



# Sanitary Fittings and Flow Components

Catalog 4270-Sanitary / ASME-BPE Fittings

June 2009

aerospace  
climate control  
electromechanical  
filtration  
fluid & gas handling  
hydraulics  
pneumatics  
process control  
sealing & shielding



ENGINEERING YOUR SUCCESS.

# Your System Deserves Parker Sanitary Stainless...

As a global leader in the motion and control industry, Parker Hannifin understands the pressures of running a modern production facility. Each function is critical, and breakdowns cost money. The last thing you need to be concerned about are products or systems that do not perform as expected. Parker is committed to providing customers with world class components that perform in a wide variety of process applications.

We will continue to deliver exceptional customer service and innovative products that improve our clients bottom line.

### A part is only as good as the whole!

At Parker, we believe our components are only a part of the team it takes to service our customers. We are backed by a highly-technical and dedicated worldwide group of distributors and agents.

Our goal is to form a life-long partnership with our customers. If you are in need of a special part or component, or some other service, please contact us or one of our distributors.



**⚠ WARNING**

FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met.

The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Copyright 2009, Parker Hannifin Corporation. All Rights Reserved.

# Table Of Contents

Ordering Information ..... Page 3

**BUTT WELD FITTINGS**

Elbows ..... Page 4  
 Tees & Crosses ..... Page 5  
 Reducers ..... Page 6

**CLAMP FITTINGS**

Elbows & Reducers ..... Page 6-7  
 Tees & Crosses ..... Page 8  
 Ferrules & Caps ..... Page 9  
 Ferrules ..... Page 10  
 NPT Adapters ..... Page 11  
 Adapters ..... Page 12  
 Clamps ..... Page 13  
 Hangers & Miscellaneous ..... Page 14

**FLANGES & ADAPTERS** ..... Page 15-16

**GASKETS & O-RINGS** ..... Page 17

**ASME - BPE Fittings**

Intro ..... Page 18  
 Elbows ..... Page 19-20  
 Reducers ..... Page 21-24  
 Tees ..... Page 25-26  
 Reducing Tees ..... Page 27-30  
 Crosses ..... Page 31  
 Ferrules & Caps ..... Page 32  
 180° Returns & Weld Caps ..... Page 33  
 Use-Point & 180° Returns ..... Page 34

**GENERAL INFORMATION**

Sanitary Flow Components ..... Page 35  
 Reference Charts ..... Page 36  
 Offer Of Sale ..... Page 38  
 Parker Group Overview ..... Page 39

**Offer of Sale**

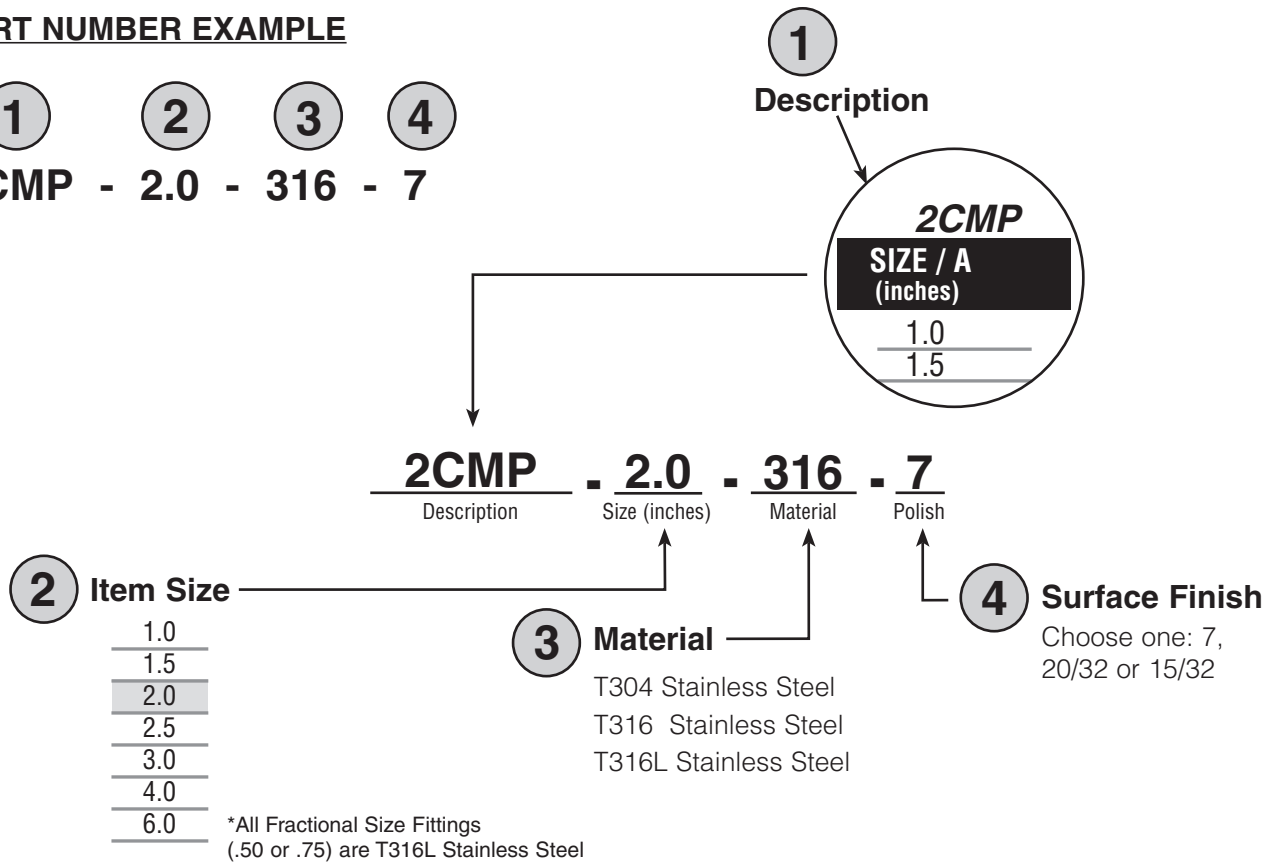
The items described in this document are hereby offered for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the Parker Performance Stainless Catalog 4270.

To specify the part completely, start with the description and select each of the additional options shown below. Be sure to denote the material and polish combination. See the example below.

## PART NUMBER EXAMPLE

①      ②      ③      ④

**2CMP - 2.0 - 316 - 7**



## Surface Finish Reference Chart

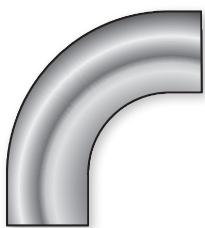
Surface Designation	I.D. Surface Roughness (micro inches)	O.D. Surface Roughness (micro inches)	I.D. Electropolish	ASME BPE Finish Code
7	32	32	No	N/A
20/32	20	32	No	SFF1
15/32	15	32	Yes	SFF4

### Notes about the Dimension Tables

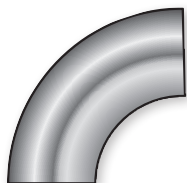
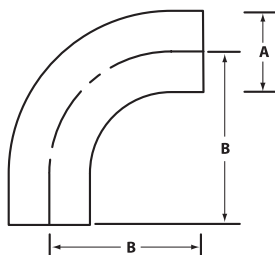
- All Dimension are in inches.
- **Wall Thickness:**
  - Fittings in 1.0-3.0 sizes are manufactured with 16 gauge (.065) wall thickness.
  - Fittings in 4.0 tube size are manufactured with 14 gauge (.083) wall thickness.

### QUALITY STATEMENT:

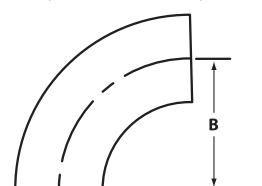
All fittings shall be manufactured using high quality T-304 or T-316L Stainless Steel with an A-269 minimum wall tubing. Fittings shall be free of crevices and manufactured within close, industry accepted tolerances. Standard polish shall be 180 grit ID and 150 grit OD, with capabilities up to 320 grit. Fittings shall meet 3A standards where applicable. Full heat traceability shall be made available on all 316L material. Unless otherwise listed, fittings .50 through 3.0 shall have a uniform .065 gauge, size 4.0 shall be .083 and size 6.0 shall be .109.



