | 2 X 1 | 2.563 | 5.125 | 1.625 |
| 7RMPS-2X1.5 | 2 X 1-1/2 | 2.563 | 5.125 | 1.625 |
|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

9MP - CROSS, CLAMP ENDS



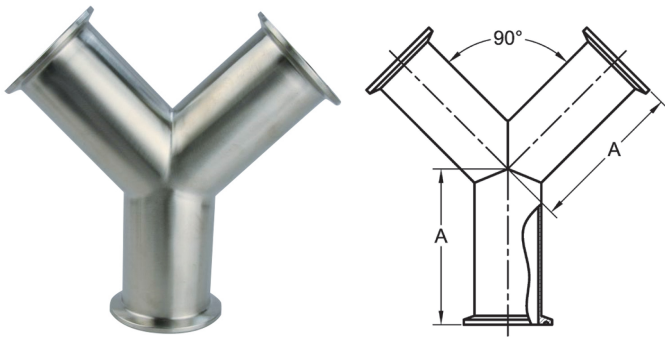
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|--------|
| 9MP-.50 | 1/2 | 2.250 | 4.500 |
| 9MP-.75 | 3/4 | 2.375 | 4.750 |
| 9MP-1 | 1 | 2.375 | 4.750 |
| 9MP-1.5 | 1-1/2 | 2.750 | 5.500 |
| 9MP-2 | 2 | 3.500 | 7.000 |
| 9MP-2.5 | 2-1/2 | 3.500 | 7.000 |
| 9MP-3 | 3 | 3.750 | 7.500 |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

28AMP - LATERAL WYE, CLAMP ENDS



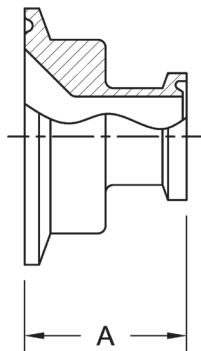
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|--------|
| 28AMP-.50 | 1/2 | 1.500 | 5.500 |
| 28AMP-.75 | 3/4 | 1.500 | 5.500 |
| 28AMP-1 | 1 | 1.500 | 5.500 |
| 28AMP-1.5 | 1-1/2 | 1.687 | 6.688 |
| 28AMP-2 | 2 | 2.125 | 7.625 |
| 28AMP-2.5 | 2-1/2 | 2.000 | 9.000 |
| 28AMP-3 | 3 | 2.375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

28BMP - TRUE WYE, CLAMP ENDS



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

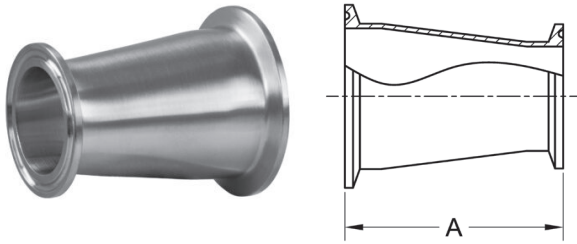
31-14MP - SHORT CONICAL INSTRUMENT REDUCER, CLAMP ENDS



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

OTHERS SIZES AND LENGTHS AVAILABLE

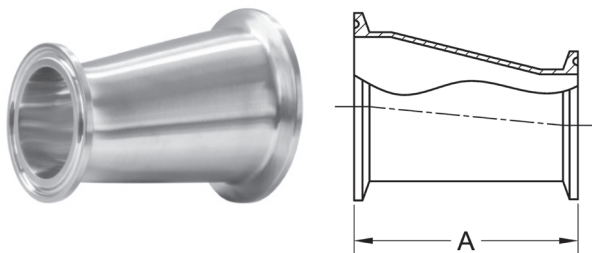
31-14MP - CONCENTRIC REDUCER, CLAMP ENDS



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

OTHER SIZES AVAILABLE UPON REQUEST

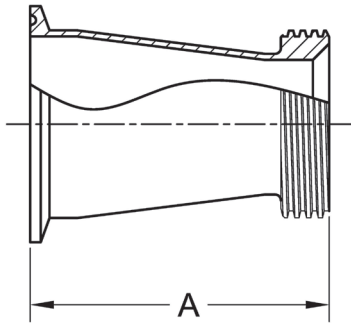
32-14MP - ECCENTRIC REDUCER, CLAMP ENDS



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

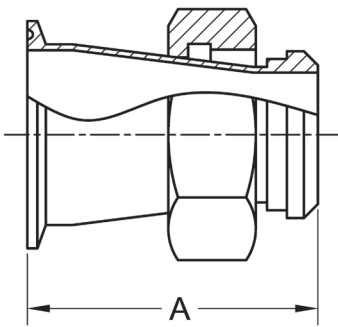
OTHER SIZES AVAILABLE UPON REQUEST

31MPT - CONCENTRIC REDUCER, CLAMP X THREADED BEVEL SEAT



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

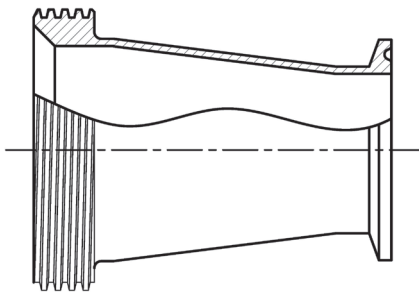
31MPP - CONCENTRIC REDUCER, CLAMP X PLAIN BEVEL SEAT



NOTE: HEX NUT INCLUDED

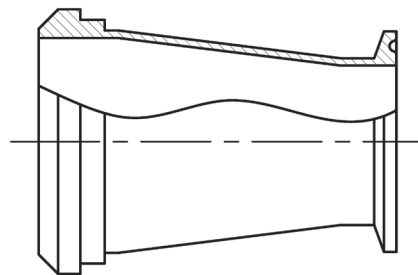
| PART NUMBER | SIZE | A |
|---------------|---------------|-------|
| 31MPP-1.5X1 | 1-1/2 X 1 | 3.875 |
| 31MPP-2X1 | 2 X 1 | 5.875 |
| 31MPP-2X1.5 | 2 X 1-1/2 | 4.000 |
| 31MPP-2.5X1.5 | 2-1/2 X 1-1/2 | 6.000 |
| 31MPP-2.5X2 | 2-1/2 X 2 | 4.000 |
| 31MPP-3X2 | 3 X 2 | 6.000 |
| 31MPP-3X2.5 | 3 X 2-1/2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

OTHER CLAMP REDUCERS AVAILABLE FROM STEEL & O'BRIEN



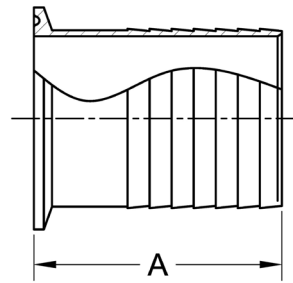
31TMP (CONCENTRIC)

32TMP (ECCENTRIC)



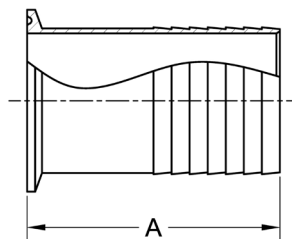
31PMP (CONCENTRIC)

32PMP (ECCENTRIC)

14MPHR - RUBBER HOSE ADAPTER

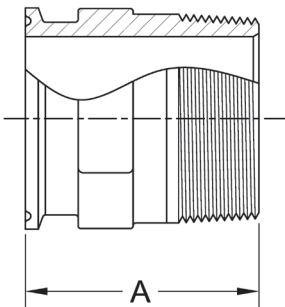
| PART NUMBER | SIZE | A | PART NUMBER | SIZE | A |
|-----------------|-------------|-------|-----------------|---------------|-------|
| 14MPHR-.50X.125 | 1/2 X 1/8 | 1.250 | 14MPHR-1.5X.50 | 1-1/2 X 1/2 | 1.500 |
| 14MPHR-.50X.25 | 1/2 X 1/4 | 1.500 | 14MPHR-1.5X.75 | 1-1/2 X 3/4 | 1.500 |
| 14MPHR-.50X.375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

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

14MPHRL - BREWERY STYLE RUBBER HOSE ADAPTER

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

21MP - ADAPTER, CLAMP X MALE NPT

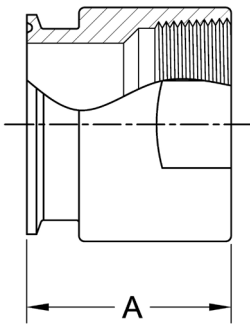


NOTE: SIZES ARE LISTED CLAMP SIZE X NPT

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

HEX SHAPE PROVIDED ON OTHER SIZES UPON REQUEST

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

22MP - ADAPTER, CLAMP X FEMALE NPT

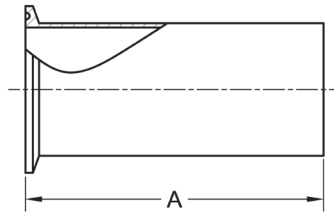
NOTE: SIZES ARE LISTED CLAMP SIZE X NPT

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

HEX SHAPE PROVIDED ON OTHER SIZES UPON REQUEST

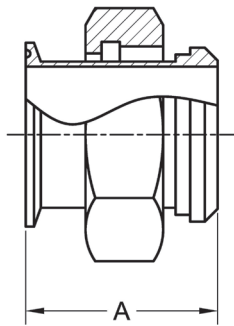
| PART NUMBER | SIZE | A |
|----------------|---------------|-------|
| 22MP-.50X.125 | 1/2 X 1/8 | 1.250 |
| 22MP-.50X.25 | 1/2 X 1/4 | 1.500 |
| 22MP-.50X.375 | 1/2 X 3/8 | 1.500 |
| 22MP-.50 | 1/2 X 1/2 | 1.500 |
| 22MP-.50X.75 | 1/2 X 3/4 | 1.625 |
| 22MP-.50X1 | 1/2 X 1 | 1.625 |
| 22MP-.75X.125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

14MPHT - TYGON HOSE ADAPTER



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

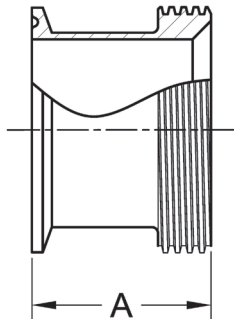
17MP-14 - ADAPTER, CLAMP X PLAIN BEVEL SEAT



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

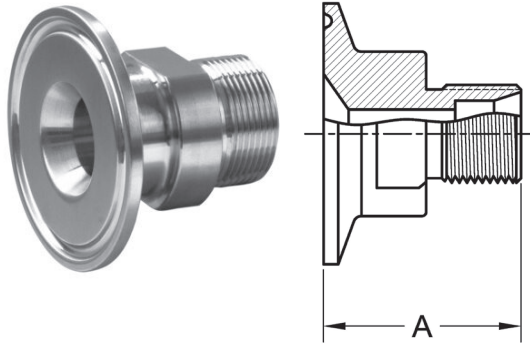
NOTE: HEX NUT INCLUDED

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



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

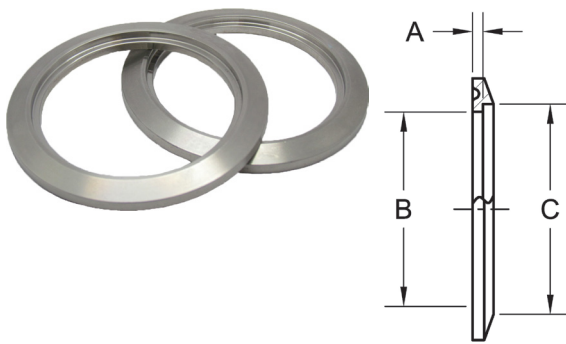
31-14C - CLAMP X TUBE COMPRESSION



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

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

16AAS - CLAMP FLUSH FERRULE



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

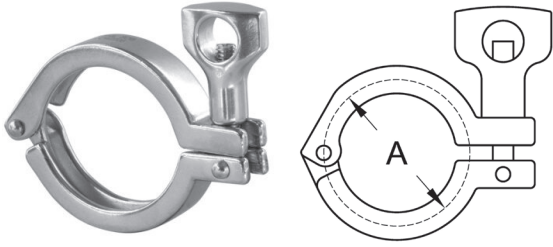
SLIP ONTO SANITARY TUBING AND WELD, NO NEED TO BUTT-WELD
EASY WELDING FOR NON-SANITARY APPLICATIONS

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



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

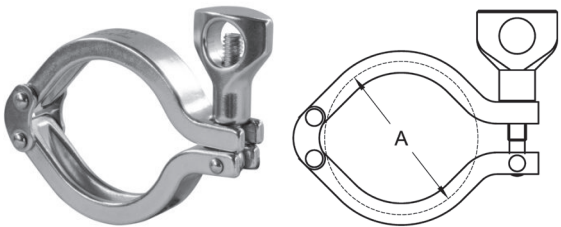
13MHHM - SINGLE PIN CLAMP



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

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

13MHHM-DP - DOUBLE PIN CLAMP

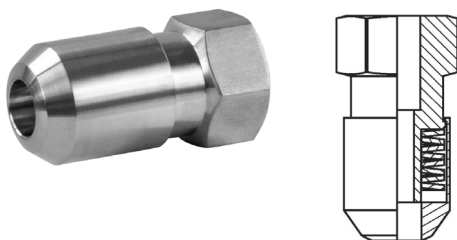


AVAILABLE IN 304 MATERIAL ONLY

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

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

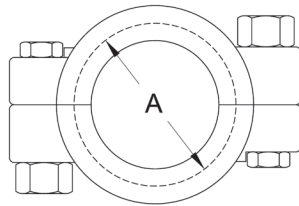
13WNLL - LIVE LOADED CLAMP NUT



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

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

13MHP - HIGH PRESSURE CLAMP

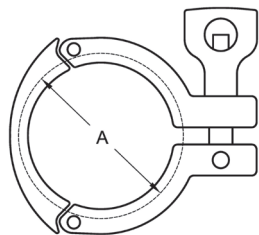


AVAILABLE IN 304 AND 316 MATERIAL

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

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

13MHHS - THREE SEGMENT CLAMP

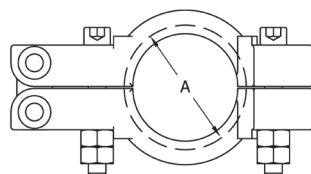
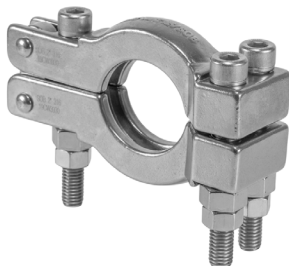


AVAILABLE IN 304 MATERIAL ONLY

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

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

13ASME - ASME DOUBLE BOLT CLAMP

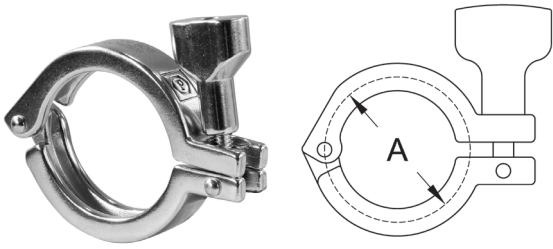


AVAILABLE IN 316 MATERIAL ONLY

| 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

P13MHHM - PURITY CLAMP

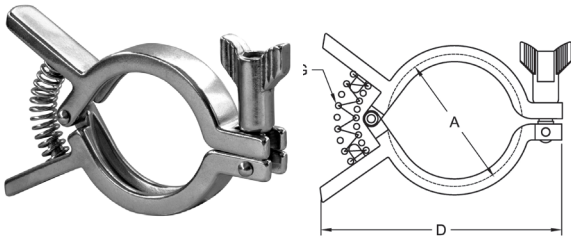


AVAILABLE IN 304 MATERIAL ONLY

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

TRUE SPHERICAL DESIGN
LOBE WING NUT
POLISHED

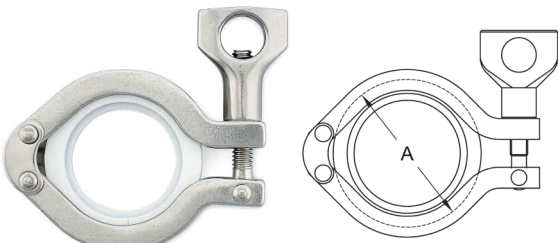
13MHHMQ - SQUEEZE CLAMP



AVAILABLE IN 304 MATERIAL ONLY

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

A12MPS - SWIVEL JOINT CLAMP ASSEMBLY



AVAILABLE IN 304 MATERIAL ONLY

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

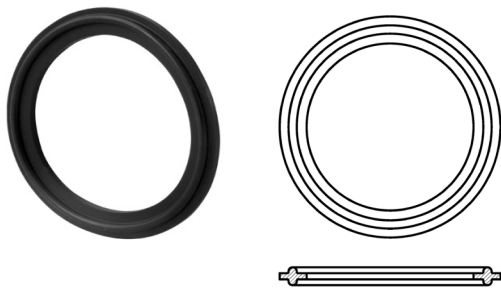
NOTE: "A" DIMENSION DOES NOT INCLUDE TEFLON COLLAR
ASSEMBLY INCLUDES PTFE COLLAR AND PTFE/EPDM ENVELOPE GASKET

CLAMP GASKET PERFORMANCE CHART

| PROPERTY | BUNA-N | EPDM | PTFE | FKM/SFY | SILICONE |
|-----------------------------|--------------|--------------------------|--------------------|-------------------|---------------------|
| TENSILE STRENGTH | GOOD | GOOD - EXCELLENT | EXCELLENT | EXCELLENT | GOOD |
| ELECTRICAL PROPERTIES | POOR | EXCELLENT | EXCELLENT | GOOD | EXCELLENT |
| WEATHER RESISTANCE | GOOD | EXCELLENT | EXCELLENT | EXCELLENT | EXCELLENT |
| OZONE RESISTANCE | POOR | EXCELLENT | EXCELLENT | EXCELLENT | EXCELLENT |
| HEAT RESISTANCE | 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 |

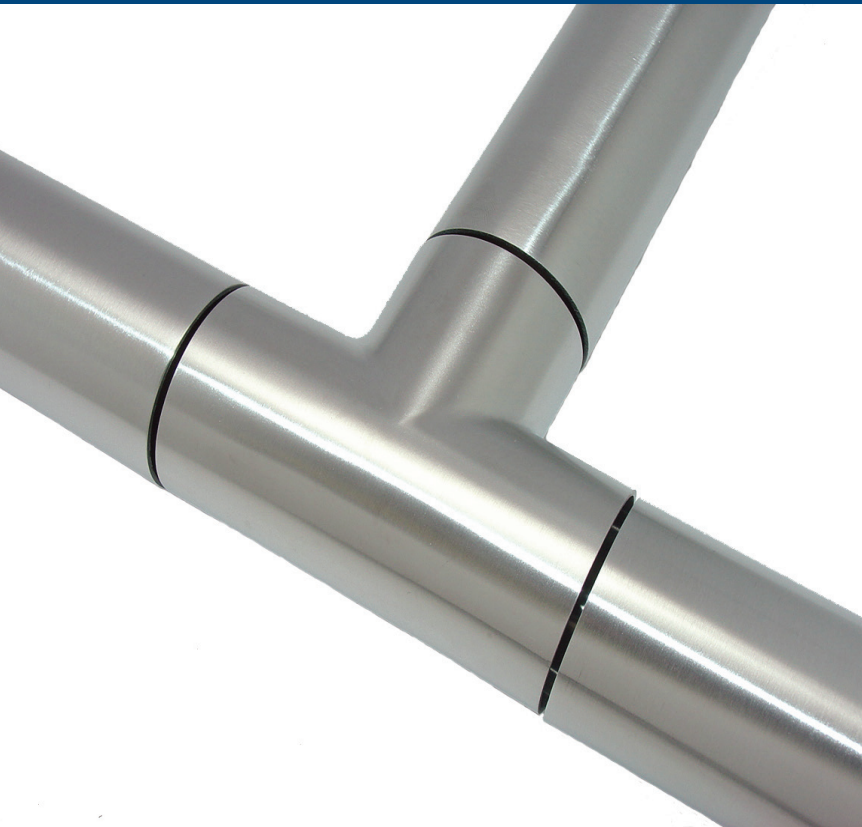
THE ABOVE CHART IS INTENDED AS A GUIDELINE, ACUTAL PERFORMANCE MAY VARY WITH EACH APPLICATION.

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 |

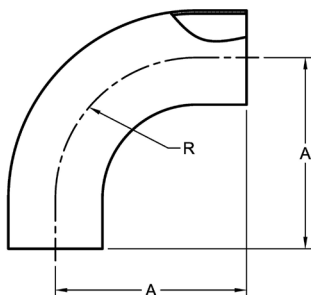


WELD FITTINGS

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

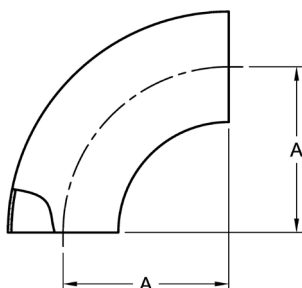


L2S - 90 DEGREE ELBOW, TANGENT WELD ENDS



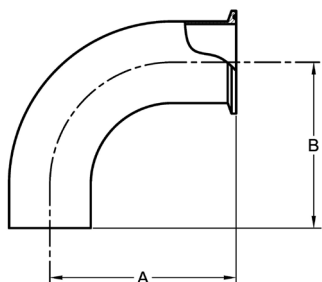
| PART NUMBER | SIZE | A | R |
|-------------|-------|--------|--------|
| L2S-.50 | 1/2 | 3.000 | .750 |
| L2S-.50L | 1/2 | 3.000 | 1.125 |
| L2S-.75 | 3/4 | 3.000 | 1.125 |
| L2S-1 | 1 | 2.062 | 1.500 |
| L2S-1.5 | 1-1/2 | 2.937 | 2.250 |
| L2S-2 | 2 | 4.062 | 3.000 |
| L2S-2.5 | 2-1/2 | 5.187 | 3.750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

2WCL - 90 DEGREE ELBOW, WELD ENDS



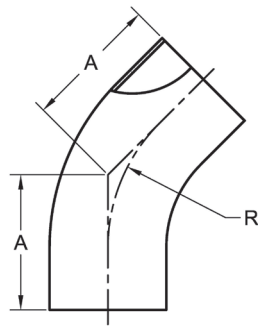
| PART NUMBER | SIZE | A |
|-------------|-------|--------|
| 2WCL-.50 | 1/2 | .750 |
| 2WCL-.50L | 1/2 | 1.125 |
| 2WCL-.75 | 3/4 | 1.125 |
| 2WCL-1 | 1 | 1.500 |
| 2WCL-1.5 | 1-1/2 | 2.250 |
| 2WCL-2 | 2 | 3.000 |
| 2WCL-2.5 | 2-1/2 | 3.750 |
| 2WCL-3 | 3 | 4.500 |
| 2WCL-4 | 4 | 6.000 |
| 2WCL-6 |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

L2CM - 90 DEGREE ELBOW, WELD X CLAMP



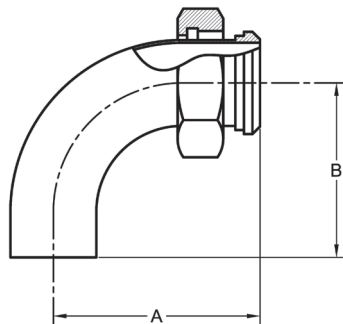
| PART NUMBER | SIZE | A | B |
|-------------|-------|--------|--------|
| L2CM-1 | 1 | 2.563 | 2.063 |
| L2CM-1.5 | 1-1/2 | 3.438 | 2.938 |
| L2CM-2 | 2 | 4.563 | 4.063 |
| L2CM-2.5 | 2-1/2 | 5.688 | 5.188 |
| L2CM-3 | 3 | 6.813 | 6.313 |
| L2CM-4 | 4 | 8.938 | 8.313 |
| L2CM-6 | 6 | 11.750 | 11.000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

L2KS - 45 DEGREE ELBOW, TANGENT WELD ENDS



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

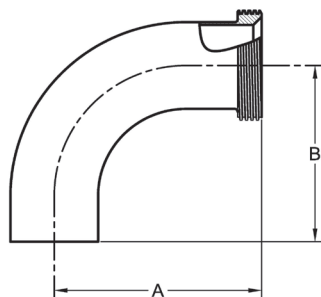
L2F - 90 DEGREE ELBOW, WELD X PLAIN BEVEL SEAT



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

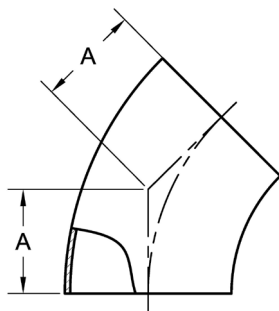
NOTE: HEX NUT INCLUDED

L2C - 90 DEGREE ELBOW, WELD X THREADED BEVEL SEAT



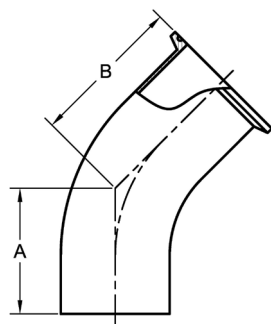
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| L2C-1 | 1 | 2.750 | 2.062 |
| L2C-1.5 | 1-1/2 | 3.656 | 2.937 |
| L2C-2 | 2 | 4.812 | 4.062 |
| L2C-2.5 | 2-1/2 | 6.031 | 5.187 |
| L2C-3 | 3 | 7.245 | 6.312 |
| L2C-4 | 4 | 9.531 | 8.312 |

2WK - 45 DEGREE ELBOW, WELD ENDS



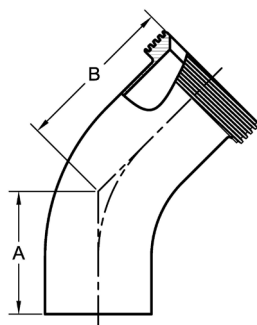
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 2WK-.50 | 1/2 | .313 |
| 2WK-.50L | 1/2 | .466 |
| 2WK-.75 | 3/4 | .466 |
| 2WK-1 | 1 | .625 |
| 2WK-1.5 | 1-1/2 | .937 |
| 2WK-2 | 2 | 1.250 |
| 2WK-2.5 | 2-1/2 | 1.562 |
| 2WK-3 | 3 | 1.875 |
| 2WK-4 | 4 | 2.500 |
| 2WK-6 | 6 | 3.750 |
|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