L2S



2WCL

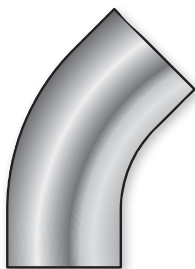


## L2S - 90° Tube Bend “Long”

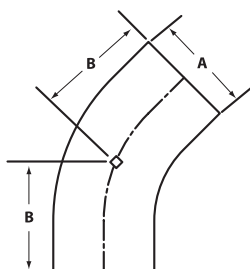
SIZE A (inches)	B (inches)	NOMINAL WALL THICKNESS
1.0	2.062	.065
1.5	2.937	.065
2.0	4.062	.065
2.5	5.187	.065
3.0	6.312	.065
4.0	8.312	.083
6.0	9.000	.109

## 2WCL – 90° Tube Bend “Short”

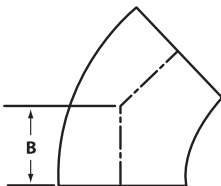
B (inches)	NOMINAL WALL THICKNESS
1.50	.065
2.25	.065
3.00	.065
3.75	.065
4.50	.065
6.00	.083
9.00	.109



L2KS



2WK



## L2KS - 45° Tube Bend “Long”

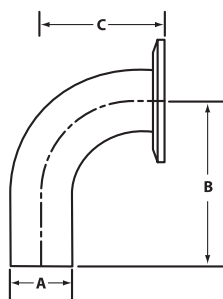
SIZE A (inches)	B (inches)	NOMINAL WALL THICKNESS
1.0	1.187	.065
1.5	1.625	.065
2.0	2.312	.065
2.5	3.000	.065
3.0	3.687	.065
4.0	4.812	.083
6.0	3.750	.109

## 2WK – 45° Tube Bend “Short”

B (inches)	NOMINAL WALL THICKNESS
.625	.065
.938	.065
1.250	.065
1.563	.065
1.875	.065
2.500	.083
3.750	.109



L2CM

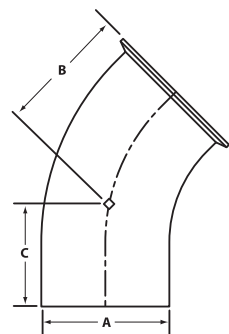


## L2CM – 90° Clamp One End

SIZE A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
1.0	2.062	2.562	.065
1.5	2.937	3.437	.065
2.0	4.062	4.562	.065
2.5	5.187	5.687	.065
3.0	6.312	6.812	.065
4.0	8.312	8.937	.083
6.0	9.000	9.750	.109



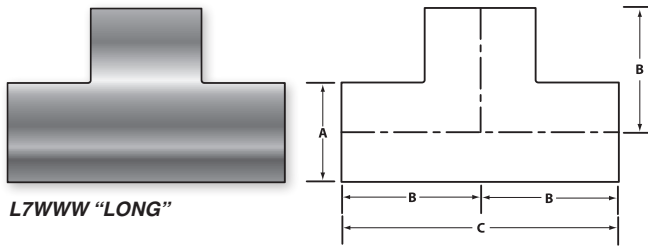
L2KM



## L2KM – 45° Clamp One End

SIZE A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
1.0	1.687	1.187	.065
1.5	2.125	1.625	.065
2.0	3.812	2.312	.065
2.5	3.500	3.000	.065
3.0	4.187	3.687	.065
4.0	5.437	4.812	.083
6.0	4.500	3.750	.109

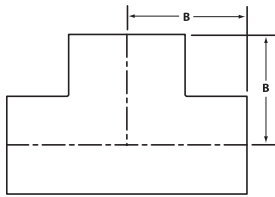
# Butt Weld Fittings: Tees & Crosses



**L7WWW "LONG"**

## L7WWW – Tee “Long”

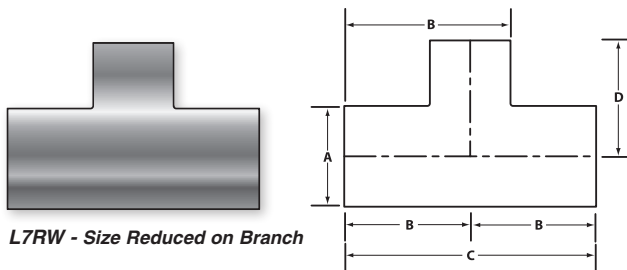
SIZE A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
1.0	1.875	3.75	.065
1.5	2.250	4.50	.065
2.0	3.000	6.00	.065
2.5	3.000	6.00	.065
3.0	3.250	6.50	.065
4.0	3.875	7.75	.083
6.0	5.625	11.25	.109



**7W "SHORT"**

## 7W – Tee “Short”

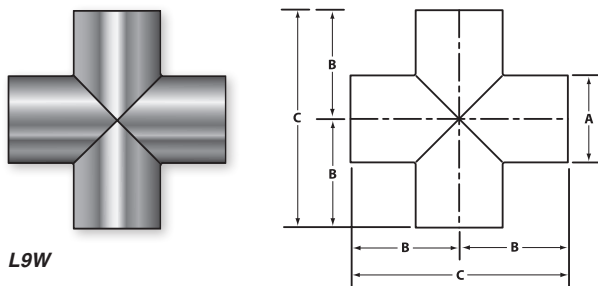
SIZE (inches)	B (inches)	NOM. WALL THICKNESS
1.0	1.125	.065
1.5	1.656	.065
2.0	2.062	.065
2.5	2.344	.065
3.0	2.594	.065
4.0	3.438	.083



**L7RW - Size Reduced on Branch**

## L7RW – Reducing Tee

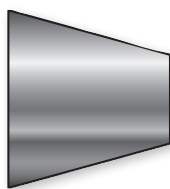
SIZE (inches)	A (inches)	B (inches)	C (inches)	D (inches)	E (inches)	NOMINAL WALL THICKNESS
1.5 x 1.0	1.5	1.656	3.312	1.375	1.0	0.065
2.0 x 1.0	2.0	2.062	4.125	1.625	1.0	0.065
2.0 x 1.5	2.0	2.062	4.125	1.906	1.5	0.065
2.5 x 1.0	2.5	2.343	4.687	1.875	1.0	0.065
2.5 x 1.5	2.5	2.343	4.687	2.156	1.5	0.065
2.5 x 2.0	2.5	2.343	4.687	2.312	2.0	0.065
3.0 x 1.0	3.0	2.593	5.187	2.125	1.0	0.065
3.0 x 1.5	3.0	2.593	5.187	2.406	1.5	0.065
3.0 x 2.0	3.0	2.593	5.187	2.562	2.0	0.065
3.0 x 2.5	3.0	2.593	5.187	2.593	2.5	0.065
4.0 x 1.0	4.0	4.625	9.250	2.625	1.0	0.083/0.065
4.0 x 1.5	4.0	4.625	9.250	2.906	1.5	0.083/0.065
4.0 x 2.0	4.0	4.625	9.250	4.250	2.0	0.083/0.065



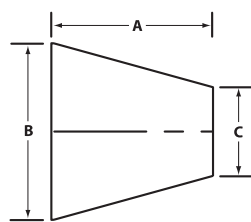
**L9W**

## L9W – Cross

SIZE A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
1.0	1.125	2.250	.065
1.5	1.656	3.312	.065
2.0	2.062	4.125	.065
2.5	2.343	4.687	.065
3.0	2.593	5.187	.065
4.0	3.437	6.875	.083
6.0	5.000	10.00	.109

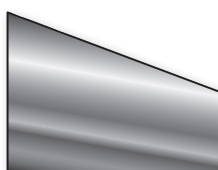


L31

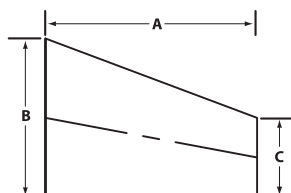


## L31 – Concentric Reducers

SIZE (inches)	A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
1.5 x 1.0	2.000	1.5	1.0	0.065
2.0 x 1.0	2.000	2.0	1.0	0.065
2.0 x 1.5	2.000	2.0	1.5	0.065
2.5 x 1.5	4.000	2.5	1.5	0.065
2.5 x 2.0	2.000	2.5	2.0	0.065
3.0 x 1.5	6.000	3.0	1.5	0.065
3.0 x 2.0	4.000	3.0	2.0	0.065
3.0 x 2.5	2.000	3.0	2.5	0.065
4.0 x 1.5	10.000	4.0	1.5	0.083/0.065
4.0 x 2.0	8.000	4.0	2.0	0.083/0.065
4.0 x 2.5	6.000	4.0	2.5	0.083/0.065
4.0 x 3.0	4.000	4.0	3.0	0.083/0.065
6.0 x 4.0	9.000	6.0	4.0	0.109/0.083



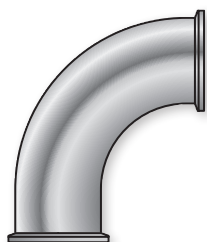
L32



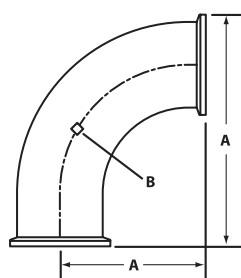
## L32 – Eccentric Reducers

SIZE (inches)	A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
1.5 x 1.0	2.000	1.5	1.0	0.065
2.0 x 1.0	4.000	2.0	1.0	0.065
2.0 x 1.5	2.000	2.0	1.5	0.065
2.5 x 1.5	4.000	2.5	1.5	0.065
2.5 x 2.0	2.000	2.5	2.0	0.065
3.0 x 1.5	6.000	3.0	1.5	0.065
3.0 x 2.0	4.000	3.0	2.0	0.065
3.0 x 2.5	2.000	3.0	2.5	0.065
4.0 x 1.5	10.000	4.0	1.5	0.083/0.065
4.0 x 2.0	8.000	4.0	2.0	0.083/0.065
4.0 x 2.5	6.000	4.0	2.5	0.083/0.065
4.0 x 3.0	4.000	4.0	3.0	0.083/0.065
6.0 x 4.0	5.500	6.0	4.0	0.109/0.083

# Clamp Fittings: Elbows



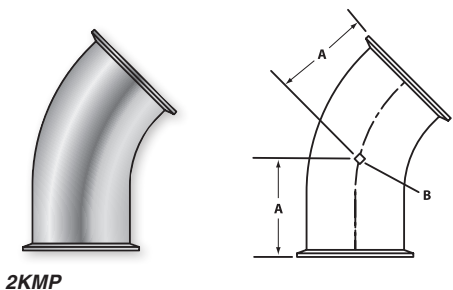
2CMP



## 2CMP – 90° Elbow BPE SIZE ONLY

SIZE (inches)	A (inches)	B (inches)
1.0	2.000	1.500
1.5	2.750	2.250
2.0	3.500	3.000
2.5	4.250	3.750
3.0	5.000	4.500
4.0	6.625	6.000
6.0	9.750	9.000

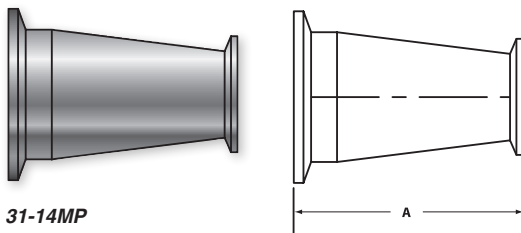
# Clamp Fittings: Elbows & Reducers



2KMP

## 2KMP – 45° Elbow BPE SIZE ONLY

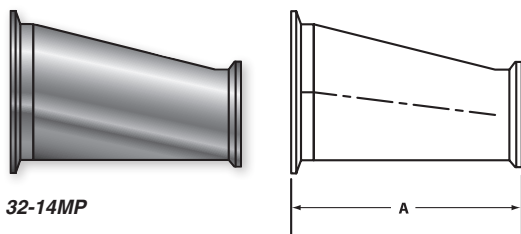
SIZE (inches)	A (inches)	B (inches)
1.0	1.125	1.500
1.5	1.437	2.250
2.0	1.750	3.000
2.5	2.062	3.750
3.0	2.375	4.500
4.0	3.125	6.000
6.0	4.500	9.000



31-14MP

## 31-14MP – Concentric Reducer BPE SIZE ONLY

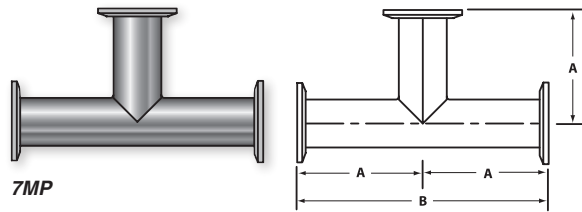
SIZE (inches)	A (inches)
1.5 x 1.0	3.000
2.0 x 1.0	5.000
2.0 x 1.5	3.000
2.5 x 1.5	5.000
2.5 x 2.0	3.000
3.0 x 1.5	7.000
3.0 x 2.0	5.000
3.0 x 2.5	3.000
4.0 x 1.5	11.125
4.0 x 2.0	9.125
4.0 x 2.5	7.125
4.0 x 3.0	5.125
6.0 x 4.0	10.500



32-14MP

## 32-14MP – Eccentric Reducers BPE SIZE ONLY

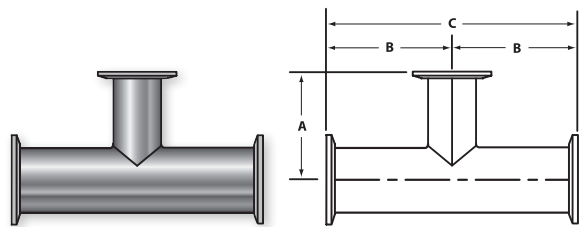
SIZE (inches)	A (inches)
1.5 x 1.0	3.000
2.0 x 1.0	5.000
2.0 x 1.5	3.000
2.5 x 1.5	5.000
2.5 x 2.0	3.000
3.0 x 1.5	7.000
3.0 x 2.0	5.000
3.0 x 2.5	3.000
4.0 x 1.5	11.125
4.0 x 2.0	9.125
4.0 x 2.5	7.125
4.0 x 3.0	5.125
6.0 x 4.0	10.500



7MP

## 7MP – Tee

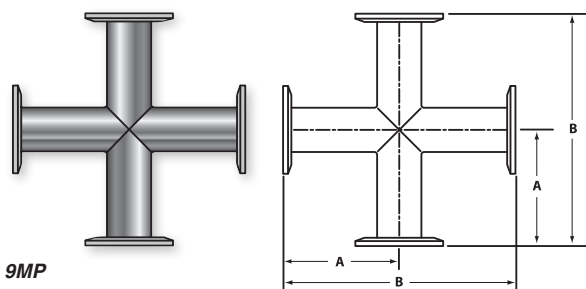
SIZE (inches)	A (inches)	B (inches)
1.0	2.375	4.750
1.5	2.750	5.500
2.0	3.500	7.000
2.5	3.500	7.000
3.0	3.750	7.500
4.0	4.500	9.000
6.0	7.150	14.300



7RMP - Size Reduced on Branch

## 7RMP – Reducing Tee

SIZE (inches)	A (inches)	B (inches)	C (inches)
1.5 x 1.0	1.875	2.156	4.312
2.0 x 1.0	2.125	2.562	5.125
2.0 x 1.5	2.406	2.562	5.125
2.5 x 1.0	2.812	2.843	5.687
2.5 x 1.5	2.656	2.844	5.688
2.5 x 2.0	2.812	2.843	5.687
3.0 x 1.0	3.062	3.093	6.187
3.0 x 1.5	3.062	3.093	6.187
3.0 x 2.0	3.062	3.093	6.187
3.0 x 2.5	3.093	3.093	6.187
4.0 x 1.0	4.875	4.062	8.125
4.0 x 1.5	4.875	4.062	8.125
4.0 x 2.0	4.875	4.062	8.125
4.0 x 2.5	4.875	4.062	8.125
4.0 x 3.0	4.875	4.062	8.125
6.0 x 2.0	5.500	5.750	11.500
6.0 x 2.5	5.500	5.750	11.500
6.0 x 3.0	5.500	5.750	11.500
6.0 x 4.0	5.625	5.750	11.500



9MP

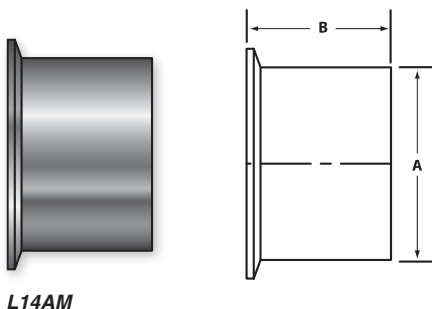
## 9MP – Cross

SIZE (inches)	A (inches)	B (inches)
1.0	2.375	4.750
1.5	2.750	5.500
2.0	3.500	7.000
2.5	3.500	7.000
3.0	3.750	7.500
4.0	4.500	9.000
6.0	5.750	11.500



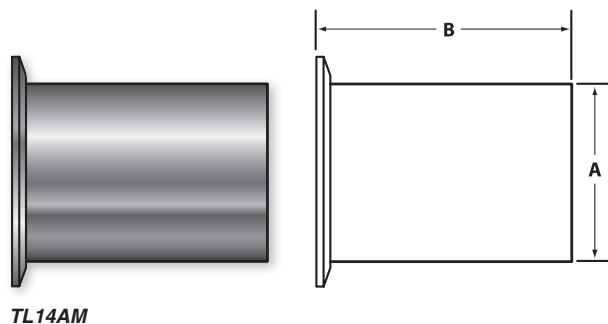
# Clamp Fittings: Ferrules & Caps

## L14AM – Butt Welding Ferrule



L14AM

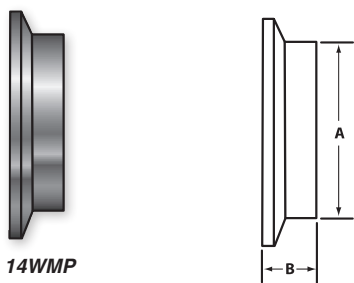
SIZE A (inches)	B (inches)	NOMINAL WALL THICKNESS
1.0	1.125	.065
1.5	1.125	.065
2.0	1.125	.065
2.5	1.125	.065
3.0	1.125	.065
4.0	1.125	.083
6.0	1.500	.109



TL14AM

## TL14AM – Butt Welding Ferrule BPE SIZE ONLY

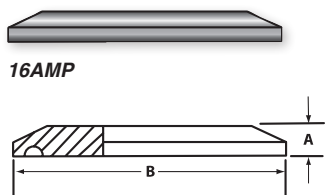
SIZE A (inches)	B (inches)	NOMINAL WALL THICKNESS
.50	1.750	.065
.75	1.750	.065
1.0	1.750	.065
1.5	1.750	.065
2.0	2.250	.065
2.5	2.250	.065
3.0	2.250	.065
4.0	2.250	.083
6.0	3.000	.109