L2KM - 45 DEGREE ELBOW, WELD X CLAMP



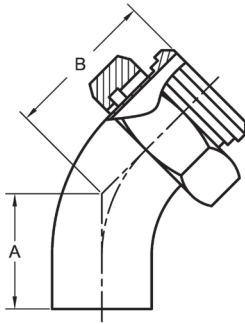
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| L2KM-1 | 1 | 1.188 | 1.688 |
| L2KM-1.5 | 1-1/2 | 1.625 | 2.125 |
| L2KM-2 | 2 | 2.312 | 2.812 |
| L2KM-2.5 | 2-1/2 | 3.000 | 3.500 |
| L2KM-3 | 3 | 3.688 | 4.188 |
| L2KM-4 | 4 | 4.812 | 5.437 |
| L2KM-6 | 6 | 3.750 | 4.625 |

L2K - 45 DEGREE ELBOW, WELD X THREADED BEVEL SEAT



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

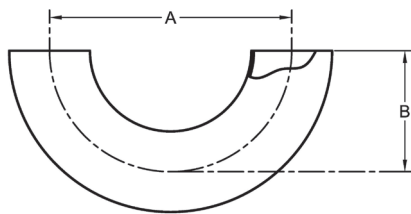
L2P - 45 DEGREE ELBOW, WELD X PLAIN BEVEL SEAT



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

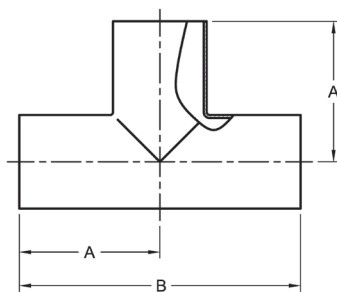
NOTE: HEX NUT INCLUDED

2WU - 180 DEGREE RETURN BEND, WELD ENDS



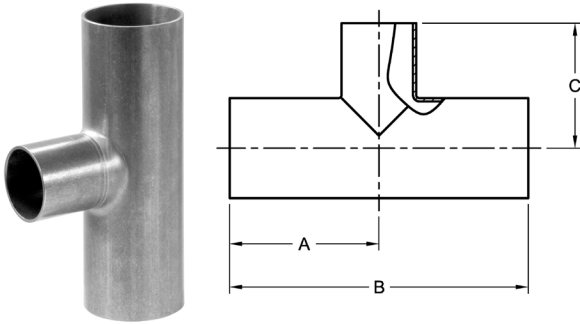
| PART NUMBER | SIZE | A | B |
|-------------|-------|--------|-------|
| 2WU-1 | 1 | 3.000 | 1.500 |
| 2WU-1.5 | 1-1/2 | 4.500 | 2.250 |
| 2WU-2 | 2 | 6.000 | 3.000 |
| 2WU-2.5 | 2-1/2 | 7.500 | 3.750 |
| 2WU-3 | 3 | 9.000 | 4.500 |
| 2WU-4 | 4 | 12.000 | 6.000 |
| 2WU-6 | 6 | 18.000 | 9.000 |

7W - TEE, WELD ENDS (LONG)



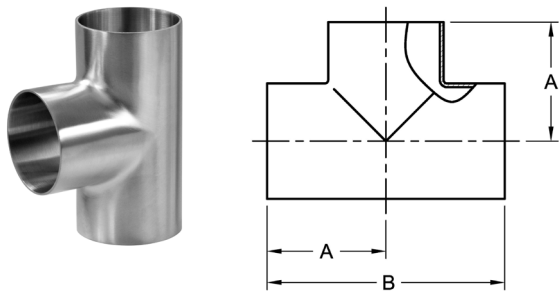
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|--------|
| 7W-.50 | 1/2 | 1.875 | 3.750 |
| 7W-.75 | 3/4 | 1.875 | 3.750 |
| 7W-1 | 1 | 1.875 | 3.750 |
| 7W-1.5 | 1-1/2 | 2.250 | 4.500 |
| 7W-2 | 2 | 3.000 | 6.000 |
| 7W-2.5 | 2-1/2 | 3.000 | 6.000 |
| 7W-3 | 3 | 3.250 | 6.500 |
| 7W-4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

7RW - REDUCING TEE, WELD ENDS (LONG)



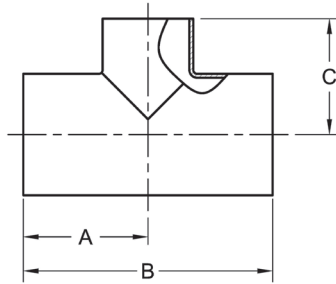
| PART NUMBER | SIZE | A | B | C |
|-------------|---------------|-------|-------|-------|
| 7RW-1X.50 | 1 X 1/2 | 2.125 | 4.250 | 2.125 |
| 7RW-1X.75 | 1 X 3/4 | 2.125 | 4.250 | 2.125 |
| 7RW-1.5X.50 | 1-1/2 X 1/2 | 2.375 | 4.750 | 2.375 |
| 7RW-1.5X.75 | 1-1/2 X 3/4 | 2.375 | 4.750 | 2.375 |
| 7RW-1.5X1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

7WWW - TEE, WELD ENDS (SHORT)



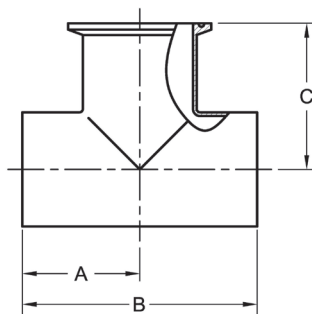
| PART NUMBER | SIZE | A | B |
|-------------|-------|--------|--------|
| 7WWW-.50 | 1/2 | 1.125 | 2.250 |
| 7WWW-.75 | 3/4 | 1.125 | 2.250 |
| 7WWW-1 | 1 | 1.125 | 2.250 |
| 7WWW-1.5 | 1-1/2 | 1.656 | 3.312 |
| 7WWW-2 | 2 | 2.063 | 4.125 |
| 7WWW-2.5 | 2-1/2 | 2.344 | 4.688 |
| 7WWW-3 | 3 | 2.594 |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

7RWWW - REDUCING TEE, WELD ENDS (SHORT)



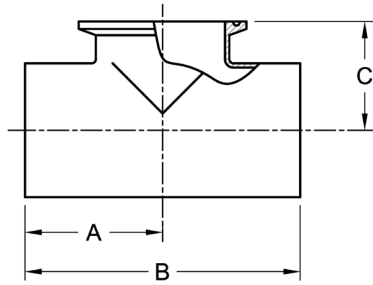
| PART NUMBER | SIZE | A | B | C |
|---------------|---------------|-------|--------|-------|
| 7RWWW-1.5X1 | 1-1/2 X 1 | 1.656 | 3.312 | 1.375 |
| 7RWWW-2X1 | 2 X 1 | 2.062 | 4.125 | 1.625 |
| 7RWWW-2X1.5 | 2 X 1-1/2 | 2.062 | 4.125 | 1.905 |
| 7RWWW-2.5X1 | 2-1/2 X 1 | 2.344 | 4.688 | 1.875 |
| 7RWWW-2.5X1.5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

7WWM - TEE, WELD X WELD X CLAMP OUTLET



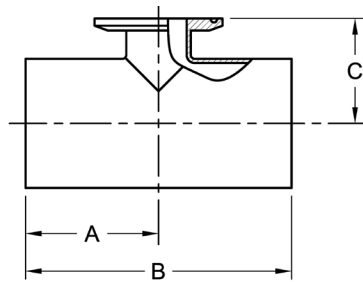
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|-------|
| 7WWM-.75 | 3/4 | 1.875 | 3.750 | 2.375 |
| 7WWM-1 | 1 | 1.125 | 2.250 | 1.625 |
| 7WWM-1.5 | 1-1/2 | 1.656 | 3.312 | 2.156 |
| 7WWM-2 | 2 | 2.063 | 4.125 | 2.563 |
| 7WWM-2.5 | 2-1/2 | 2.344 | 4.688 | 2.844 |
| 7WWM-3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

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



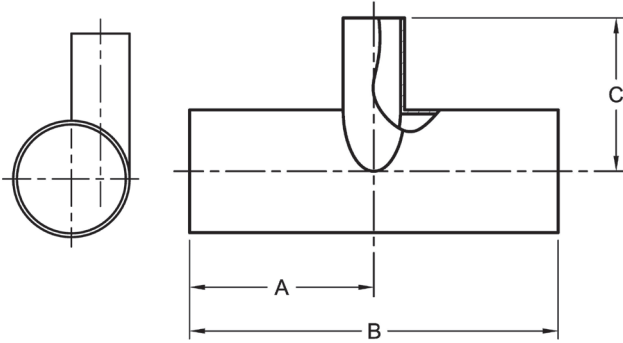
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|-------|
| 7WWMS-1 | 1 | 1.125 | 2.250 | 1.125 |
| 7WWMS-1.5 | 1-1/2 | 1.656 | 3.312 | 1.375 |
| 7WWMS-2 | 2 | 2.063 | 4.125 | 1.625 |
| 7WWMS-2.5 | 2-1/2 | 2.344 | 4.688 | 1.875 |
| 7WWMS-3 | 3 | 2.594 | 5.188 | 2.125 |
| 7WWMS-4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

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



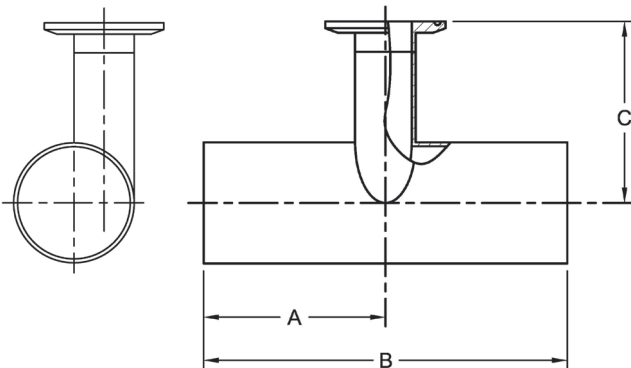
| PART NUMBER | SIZE | A | B | C |
|----------------|---------------|-------|--------|-------|
| 7RWWMS-1.5X1 | 1-1/2 X 1 | 1.656 | 3.312 | 1.375 |
| 7RWWMS-2X1 | 2 X 1 | 2.062 | 4.125 | 1.625 |
| 7RWWMS-2X1.5 | 2 X 1-1/2 | 2.062 | 4.125 | 1.625 |
| 7RWWMS-2.5X1 | 2-1/2 X 1 | 2.344 | 4.688 | 1.875 |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

7ERWWW - TANGENTIAL REDUCING TEE, WELD ENDS



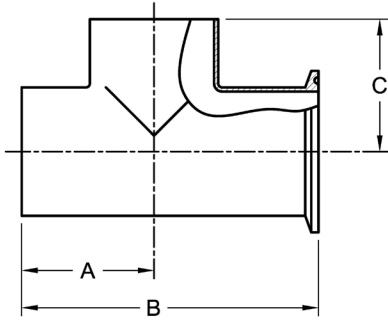
| PART NUMBER | SIZE | A | B | C |
|----------------|---------------|-------|-------|-------|
| 7ERWWW-1.5X1 | 1-1/2 X 1 | 1.656 | 3.312 | 1.375 |
| 7ERWWW-2X1 | 2 X 1 | 2.062 | 4.125 | 1.625 |
| 7ERWWW-2X1.5 | 2 X 1-1/2 | 2.062 | 4.125 | 1.905 |
| 7ERWWW-2.5X1 | 2-1/2 X 1 | 2.344 | 4.688 | 1.875 |
|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

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



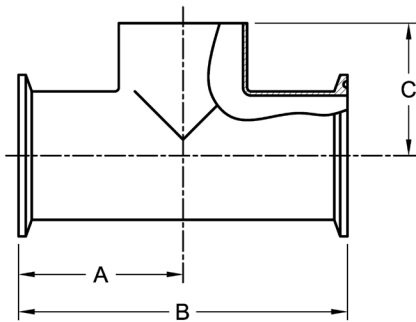
| PART NUMBER | SIZE | A | B | C |
|----------------|---------------|-------|-------|-------|
| 7ERWWK-1.5X1 | 1-1/2 X 1 | 1.656 | 3.312 | 1.875 |
| 7ERWWK-2X1 | 2 X 1 | 2.062 | 4.125 | 2.125 |
| 7ERWWK-2X1.5 | 2 X 1-1/2 | 2.062 | 4.125 | 2.406 |
| 7ERWWK-2.5X1 | 2-1/2 X 1 | 2.344 | 4.688 | 2.375 |
|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

7WMW - TEE, WELD X CLAMP X WELD OUTLET



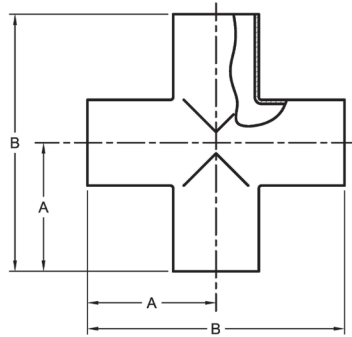
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|-------|
| 7WMW-1 | 1 | 1.125 | 2.750 | 1.125 |
| 7WMW-1.5 | 1-1/2 | 1.656 | 3.812 | 1.656 |
| 7WMW-2 | 2 | 2.063 | 4.625 | 2.063 |
| 7WMW-2.5 | 2-1/2 | 2.344 | 5.188 | 2.344 |
| 7WMW-3 | 3 | 2.594 | 5.688 | 2.594 |
| 7WMW-4 |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

7MMW - TEE, CLAMP X CLAMP X WELD OUTLET



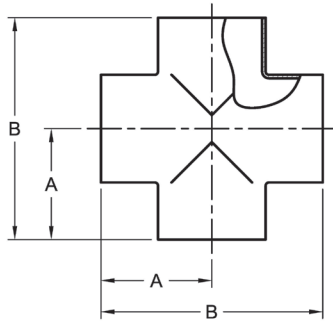
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|-------|
| 7MMW-1 | 1 | 1.625 | 3.250 | 1.125 |
| 7MMW-1.5 | 1-1/2 | 2.156 | 4.312 | 1.656 |
| 7MMW-2 | 2 | 2.563 | 5.125 | 2.063 |
| 7MMW-2.5 | 2-1/2 | 2.844 | 5.688 | 2.344 |
| 7MMW-3 | 3 | 3.094 | 6.188 | 2.594 |
| 7MMW-4 |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

9W - CROSS, WELD ENDS (LONG)



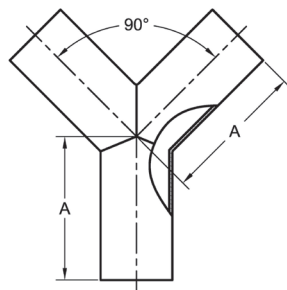
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| 9W-50 | 1/2 | 1.875 | 3.750 |
| 9W-75 | 3/4 | 1.875 | 3.750 |
| 9W-1 | 1 | 1.875 | 3.750 |
| 9W-1.5 | 1-1/2 | 2.250 | 4.500 |
| 9W-2 | 2 | 3.000 | 6.000 |
| 9W-2.5 | 2-1/2 | 3.000 | 6.000 |
| 9W-3 | 3 | 3.250 | 6.500 |
| 9W-4 |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

9WWWW - CROSS, WELD ENDS (SHORT)



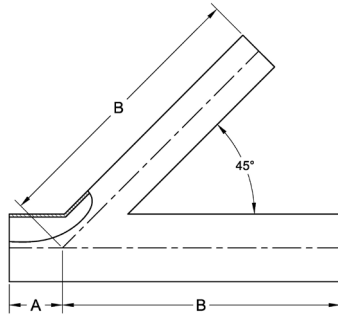
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|--------|
| 9WWWW-50 | 1/2 | .750 | 1.500 |
| 9WWWW-75 | 3/4 | 1.125 | 2.250 |
| 9WWWW-1 | 1 | 1.125 | 2.250 |
| 9WWWW-1.5 | 1-1/2 | 1.656 | 3.312 |
| 9WWWW-2 | 2 | 2.063 | 4.125 |
| 9WWWW-2.5 | 2-1/2 | 2.344 | 4.688 |
| 9WWWW-3 | 3 | 2.594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

28WB - TRUE WYE, WELD ENDS



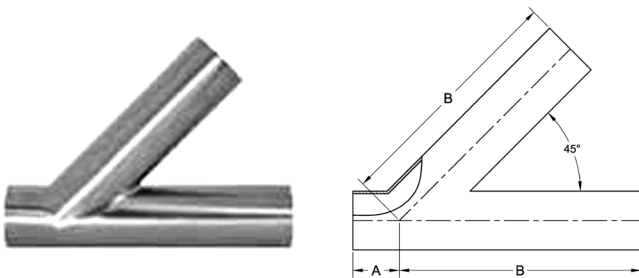
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 28WB-50 | 1/2 | 2.000 |
| 28WB-75 | 3/4 | 2.000 |
| 28WB-1 | 1 | 3.000 |
| 28WB-1.5 | 1-1/2 | 3.000 |
| 28WB-2 | 2 | 4.000 |
| 28WB-2.5 | 2-1/2 | 5.000 |
| 28WB-3 | 3 | 6.000 |
| 28WB-4 | 4 | 8.000 |
| 28WB-6 | 6 | 8.000 |
| 28WB-8 | 8 | 9.000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

28WAR - REDUCING LATERAL WYE, WELD ENDS



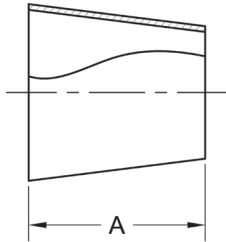
| PART NUMBER | SIZE | A | B |
|---------------|---------------|-------|--------|
| 28WAR-1X.50 | 1 X 1/2 | 1.000 | 5.000 |
| 28WAR-1X.75 | 1 X 3/4 | 1.000 | 5.000 |
| 28WAR-1.5X.50 | 1-1/2 X 1/2 | 1.188 | 6.188 |
| 28WAR-1.5X.75 | 1-1/2 X 3/4 | 1.188 | 6.188 |
| 28WAR-1.5X1 | 1-1/2 X 1 | 1.188 | 6.188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

28WA - LATERAL WYE, WELD ENDS



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

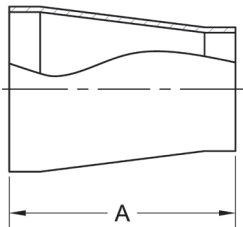
31W - CONCENTRIC REDUCER, WELD ENDS



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

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

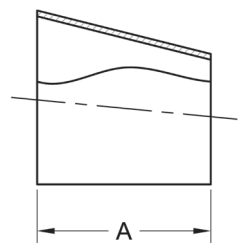
31WT - CONCENTRIC REDUCER, TANGENT WELD ENDS



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

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

32W - ECCENTRIC REDUCER, WELD ENDS

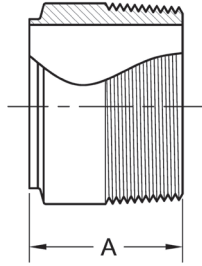


| PART NUMBER | SIZE | A |
|--------------|---------------|-------|
| 32W-75X.50 | 3/4 X 1/2 | 1.000 |
| 32W-1X.50 | 1 X 1/2 | 1.500 |
| 32W-1X.75 | 1 X 3/4 | 1.000 |
| 32W-1.5X.50 | 1-1/2 X 1/2 | 2.500 |
| 32W-1.5X.75 | 1-1/2 X 3/4 | 2.000 |
| 32W-1.5X1* | 1-1/2 X 1 | 2.000 |
| 32W-2X1* | 2 X 1 | 4.000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

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

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

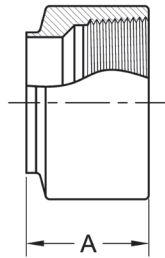
19WB - ADAPTER, WELD X MALE NPT



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

REDUCING SIZES AVAILABLE UPON REQUEST

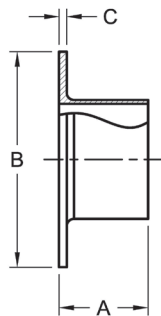
22WB - ADAPTER, WELD X FEMALE NPT



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

REDUCING SIZES AVAILABLE UPON REQUEST

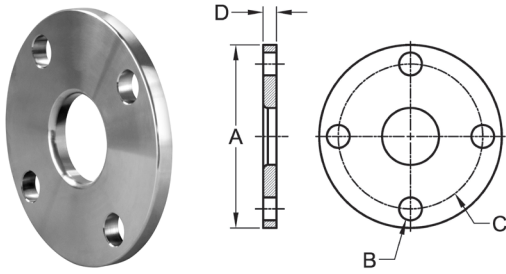
14VB - STUB END



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

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

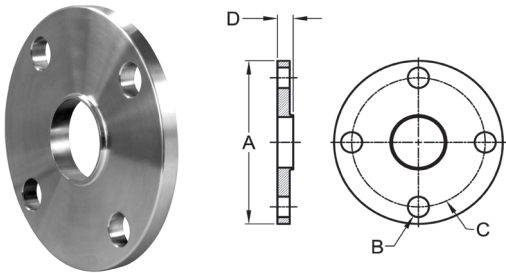
38SL - SLIP-ON FLANGE



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

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

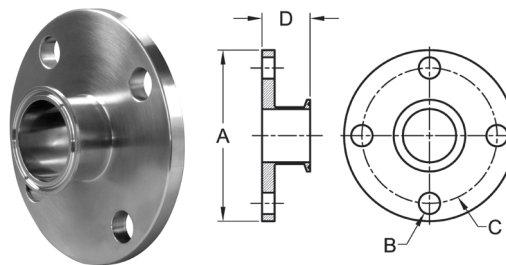
38W - WELD NECK FLANGE (LIGHT DUTY)



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

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

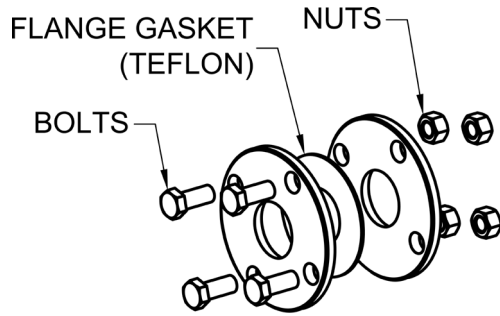
38MP - FLANGE ADAPTER



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

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

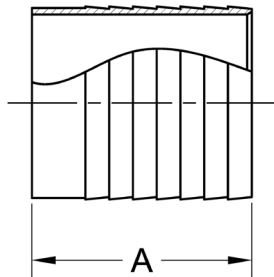
40RFK - FLANGE GASKET KIT



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

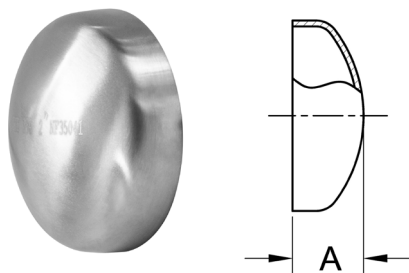
| PART NUMBER | SIZE |
|---------------|-------|
| 40RFK-.50-KIT | 1/2 |
| 40RFK-.75-KIT | 3/4 |
| 40RFK-1-KIT | 1 |
| 40RFK-1.5-KIT | 1-1/2 |
| 40RFK-2-KIT | 2 |
| 40RFK-2.5-KIT | 2-1/2 |
| 40RFK-3-KIT | 3 |
| 40RFK-4-KIT | 4 |
| 40RFK-6-KIT | 6 |
| 40RFK-8-KIT | 8 |
| 40RFK-10-KIT | 10 |
| 40RFK-12-KIT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

14WHR - HOSE BARB



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

16W - WELD CAP

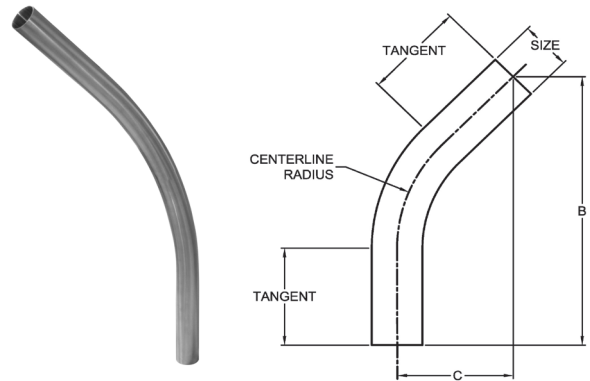
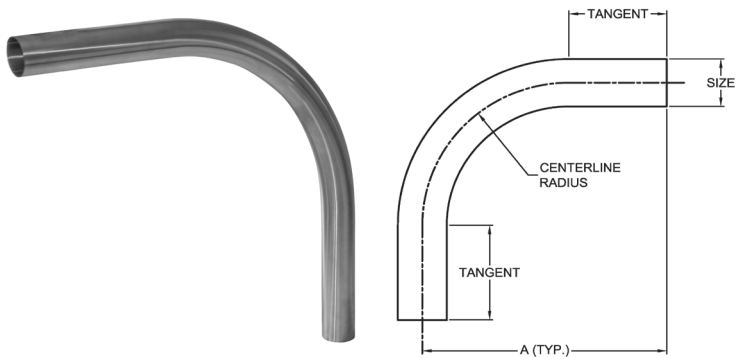


AVAILABLE POLISHED ID/OD
AVAILABLE WITH CENTER HOLE UPON REQUEST

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

2SXL - 90 DEGREE ELBOW, SWEEP

2KXL - 45 DEGREE ELBOW, SWEEP

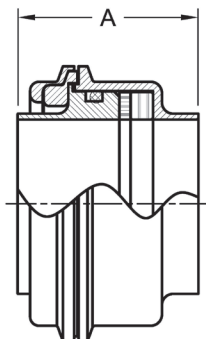


| SIZE | CENTERLINE RADIUS | A | B | C | TANGENT |
|-----------|-------------------|--------|--------|--------|---------|
| 1-1/2 - 4 | 12.000 | 20.000 | 22.142 | 9.172 | 8.000 |
| 1-1/2 - 4 | 18.000 | 26.000 | 26.388 | 10.929 | 8.000 |
| 1-1/2 - 6 | 24.000 | 32.000 | 30.627 | 12.686 | 8.000 |
| 1-1/2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