14WMP

## 14WMP – Short Welding Ferrule

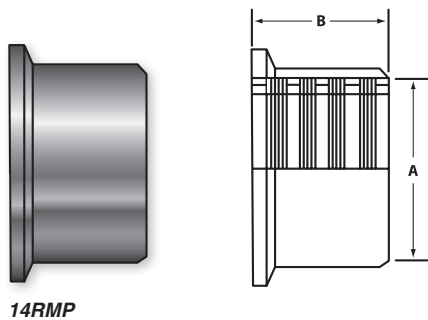
SIZE A (inches)	B (inches)	NOMINAL WALL THICKNESS
1.0	0.500	.065
1.5	0.500	.065
2.0	0.500	.065
2.5	0.500	.065
3.0	0.500	.065
4.0	0.625	.083
6.0	0.750	.109



16AMP

## 16AMP – Solid End Cap

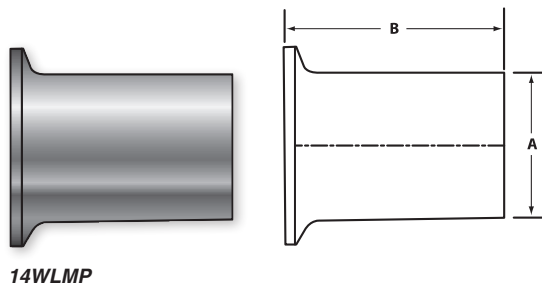
SIZE (TUBE O.D.) (inches)	A (inches)	B (inches)
.50 / .75	0.250	0.993
1.0 / 1.5	0.250	1.984
2.0	0.250	2.516
2.5	0.250	3.047
3.0	0.250	3.579
4.0	0.312	4.682
6.0	0.500	6.570



14RMP

## 14RMP – Recessless Ferrule

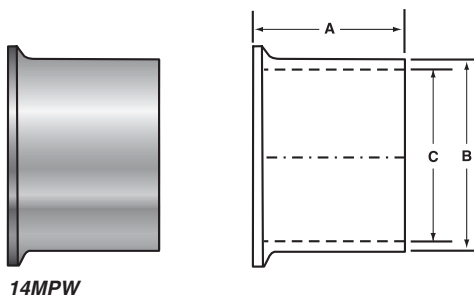
SIZE A (inches)	B (inches)
1.0	0.750
1.5	1.125
2.0	1.312
2.5	1.375
3.0	1.437
4.0	1.500



14WLMP

## 14WLMP – Tank Welding Spud – Light

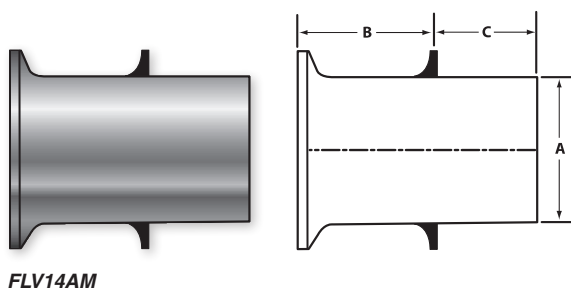
SIZE A (inches)	B (inches)	NOMINAL WALL THICKNESS
1.0	3.000	.065
1.5	3.000	.065
2.0	3.000	.065
2.5	3.000	.065
3.0	4.000	.065
4.0	4.000	.083
6.0	6.000	.109
8.0	6.000	.109
10.0	6.000	.140
12.0	6.000	.140



14MPW

## 14MPW – Tank Welding Ferrule – Heavy

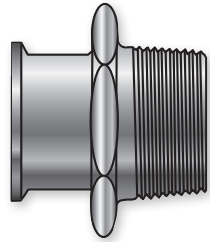
SIZE (inches)	A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
.50	2.125		0.500	.065
.75	2.125		0.750	.065
1.0	1.625	0.88	1.160	.145
1.5	1.625	1.38	1.676	.153
2.0	1.750	1.88	2.192	.161
2.5	1.750	2.38	2.708	.169
3.0	1.812	2.88	3.224	.177
4.0	2.125	3.83	4.256	.211
6.0	2.125		6.000	.217
8.0	2.125		8.000	.217



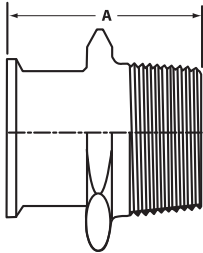
FLV14AM

## FLV14AM – Flowverter Ferrule

SIZE A (inches)	B (inches)	C (inches)	NOMINAL WALL THICKNESS
.50	1.125	1.000	.065
.75	1.125	1.000	.065
1.0	1.625	1.000	.065
1.5	1.625	1.000	.065
2.0	1.625	1.000	.065
2.5	1.625	1.000	.065
3.0	1.625	1.000	.065
4.0	1.625	1.000	.083



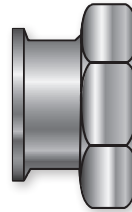
21MP



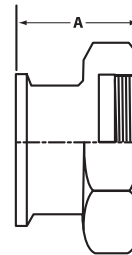
\* = No Hex Head Reduction on NPT

## 21MP – Adapter (NPT Male Threads)

SIZE (T/C x NPT)A (inches) (inches)	
0.50 x 0.125*	2.000
0.50 x 0.250*	2.000
0.50 x 0.375*	2.000
0.50 x 0.500*	2.000
0.50 x 0.750*	2.000
0.75 x 0.125*	2.000
0.75 x 0.250*	2.000
0.75 x 0.375*	2.000
0.75 x 0.500*	2.000
0.75 x 0.750*	2.000
0.75 x 1.000*	2.250
1.00 x 0.125*	2.187
1.00 x 0.250*	2.161
1.00 x 0.375*	2.187
1.00 x 0.500*	2.187
1.00 x 0.750*	2.187
1.00 x 1.000	2.250
1.00 x 1.500	2.437
1.00 x 2.000	2.625
1.00 x 3.000*	2.625
1.50 x 0.750*	2.187
1.50 x 1.000	2.312
1.50 x 1.250	2.437
1.50 x 1.500	2.437
1.50 x 2.000	2.625
1.50 x 2.500*	3.281
2.00 x 1.000	2.468
2.00 x 1.500	2.468
2.00 x 2.000	2.656
2.00 x 2.500*	3.125
2.00 x 3.000*	3.500
2.00 x 4.000*	3.500
2.50 x 1.000*	2.781
2.50 x 1.500*	2.781
2.50 x 2.000*	2.781
2.50 x 2.500*	3.281
2.50 x 3.000*	3.690
3.00 x 1.000*	3.000
3.00 x 1.500*	3.000
3.00 x 2.000*	3.000
3.00 x 2.500*	3.500
3.00 x 3.000*	3.500
3.00 x 4.000*	3.500
4.00 x 1.500*	3.812
4.00 x 2.000*	3.812
4.00 x 2.500*	3.812
4.00 x 3.000*	3.812
4.00 x 4.000*	3.812
6.00 x 6.000*	4.500



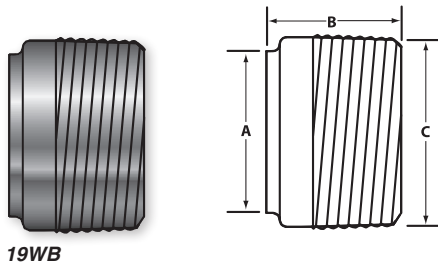
22MP



\* = No Hex Head Reduction on NPT

## 22MP – Adapter (NPT Female Threads)

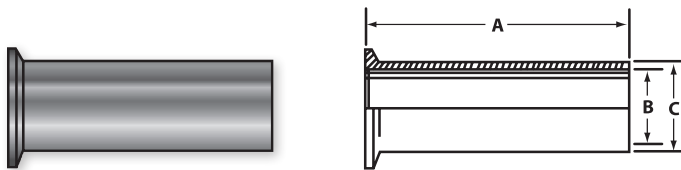
SIZE (T/C x NPT)A (inches) (inches)	
0.50 x 0.125*	1.250
0.50 x 0.250*	1.500
0.50 x 0.375*	1.500
0.50 x 0.500*	1.500
0.50 x 0.750*	1.625
0.50 x 1.000*	1.625
0.50 x 1.500*	2.250
0.50 x 2.000*	2.250
0.75 x 0.125*	1.250
0.75 x 0.250*	1.500
0.75 x 0.375*	1.500
0.75 x 0.500*	1.500
0.75 x 0.750*	1.625
0.75 x 1.000*	1.625
1.00 x 0.750*	1.625
1.00 x 1.000	1.625
1.00 x 1.500	2.250
1.00 x 2.000	2.250
1.00 x 2.500*	2.500
1.50 x 0.750*	1.625
1.50 x 1.000	1.625
1.50 x 1.250	2.250
1.50 x 1.500	2.250
1.50 x 2.000	2.250
1.50 x 2.500*	2.500
1.50 x 3.000*	2.500
2.00 x 1.000	2.500
2.00 x 1.250	1.687
2.00 x 1.500	1.687
2.00 x 2.000	2.343
2.00 x 2.500*	2.406
2.00 x 3.000*	2.406
2.50 x 1.000*	1.312
2.50 x 1.500*	1.656
2.50 x 2.000*	1.718
2.50 x 2.500*	2.093
2.50 x 3.000*	2.187
3.00 x 1.000*	2.187
3.00 x 1.500*	2.187
3.00 x 2.000*	2.187
3.00 x 2.500*	2.187
3.00 x 3.000*	2.187
4.00 x 1.500*	2.187
4.00 x 2.000*	2.187
4.00 x 2.500*	2.187
4.00 x 3.000*	2.187
4.00 x 4.000*	2.625
4.00 x 6.000*	3.250



19WB

## 19WB – Weld x Male NPT

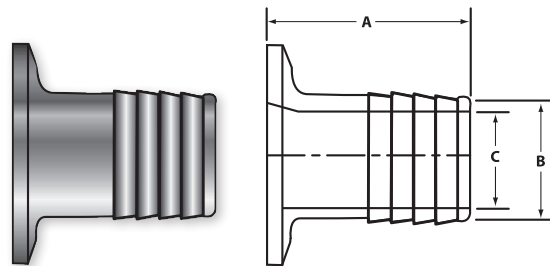
SIZE A (inches)	B (inches)	C (inches)	NOMINAL TUBE SIZE
.50	1.500	.8400	.650
.75	1.625	1.050	.650
1.0	1.750	1.315	.650
1.5	1.750	1.660	.650
2.0	1.812	1.900	.650
2.5	2.312	2.375	.650
3.0	2.500	3.500	.650
4.0	2.562	4.500	.083
6.0	4.000	6.625	.109



14MPHT

## 14MPHT – Tygon Hose Adapter

SIZE (inches)	A (inches)	B (inches)	C (inches)
0.50	4.500	.3750	0.500
0.75	4.500	.6250	0.750
1.00	4.500	.8700	1.000
1.50	4.500	1.370	1.500
2.00	4.500	1.870	2.000
2.50	4.500	2.370	2.500
3.00	4.500	2.870	3.000
4.00	4.6250	3.834	4.000

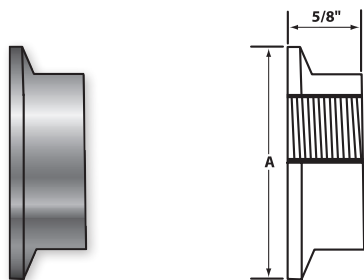


14MPHR

## 14MPHR – Rubber Hose Adapter

SIZE (inches)	A (inches)	B (inches)	C (inches)
1.0 x 1.0	1.687	1.000	0.812
1.5 x 1.5	1.687	1.500	1.312
1.5 x 1.0	1.687	1.000	0.875
2.0 x 2.0	2.312	2.000	1.810
2.0 x 1.5	2.312	1.500	1.312
2.5 x 2.5	2.343	2.500	2.312
3.0 x 3.0	3.093	3.000	2.834
4.0 x 4.0	3.406	4.000	3.834
6.0 x 6.0	3.406	6.000	5.728
8.0 x 8.0	3.406	8.000	7.728

Size = Clamp x Hose Size. Call for others.



23BMP

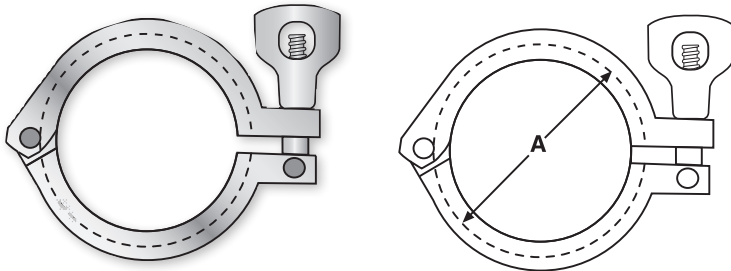
## 23BMP – Thermometer Cap

SIZE (inches)	A (inches)
1.0	1.984
1.5	1.984
2.0	2.516
2.5	3.047
3.0	3.579
4.0	4.682

Specify Tap Thread: .50, .75, 1.0 or Blank.

# Clamp Fittings: Clamps

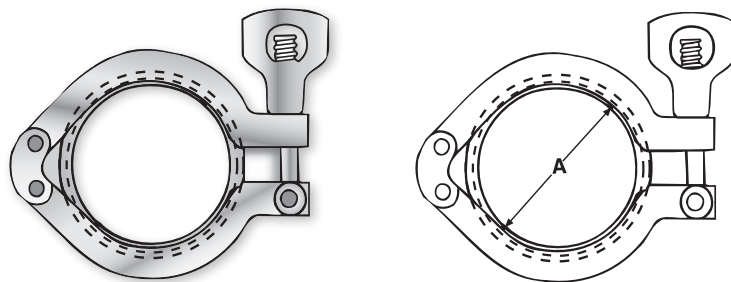
## 13MHM – Heavy Duty Clamp Single Pin Hinge



13MHM

SIZE (TUBE O.D.) (inches)	A (inches)
.50 / .75	1.109
1.0 / 1.5	2.140
2.0	2.610
2.5	3.141
3.0	3.673
4.0	4.776
6.0	6.695
8.0	8.695
10.0	10.695

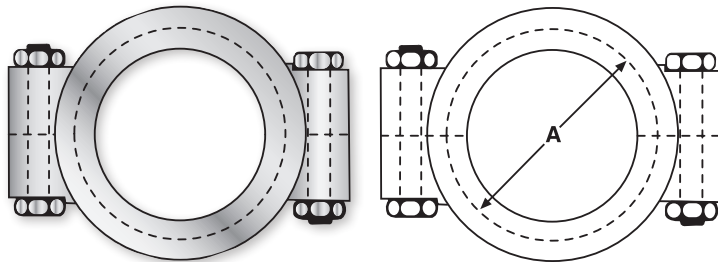
## 13MHHM – Heavy Duty Clamp Double Pin Hinge



13MHHM

SIZE (TUBE O.D.) (inches)	A (inches)
1.0/1.5	2.140
2.0	2.610
2.5	3.141
3.0	3.673
4.0	4.776
6.0	6.695
8.0	8.695
10.0	10.695
12.0	12.695

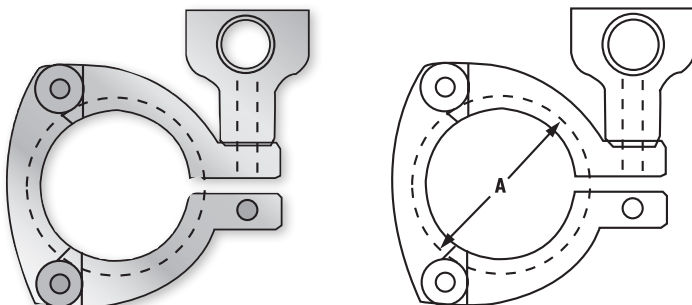
## 13MHP – High Pressure Bolted Clamp



13MHP

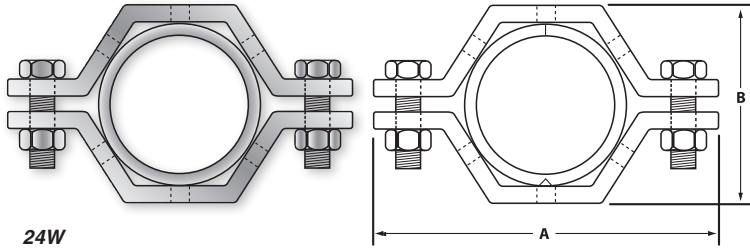
SIZE (TUBE O.D.) (inches)	A (inches)
.50 / .75	1.141
1.0 / 1.5	2.046
2.0	2.578
2.5	3.110
3.0	3.640
4.0	4.744
6.0	6.632
8.0	8.632

## 13MHHS – Three Segment Clamp



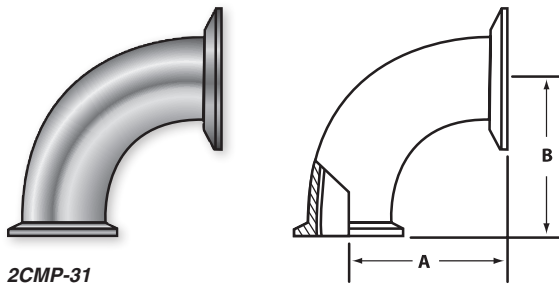
SIZE (inches)	A (inches)
1.0 / 1.5	2.140
2.0	2.610
2.5	3.141
3.0	3.673
4.0	4.776

## 24W – Hanger W/Polypropylene Insert



24W

SIZE (TUBE O.D.) (inches)	A (inches)	B (inches)
.50	2.80	1.15
.75	2.80	1.15
1.0	3.375	1.625
1.5	4.000	2.125
2.0	4.500	2.500
2.5	4.750	3.125
3.0	5.000	3.750
4.0	6.750	4.750