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

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

SWIVEL JOINT ASSEMBLY



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

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

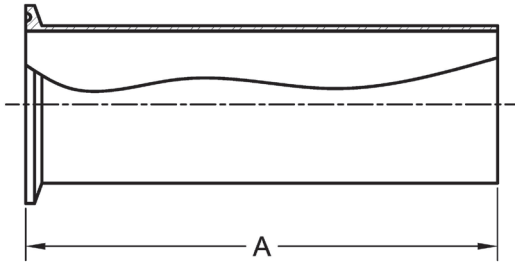


SPOOL ASSEMBLIES

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



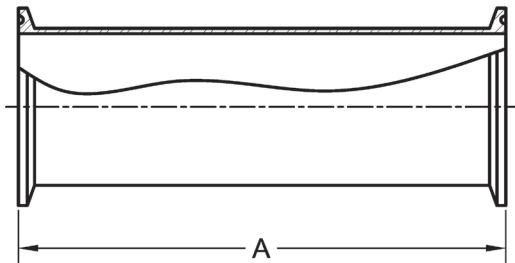
X17EMW - WELD X CLAMP



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

MAXIMUM LENGTH UP TO APPROX. 20 FEET

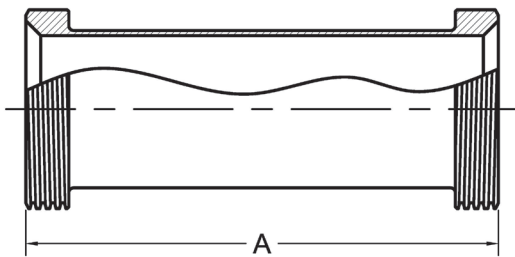
X17EMP - CLAMP X CLAMP



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

MAXIMUM LENGTH UP TO APPROX. 20 FEET

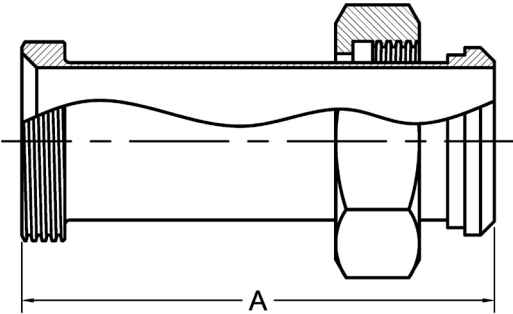
17C - ACME THREAD X ACME THREAD



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

MAXIMUM LENGTH UP TO APPROX. 20 FEET

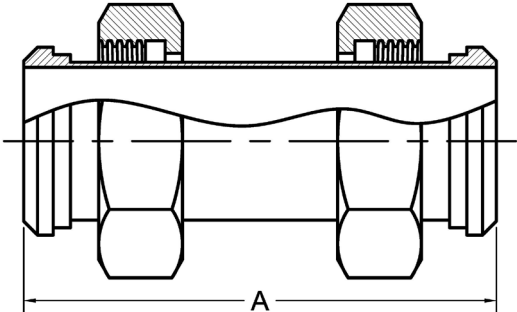
17D - ACME THREAD X BEVEL SEAT



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

MAXIMUM LENGTH UP TO APPROX. 20 FEET

17E - BEVEL SEAT X BEVEL SEAT



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

MAXIMUM LENGTH UP TO APPROX. 20 FEET

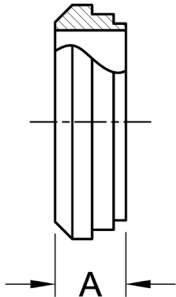


BEVEL SEAT FITTINGS

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

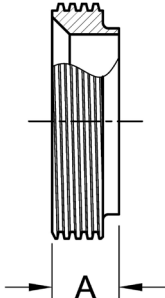


14PRF - SHORT WELD FERRULE, PLAIN



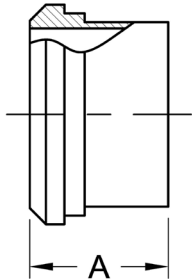
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14PRF-1 | 1 | .687 |
| 14PRF-1.5 | 1-1/2 | .719 |
| 14PRF-2 | 2 | .723 |
| 14PRF-2.5 | 2-1/2 | .844 |
| 14PRF-3 | 3 | .906 |
| 14PRF-4 | 4 | 1.000 |

15TRF - SHORT WELD FERRULE, THREADED



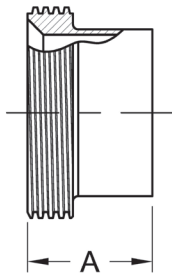
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 15TRF-1 | 1 | .688 |
| 15TRF-1.5 | 1-1/2 | .719 |
| 15TRF-2 | 2 | .750 |
| 15TRF-2.5 | 2-1/2 | .844 |
| 15TRF-3 | 3 | .938 |
| 15TRF-4 | 4 | 1.219 |

L14A7 - TUBE FERRULE, PLAIN



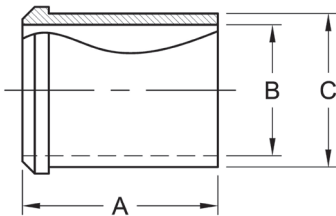
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| L14A7-1 | 1 | 1.375 |
| L14A7-1.5 | 1-1/2 | 1.500 |
| L14A7-2 | 2 | 1.500 |
| L14A7-2.5 | 2-1/2 | 1.750 |
| L14A7-3 | 3 | 1.750 |
| L14A7-4 | 4 | 1.750 |

L15A7 - TUBE FERRULE, THREADED



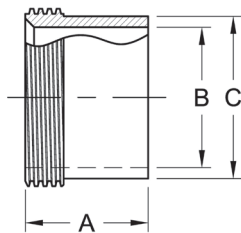
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| L15A7-1 | 1 | 1.375 |
| L15A7-1.5 | 1-1/2 | 1.500 |
| L15A7-2 | 2 | 1.500 |
| L15A7-2.5 | 2-1/2 | 1.750 |
| L15A7-3 | 3 | 1.750 |
| L15A7-4 | 4 | 1.750 |

14W - TANK SPUD (HEAVY), PLAIN



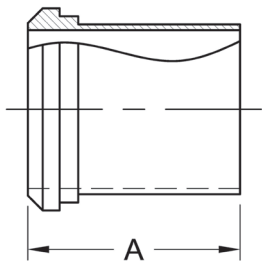
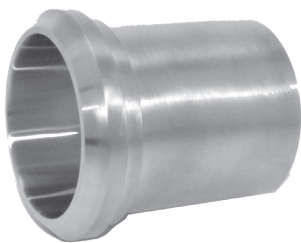
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 14W-1 | 1 | 2.375 | .870 | 1.156 |
| 14W-1.5 | 1-1/2 | 2.531 | 1.370 | 1.672 |
| 14W-2 | 2 | 2.781 | 1.870 | 2.187 |
| 14W-2.5 | 2-1/2 | 3.062 | 2.370 | 2.703 |
| 14W-3 | 3 | 3.531 | 2.870 | 3.218 |
| 14W-4 | 4 | 4.312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

15W - TANK SPUD (HEAVY), THREADED



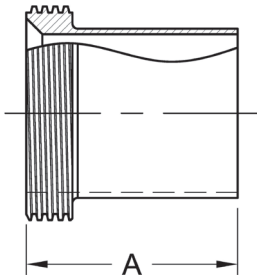
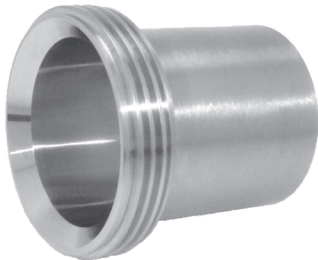
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 15W-1 | 1 | 1.500 | .870 | 1.250 |
| 15W-1.5 | 1-1/2 | 1.625 | 1.370 | 1.750 |
| 15W-2 | 2 | 1.750 | 1.870 | 2.312 |
| 15W-2.5 | 2-1/2 | 1.750 | 2.370 | 2.875 |
| 15W-3 | 3 | 1.812 | 2.870 | 3.375 |
| 15W-4 | 4 | 2.125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

14WL - TANK SPUD (LIGHT), PLAIN



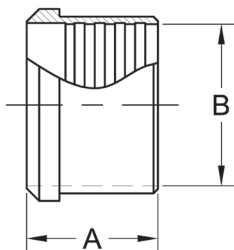
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14WL-1 | 1 | 2.000 |
| 14WL-1.5 | 1-1/2 | 2.250 |
| 14WL-2 | 2 | 2.500 |
| 14WL-2.5 | 2-1/2 | 2.750 |
| 14WL-3 | 3 | 3.000 |
| 14WL-4 | 4 | 4.000 |

15WL - TANK SPUD (LIGHT), THREADED



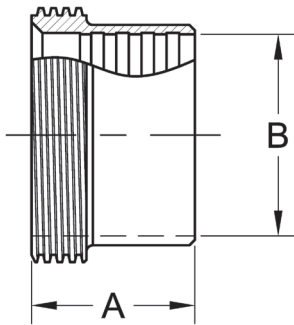
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 15WL-1 | 1 | 2.000 |
| 15WL-1.5 | 1-1/2 | 2.250 |
| 15WL-2 | 2 | 2.500 |
| 15WL-2.5 | 2-1/2 | 2.750 |
| 15WL-3 | 3 | 3.000 |
| 15WL-4 | 4 | 4.000 |

14R - ROLL-ON FERRULE, PLAIN



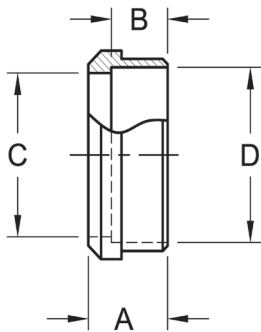
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| 14R-1 | 1 | .750 | 1.000 |
| 14R-1.5 | 1-1/2 | 1.125 | 1.500 |
| 14R-2 | 2 | 1.313 | 2.000 |
| 14R-2.5 | 2-1/2 | 1.375 | 2.500 |
| 14R-3 | 3 | 1.438 | 3.000 |
| 14R-4 | 4 | 1.500 | 4.000 |

15R - ROLL-ON FERRULE, THREADED



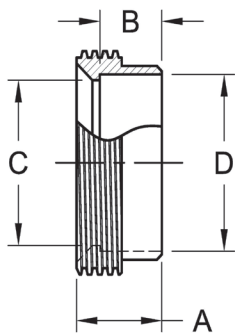
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| 15R-1 | 1 | .813 | 1.007 |
| 15R-1.5 | 1-1/2 | 1.625 | 1.507 |
| 15R-2 | 2 | 1.375 | 2.007 |
| 15R-2.5 | 2-1/2 | 1.500 | 2.507 |
| 15R-3 | 3 | 1.625 | 3.007 |
| 15R-4 | 4 | 1.625 | 4.007 |

14 - RECESSED FERRULE, PLAIN



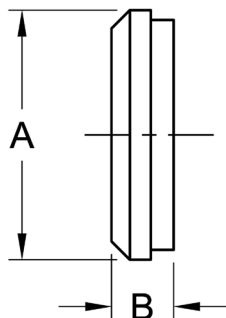
| PART NUMBER | SIZE | A | B | C | D |
|-------------|-------|-------|------|-------|-------|
| 14-1 | 1 | .750 | .500 | .870 | 1.000 |
| 14-1.5 | 1-1/2 | .875 | .625 | 1.370 | 1.500 |
| 14-2 | 2 | .969 | .688 | 1.870 | 2.000 |
| 14-2.5 | 2-1/2 | .938 | .750 | 2.370 | 2.500 |
| 14-3 | 3 | 1.125 | .813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

15 - RECESSED FERRULE, THREADED



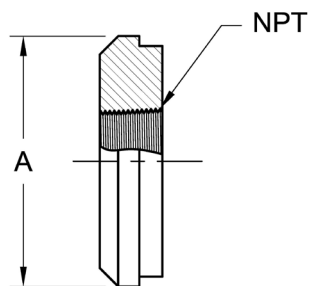
| PART NUMBER | SIZE | A | B | C | D |
|-------------|-------|-------|------|-------|-------|
| 15-1 | 1 | .812 | .500 | .870 | 1.000 |
| 15-1.5 | 1-1/2 | .875 | .625 | 1.370 | 1.500 |
| 15-2 | 2 | 1.031 | .688 | 1.870 | 2.000 |
| 15-2.5 | 2-1/2 | 1.125 | .750 | 2.370 | 2.500 |
| 15-3 | 3 | 1.250 | .813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

16A - SOLID END CAP



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

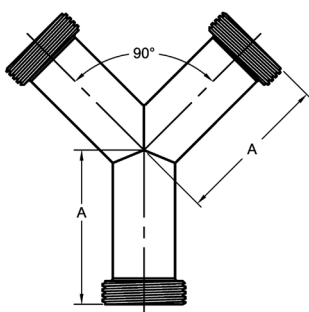
23B - THERMOMETER CAP



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

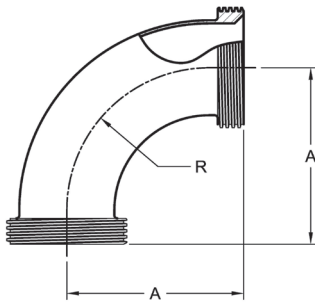
NOTE: SIZES ARE LISTED BEVEL SEAT SIZE X NPT SIZE

28B - TRUE WYE, THREADED ENDS



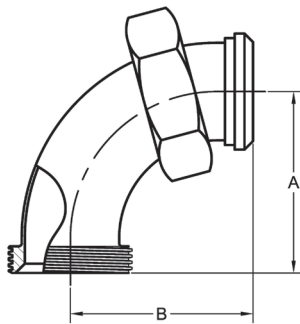
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 28B-1 | 1 | 3.688 |
| 28B-1.5 | 1-1/2 | 3.718 |
| 28B-2 | 2 | 4.750 |
| 28B-2.5 | 2-1/2 | 5.844 |
| 28B-3 | 3 | 6.933 |
| 28B-4 | 4 | 9.219 |

2C - 90 DEGREE ELBOW, THREADED ENDS



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

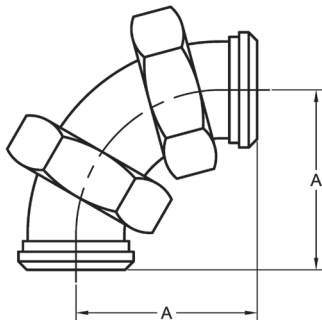
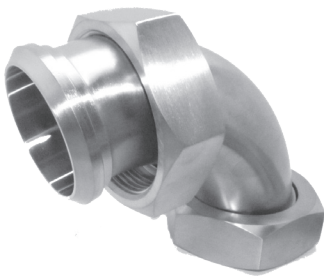
2F - 90 DEGREE ELBOW, THREADED X PLAIN ENDS



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

NOTE: HEX NUT INCLUDED

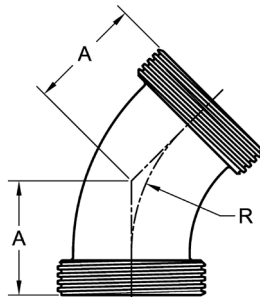
2E - 90 DEGREE ELBOW, PLAIN ENDS



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

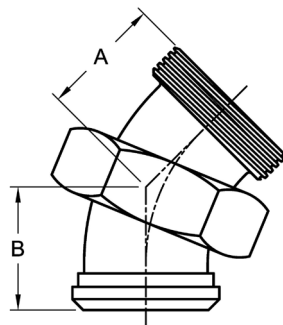
NOTE: HEX NUTS INCLUDED

2K - 45 DEGREE ELBOW, THREADED ENDS



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

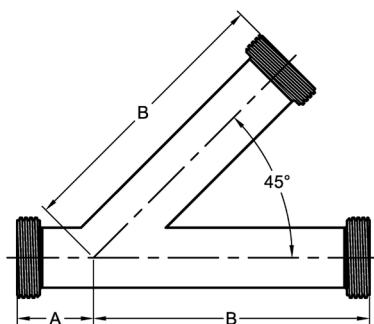
2P - 45 DEGREE ELBOW, THREADED X PLAIN ENDS



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

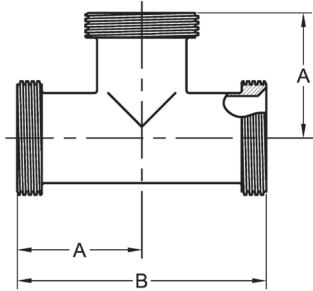
NOTE: HEX NUT INCLUDED

28A - LATERAL WYE, THREADED ENDS



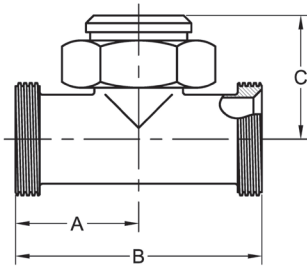
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|--------|
| 28A-1 | 1 | 1.688 | 5.688 |
| 28A-1.5 | 1-1/2 | 1.908 | 6.906 |
| 28A-2 | 2 | 2.370 | 7.875 |
| 28A-2.5 | 2-1/2 | 2.375 | 9.344 |
| 28A-3 | 3 | 2.808 | 9.808 |
| 28A-4 | 4 | 3.282 | 12.006 |

7 - TEE, THREADED ENDS



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

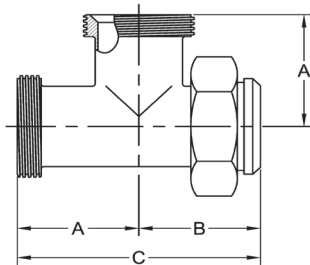
7A - TEE, THREADED X THREADED X PLAIN OUTLET



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

NOTE: HEX NUT INCLUDED

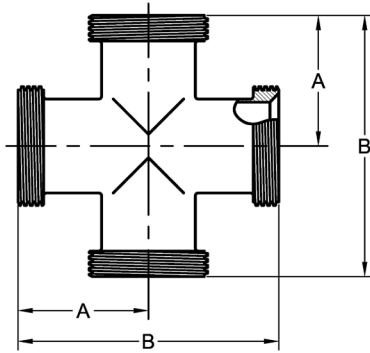
7B - TEE, THREADED X PLAIN X THREADED OUTLET



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

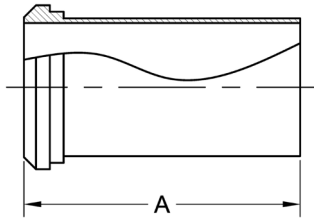
NOTE: HEX NUT INCLUDED

9 - CROSS, THREADED ENDS



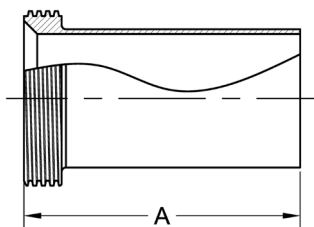
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| 9-1 | 1 | 1.813 | 3.626 |
| 9-1.5 | 1-1/2 | 2.375 | 4.750 |
| 9-2 | 2 | 2.813 | 5.626 |
| 9-2.5 | 2-1/2 | 3.188 | 6.376 |
| 9-3 | 3 | 3.527 | 7.054 |
| 9-4 | 4 | 4.657 | 9.314 |

14AHT - TYGON HOSE ADAPTER, PLAIN



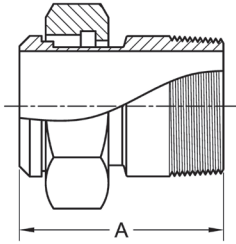
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14AHT-1 | 1 | 4.688 |
| 14AHT-1.5 | 1-1/2 | 4.719 |
| 14AHT-2 | 2 | 4.719 |
| 14AHT-2.5 | 2-1/2 | 4.843 |
| 14AHT-3 | 3 | 4.906 |
| 14AHT-4 | 4 | 5.219 |

15AHT - TYGON HOSE ADAPTER, THREADED



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

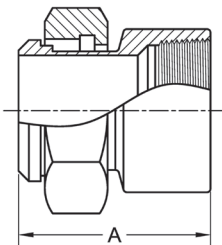
14-19 - ADAPTER, PLAIN X MALE NPT



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

NOTE: HEX NUT INCLUDED

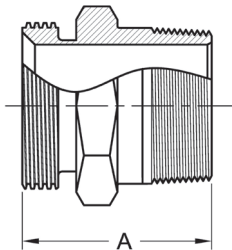
14-18 - ADAPTER, PLAIN X FEMALE NPT



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

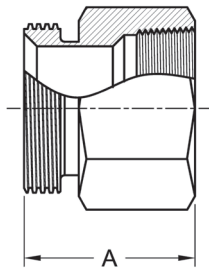
NOTE: HEX NUT INCLUDED

21 - ADAPTER, ACME THREAD X MALE NPT



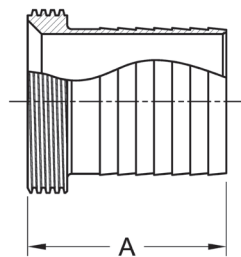
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 21-1 | 1 | 2.250 |
| 21-1.5 | 1-1/2 | 2.437 |
| 21-2 | 2 | 2.562 |
| 21-2.5 | 2-1/2 | 3.281 |
| 21-3 | 3 | 3.500 |
| 21-4 | 4 | 3.813 |

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

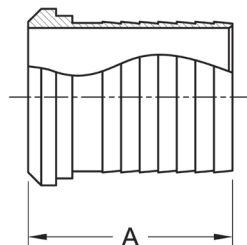
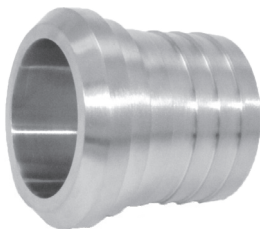
22 - ADAPTER, ACME THREAD X FEMALE NPT

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

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

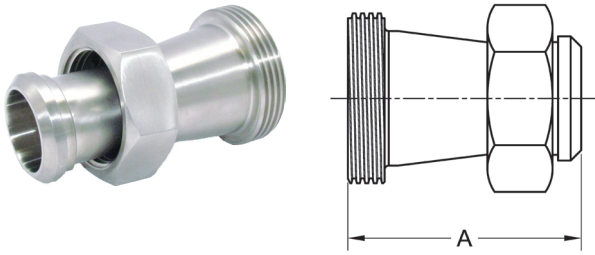
15AHR - ADAPTER, ACME THREAD X RUBBER HOSE

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

14AHR - ADAPTER, BEVEL SEAT X RUBBER HOSE

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

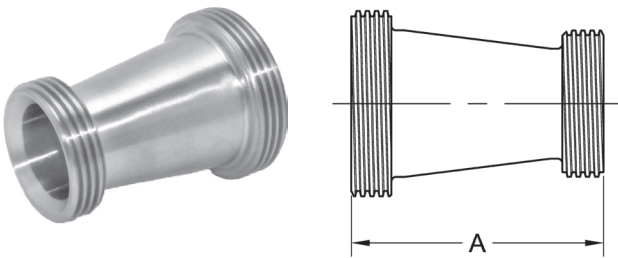
31TP - CONCENTRIC REDUCER, THREADED X PLAIN ENDS



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

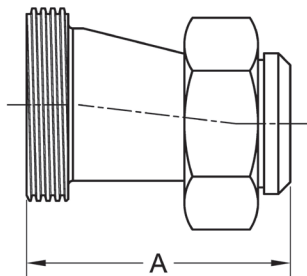
NOTE: HEX NUT INCLUDED

31TT - CONCENTRIC REDUCER, THREADED ENDS

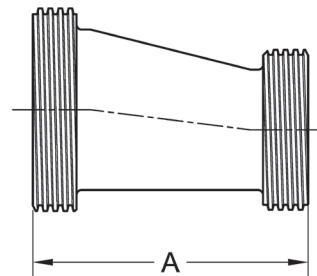


| PART NUMBER | SIZE | A |
|-------------|-----------|-------|
| 31TT-1.5X1 | 1-1/2 X 1 | 3.407 |
| 31TT-2X1.5 | 2 X 1-1/2 | 3.468 |
| 31TT-2.5X2 | 2-1/2 X 2 | 3.594 |
| 31TT-3X2 | 3 X 2 | 5.683 |
| 31TT-3X2.5 | 3 X 2-1/2 | 3.777 |
| 31TT-4X3 | 4 X 3 | 6.152 |

BEVEL SEAT REDUCERS

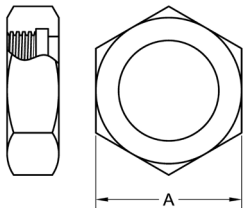


32TP (ECCENTRIC)



32TT (ECCENTRIC)

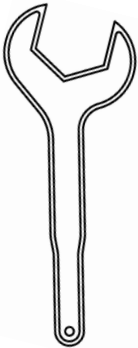
13H - HEX UNION NUT



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

NOTE: AVAILABLE IN 304 & 316 GRADES

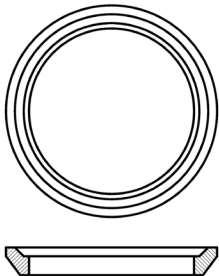
25H - ALUMINUM HEX WRENCH, SINGLE-SIDED



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

NOTE: DOUBLE-SIDED WRENCH ALSO AVAILABLE

BEVEL SEAT GASKET



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

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

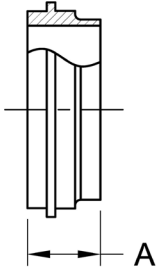


JOHN PERRY FITTINGS

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

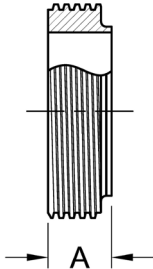


14PRFJP - SHORT WELD FERRULE, PLAIN



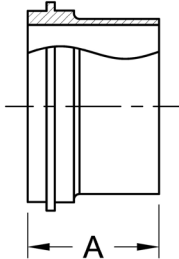
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14PRFJP-1 | 1 | .688 |
| 14PRFJP-1.5 | 1-1/2 | .719 |
| 14PRFJP-2 | 2 | .719 |
| 14PRFJP-2.5 | 2-1/2 | .844 |
| 14PRFJP-3 | 3 | .906 |
| 14PRFJP-4 | 4 | 1.218 |