2CMP-31

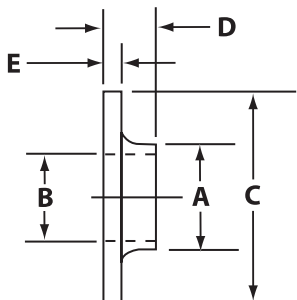
## 2CMP-31 – 90° Concentric Reducing Elbow

SIZE (inches)	A (inches)	B (inches)
2.0 x 1.0	2.00	2.00
2.0 x 1.0	2.75	2.75
2.5 x 1.0	2.75	2.75
2.5 x 2.0	3.50	3.50
3.0 x 1.5	2.75	2.75
3.0 x 2.0	3.50	3.50
3.0 x 2.5	4.25	4.25
4.0 x 2.5	4.25	4.25
4.0 x 3.0	5.00	5.00

## 14VB – Stub End



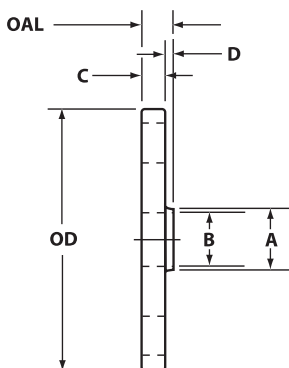
14VB



SIZE	A	B	C	D	E
(inches)	(inches)	(inches)	(inches)	(inches)	(inches)
.50	0.370	1.500	.255	.130	
.75	0.620	1.500	.255	.130	
1.0	0.870	2.000	.255	.130	
1.5	1.370	2.875	.255	.130	
2.0	1.870	3.625	.255	.130	
2.5	2.370	4.125	.255	.130	
3.0	2.870	5.000	.291	.166	
4.0	3.834	6.187	.291	.166	
5.0	4.782	7.500	.345	.218	
6.0	5.782	8.500	.345	.218	
8.0	7.782	10.625	.345	.218	

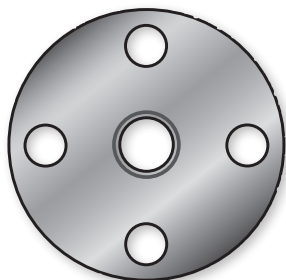
For use with 38SL Flange (Pg. 21).

## 38W – Weld Neck Flange

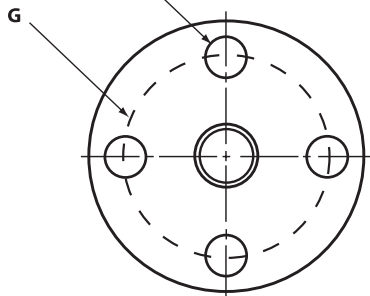


SIZE	A	OD	A	B	C	D	E	F	G	OAL
(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)	(inches)
0.5	3.500	.500	.370	.375	.125	.625	4	2.375	.500	
.75	3.875	.750	.620	.375	.125	.625	4	2.750	.500	
1.0	4.250	1.000	.870	.375	.125	.625	4	3.125	.500	
1.5	5.000	1.500	1.370	.375	.125	.625	4	3.875	.500	
2.0	6.000	2.000	1.870	.500	.125	.750	4	4.750	.625	
2.5	7.000	2.500	2.370	.500	.125	.750	4	5.500	.625	
3.0	7.500	3.000	2.870	.500	.125	.750	4	6.000	.625	
4.0	9.000	4.000	3.834	.500	.125	.750	8	7.500	.625	
6.0	11.00	6.000	5.782	.500	.125	.875	8	9.500	.625	
8.0	13.00	8.000	7.782	.500	.125	.875	8	11.75	.625	

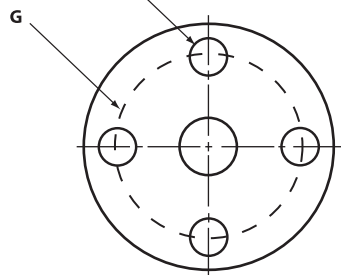
-E- DIA THRU (-F-) PLCS  
ON -G- B.C.



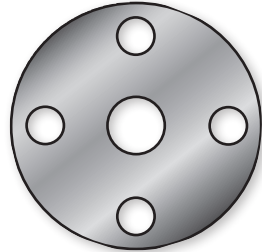
38W Weld Neck Flange



-E- DIA THRU (-F-) PLCS  
ON -G- B.C.



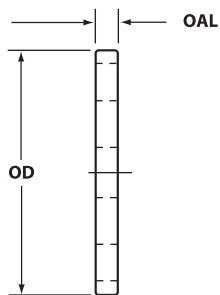
38SL Slip On Flange



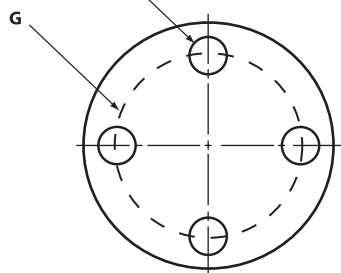
## 38SL – Slip On Flange

SIZE A (inches)	OD (inches)	ID (inches)	E (inches)	F (inches)	G (inches)	OAL (inches)
.500	3.500	.570	.625	4	2.375	.375
.750	3.875	.813	.625	4	2.750	.375
1.000	4.250	1.063	.625	4	3.125	.375
1.250	4.620	1.313	.625	4	3.500	.375
1.500	5.000	1.563	.625	4	3.875	.375
2.000	6.000	2.063	.750	4	4.750	.438
2.500	7.000	2.563	.750	4	5.500	.438
3.000	7.500	3.063	.750	4	6.000	.438
4.000	9.000	4.063	.750	8	7.500	.500
5.000	10.00	5.063	.875	8	8.500	.500
6.000	11.00	6.063	.875	8	9.500	.563
8.000	13.00	8.063	.875	8	11.75	.563
10.00	16.00	10.063	1.00	12	14.25	.688
12.00	19.00	12.063	1.00	12	17.00	.688

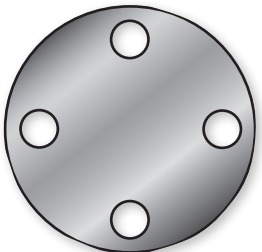
For use with 14VB Stub End (Pg. 20).



-E- DIA THRU (-F-) PLCS  
ON -G- B.C.



38 Blind Flange



## 38 – Blind Flange

SIZE A (inches)	OD (inches)	E (inches)	F (inches)	G (inches)	OAL (inches)
.500	3.500	.625	4	2.375	.375
.750	3.875	.625	4	2.750	.375
1.000	4.250	.625	4	3.125	.375
1.250	4.620	.625	4	3.500	.375
1.500	5.000	.625	4	3.875	.375
2.000	6.000	.750	4	4.750	.438
2.500	7.000	.750	4	5.500	.438
3.000	7.500	.750	4	6.000	.438
4.000	9.000	.750	8	7.500	.500
5.000	10.00	.875	8	8.500	.500
6.000	11.00	.875	8	9.500	.563
8.000	13.00	.875	8	11.75	.563
10.00	16.00	1.00	12	14.25	.688
12.00	19.00	1.00	12	17.00	.688



# Gaskets & O-Rings

Parker Sanitary Stainless supplies high-quality sanitary gaskets and o-rings for use with the Food, Beverage, Dairy and Pharmaceutical processing industries. These gaskets and o-rings are precision manufactured from specially formulated elastomer compounds, including Buna-N, EPDM, Viton®, Silicone, PTFE, and many others.

All gaskets and o-rings are certified to meet the specifications of FDA, 3-A Sanitary Standards and USP Class VI for pharmaceutical manufacturing.



## Product Listing

### CLAMP GASKETS

- 40MPU (BUNA)
- 40MPUW (BUNA-White)
- 40MPX (Silicone-White)
- 40MPXC (Silicone-Clear)
- 40MPG (PTFE)
- 40MPE (EPDM)
- 40MPSFY (SFY)
- 40MPFU (BUNA-Flanged)
- 40MPFE (EPDM-Flanged)
- 40MPFX (Silicone-White-Flanged)
- 40MPFXC (Silicone-Clear-Flanged)
- 40MPFSFY (SFY-Flanged)
- A40MPGR (PTFE-Envelope)

### ORIFICE GASKETS

- A80MPU (BUNA-Std 1/8" Orifice)
- A80MPE (EPDM-Std 1/8" Orifice)
- A80MPSFY (SFY-Std 1/8" Orifice)

### SCREEN GASKETS

- 40MPSU (Std #10 Mesh\*)
  - 40MPUP (Std #33 Perforated\*)
- \*Other mesh sizes available

### BEVEL SEAT GASKETS

- 40BSO (BUNA)
- 40BSS-(TM) (PTFE)
- DHR(T) (PTFE-Medium)
- DH(XT) (PTFE-Extra Thin)
- 40BSH(THD) (PTFE-Heavy Duty)
- 40BSF (Flat)

### I-LINE GASKETS

- 40IH (BUNA)
- 40IE (EPDM)
- 40IT (PTFE)
- 40IV (SFY)

### JOHN PERRY GASKETS

- 40JPU (BUNA)

### Q-LINE GASKETS

- 40QH (BUNA)
- 40QT (PTFE)

### APC GASKETS

- 101H (Gray)
- 101HX (Black)

**View Our Material Compatibility Chart (page 36)**

Chemical Compatibility Polymer Reference Guide COG: F = Excellent G = Good F = Fair NR = Not Recommended

POLYMER	Nitril Elastomer	Fluoroelastomer	Hydrocarbon	Hydrocarbon	Aromatic Carbon	Aromatic Carbon	Hydrocarbon	Hydrocarbon	Hydrocarbon	Hydrocarbon	Hydrocarbon
<b>CHARACTERISTICS</b>	NBR	FKM	HMDS	VMS	EPDM	PTFE	PTFE (2.0)				
Common Trade Names	Buna-N	Viton	Hydrotac	Hydrotac	Fluorel	Teflon	Teflon				
Typical Hydrocarbon Degradation	U	RY	RY	RY	X	RY	G	GTS			
Hydrocarbon Compatibility	RY	RY	RY	RY	X	RY	G	GTS			
Specific Gravity (lb./in.)	1.1	1.1	1.1	1.1	0.85	2.13	2.25				
Hardness Shore A (Durometer D)	30-90	85-95	80-90	70	70	55-90	65-90				
Maximum Working Pressure (PSI)	2000	2000	1200	1200	2500	4000	4000				
Heat Resistance (Hours)	2400hr F	4100hr F	5800hr F	5400hr F	3000hr F	4500hr F	5700hr F				
Compression	2100hr F	3800hr F	4100hr F	4600hr F	3000hr F	4500hr F	5700hr F				
Acid Resistance	G	G	F	F	F	F	F				
Alkaline Resistance	G	G	F	F	F	F	F				
Chemical Resistance	NR	E	E	E	E	E	E				
Radiation Chemical Resistance	G	F	F	F	F	E	E				
Recovery after Distortion	G	G	G	G	G	NR	NR				
See Resistance to O <sub>2</sub>	F	F	F	F	F	E	E				
See Resistance to O <sub>3</sub>	F	F	F	F	F	G	E				
Acid Oxidation	G	E	G	G	G	E	E				
Alkali Oxidation	G	E	E	E	E	E	E				
Alcohol Oxidation	E	G	E	E	E	E	E				
Hydrocarbon Oxidation	E	G	E	E	E	E	E				
Soap, Detergent, Degreaser	RY	G	F	F	F	E	E				
Steam	F	F	G	G	G	E	E				
Organic Solvent	E	E	E	E	G	E	E				
Water	G	E	F	F	F	E	E				



## Fittings for the Pharmaceutical and Biotech Industries



Parker offers a line of ASME BPE fittings for use within the Pharmaceutical and Biotech Industries. Fittings are offered in sizes from 1/4" through 6" and in both automatic weld and clamp connections which conform to ASME BPE 2005 standards.

### Material and Traceability

All fittings are permanently marked with original heat numbers for full traceability back to the original material supplier. MTR information is provided with each fitting. All tubular materials meet ASTM A269/ A270 requirements and all machined components meet the requirements of ASTM A479. Fully documented ASME-BPE conformance certification is available upon request.

### Heat Treatment

Parker fittings are solution annealed and quenched in a vacuum furnace. This treatment relieves stresses caused by cold forming operations used in the manufacturing process, thereby removing the potential for stress corrosion and improving the dimensional stability of fittings.

### Polish Options

I.D. finishes will be available in 10RA through 32RA. I.D. finishes may be provided in mechanical polish, or with Electropolishing per ASME BPE specifications. Optional finishes and treatment available upon request. O.D. finishes will be 32RA unless otherwise specified.

### Marking Standards

Each fitting is marked with the following:

- Parker Name
- Heat Number
- Material Alloy
- ASME BPE
- Surface Designation per ASME BPE



### Inspection Procedures

Fittings are visually inspected for surface finish imperfections as mentioned in table SF-3 in the ASME BPE 2005 specification. Additional percentages of every manufactured batch undergo a thorough dimensional evaluation with a 0% tolerance for failure.

All dimensional characteristics are inspected to the tolerances listed in table DT-5 in the ASME BPE 2005 specification. As a part of rigorous inspection standard, heat number traceability is verified for accuracy and chemical composition, per table DT-3, before the fittings are packaged for shipment.

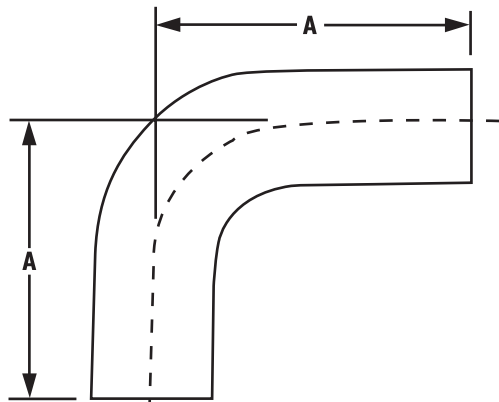
Testing includes:

- Roundness
- Wall Thickness
- Squareness of Face
- Off Angle
- Off Plane
- Height

### Packaging

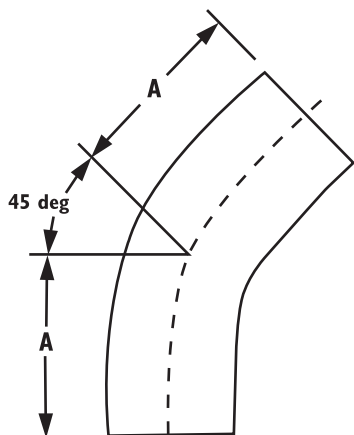
The ends are capped to prevent damage and contamination. All fittings are packaged in bags. All bags are labeled with Parker Part Number, Heat Number(s), ASME-BPE, and the appropriate ASME-BPE Surface Finish Designation for reorder, traceability and tracking purposes.

## B2S – 90° Tube Bend (TABLE DT-7)



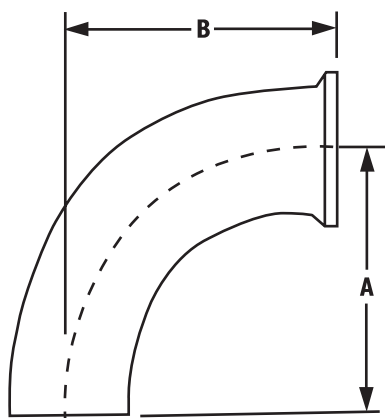
SIZE (inches)	A	
	in.	mm.
.250	2.625	66.7
.375	2.625	66.7
.500	3.0	76.2
.750	3.0	76.2
1.00	3.0	76.2
1.500	3.75	95.3
2.000	4.75	120.7
2.500	5.5	139.7
3.000	6.25	158.8
4.000	8.0	203.2
6.000	11.5	292.1

## B2KS – 45° Tube Bend (TABLE DT-8)

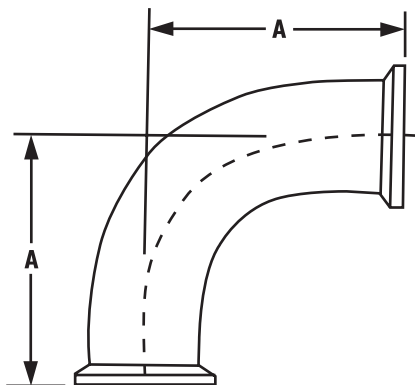


SIZE (inches)	A	
	in.	mm.
.250	2.0	50.8
.375	2.0	50.8
.500	2.25	57.2
.750	2.25	57.2
1.00	2.25	57.2
1.500	2.5	63.5
2.00	3.0	76.2
2.50	3.375	85.7
3.00	3.625	92.1
4.00	4.5	114.3
6.00	6.25	158.8

## B2CM – 90° Clamp One End (TABLE DT-12)

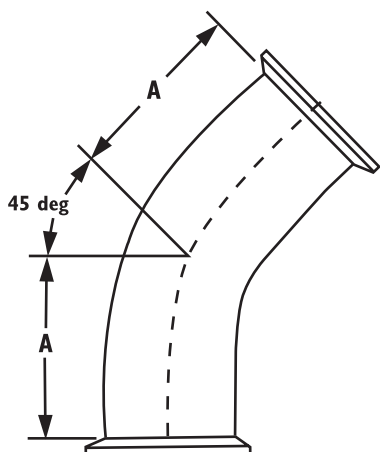


SIZE (inches)	A		B	
	in.	mm.	in.	mm.
.250	2.625	66.7	1.625	41.2
.375	2.625	66.7	1.625	41.2
.500	3.0	76.2	1.625	41.2
.750	3.0	76.2	1.625	41.2
1.000	3.0	76.2	2.0	50.8
1.500	3.75	95.3	2.75	69.9
2.000	4.75	120.7	3.5	88.9
2.500	5.5	139.7	4.25	108.0
3.000	6.25	158.8	5.0	127.0
4.000	8.0	203.2	6.625	168.2
6.000	11.5	292.1	10.5	266.7