15TRFJP - SHORT WELD FERRULE, THREADED



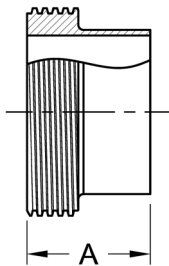
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 15TRFJP-1 | 1 | .688 |
| 15TRFJP-1.5 | 1-1/2 | .719 |
| 15TRFJP-2 | 2 | .750 |
| 15TRFJP-2.5 | 2-1/2 | .844 |
| 15TRFJP-3 | 3 | .938 |
| 15TRFJP-4 | 4 | 1.218 |

L14AJP - LONG WELD FERRULE, PLAIN



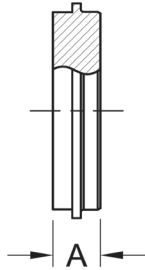
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| L14AJP-1 | 1 | 1.375 |
| L14AJP-1.5 | 1-1/2 | 1.500 |
| L14AJP-2 | 2 | 1.500 |
| L14AJP-2.5 | 2-1/2 | 1.750 |
| L14AJP-3 | 3 | 1.750 |
| L14AJP-4 | 4 | 1.750 |

L15AJP - LONG WELD FERRULE, THREADED



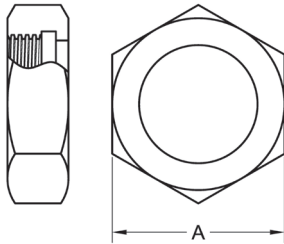
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| L15AJP-1 | 1 | 1.375 |
| L15AJP-1.5 | 1-1/2 | 1.500 |
| L15AJP-2 | 2 | 1.500 |
| L15AJP-2.5 | 2-1/2 | 1.750 |
| L15AJP-3 | 3 | 1.750 |
| L15AJP-4 | 4 | 1.750 |

16AJP - SOLID END CAP



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

13H - HEX UNION NUT



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

NOTE: AVAILABLE IN 304 & 316 GRADES

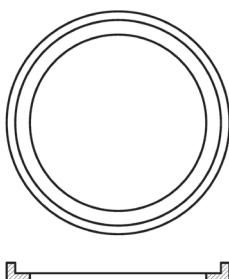
25H - ALUMINUM HEX WRENCH, SINGLE-SIDED



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

NOTE: DOUBLE-SIDED WRENCH ALSO AVAILABLE

JOHN PERRY GASKET



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

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

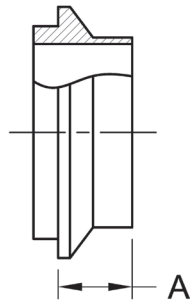


I-LINE FITTINGS

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

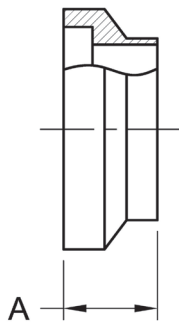


14WI - SHORT WELD FERRULE, MALE



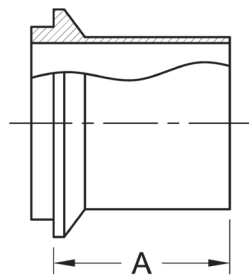
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14WI-1 | 1 | .589 |
| 14WI-1.5 | 1-1/2 | .746 |
| 14WI-2 | 2 | .780 |
| 14WI-2.5 | 2-1/2 | .850 |
| 14WI-3 | 3 | .912 |
| 14WI-4 | 4 | 1.037 |
| 14WI-6 | 6 | .818 |
| 14WI-8 | 8 | .818 |

15WI - SHORT WELD FERRULE, FEMALE



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

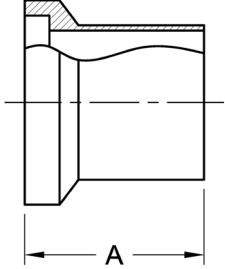
14WLI - LONG WELD FERRULE, MALE



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

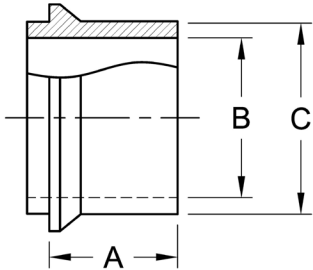


15WLI - LONG WELD FERRULE, FEMALE



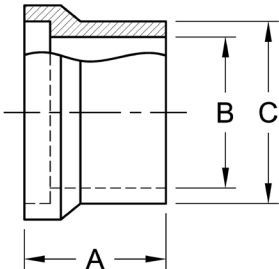
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 15WLI-1 | 1 | 1.750 |
| 15WLI-1.5 | 1-1/2 | 2.031 |
| 15WLI-2 | 2 | 2.312 |
| 15WLI-2.5 | 2-1/2 | 2.500 |
| 15WLI-3 | 3 | 2.688 |
| 15WLI-4 | 4 | 3.000 |
| 15WLI-6 | 6 | 3.000 |
| 15WLI-8 | 8 | 4.000 |

14WHI - TANK WELD FERRULE, MALE



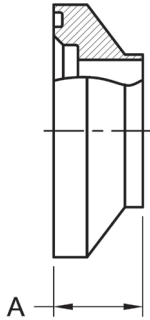
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 14WHI-1 | 1 | 1.312 | .870 | 1.250 |
| 14WHI-1.5 | 1-1/2 | 1.437 | 1.370 | 1.688 |
| 14WHI-2 | 2 | 1.500 | 1.870 | 2.250 |
| 14WHI-2.5 | 2-1/2 | 1.437 | 2.370 | 2.750 |
| 14WHI-3 | 3 | 1.500 | 2.870 | 3.313 |
| 14WHI-4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

15WHI - TANK WELD FERRULE, FEMALE



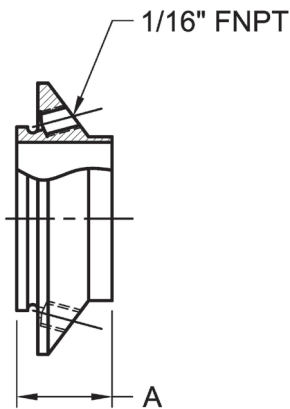
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 15WHI-1 | 1 | 1.500 | .870 | 1.250 |
| 15WHI-1.5 | 1-1/2 | 1.625 | 1.370 | 1.688 |
| 15WHI-2 | 2 | 1.750 | 1.870 | 2.250 |
| 15WHI-2.5 | 2-1/2 | 1.750 | 2.370 | 2.750 |
| 15WHI-3 | 3 | 1.812 | 2.870 | 3.313 |
| 15WHI-4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

15WNI - ASEPTIC, FEMALE



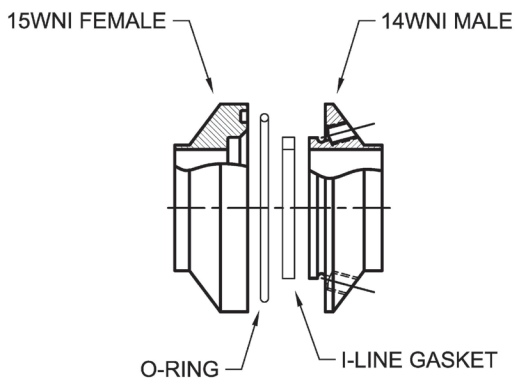
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 15WNI-1 | 1 | .942 |
| 15WNI-1.5 | 1-1/2 | 1.036 |
| 15WNI-2 | 2 | 1.161 |
| 15WNI-2.5 | 2-1/2 | 1.223 |
| 15WNI-3 | 3 | 1.348 |
| 15WNI-4 | 4 | 1.348 |

14WNI - ASEPTIC, MALE



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

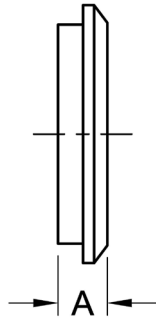
ASEPTIC UNION



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

CLAMP NOT SHOWN FOR CLARITY

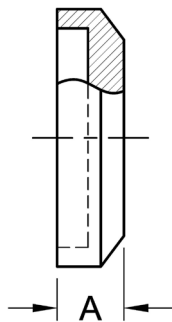
16AI-14I - SOLID END CAP, MALE



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

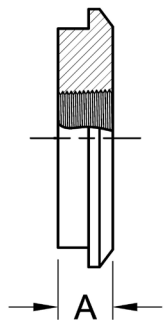
NOTE: AVAILABLE IN ACRYLIC AND LEXAN

16AI-15I - SOLID END CAP, FEMALE



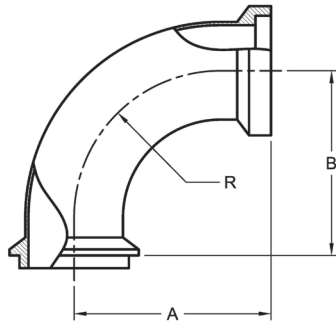
| PART NUMBER | SIZE | A |
|--------------|-------|------|
| 16AI-15I-1 | 1 | .500 |
| 16AI-15I-1.5 | 1-1/2 | .500 |
| 16AI-15I-2 | 2 | .687 |
| 16AI-15I-2.5 | 2-1/2 | .687 |
| 16AI-15I-3 | 3 | .687 |
| 16AI-15I-4 | 4 | .750 |
| 16AI-15I-6 | 6 | .750 |
| 16AI-15I-8 | 8 | .750 |

23BI - THERMOMETER CAP, MALE



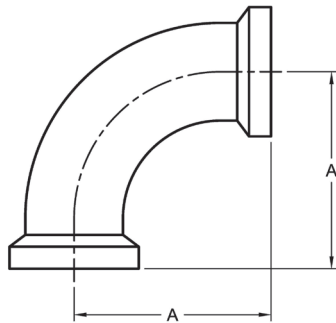
| PART NUMBER | SIZE | A |
|-------------|-----------------|------|
| 23BI-1 | 1 X 1/2 NPT | .505 |
| 23BI-1.5 | 1-1/2 X 3/4 NPT | .505 |
| 23BI-2 | 2 X 3/4 NPT | .505 |
| 23BI-2.5 | 2-1/2 X 3/4 NPT | .692 |
| 23BI-3 | 3 X 3/4 NPT | .692 |
| 23BI-4 | 4 X 3/4 NPT | .755 |
| 23BI-6 | 6 X 3/4 NPT | .755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

2FI - 90 DEGREE ELBOW, FEMALE X MALE ENDS



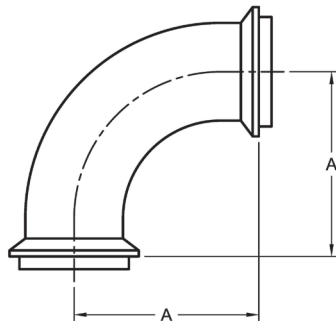
| PART NUMBER | SIZE | A | B | R |
|-------------|-------|--------|-------|-------|
| 2FI-1 | 1 | 2.286 | 2.089 | 1.500 |
| 2FI-1.5 | 1-1/2 | 3.192 | 2.996 | 2.250 |
| 2FI-2 | 2 | 4.036 | 3.780 | 3.000 |
| 2FI-2.5 | 2-1/2 | 4.911 | 4.600 | 3.750 |
| 2FI-3 | 3 | 5.723 | 5.412 | 4.500 |
| 2FI-4 | 4 | 7.348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

2CI - 90 DEGREE ELBOW, FEMALE ENDS



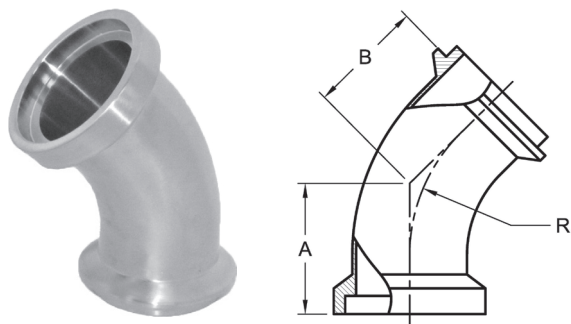
| PART NUMBER | SIZE | A |
|-------------|-------|--------|
| 2CI-1 | 1 | 2.286 |
| 2CI-1.5 | 1-1/2 | 3.192 |
| 2CI-2 | 2 | 4.036 |
| 2CI-2.5 | 2-1/2 | 4.911 |
| 2CI-3 | 3 | 5.723 |
| 2CI-4 | 4 | 7.348 |
| 2CI-6 | 6 | 10.130 |

2EI - 90 DEGREE ELBOW, MALE ENDS



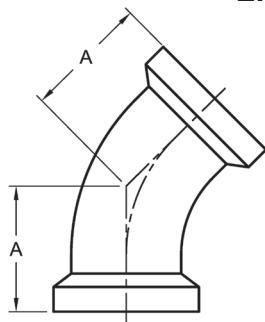
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 2EI-1 | 1 | 2.089 |
| 2EI-1.5 | 1-1/2 | 2.996 |
| 2EI-2 | 2 | 3.780 |
| 2EI-2.5 | 2-1/2 | 4.600 |
| 2EI-3 | 3 | 5.412 |
| 2EI-4 | 4 | 7.037 |
| 2EI-6 | 6 | 9.818 |

2PI - 45 DEGREE ELBOW, FEMALE X MALE ENDS



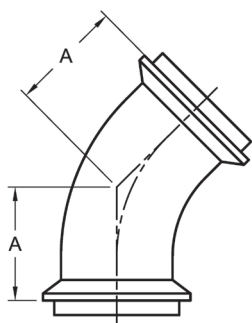
| PART NUMBER | SIZE | A | B | R |
|-------------|-------|-------|-------|-------|
| 2PI-1 | 1 | 1.411 | 1.214 | 1.500 |
| 2PI-1.5 | 1-1/2 | 1.879 | 1.526 | 2.250 |
| 2PI-2 | 2 | 2.286 | 2.030 | 3.000 |
| 2PI-2.5 | 2-1/2 | 2.723 | 2.412 | 3.750 |
| 2PI-3 | 3 | 3.098 | 2.787 | 4.500 |
| 2PI-4 | 4 | 3.848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

2KI - 45 DEGREE ELBOW, FEMALE ENDS



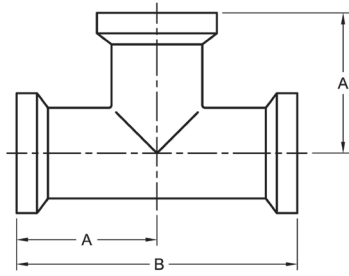
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 2KI-1 | 1 | 1.411 |
| 2KI-1.5 | 1-1/2 | 1.879 |
| 2KI-2 | 2 | 2.286 |
| 2KI-2.5 | 2-1/2 | 2.723 |
| 2KI-3 | 3 | 3.098 |
| 2KI-4 | 4 | 3.848 |

2HI - 45 DEGREE ELBOW, MALE ENDS



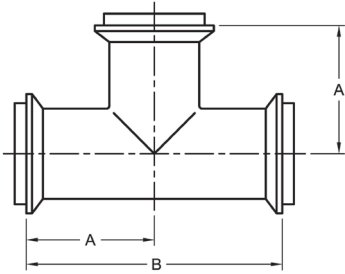
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 2HI-1 | 1 | 1.214 |
| 2HI-1.5 | 1-1/2 | 1.526 |
| 2HI-2 | 2 | 2.030 |
| 2HI-2.5 | 2-1/2 | 2.412 |
| 2HI-3 | 3 | 2.787 |
| 2HI-4 | 4 | 3.537 |

7I - TEE, FEMALE ENDS



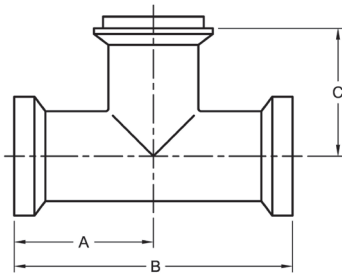
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| 7I-1 | 1 | 1.911 | 3.822 |
| 7I-1.5 | 1-1/2 | 2.598 | 5.196 |
| 7I-2 | 2 | 3.099 | 6.198 |
| 7I-2.5 | 2-1/2 | 3.505 | 7.010 |
| 7I-3 | 3 | 3.817 | 7.634 |
| 7I-4 | 4 | 4.786 | 9.572 |

7HI - TEE, MALE ENDS

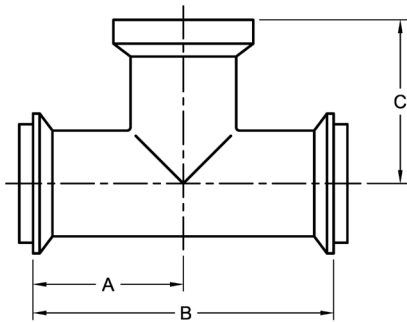


| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| 7HI-1 | 1 | 1.714 | 3.428 |
| 7HI-1.5 | 1-1/2 | 2.402 | 4.804 |
| 7HI-2 | 2 | 2.843 | 5.686 |
| 7HI-2.5 | 2-1/2 | 3.194 | 6.388 |
| 7HI-3 | 3 | 3.506 | 7.012 |
| 7HI-4 | 4 | 4.475 | 8.950 |

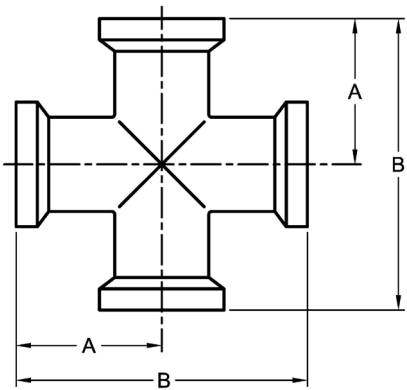
7AI - TEE, FEMALE RUN X MALE OUTLET



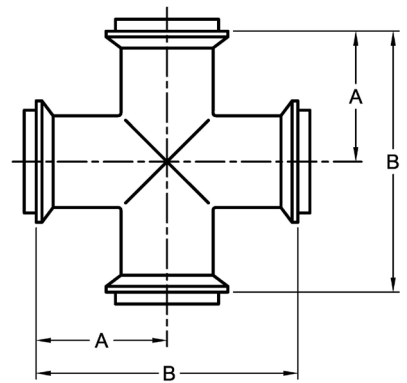
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 7AI-1 | 1 | 1.911 | 3.822 | 1.714 |
| 7AI-1.5 | 1-1/2 | 2.598 | 5.196 | 2.402 |
| 7AI-2 | 2 | 3.099 | 6.198 | 2.843 |
| 7AI-2.5 | 2-1/2 | 3.505 | 7.010 | 3.194 |
| 7AI-3 | 3 | 3.817 | 7.634 | 3.506 |
| 7AI-4 | 4 | 4.786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

7EI - TEE, MALE RUN X FEMALE OUTLET

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

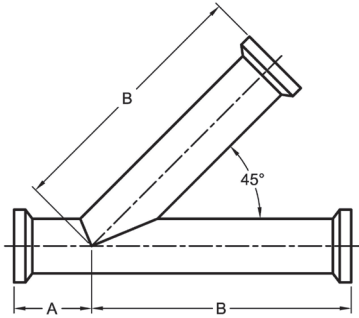
9I - CROSS, FEMALE ENDS

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

9HI - CROSS, MALE ENDS

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

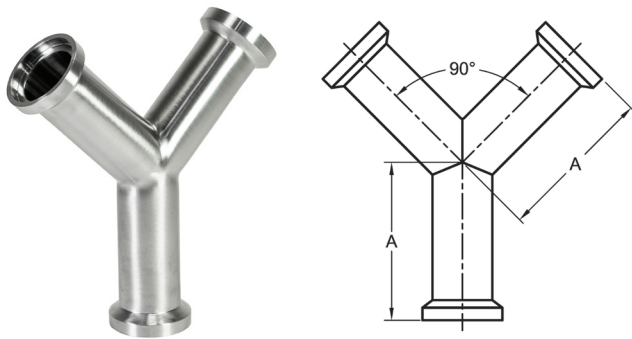
28AI - LATERAL WYE, FEMALE ENDS



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

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

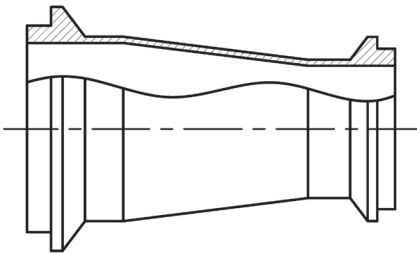
28BI - TRUE WYE, FEMALE ENDS



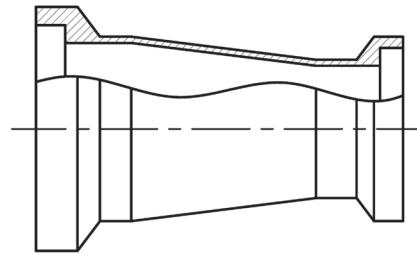
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 28BI-1 | 1 | 3.786 |
| 28BI-1.5 | 1-1/2 | 3.942 |
| 28BI-2 | 2 | 5.036 |
| 28BI-2.5 | 2-1/2 | 6.161 |
| 28BI-3 | 3 | 7.223 |
| 28BI-4 | 4 | 9.348 |

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

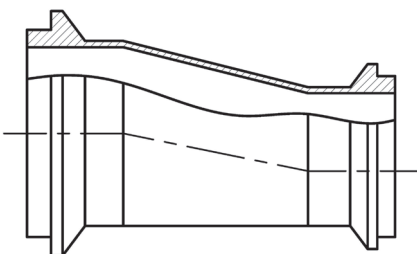
I-LINE REDUCERS



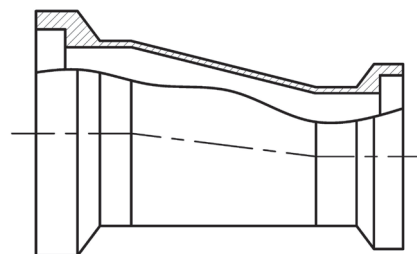
31-14I-14I (CONCENTRIC)



31-15I-15I (CONCENTRIC)

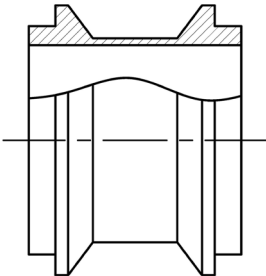


32-14I-14I (ECCENTRIC)

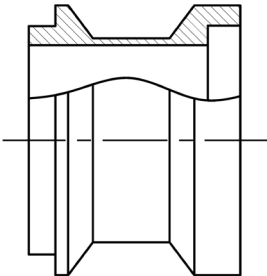


32-15I-15I (ECCENTRIC)

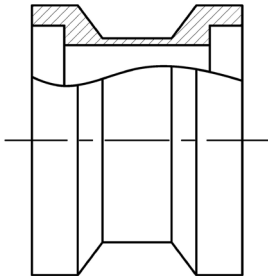
I-LINE ADAPTERS



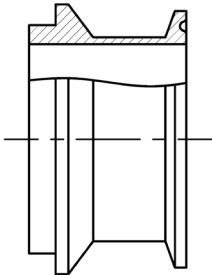
17-14I-14I
MALE I-LINE X MALE I-LINE



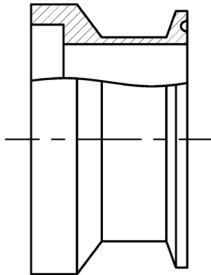
17-14I-15I
MALE I-LINE X FEMALE I-LINE



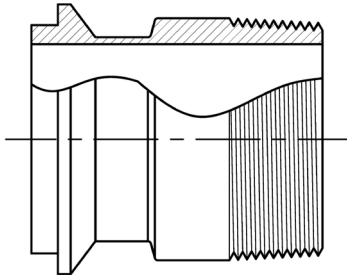
17-15I-15I
FEMALE I-LINE X FEMALE I-LINE



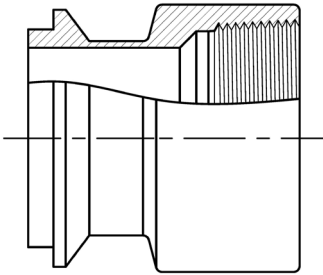
17-14I-14MP
MALE I-LINE X CLAMP



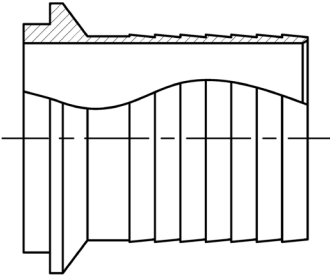
17-15I-14MP
FEMALE I-LINE X CLAMP



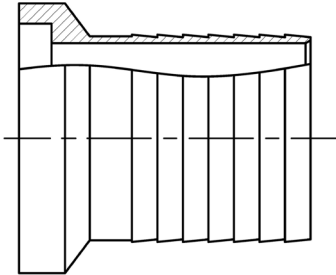
21FI-14I
MALE I-LINE X MALE NPT
(ALSO AVAILABLE W/FEMALE I-LINE)



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

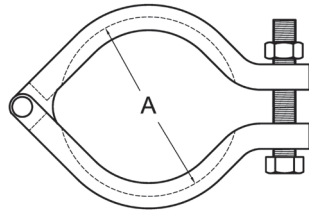
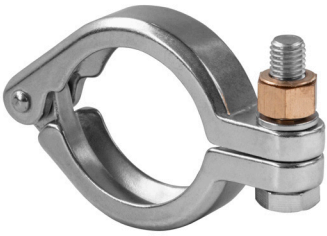


14HRI
MALE I-LINE X RUBBER HOSE



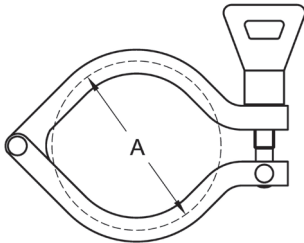
15HRI
FEMALE I-LINE X RUBBER HOSE

13I - I-LINE CLAMP, BOLTED STYLE



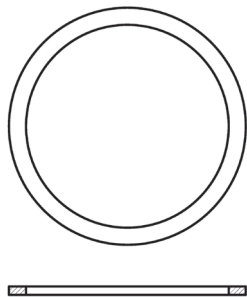
| PART NUMBER | SIZE | A | PSI RATING @ 70°F | PSI RATING @ 250°F |
|-------------|-----------|-------|-------------------|--------------------|
| 13I-1 | 1 & 1-1/2 | 2.124 | 1220 | 1100 |
| 13I-2 | 2 | 2.843 | 900 | 830 |
| 13I-2.5 | 2-1/2 | 3.468 | 720 | 660 |
| 13I-3 | 3 | 4.031 | 600 | 550 |
| 13I-4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

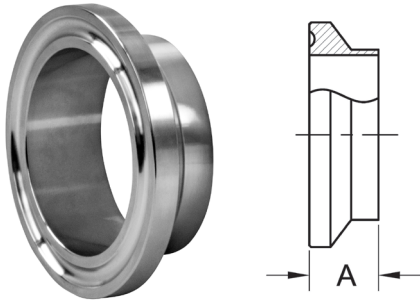


Q-LINE FITTINGS

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

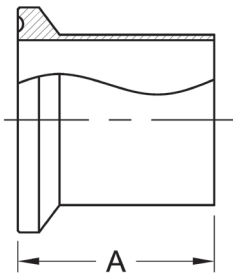


14WQ - SHORT WELD FERRULE



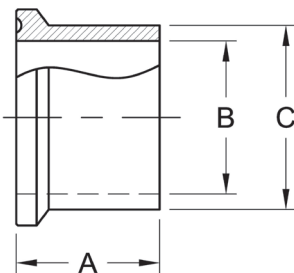
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14WQ-1 | 1 | .531 |
| 14WQ-1.5 | 1-1/2 | .562 |
| 14WQ-2 | 2 | .812 |
| 14WQ-2.5 | 2-1/2 | .937 |
| 14WQ-3 | 3 | .937 |
| 14WQ-4 | 4 | 1.000 |
| 14WQ-6 | 6 | 1.130 |

14WLQ - LONG WELD FERRULE



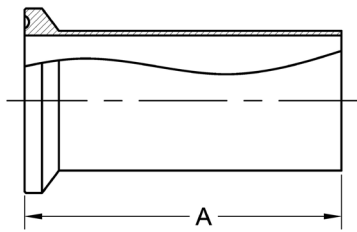
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14WLQ-1 | 1 | 1.750 |
| 14WLQ-1.5 | 1-1/2 | 2.031 |
| 14WLQ-2 | 2 | 2.313 |
| 14WLQ-2.5 | 2-1/2 | 2.500 |
| 14WLQ-3 | 3 | 2.688 |
| 14WLQ-4 | 4 | 3.000 |
| 14WLQ-6 | 6 | 4.000 |

14WHQ - TANK WELD FERRULE



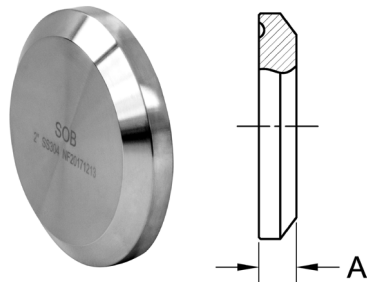
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 14WHQ-1 | 1 | 1.500 | .870 | 1.250 |
| 14WHQ-1.5 | 1-1/2 | 1.625 | 1.370 | 1.688 |
| 14WHQ-2 | 2 | 1.750 | 1.870 | 2.250 |
| 14WHQ-2.5 | 2-1/2 | 1.750 | 2.370 | 2.750 |
| 14WHQ-3 | 3 | 1.813 | 2.870 | 3.313 |
| 14WHQ-4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

14HTQ - TYGON HOSE ADAPTER



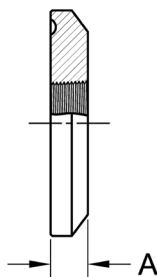
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14HTQ-1 | 1 | 4.000 |
| 14HTQ-1.5 | 1-1/2 | 4.500 |
| 14HTQ-2 | 2 | 4.531 |
| 14HTQ-2.5 | 2-1/2 | 4.906 |
| 14HTQ-3 | 3 | 5.093 |
| 14HTQ-4 | 4 | 5.156 |

16AQ-14Q - SOLID END CAP



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

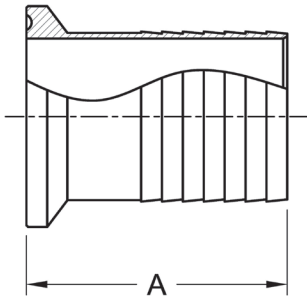
23BQ - THERMOMETER CAP



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

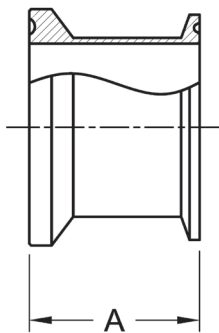
NOTE: 3/4" FEMALE NPT THREAD SIZE IS STANDARD
OTHER SIZES AVAILABLE UPON REQUEST

14HRQ - RUBBER HOSE ADAPTER



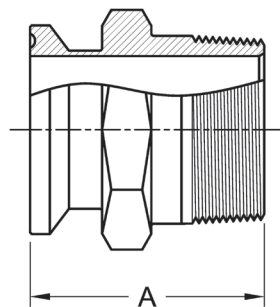
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 14HRQ-1 | 1 | 1.781 |
| 14HRQ-1.5 | 1-1/2 | 1.750 |
| 14HRQ-2 | 2 | 3.124 |
| 14HRQ-2.5 | 2-1/2 | 2.938 |
| 14HRQ-3 | 3 | 3.531 |
| 14HRQ-4 | 4 | 4.406 |

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



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

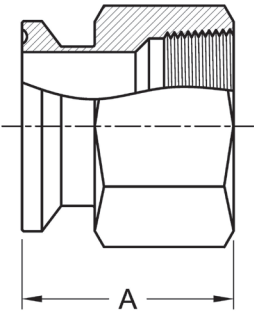
21Q - ADAPTER, Q-LINE x MALE NPT



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

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

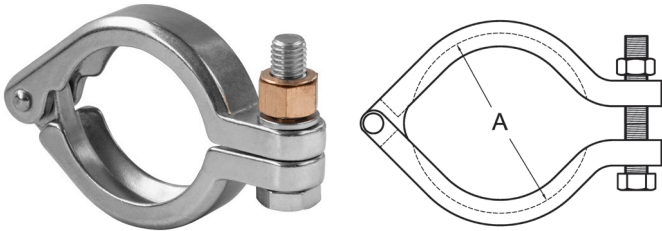
22Q - ADAPTER, Q-LINE x FEMALE NPT



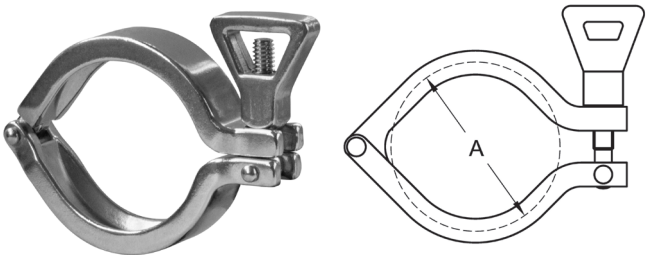
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| 22Q-1 | 1 | 1.625 |
| 22Q-1.5 | 1-1/2 | 2.250 |
| 22Q-2 | 2 | 2.343 |
| 22Q-2.5 | 2-1/2 | 2.094 |
| 22Q-3 | 3 | 2.187 |
| 22Q-4 | 4 | 2.625 |

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

13I - BOLT STYLE

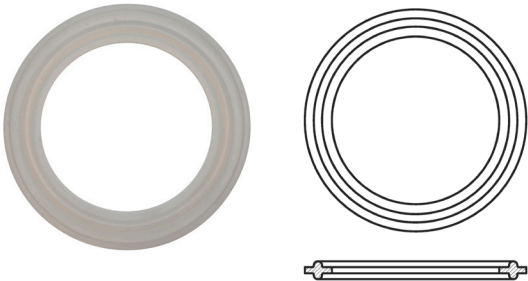


13IS - WING NUT STYLE



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

Q-LINE GASKET



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

MOST COMMON MATERIAL IS BUNA
OTHER MATERIALS AVAILABLE UPON
REQUEST

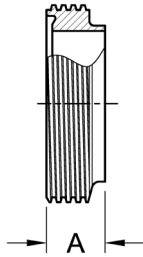


APC/APV FITTINGS

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

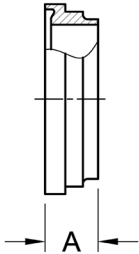


PV15WX - APC SHORT WELD FERRULE, THREADED



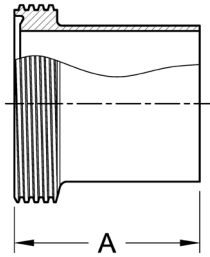
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| PV15WX-1 | 1 | .690 |
| PV15WX-1.5 | 1-1/2 | .690 |
| PV15WX-2 | 2 | .750 |
| PV15WX-2.5 | 2-1/2 | .844 |
| PV15WX-3 | 3 | .906 |
| PV15WX-4 | 4 | 1.000 |

PV14WX - APC SHORT WELD FERRULE, PLAIN



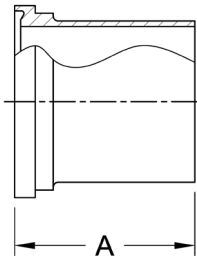
| PART NUMBER | SIZE | A |
|-------------|-------|------|
| PV14WX-1 | 1 | .610 |
| PV14WX-1.5 | 1-1/2 | .580 |
| PV14WX-2 | 2 | .665 |
| PV14WX-2.5 | 2-1/2 | .719 |
| PV14WX-3 | 3 | .781 |
| PV14WX-4 | 4 | .834 |

PV15A - APC LONG WELD FERRULE, THREADED



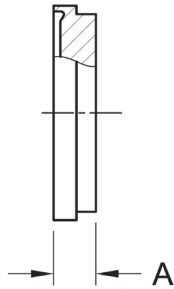
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| PV15A-1 | 1 | 1.625 |
| PV15A-1.5 | 1-1/2 | 1.875 |
| PV15A-2 | 2 | 2.375 |
| PV15A-2.5 | 2-1/2 | 2.625 |
| PV15A-3 | 3 | 2.875 |
| PV15A-4 | 4 | 2.875 |

PV14A - APC LONG WELD FERRULE, PLAIN



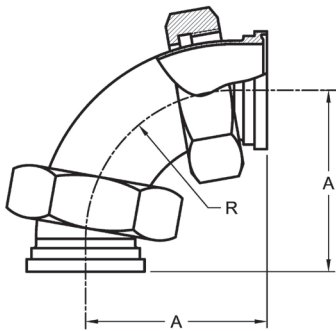
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| PV14A-1 | 1 | 1.297 |
| PV14A-1.5 | 1-1/2 | 1.770 |
| PV14A-2 | 2 | 2.218 |
| PV14A-2.5 | 2-1/2 | 2.375 |
| PV14A-3 | 3 | 2.562 |
| PV14A-4 | 4 | 2.578 |

PV16A - APC SOLID END CAP



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

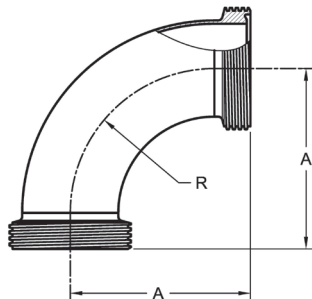
PV2E - APC 90 DEGREE ELBOW, PLAIN ENDS



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

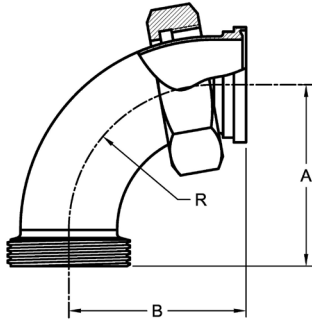
SEE 13H STANDARD HEX NUT PG. 86

PV2C - APC 90 DEGREE ELBOW, THREADED ENDS



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

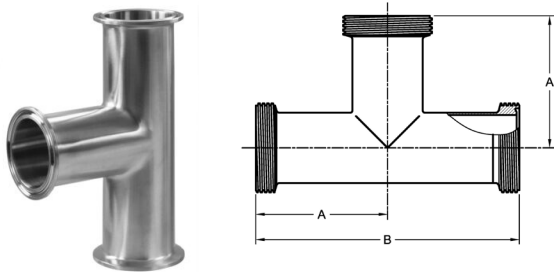
PV2F - APC 90 DEGREE ELBOW, THREADED X PLAIN ENDS



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

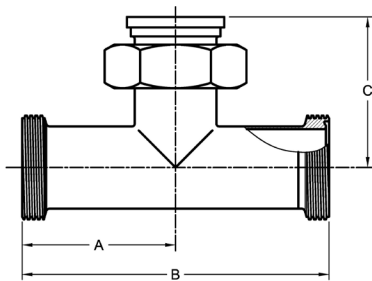
CAPTIVE NUT IS INCLUDED
FOR 13H HEX NUT DETAILS SEE PG. 86

PV7 - APC TEE, THREADED ENDS



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

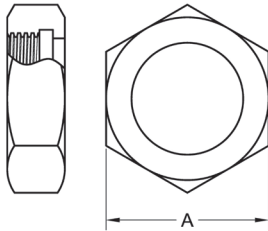
PV7A - APC TEE, THREADED X THREADED X PLAIN OUTLET



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

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

13H - HEX UNION NUT



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

NOTE: AVAILABLE IN 304 & 316 GRADES

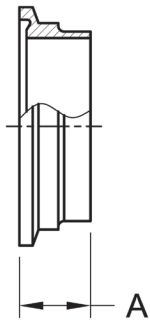
40APC - GASKET



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

STANDARD CLAMPS ARE USED ON APC CLAMP FITTINGS,

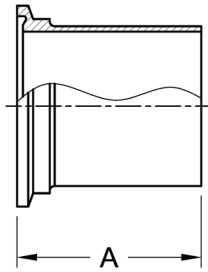
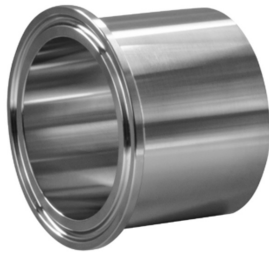
PV14WMP - APC WELD FERRULE, SHORT



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

STANDARD CLAMPS ARE USED ON APC FITTINGS

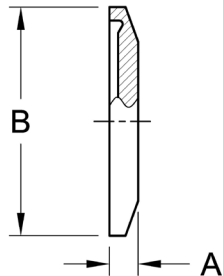
PV14AMP - APC WELD FERRULE, LONG



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

STANDARD CLAMPS ARE USED ON APC FITTINGS

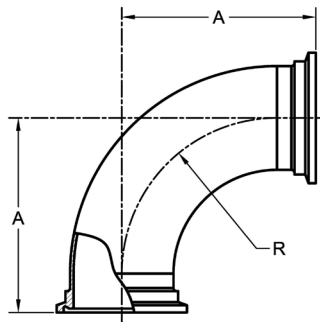
PV16AMP - APC SOLID END CAP



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

STANDARD CLAMPS ARE USED ON APC FITTINGS

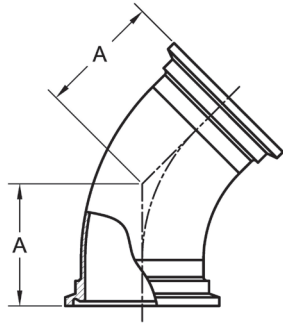
PV2CMP - APC 90 DEGREE ELBOW, APV CLAMP ENDS



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

STANDARD CLAMPS ARE USED ON APC FITTINGS

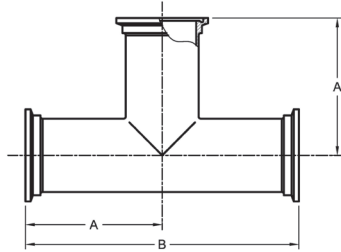
PV2KMP - APC 45 DEGREE ELBOW, APV CLAMP ENDS



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

STANDARD CLAMPS ARE USED ON APC FITTINGS

PV7MP - APC TEE, APV CLAMP ENDS



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

STANDARD CLAMPS ARE USED ON APC FITTINGS



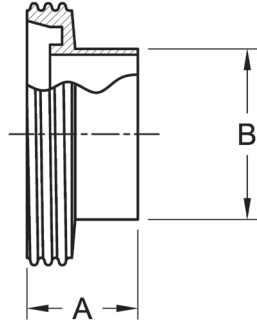
EUROPEAN DIN FITTINGS

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



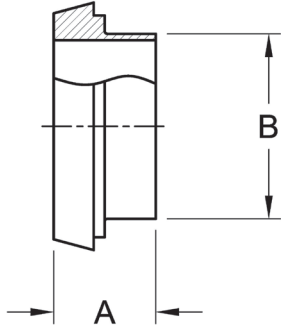
DIN CONNECTION x TUBE O.D. WELD CONNECTION

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



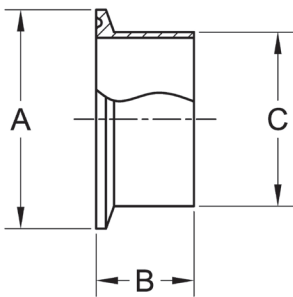
| PART NUMBER | SIZE | A | B |
|-------------|--------------|-------|-------|
| DN15SC-1 | DN25 X 1 | 1.143 | 1.000 |
| DN15SC-1.5 | DN40 X 1-1/2 | 1.300 | 1.500 |
| DN15SC-2 | DN50 X 2 | 1.378 | 2.000 |
| DN15SC-2.5 | DN65 X 2-1/2 | 1.575 | 2.500 |
| DN15SC-3 | DN80 X 3 | 1.772 | 3.000 |
| DN15SC-4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

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



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

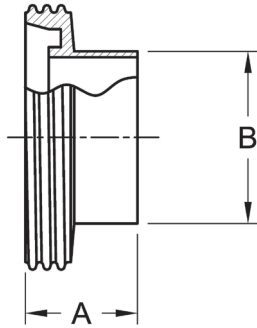
DN14WMPAS - DIN 32676 CLAMP X SANITARY TUBE WELD



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

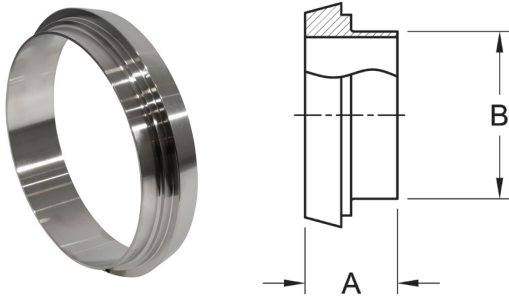
DIN CONNECTION x METRIC WELD CONNECTION

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



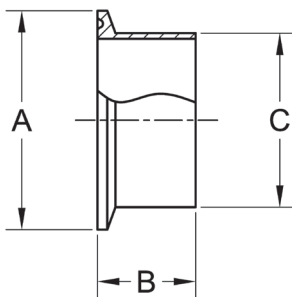
| PART NUMBER | SIZE | A | B |
|---------------|-------|-------|-------|
| DN15SCM-DN25 | DN25 | 1.143 | 1.142 |
| DN15SCM-DN40 | DN40 | 1.300 | 1.614 |
| DN15SCM-DN50 | DN50 | 1.378 | 2.087 |
| DN15SCM-DN65 | DN65 | 1.575 | 2.755 |
| DN15SCM-DN80 | DN80 | 1.772 | 3.346 |
| DN15SCM-DN100 | DN100 | 2.126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

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



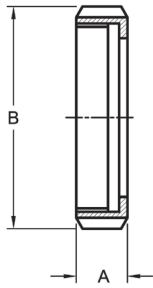
| PART NUMBER | SIZE | A | B |
|---------------|-------|-------|-------|
| DN14SDM-DN25 | DN25 | .866 | 1.142 |
| DN14SDM-DN40 | DN40 | 1.025 | 1.614 |
| DN14SDM-DN50 | DN50 | 1.102 | 2.087 |
| DN14SDM-DN65 | DN65 | 1.260 | 2.755 |
| DN14SDM-DN80 | DN80 | 1.460 | 3.346 |
| DN14SDM-DN100 | DN100 | 1.732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

DN14WMPMAS - DN 32676 CLAMP X METRIC TUBE WELD



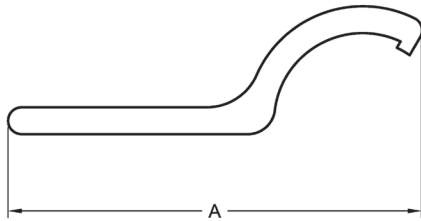
| PART NUMBER | SIZE | A | B | C |
|------------------|---------|-------|-------|-------|
| DN14WMPMAS-DN20 | DIN 20 | 1.339 | .709 | .906 |
| DN14WMPMAS-DN25 | DIN 25 | 1.988 | .846 | 1.142 |
| DN14WMPMAS-DN40 | DIN 40 | 1.988 | .846 | 1.614 |
| DN14WMPMAS-DN50 | DIN 50 | 2.520 | .846 | 2.087 |
| DN14WMPMAS-DN80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

DN13R - DIN ROUND NUT



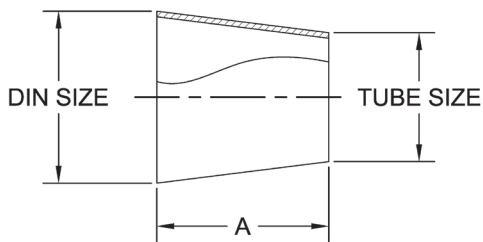
| PART NUMBER | SIZE | A | B |
|-------------|-------|-------|-------|
| DN13R-DN25 | DN25 | .827 | 2.480 |
| DN13R-DN40 | DN40 | .827 | 3.071 |
| DN13R-DN50 | DN50 | .866 | 3.622 |
| DN13R-DN65 | DN65 | .984 | 4.409 |
| DN13R-DN80 | DN80 | 1.142 | 5.000 |
| DN13R-DN100 | DN100 | 1.220 | 5.827 |

25HD - DIN SPANNER WRENCH



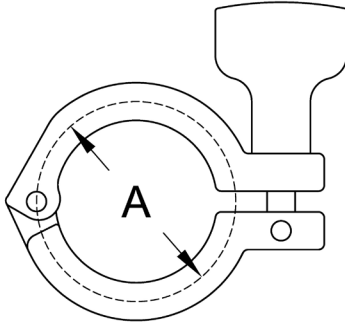
| PART NUMBER | SIZE | A |
|--------------|---------------|------|
| 25HD-25-50 | DN25 - DN50 | 9.5 |
| 25HD-65-100 | DN65 - DN100 | 10.0 |
| 25HD-100-150 | DN100 - DN150 | 11.0 |

DIN31W - DIN X SANITARY TUBE BW

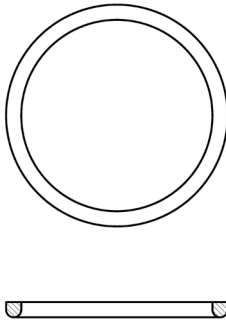


| PART NUMBER | DIN SIZE | TUBE SIZE | A |
|----------------|----------------|-----------|-------|
| DN31W-DN20X1 | DN20 - (.905) | 1.000 | .380 |
| DN31W-DN25X1 | DN25 - (1.142) | 1.000 | .567 |
| DN31W-DN40X1.5 | DN40 - (1.614) | 1.500 | 1.000 |
| DN31W-DN50X2 | DN50 - (2.087) | 2.000 | 1.250 |
| DN31W-DN65X2.5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

OTHER SIZES AVAILABLE UPON REQUEST

DN13MHHM - SINGLE PIN CLAMP

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

DIN 11851 - DIN GASKET

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

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

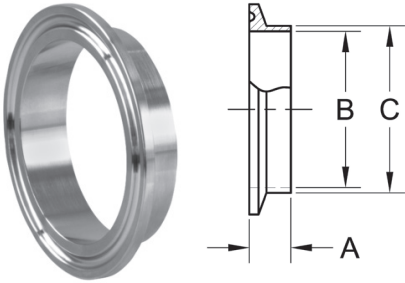


PIPE SIZE SANITARY FITTINGS

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

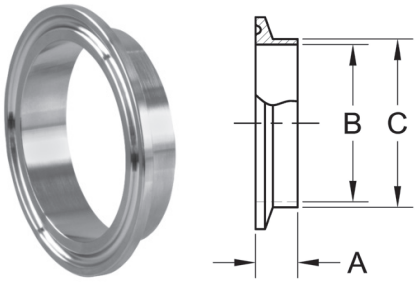


14WMV - SCHEDULE 5 SHORT WELD FERRULE



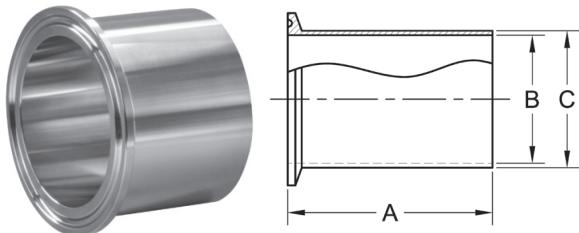
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|--------|
| 14WMV-1 | 1 | .500 | 1.185 | 1.315 |
| 14WMV-1.5 | 1-1/2 | .500 | 1.770 | 1.900 |
| 14WMV-2 | 2 | .500 | 2.245 | 2.375 |
| 14WMV-2.5 | 2-1/2 | .500 | 2.709 | 2.875 |
| 14WMV-3 | 3 | .500 | 3.334 | 3.500 |
| 14WMV-4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

14WMX - SCHEDULE 10 SHORT WELD FERRULE



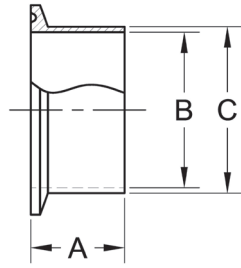
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|--------|
| 14WMX-1 | 1 | .500 | 1.097 | 1.315 |
| 14WMX-1.5 | 1-1/2 | .500 | 1.682 | 1.900 |
| 14WMX-2 | 2 | .500 | 2.157 | 2.375 |
| 14WMX-2.5 | 2-1/2 | .500 | 2.635 | 2.875 |
| 14WMX-3 | 3 | .500 | 3.260 | 3.500 |
| 14WMX-4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

14WLMV - SCHEDULE 5 TANK SPUD (LIGHT)



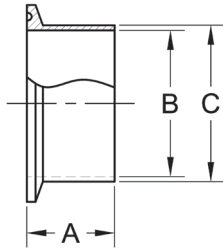
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 14WLMV-1 | 1 | 3.000 | 1.185 | 1.315 |
| 14WLMV-1.5 | 1-1/2 | 3.000 | 1.770 | 1.900 |
| 14WLMV-2 | 2 | 3.000 | 2.245 | 2.375 |
| 14WLMV-2.5 | 2-1/2 | 4.000 | 2.709 | 2.875 |
| 14WLMV-3 | 3 | 4.000 | 3.334 | 3.500 |
|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

L14AMV - SCHEDULE 5 WELD FERRULE



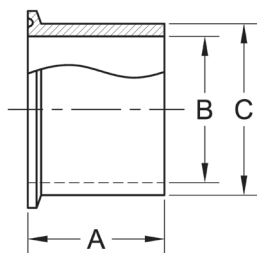
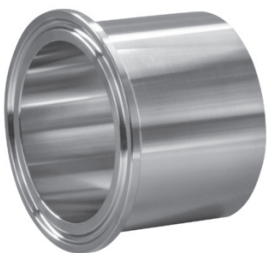
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|--------|
| L14AMV-1 | 1 | 1.125 | 1.185 | 1.315 |
| L14AMV-1.5 | 1-1/2 | 1.125 | 1.770 | 1.900 |
| L14AMV-2 | 2 | 1.125 | 2.245 | 2.375 |
| L14AMV-2.5 | 2-1/2 | 1.125 | 2.709 | 2.875 |
| L14AMV-3 | 3 | 1.125 | 3.334 | 3.500 |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

L14AMX - SCHEDULE 10 WELD FERRULE



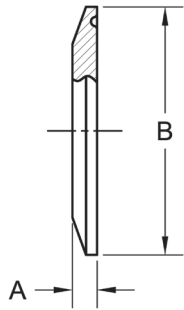
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|--------|--------|
| L14AMX-1 | 1 | 1.125 | 1.097 | 1.315 |
| L14AMX-1.5 | 1-1/2 | 1.125 | 1.682 | 1.900 |
| L14AMX-2 | 2 | 1.125 | 2.157 | 2.375 |
| L14AMX-2.5 | 2-1/2 | 1.125 | 2.635 | 2.875 |
| L14AMX-3 | 3 | 1.125 | 3.260 | 3.500 |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

14MVW - SCHEDULE 5 TANK TANK SPUD (HEAVY)



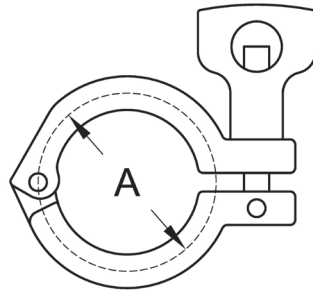
| PART NUMBER | SIZE | A | B | C |
|-------------|-------|-------|-------|-------|
| 14MVW-1 | 1 | 1.625 | 1.185 | 1.531 |
| 14MVW-1.5 | 1-1/2 | 1.625 | 1.770 | 2.109 |
| 14MVW-2 | 2 | 1.750 | 2.245 | 2.594 |
| 14MVW-2.5 | 2-1/2 | 1.750 | 2.709 | 3.109 |
| 14MVW-3 | 3 | 1.812 | 3.334 | 3.562 |
| 14MVW-4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

16AMV - SCHEDULE 5 SOLID END CAP



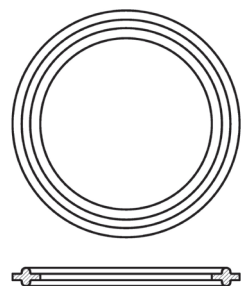
| PART NUMBER | SIZE | A | B |
|-------------|-------|------|--------|
| 16AMV-1 | 1 | .250 | 1.984 |
| 16AMV-1.5 | 1-1/2 | .250 | 2.516 |
| 16AMV-2 | 2 | .250 | 3.047 |
| 16AMV-2.5 | 2-1/2 | .250 | 3.579 |
| 16AMV-3 | 3 | .313 | 4.125 |
| 16AMV-4 | 4 | .313 | 5.125 |
| 16AMV-6 | 6 | .460 | 7.195 |
|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

13MHHV - SCHEDULE 5 CLAMP



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

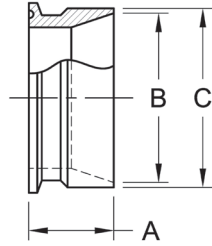
SCHEDULE 5 GASKETS



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

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

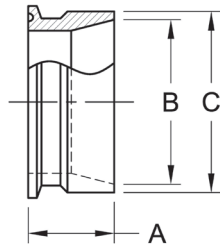
19MPV - SANITARY CLAMP X SCHEDULE 5 PIPE ADAPTER



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

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

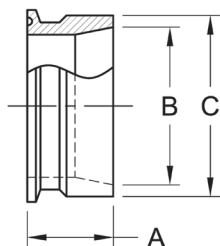
19MPX - SANITARY CLAMP X SCHEDULE 10 PIPE ADAPTER



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

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

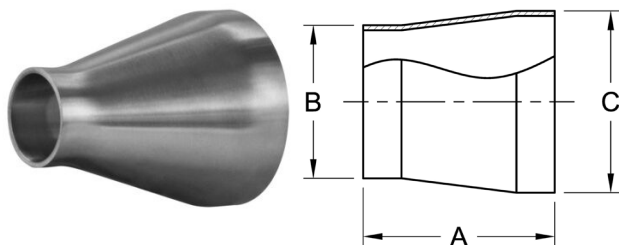
19MP40 - SANITARY CLAMP X SCHEDULE 40 PIPE ADAPTER



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

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

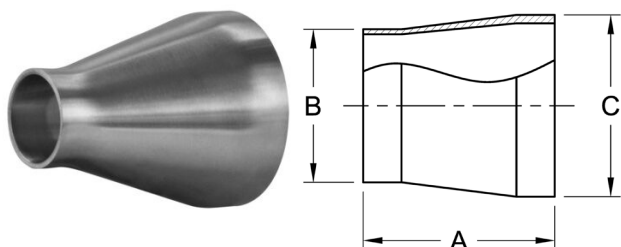
19WV - TUBE X SCHEDULE 5 PIPE ADAPTER



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

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

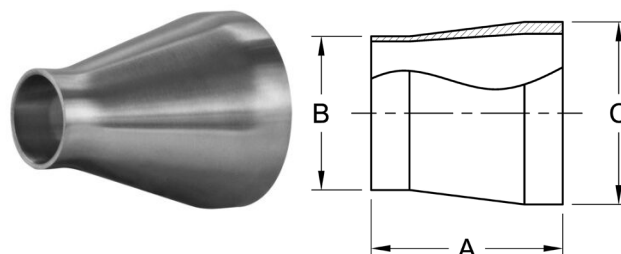
19WX - TUBE X SCHEDULE 10 PIPE ADAPTER



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

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST

19W40 - TUBE X SCHEDULE 40 PIPE ADAPTER



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

ADDITIONAL LENGTHS AVAILABLE UPON REQUEST



TUBING & HANGERS

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



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

| PART NUMBER | OD SIZE (IN.) | WALL (IN.) | OD TOLERANCE | WALL TOLERANCE | OVALITY TOLERANCE | BOX QTY. (FT.) | ASTM STANDARDS |
|-------------|---------------|------------|----------------|----------------|-------------------|----------------|----------------|
| SAN00507** | .500 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A213/A270 |
| SAN00757** | .750 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A213/A270 |
| SAN01007 | 1.000 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A249/A269/A270 |
| SAN01507 | 1.500 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A249/A269/A270 |
| SAN02007 | 2.000 | .065 | +0.002 / -.011 | ± .008 | * | 300 | A249/A269/A270 |
| SAN02507 | 2.500 | .065 | +0.002 / -.011 | ± .008 | * | 300 | A249/A269/A270 |
| SAN03007 | 3.000 | .065 | +0.003 / -.012 | ± .008 | * | 200 | A249/A269/A270 |
| SAN04007 | 4.000 | .083 | +0.003 / -.015 | ± .010 | * | 100 | A249/A269/A270 |
| SAN06007 | 6.000 | .109 | +0.030 / -.030 | ± .010 | * | 20 | A249/A269/A270 |
| SAN08007 | 8.000 | .109 | +0.030 / -.030 | +/- .010 | * | 20 | A269/A270 |
| SAN10007 | 10.000 | .109 | +0.030 / -.030 | +/- .010 | * | 20 | A269/A270 |
| SAN12007 | 12.000 | .109 | +0.030 / -.030 | +/- .010 | * | 20 | A269/A270 |

* OVALITY CANNOT EXCEED THE OD RANGE

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

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

| PART NUMBER | OD SIZE (IN.) | WALL (IN.) | OD TOLERANCE | WALL TOLERANCE | OVALITY TOLERANCE | BOX QTY. (FT.) | ASTM STANDARDS |
|-------------|---------------|------------|----------------|----------------|-------------------|----------------|----------------|
| SAN00507i | .500 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A270 |
| SAN00757i | .750 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A270 |
| SAN01007i | 1.000 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A270 |
| SAN01507i | 1.500 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A270 |
| SAN02007i | 2.000 | .065 | +0.002 / -.011 | ± .008 | * | 300 | A270 |
| SAN02507i | 2.500 | .065 | +0.002 / -.011 | ± .008 | * | 300 | A270 |
| SAN03007i | 3.000 | .065 | +0.003 / -.012 | ± .008 | * | 200 | A270 |
| SAN04007i | 4.000 | .083 | +0.003 / -.015 | ± .010 | * | 100 | A270 |
| SAN06007i | 6.000 | .109 | +0.030 / -.030 | ± .010 | * | 20 | A270 |
| SAN08007i | 8.000 | .109 | +0.030 / -.030 | +/- .010 | * | 20 | A270 |

* OVALITY CANNOT EXCEED THE OD RANGE

ASTM A269 TUBING - UNPOLISHED (BRIGHT ANNEALED)

| PART NUMBER | OD SIZE (IN.) | WALL (IN.) | OD TOLERANCE | WALL TOLERANCE | OVALITY TOLERANCE | BOX QTY. (FT.) | ASTM STANDARDS |
|-------------|---------------|------------|----------------|----------------|-------------------|----------------|----------------|
| SAN01001 | 1.000 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A249/A269 |
| SAN01501 | 1.500 | .065 | +0.002 / -.008 | ± .008 | * | 300 | A249/A269 |
| SAN02001 | 2.000 | .065 | +0.002 / -.011 | ± .008 | * | 300 | A249/A269 |
| SAN02501 | 2.500 | .065 | +0.002 / -.011 | ± .008 | * | 300 | A249/A269 |
| SAN03001 | 3.000 | .065 | +0.003 / -.012 | ± .008 | * | 200 | A249/A269 |
| SAN04001 | 4.000 | .083 | +0.003 / -.015 | ± .010 | * | 100 | A249/A269 |
| SAN06001 | 6.000 | .109 | +0.030 / -.030 | ± .010 | * | 20 | A249/A269 |

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

MECHANICAL TESTS

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



24PVC
HANGER
W/ PVC INSERT



24RG
HANGER
W/ RUBBER GROMMET



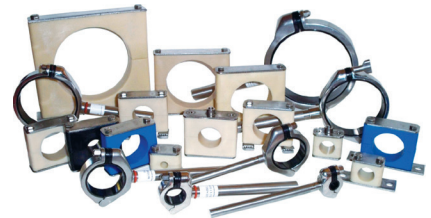
24PCP
HANGER
W/ 3/8 ROD COUPLING



26CB
HANGER TAKE DOWN STYLE
W/ EPDM SLEEVE

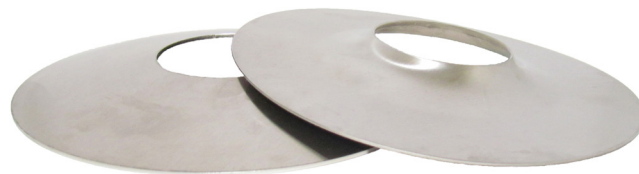


26LC
HANGER TAKE DOWN
W/ EPDM INSERT



BEHRINGER HANGERS

WALL FLANGES



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



VALVES, SIGHT GLASSES & SPRAY BALLS

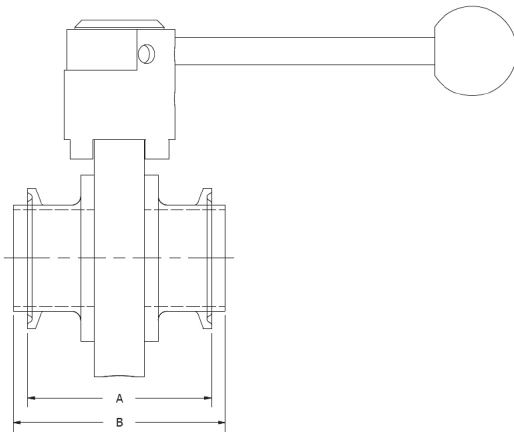
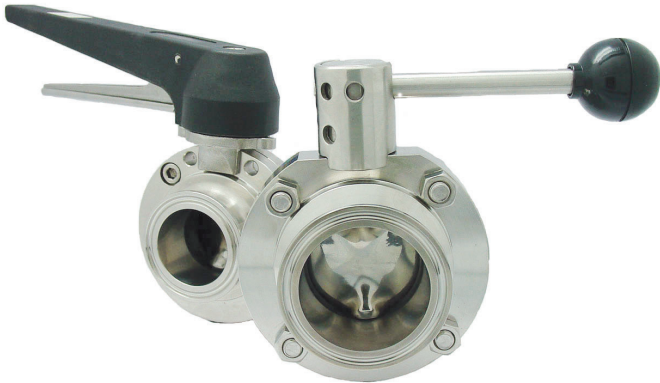
Steel & O'Brien carries a vast assortment of stainless steel valve and actuator types to meet sanitary and high purity applications.

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

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



MANUAL BUTTERFLY VALVES



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

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

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

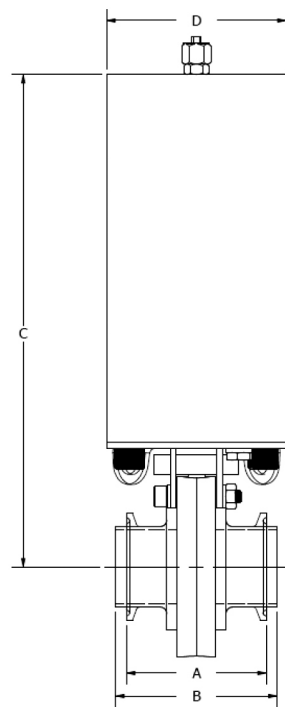
EXAMPLE

PART #: BFVTC-1.5-316-EPDM

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

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

ACTUATED BUTTERFLY VALVES



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

- C3# Actuator - 1/2" through 3" Valves
- Available in Spring Return and Double Acting
- Air supply pressure: Min 73PSI (5bar) Max 130PSI (9bar)
- Air Consumption: 0.266 Liter at 5bar
- Shut-Off time: 1.5 seconds
- Material: 304 stainless steel
- (2) M12x1 threaded holes for proximity sensor mounting
- Actuators are able to be field installed on existing manual valves
- 1/4" to M10x1 compression fitting for 1/4" airline included, (1) for Spring Return and (2) for Double Acting

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

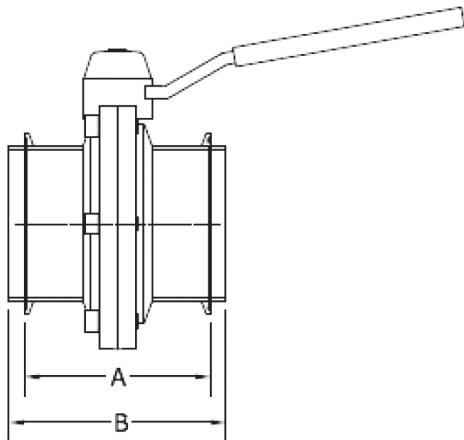
EXAMPLE

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

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

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

TOP-FLO® MANUAL BUTTERFLY VALVES



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

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

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

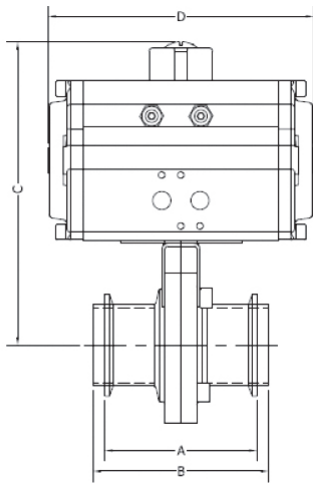
EXAMPLE

PART #: 3820115V

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

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

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



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

DEFINOX BUTTERFLY VALVES



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

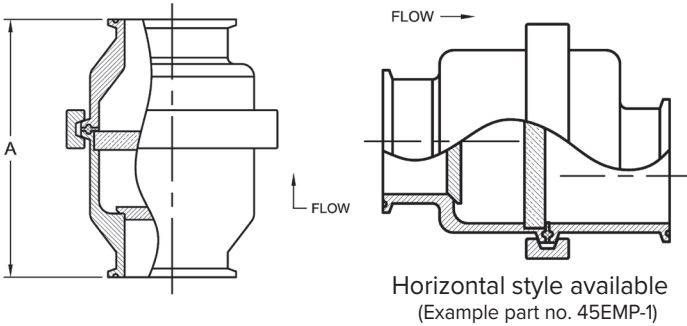
FOR ASSISTANCE CONFIGURING AUTOMATED BUTTERFLY VALVES PLEASE CONTACT YOUR STEEL & O'BRIEN REPRESENTATIVE

DISC CHECK VALVES (LONG)



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

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



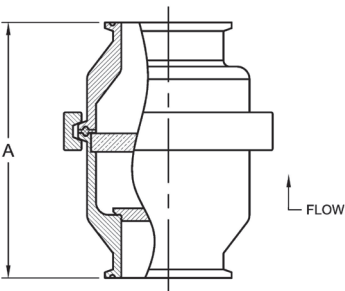
| PART NUMBER | SIZE | A | * Cracking Pressure (psi) |
|-------------|-------|-------|---------------------------|
| 45MP-.50 | 1/2 | 3.500 | 10 |
| 45MP-.75 | 3/4 | 3.500 | 4 |
| 45MP-1 | 1 | 5.125 | 2 |
| 45MP-1.5 | 1-1/2 | 5.125 | 1.6 |
| 45MP-2 | 2 | 5.063 | 1.4 |
| 45MP-2.5 | 2-1/2 | 6.266 | 0.9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

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

DISC CHECK VALVES (COMPACT)



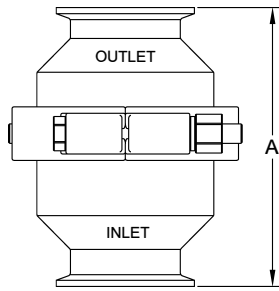
- All wetted surfaces polished to 32Ra or better
- Space-saving and lightweight
- Assembled with EPDM o-ring seal
- 316L Stainless Steel
- Working Pressure - 150 psi



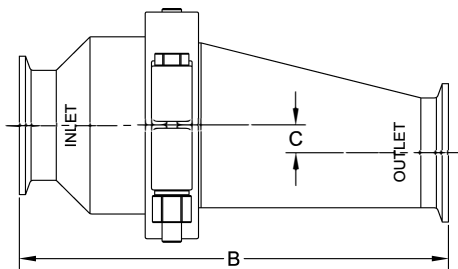
| PART NUMBER | SIZE | A |
|-------------|-------|------|
| 45MP-.50-CD | 1/2 | 2.70 |
| 45MP-.75-CD | 3/4 | 2.70 |
| 45MP-1-CD | 1 | 3.29 |
| 45MP-1.5-CD | 1-1/2 | 3.36 |
| 45MP-2-CD | 2 | 3.36 |
| 45MP-2.5-CD | 2-1/2 | 3.36 |
| 45MP-3-CD | 3 | 3.36 |
| 45MP-4-CD | 4 | 4.03 |

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

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



T45 / MC45



T45E / ME45

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

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

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

TOP-FLO® BALL CHECK VALVES



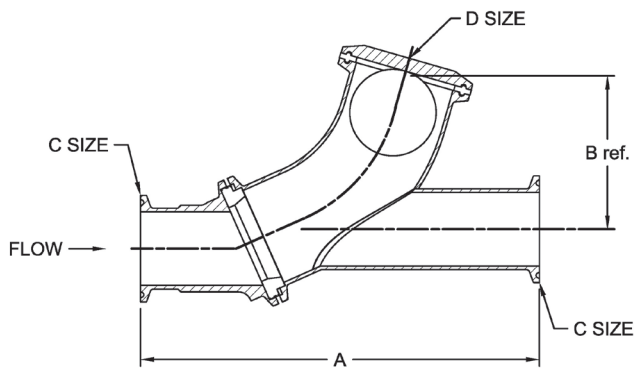
TOP-FLO® sanitary ball check valves are used to prevent the backflow of fluid in sanitary systems and to minimize pressure drop across the valve. The vertical installation orientation of TOP-FLO® ball check valves utilizes the fluid head pressure behind the ball when there is zero flow and valve is in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

Features:

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

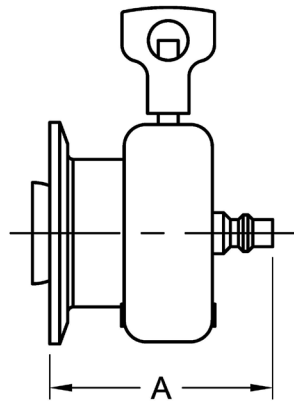
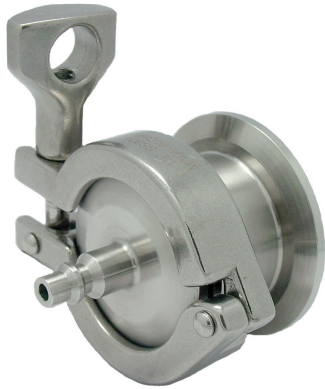
Specifications:

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



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

AIR BLOW CHECK VALVES



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

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

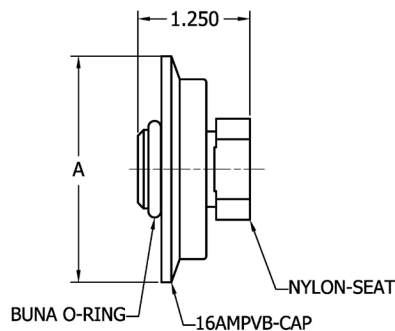
Steel & O'Brien offers these valves in various air supply configurations.

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

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

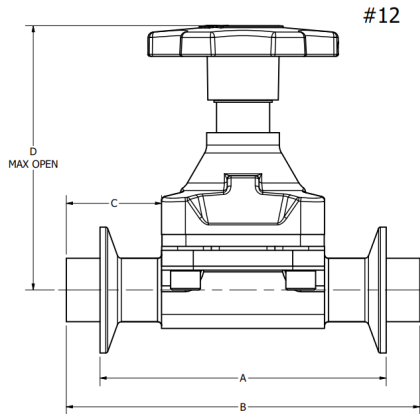
NOTE: DRAWING, PART NUMBERS, AND DIMENSIONS SHOWN ARE FOR CLAMP END STYLE AIR BLOW CHECK VALVE WITH QUICK DISCONNECT CONNECTION. CALL STEEL & O'BRIEN FOR DETAILS ON OTHER CONFIGURATIONS.

16AMPVB - VACUUM BREAKER VALVE



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

TOP-FLO® BIOPRO® FORGED DIAPHRAGM VALVES



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

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

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

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

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

TOP-FLO® EZ SERIES DIAPHRAGM VALVE ACTUATOR



**STANDARD MOUNT
2-WAY BODIES**



**STUD MOUNT
ZERODL BLOCK BODIES**

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

Size: Fits Valve Sizes 1/2" Thru 2"

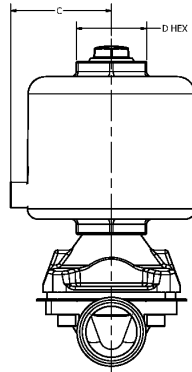
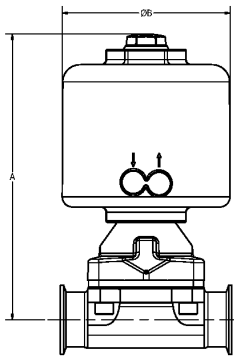
Type: Piston Type

Function: Fail Close, Fail Open, Double Acting

Construction: Polyamide Plastic Head, 304ss Mounting Base, Yellow Visual Position Indicator, 1/4" Fnpt Air Supply Connections

Operation: Operating Air Supply 80-100 Psig (5.5 Bar - 7 Bar), Maximum Air Supply 116 Psig (8 Bar), Maximum Temperature 120 Deg F (49 Deg C) **Not For Outdoor Use*

Topworks: Stonel, Westlock, and Burkert Controls Available



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

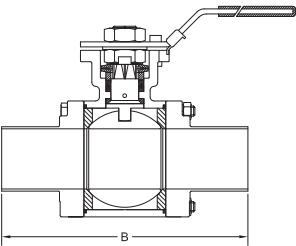
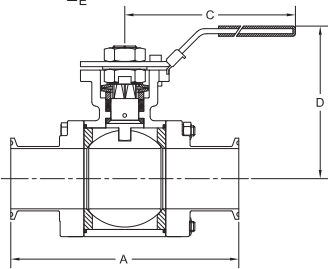
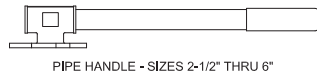
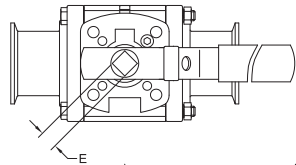
FOR ADDITIONAL DETAILS AND VALVE SIZES, SEE FULL DIAPHRAGM VALVE CATALOG

TOP-FLO® SERIES 77 BALL VALVES



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

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



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

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

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

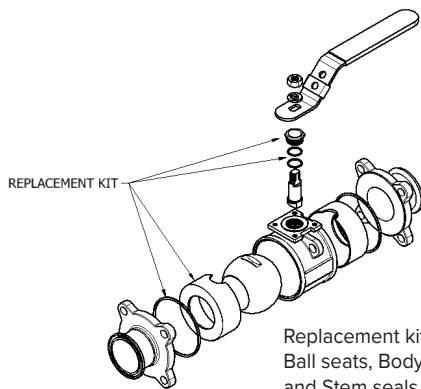
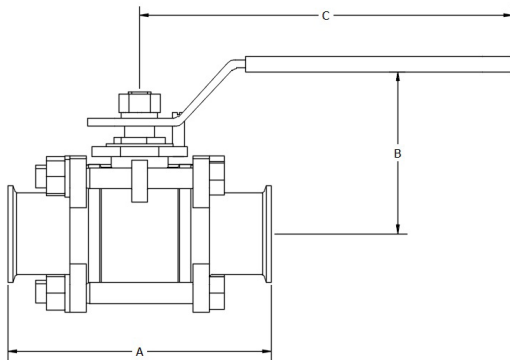
MANUAL 2-WAY BALL VALVES



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

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

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



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 | 600 PSI | 100 PSI | BLV2-REPLKIT-25 |
| BLV2C-3 | 3 | 9.02 | 600 PSI | 100 PSI | BLV2-REPLKIT-3 |
| BLV2C-4 | 4 | 9.57 | 600 PSI | 100 PSI | BLV2-REPLKIT-4 |

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

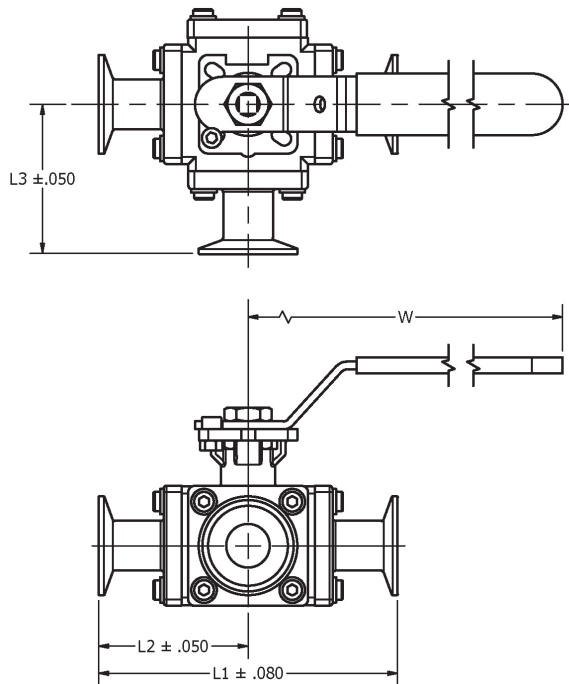
BLV3/TF1 - MANUAL & AUTOMATED 3-WAY BALL VALVES



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

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

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



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

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

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



ALTERNATE END CONNECTIONS AVAILABLE UPON REQUEST

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

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

MANUAL - PART NUMBER MATRIX

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

TOP-FLO[®] TA SERIES FOR BALL & BUTTERFLY VALVES



Features:

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

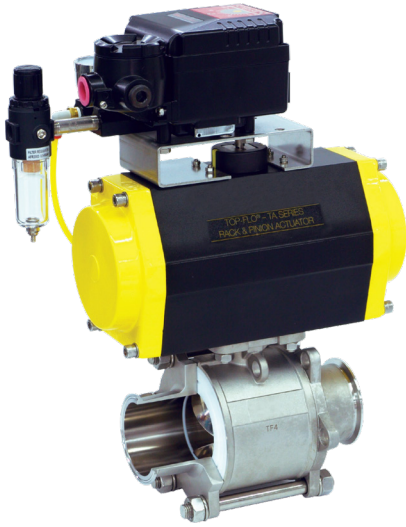
TOP-FLO[®] ELECTRIC FOR BALL & BUTTERFLY VALVES



Features:

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

TOP-FLO® T4V-V PORT CONTROL BALL VALVES



Features:

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

PART NUMBER MATRIX

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

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

TOP-FLO® DEFINOX® ADJUSTABLE RELIEF DCX3



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

TOP-FLO® DEFINOX® MANUAL PRESSURE RELIEF



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

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

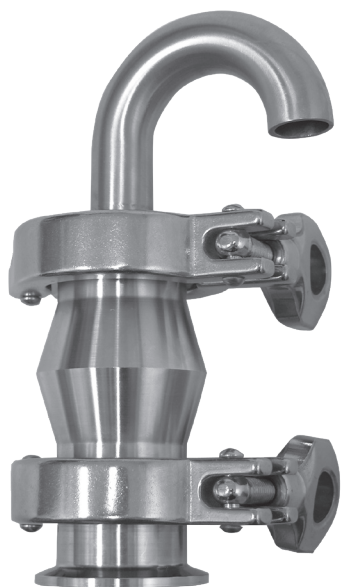


Size range: 2", 2-1/2", 4"
 Body: 316L SS
 Plug: PTFE
 Valve seals: Silicone
 Connections: Sanitary clamp
 Max./Min. temperature: +80°C/+176°F; 0°C/+32°F
 Vacuum: 30 mbar

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

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

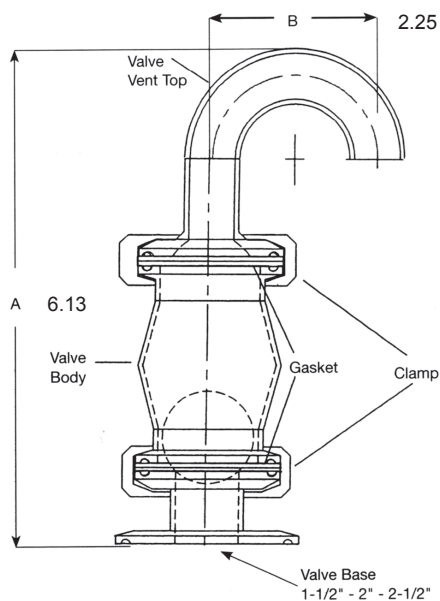
TOP-FLO® TL60ARV AIR RELIEF VALVE



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

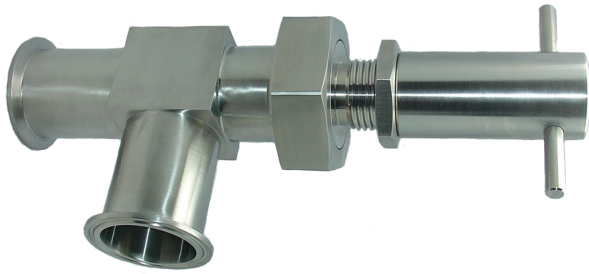
The TL60ARV is double seated. The lightweight ball is freely moving and depending on pressure conditions will close against upper or lower seat. This valve is not designed for use in operation with liquids having less than 1.0 specific gravity.

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



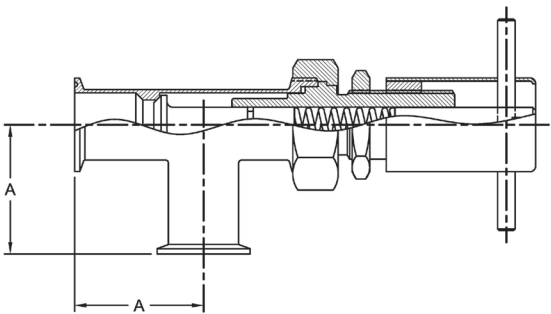
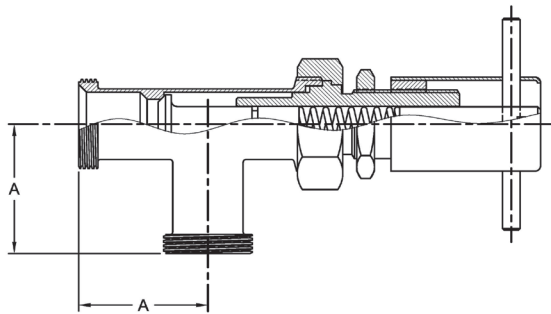
| 1-1/2" 386015ARV | | |
|------------------|-------------|------|
| DESCRIPTION | PART NUMBER | QTY. |
| Vent Top | 38601525VT | 1 |
| Body | 38601525 | 1 |
| Base – 1-1/2" | 386015 | 1 |
| Clamp | 3299915 | 2 |
| Gasket (FKM) | 321010V | 2 |
| Ball 1.25" | 38601525B | 1 |
| 2" 386020ARV | | |
| DESCRIPTION | PART NUMBER | QTY. |
| Vent Top | 38601525VT | 1 |
| Body | 38601525 | 1 |
| Base – 2" | 386020 | 1 |
| Clamp | 3299915 | 2 |
| Gasket (FKM) | 321010V | 2 |
| Ball 1.25" | 38601525B | 1 |
| 2-1/2" 386025ARV | | |
| DESCRIPTION | PART NUMBER | QTY. |
| Vent Top | 38601525VT | 1 |
| Body | 38601525 | 1 |
| Base – 2-1/2" | 386025 | 1 |
| Clamp | 3299915 | 2 |
| Gasket (FKM) | 321010V | 2 |
| Ball 1.25" | 38601525B | 1 |

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
- Compression rating can be varied using Light, Medium or Heavy springs (Medium 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 |

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 |

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 |

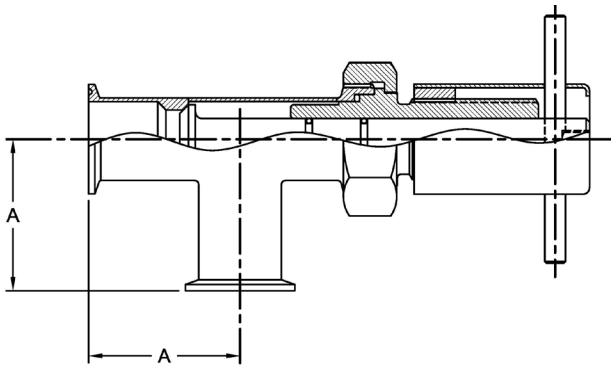
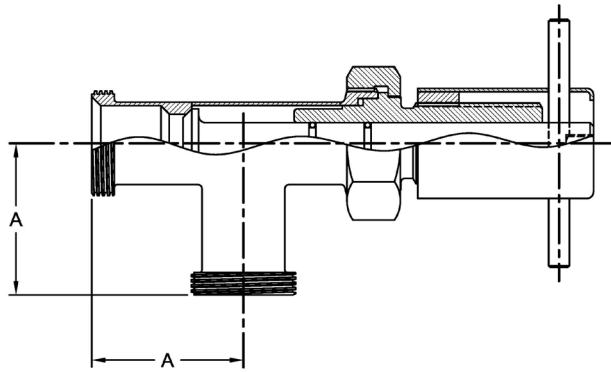
NOTE: RATINGS BASED ON AMBIENT TEMPERATURE WATER. CALL STEEL & O'BRIEN FOR OTHER CONFIGURATIONS.

COMPRESSION VALVES



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

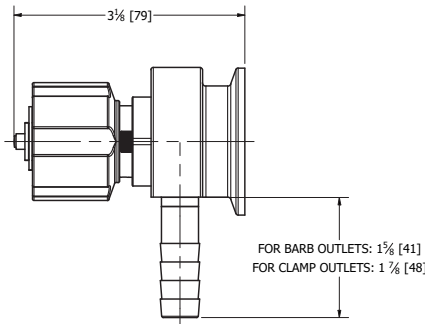
- Meets 3-A standards.
- 316LSS construction.
- Available in clamp end and acme thread end connections.



| 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 |

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

SVN TYPE SAMPLE VALVE



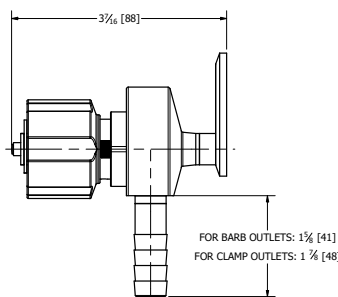
*Kynar® is a registered trademark of Arkema
 ULTEM® is a registered trademark of SABIC Global*

Right-angle concentric (SVN) models are available in 1/2" – 4" sanitary clamp inlet sizes and right-angle eccentric (EVN) models are available in 1" – 4" sanitary clamp inlet sizes. Both valve types offer a variety of outlet connections. Fully autoclaveable without disassembly.

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

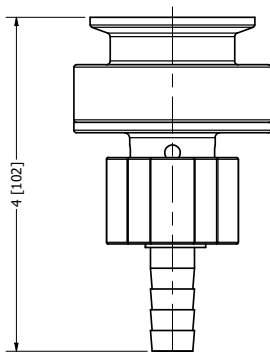
| TYPE | STEM MATERIAL | O-RING MATERIAL | INLET CONNECTION | OUTLET CONNECTION | ID SURFACE FINISH |
|------------------------------|---------------|-----------------|------------------|-------------------|-------------------|
| SVN - RIGHT ANGLE CONCENTRIC | Y - PVDF | E - EPDM | 50 - 1/2" TC | A -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

EVN TYPE SAMPLE VALVE



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

INN TYPE SAMPLE VALVE



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

Inline (INN) models are available in 1/2" – 4" sanitary clamp inlet sizes and offer a variety of hose barb outlet sizes. Fully autoclaveable without disassembly.

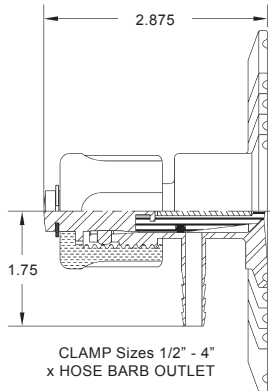
- Product Contact Surfaces**
 Body: 316L Stainless Steel
 Stem: FDA/USP Class VI Certified Tecapeek® (PEEK)
 O-Ring: FDA/USP Class VI EPDM or FKM
- Non Product Contact Surfaces**
 Knob: ULTEM® Polytherimide/PEI
 Indicator: High temp yellow PVC
 Hardware/Other Misc. Parts: Stainless Steel
- Finish Specifications**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

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

TOP-FLO® SAMPLE VALVES



SV2

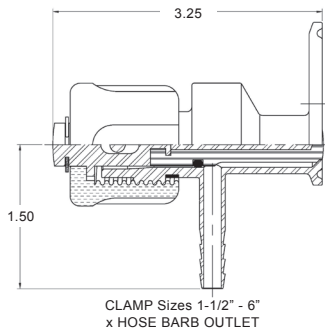


Standard Features:

- 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



EV2



Optional Features:

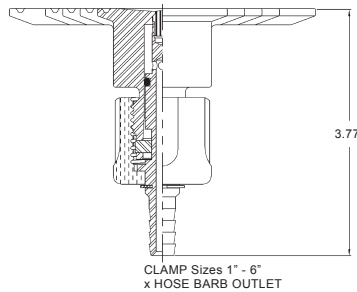
- Upgraded internal finish to 20Ra W/EP (SF5) or 15Ra W/EP (SF4)
- Other material grades available upon request
- FDA/USP Class VI, EPDM O-ring stem seal
- Alternative end connections upon request
- Eccentric

Service Conditions:

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



IN2



| 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

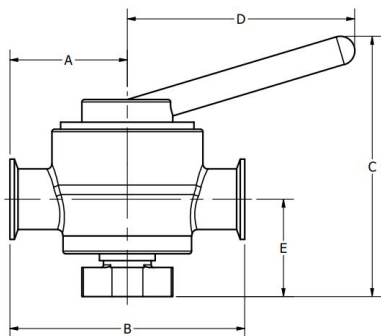
TOP-FLO[®] PLUG VALVES



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

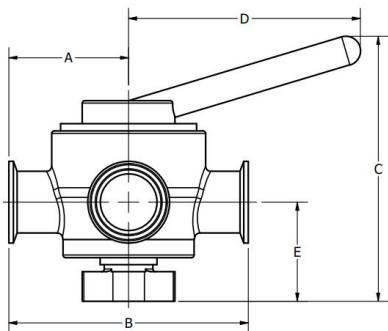
NOTE: Plug Valves, because of their inherent design, are recommended only for low-pressure applications. 25 PSI maximum; for use with non-hazardous products, and at temperatures not to exceed 100 degrees Fahrenheit They are subject to leakage almost from the initial time of installation because of normal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

D10MP & D10MPR - 2-WAY PLUG VALVE CLAMP



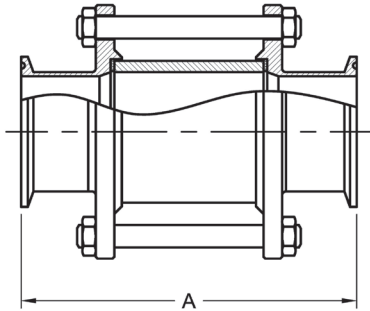
| PART NUMBER | SIZE (INCHES) | A | B | C | D | E |
|-------------|---------------|---------|---------|---------|---------|---------|
| 389610-316 | 1 | 2-9/16 | 4-9/16 | 5-1/16 | 4-39/64 | 2-19/64 |
| 389610R-316 | 1 | 2-9/16 | 4-9/16 | 5-1/16 | 4-39/64 | 2-19/64 |
| 389615-316 | 1-1/2 | 2-29/32 | 5-13/16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

D11MP & DM11MPR - 3-WAY PLUG VALVE CLAMP



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

54BMP – SIGHT GLASS



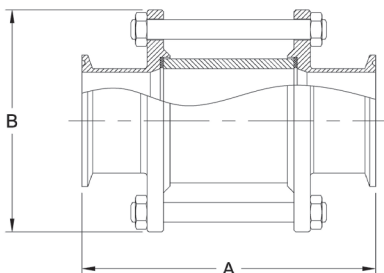
Made with borosilicate glass and sealed with buna gaskets, various end configurations are available including: clamp, bevel seat, I-line, Q-line, and John Perry.

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

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

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

54BMPS – SIGHT GLASS

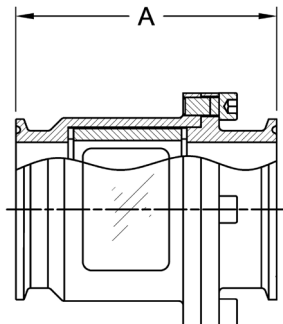


Steel & O'Brien is pleased to announce an economical bolt style sight glass. This in-line sight glass is comprised of a stainless steel frame and glass. Made with borosilicate glass and sealed with FKM gaskets and clamp end connections.

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

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

SOCKET HEAD CAP SCREW STYLE SIGHT GLASS



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

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

CLEAR ACRYLIC SIGHT TUBES

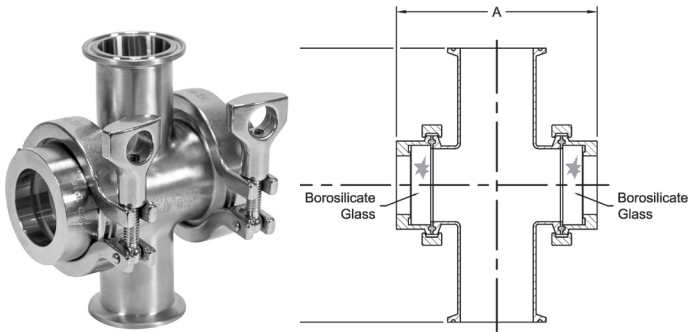


Steel & O'Brien's see-through spool sections are ideal for simple and quick sight requirements. Made from ASTM 5436-D, FDA-conforming acrylic, our tubes can be clamped into your sanitary line seamlessly.

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

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

CROSS STYLE SIGHT GLASS



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

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

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

CLAMP CAP STYLE SIGHT GLASS



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

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

SANITARY PRESSURE GAUGES



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

Specifications:

Case: polished AISI 304 SS

Ring: polished AISI 304 SS

Dial sizes: 2-1/2" and 4"

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

Diaphragm: polished AISI 316L SS

Polycarbonate face

Pointer: black anodized aluminum

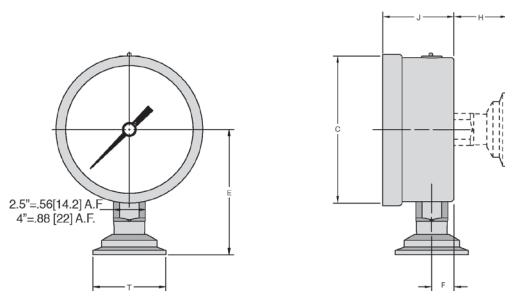
Case fill: glycerine

Seal fill: oil for food service

Process temperature: 150°F max

Accuracy: as a percentage of full scale
as per ASME B40.100 ± 1% (4" Dial)

as per ASME B40.100 ± 1.6% (2-1/2" Dial)



RANGES

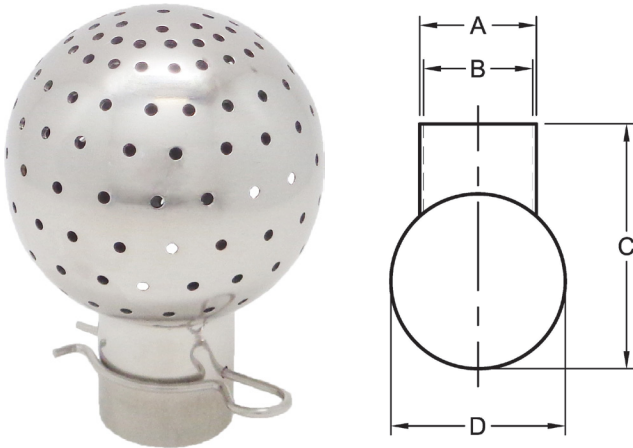
| PSI | BAR | MOUNT | 2-1/2 DIAL FACE | | 4 DIAL FACE | |
|----------|------|-------------|-----------------|------------|-------------|----------------|
| | | | 1-1/2 CLAMP | 2 CLAMP | 1-1/2 CLAMP | 2 CLAMP |
| 30"HG/30 | -1/2 | bottom back | 4500A • | • • | • • | 4566A • |
| 0/30 | 0/2 | bottom back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

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

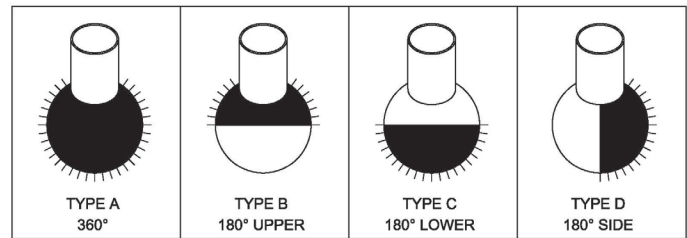
SPRAY BALLS

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

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



SPRAY PATTERNS:



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

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



PUMPS & PUMP PARTS

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

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



TOP-FLO® TF-C SERIES CENTRIFUGAL PUMPS

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

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

MECHANICAL SPECIFICATIONS

Capacity: 10gpm to 600gpm

Pressure: 135 PSIG

Viscosity: 200cp

Temperature: 212°F

Pump Casings

- Volute type - standard
- Inlet-oversizing as noted in chart

Pump Connections

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

Pump Construction Materials

- All wetted parts - 316L SS
- Seals - carbon (other seals available)
- Casing gasket - Buna (standard)
- FKM, 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



TF-C100



TF-C114



TF-C216



TF-C218

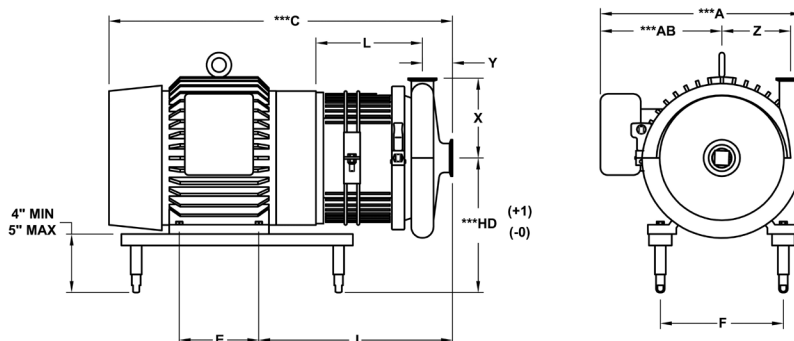


TF-C328



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

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



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

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

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

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

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

EXAMPLE

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

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

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

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

TOP-FLO® CENTRIFUGAL PUMP & MOTOR ASSEMBLIES



C100 (56C)

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

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

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



C114 (56C)



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



C328 (213TC/215TC)

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

PUMPS

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

MOTORS

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

AVAILABLE MODELS*

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

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

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

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

TOP-FLO® PUMP REPLACEMENT KITS



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

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

KIT #1

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

KIT #2

3 - Carbon Seals, 3 - Casing Gaskets and 3 - O-rings

KIT #3

1 - Carbon Seal, 1 - Spring, 1 - Cup and 1 - O-ring

“D” SEAL KITS

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

“DG” SEAL KITS

| TF-C114 KIT - 5649K-1DG | | | |
|-----------------------------|------|-------------|-----------------------------------|
| KEY # | QTY. | DESCRIPTION | |
| 564980 | 80 | 1 | Carbon Seal, Rotating |
| 564924 | 24 | 1 | Impeller Retainer Pin |
| 564980N-SC | 80N | 1 | Stationary Seat, Silicone Carbide |
| 564980P | 80P | 1 | PTFE Gasket, Outboard |
| 564980R | 80R | 1 | PTFE Gasket, Inboard |
| 564980V | 80V | 1 | Seal, O-ring FKM |
| 564990V | 90V | 1 | Casing Gasket, FKM |
| TF-C216 KIT - 5669K-1DG | | | |
| KEY # | QTY. | DESCRIPTION | |
| 566980 | 80 | 1 | Carbon Seal, Rotating |
| 566924 | 24 | 1 | Impeller Retainer Pin |
| 566980N-SC | 80N | 1 | Stationary Seat, Silicone Carbide |
| 566980P | 80P | 1 | PTFE Gasket, Outboard |
| 566980R | 80R | 1 | PTFE Gasket, Inboard |
| 566980V | 80V | 1 | Seal, O-ring FKM |
| 566990V | 90V | 1 | Casing Gasket, FKM |
| TF-C218/328 KIT - 5689K-1DG | | | |
| KEY # | QTY. | DESCRIPTION | |
| 568980 | 80 | 1 | Carbon Seal, Rotating |
| 568924 | 24 | 1 | Impeller Retainer Pin |
| 568980N-SC | 80N | 1 | Stationary Seat, Silicone Carbide |
| 568980P | 80P | 1 | PTFE Gasket, Outboard |
| 568980R | 80R | 1 | PTFE Gasket, Inboard |
| 568980V | 80V | 1 | Seal, O-ring FKM |
| 568990V | 90V | 1 | Casing Gasket, FKM |

“E” SEAL KITS

| TF-C114 KIT - 5649EK-1 | | | |
|----------------------------|------|-------------|-------------------|
| KEY # | QTY. | DESCRIPTION | |
| 564980 | 80 | 2 | Carbon Seal |
| 564980V | 80V | 2 | Seal O-ring FKM |
| 564980G | 80G | 2 | Cup (E Seal) |
| 564917B | 17B | 1 | O-ring FKM |
| 566917B | 83E | 1 | O-ring FKM |
| 564980H | 80H | 1 | Spring (E Seal) |
| 564990V | 90V | 1 | Casing Gasket FKM |
| TF-C216 KIT - 5669EK-1 | | | |
| KEY # | QTY. | DESCRIPTION | |
| 566980 | 80 | 2 | Carbon Seal |
| 566980V | 80V | 2 | Seal O-ring FKM |
| 566980G | 80G | 2 | Cup (E Seal) |
| 566917B | 17B | 1 | O-ring FKM |
| 566983E | 83E | 1 | O-ring FKM |
| 566980H | 80H | 1 | Spring (E Seal) |
| 566990V | 90V | 1 | Casing Gasket FKM |
| TF-C218/328 KIT - 5689EK-1 | | | |
| KEY # | QTY. | DESCRIPTION | |
| 568980 | 80 | 2 | Carbon Seal |
| 568980V | 80V | 2 | Seal O-ring FKM |
| 568980G | 80G | 2 | Cup (E Seal) |
| 568917B | 17B | 1 | O-ring FKM |
| 562990V | 83E | 1 | O-ring FKM |
| 568980H | 80H | 1 | Spring (E Seal) |
| 568990V | 90V | 1 | Casing Gasket FKM |

83C STUFFING BOX



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

BACK PLATE



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

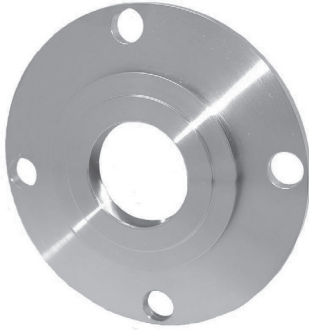
10-24 UNC BACKPLATE PIN AVAILABLE, PART NUMBER MAR00790

DRIVE COLLAR



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

FOLLOWER



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

GLAND RING



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

DG SEAL ASSEMBLY



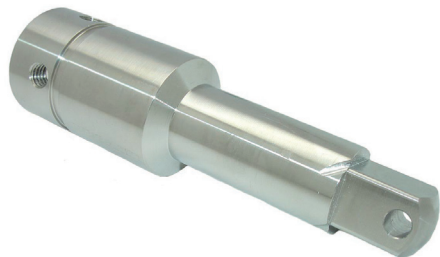
| PART NUMBER | DESCRIPTION |
|-------------|----------------------------|
| MAR00200 | C114 DG SEAL ASSEMBLY |
| MAR00210 | C216 DG SEAL ASSEMBLY |
| MAR00220 | C218/C328 DG SEAL ASSEMBLY |

E SEAL ASSEMBLY



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

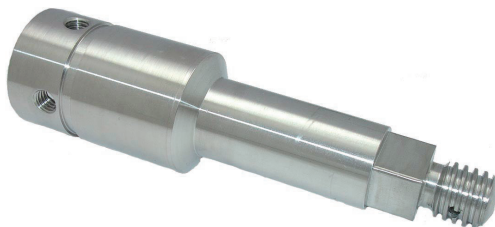
STUB SHAFT



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

STUB SHAFTS ARE SUPPLIED WITH SET SCREWS

THREADED STUB SHAFT (ACME THREAD)



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

STUB SHAFTS ARE SUPPLIED WITH SET SCREWS

CASTELLATED NUT (ACME THREAD)



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

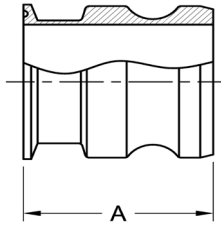


CAMLOCK FITTINGS

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

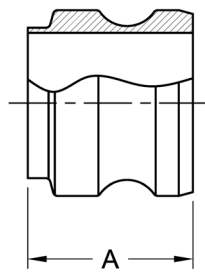


MALE CAMLOCK X CLAMP



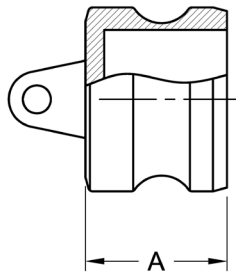
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| MJG01000 | 1 | 2.000 |
| MJG01500 | 1-1/2 | 2.500 |
| MJG02000 | 2 | 2.750 |
| MJG02500 | 2-1/2 | 3.000 |
| MJG03000 | 3 | 3.000 |
| MJG04040 | 4 | 4.750 |

MALE CAMLOCK X WELD



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

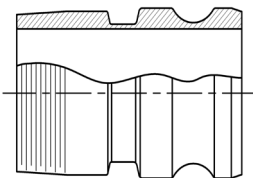
MALE CAMLOCK DUST PLUG



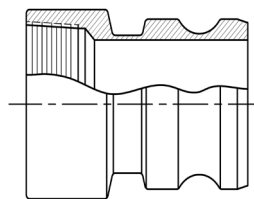
| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| MJG01001 | 1 | 1.250 |
| MJG01502 | 1-1/2 | 1.750 |
| MJG02030 | 2 | 2.063 |
| MJG02510 | 2-1/2 | 1.875 |
| MJG03015 | 3 | 2.125 |
| MJG04010 | 4 | 2.375 |

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

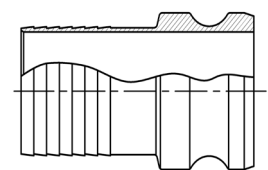
ADDITIONAL OPTIONS ARE AVAILABLE



MALE CAMLOCK X MALE NPT

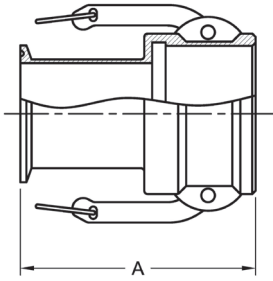


MALE CAMLOCK X FEMALE NPT



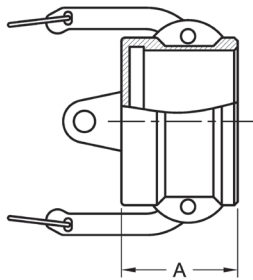
MALE CAMLOCK X HOSE BARB

FEMALE CAMLOCK X CLAMP



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

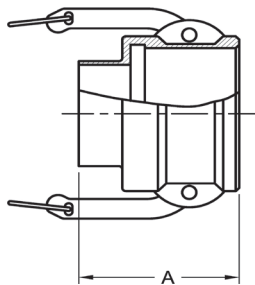
FEMALE CAMLOCK DUST CAP



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

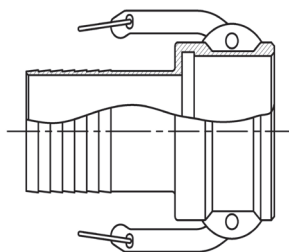
LOCATION OF EYELET MAY VARY
"A" DIMENSION FOR REFERENCE ONLY

FEMALE CAMLOCK X WELD

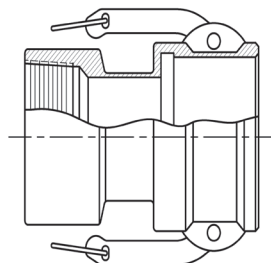


| PART NUMBER | SIZE | A |
|-------------|-------|-------|
| MJG10000 | 1 | 2.130 |
| MJG15000 | 1-1/2 | 2.500 |
| MJG20000 | 2 | 2.812 |
| MJG25000 | 2-1/2 | 3.310 |
| MJG30005 | 3 | 3.310 |
| MJG40005 | 4 | 3.375 |

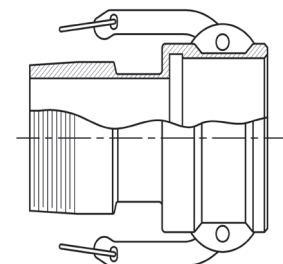
ADDITIONAL OPTIONS ARE AVAILABLE



FEMALE CAMLOCK X HOSE BARB



FEMALE CAMLOCK X FEMALE NPT



FEMALE CAMLOCK X MALE NPT



STRAINERS & FILTERS

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

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



INLINE STRAINERS

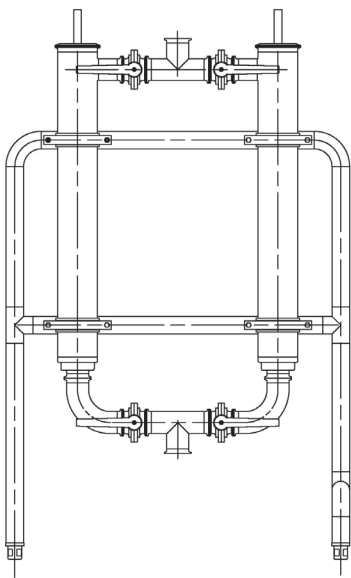
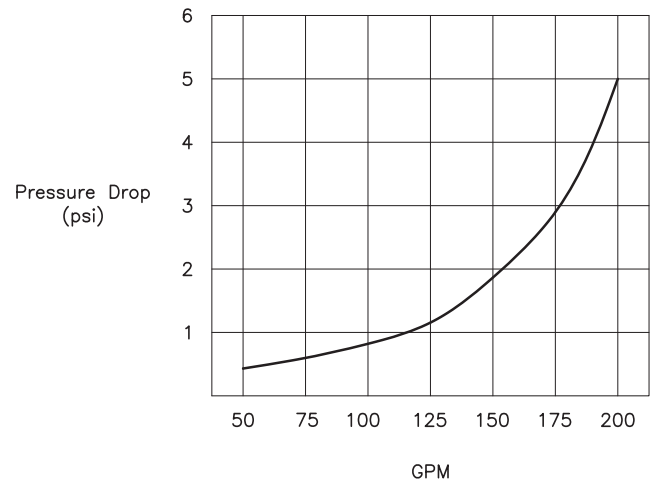


Inline strainers remove particles of various sizes from the process line providing protection for pumps, valves and other downline process equipment

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

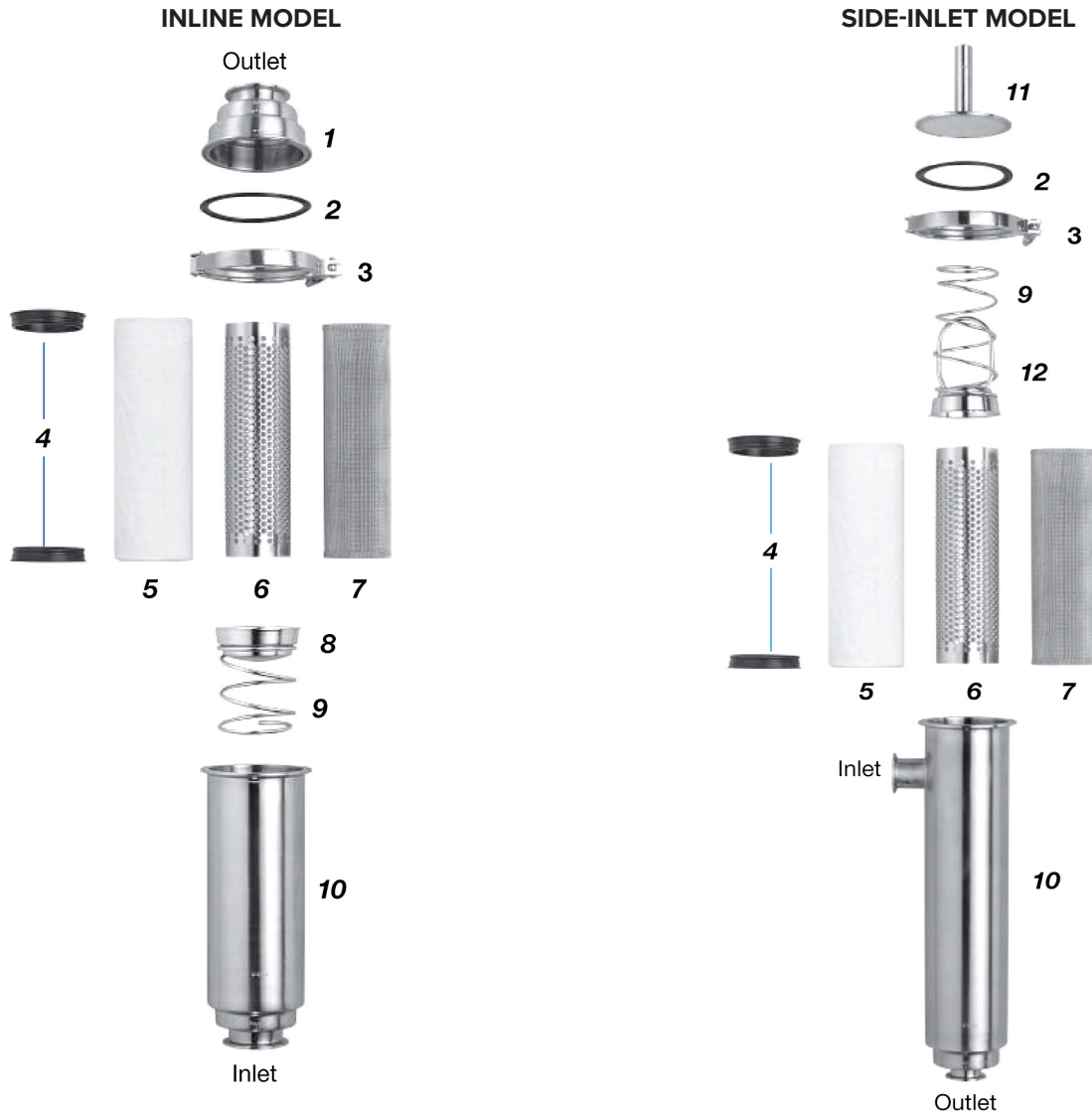
PRESSURE DROP CURVE

Curve is based on water. Includes all sizes



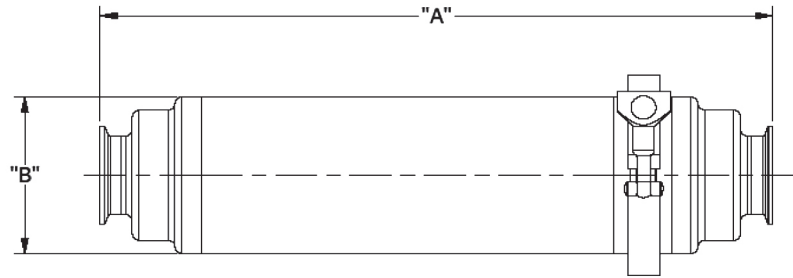
DUAL STRAINER STAND

PARTS LIST

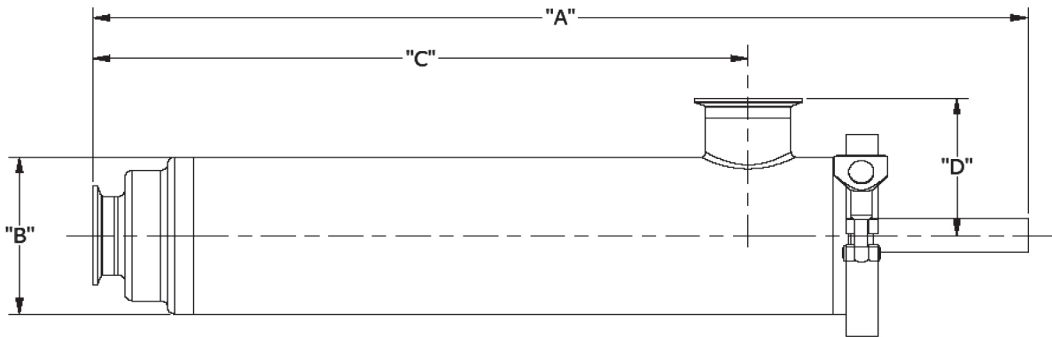


| ITEM | COMPONENT | MATERIAL |
|------|----------------------------------|----------|
| 1 | Outlet Assembly | 316ss |
| 2 | Gasket | Buna |
| 3 | Clamp | 304ss |
| 4 | Retaining Rings (filters only) | Buna |
| 5 | Filter Media | Varies |
| 6 | Backup Tube | 316ss |
| 7 | Overscreen (Strainers only)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

INLINE

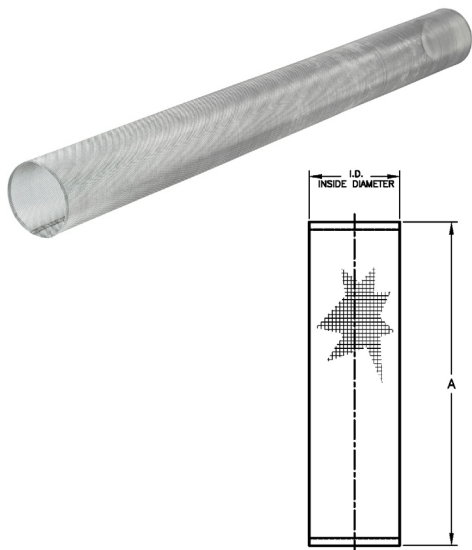


SIDE-INLET



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

STRAINER OVERSCREENS (MESH)



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

Filter media and mesh must be ordered separately.

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

FILTER MEDIA

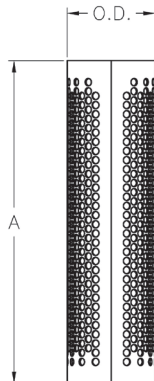


For fine particle removal (filtration), replace overscreen with filter media. Filter media must be periodically removed and disposed of. Media slides over backup tubes. Media is slightly longer than overscreens for retaining rings to hold.

Filter media and mesh must be ordered separately.

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

BACKUP TUBES (REPLACEMENT)



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

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

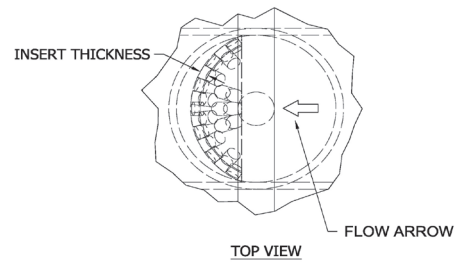
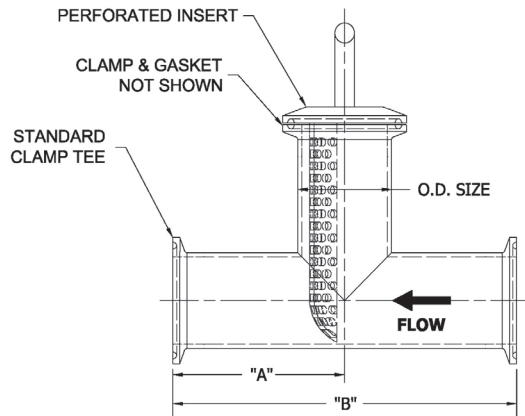
TEE STRAINERS



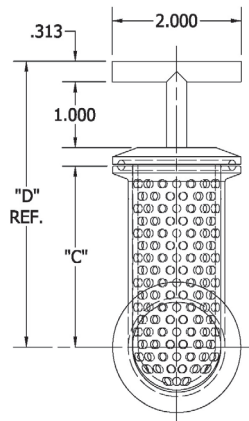
Clamp Tee Strainers are a simple and cost effective method to protect your pump and process equipment. Standard Tri-Clamp connections make installation and maintenance easy.

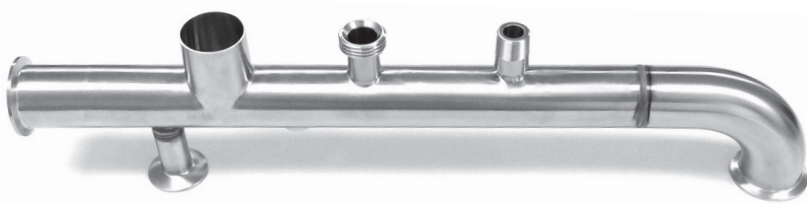
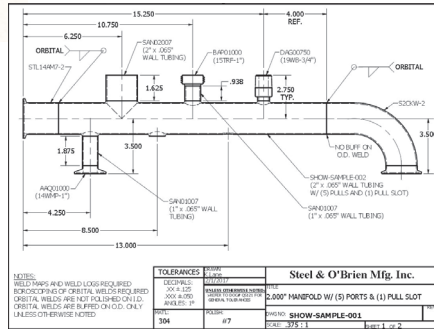
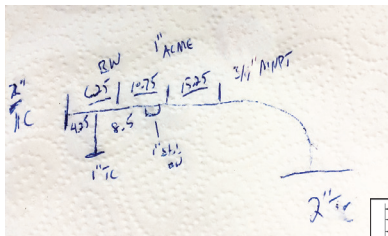
- 316L Stainless Steel Construction
- Tri-Clamp Connections
- Housing and Perf Plate are 32Ra
- Fully Assembled w/EPDM Gasket

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



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





CUSTOM FABRICATION

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

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



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

| STEEL & O'BRIEN | ROBERT JAMES | JENSEN / SWAGELOK | WAUKESHA / SPX | ALFA TRI-CLOVER |
|------------------------------------|--------------|-------------------|----------------|-----------------|
| BEVEL SEAT FITTINGS (CONT.) | | | | |
| 7 | RJ7 | 7 | 7 | 7 |
| 7A | RJ7A | 7A | 7A | 7A |
| 7B | RJ7B | 7B | 7B | 7B |
| 9 | RJ9 | 9 | 9 | 9 |
| 9A | RJ9A | 9A | 9A | 9A |
| 13H | RJ13H | 13H | 13H | 13H |
| L14A7 | RJ14A | 14A | --- | L14A7 |
| 14AHR | RJ14AHR | 14AHR | 14AHR | 14AHR |
| 14AHT | RJ14AHT | 14AHT | 14AHT | 14AHT |
| 14PRF | RJ14PRF | 14WF | 14PRF | 14PRF |
| L15A7 | RJ15A | 15A | --- | L15A7 |
| 15AHR | RJ15AHR | 15AHR | 15AHR | 15AHR |
| 15AHT | RJ15AHT | 15AHT | 15AHT | 15AHT |
| 15TRF | RJ15TRF | 15WF | 15TRF | 15TRF |
| 16A | RJ16A | 16A | 16A | 16A |
| 23B | RJ23B | 23B | 23B | 23B |
| 21 | RJ21 | 21 | 21 | 21 |
| 22 | RJ22 | 22 | 22 | 22 |
| 14-19 | RJ21F | 14-19 | 21F | 14-19 |
| 14-18 | RJ22F | 14-18 | 22F | 14-18 |
| 31TP | RJ31TP | 31TP | 31TP | 31TP |
| 31TT | RJ31TT | 31TT | 31TT | 31TT |
| WELD FITTINGS | | | | |
| L2S | RJL2S | J2S | 2CW | L2S |
| L2C | RJL2C | J2C | --- | L2C |
| L2CM | RJL2CM | J2CM | 2CKW | L2CM |
| L2F | RJL2F | J2F | 2FW | L2F |
| L2KS | RJL2KS | J2KS | 2KW | L2KS |
| L2KM | RJL2KM | J2KM | --- | B2KMW |
| L2P | RJL2P | J2P | --- | L2P |
| 2WU | RJ2WU | J2WU | 2WU | 2WUL |
| 7WWW | RJL7WWW | --- | --- | B7WWW |
| 7WWM | RJL7WWM | J7WWM | --- | B7WWM |
| 7MMW | RJL7WTW | J7MMW | --- | --- |
| 7RWWW | RJL7RW | JASON | 7RW | B7RWWW |
| 9WWWW | RJL9WWWW | --- | --- | B9WWWW |
| 31W | RJL31 | J31 | 31W | L31 |
| 32W | RJL32 | J32 | 32W | L32 |
| 2WCL | RJ2WC | J2SX | 2WC | 2WCL |
| 2WK | RJ2WK | J2KSX | 2WK | 2WK |
| 7W | RJ7W | J7W | 7W | --- |
| 7RW | RJ17WR | J7WR | 7WR | --- |
| 9W | RJ9W | J9W | 9W | --- |
| 16W | RJ16W | J16W | 16W | 16W |
| 19WB | RJ19W | 19W | 19W | 19WB |
| 28WB | RJ28WB | J28WB | 28WB | 28BW |
| 28WA | RJ28WA | J28WA | 28WA | 28WA |

SURFACE FINISHES

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

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



Member of:



OUR QUALITY POLICY

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

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

PLEASE NOTE:

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

| | |
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Proudly Serving Our Customers For 35 Years



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