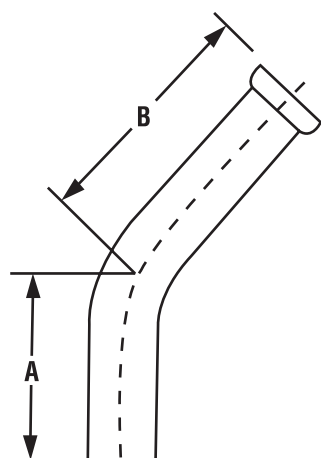
**B2CMP – 90° Elbow** (TABLE DT-16)

SIZE (inches)	A	
	in.	mm.
.250	1.62	41.2
.375	1.62	41.2
.500	1.62	41.2
.750	1.62	41.2
1.000	2	50.8
1.500	2.75	69.9
2.000	3.50	88.9
2.500	4.25	108.0
3.000	5	127.0
4.000	6.62	168.2
6.000	10.50	266.7



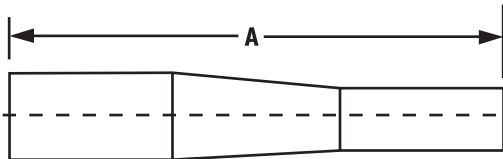
**B2KMP – 45° Elbow** (TABLE DT-17)

SIZE (inches)	A	
	in.	mm.
.250	1.00	25.4
.375	1.00	25.4
.500	1.00	25.4
.750	1.00	25.4
1.000	1.125	28.6
1.500	1.44	36.6
2.000	1.75	44.5
2.500	2.06	52.3
3.000	2.38	60.5
4.000	3.12	79.3
6.000	5.25	133.4



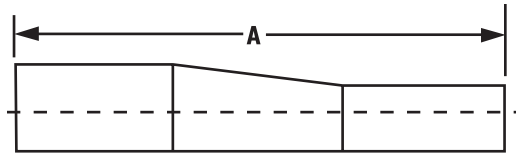
**B2KMW – 45° Clamp One End** (TABLE DT-13)

SIZE (inches)	A		B	
	in.	mm.	in.	mm.
.250	2.0	50.8	1.0	25.4
.375	2.0	50.8	1.0	25.4
.500	2.25	57.2	1.0	25.4
.750	2.25	57.2	1.0	25.4
1.000	2.25	57.2	1.125	28.6
1.500	2.5	63.5	1.44	36.6
2.000	3.0	76.2	1.75	44.5
2.500	3.375	85.7	2.06	52.3
3.000	3.625	92.1	2.38	60.5
4.000	4.5	114.3	3.12	79.3
6.000	6.25	158.8	5.25	133.4



## B31 – Concentric Reducer (TABLE DT-11)

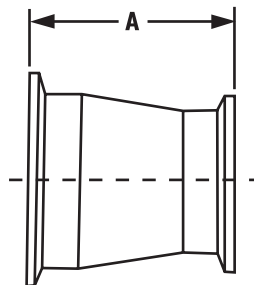
SIZE (inches) Diameter	A	
	in.	mm.
.375 x .250	3.25	82.6
.500 x .250	3.25	82.6
.500 x .375	3.25	82.6
.750 x .250	3.25	82.6
.750 x .375	3.25	82.6
.750 x .500	4.0	101.6
1.000 x .250	4.5	114.3
1.000 x .375	4.5	114.3
1.000 x .500	4.5	114.3
1.000 x .750	4.0	101.6
1.500 x .500	5.5	139.7
1.500 x .750	5.0	127.0
1.500 x 1.000	5.0	127.0
2.000 x .500	7.75	196.9
2.000 x .750	7.25	184.2
2.000 x 1.000	7.25	184.2
2.000 x 1.500	5.25	133.4
2.500 x .500	9.75	247.7
2.500 x .750	9.25	235.0
2.500 x 1.000	9.25	235.0
2.500 x 1.500	7.25	184.2
2.500 x 2.000	5.5	139.7
3.000 x 1.000	11.25	285.8
3.000 x 1.500	9.25	235.0
3.000 x 2.000	7.5	190.5
3.000 x 2.500	5.5	139.7
4.000 x 1.000	15.5	393.7
4.000 x 1.500	13.5	342.9
4.000 x 2.000	11.75	298.5
4.000 x 2.500	9.75	247.7
4.000 x 3.000	7.75	196.9
6.000 x 4.000	10.0	254.0



## B32 – Eccentric Reducer (TABLE DT-11)

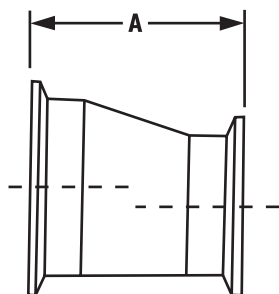
SIZE (inches) Diameter	A	
	in.	mm.
.375 x .250	4.0	101.6
.500 x .250	4.0	101.6
.500 x .375	4.0	101.6
.750 x .250	4.0	101.6
.750 x .375	4.0	101.6
.750 x .500	4.0	101.6
1.000 x .250	4.5	114.3
1.000 x .375	4.5	114.3
1.000 x .500	4.5	114.3
1.000 x .750	4.0	101.6
1.500 x .500	5.5	139.7
1.500 x .750	5.0	127.0
1.500 x 1.000	5.0	127.0
2.000 x .500	7.75	196.9
2.000 x .750	7.25	184.2
2.000 x 1.000	7.25	184.2
2.000 x 1.500	5.25	133.4
2.500 x .500	9.75	247.7
2.500 x .750	9.25	235.0
2.500 x 1.000	9.25	235.0
2.500 x 1.500	7.25	184.2
2.500 x 2.000	5.5	139.7
3.000 x 1.000	11.25	285.8
3.000 x 1.500	9.25	235.0
3.000 x 2.000	7.5	190.5
3.000 x 2.500	5.5	139.7
4.000 x 1.000	15.5	393.7
4.000 x 1.500	13.5	342.9
4.000 x 2.000	11.75	298.5
4.000 x 2.500	9.75	247.7
4.000 x 3.000	7.75	196.9
6.000 x 4.000	10.0	254.0

## B31CC – Concentric Reducer (TABLE DT-21)

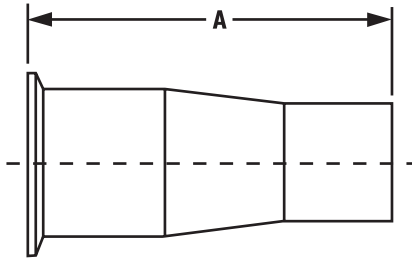


SIZE (inches) Diameter	A	
	in.	mm.
.750 x .500	2.0	50.8
1.000 x .500	2.5	63.5
1.000 x .750	2.0	50.8
1.500 x .500	3.5	88.9
1.500 x .750	3.0	76.2
1.500 x 1.000	3.0	76.2
2.000 x .500	5.5	139.7
2.000 x .750	5.0	127.0
2.000 x 1.000	5.0	127.0
2.000 x 1.500	3.0	76.2
2.500 x .500	7.5	190.5
2.500 x .750	7.0	177.8
2.500 x 1.000	7.0	177.8
2.500 x 1.500	5.0	127.0
2.500 x 2.000	3.0	76.2
3.000 x 1.000	9.0	228.6
3.000 x 1.500	7.0	177.8
3.000 x 2.000	5.0	127.0
3.000 x 2.500	3.0	76.2
4.000 x 1.000	13.125	333.4
4.000 x 1.500	11.125	282.6
4.000 x 2.000	9.12	231.7
4.000 x 2.500	7.12	180.9
4.000 x 3.000	5.12	130.1
6.000 x 4.000	7.63	193.8

## B32CC – Eccentric Reducer (TABLE DT-21)

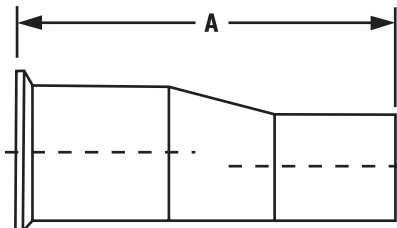


SIZE (inches) Diameter	A	
	in.	mm.
.750 x .500	2.0	50.8
1.000 x .500	2.5	63.5
1.000 x .750	2.0	50.8
1.500 x .500	3.5	88.9
1.500 x .750	3.0	76.2
1.500 x 1.000	3.0	76.2
2.000 x .500	5.5	139.7
2.000 x .750	5.0	127.0
2.000 x 1.000	5.0	127.0
2.000 x 1.500	3.0	76.2
2.500 x .500	7.5	190.5
2.500 x .750	7.0	177.8
2.500 x 1.000	7.0	177.8
2.500 x 1.500	5.0	127.0
2.500 x 2.000	3.0	76.2
3.000 x 1.000	9.0	228.6
3.000 x 1.500	7.0	177.8
3.000 x 2.000	5.0	127.0
3.000 x 2.500	3.0	76.2
4.000 x 1.000	13.125	333.4
4.000 x 1.500	11.125	282.6
4.000 x 2.000	9.12	231.7
4.000 x 2.500	7.12	180.9
4.000 x 3.000	5.12	130.1
6.000 x 4.000	7.63	193.8



## B31CW – Concentric Reducer (TABLE DT-26)

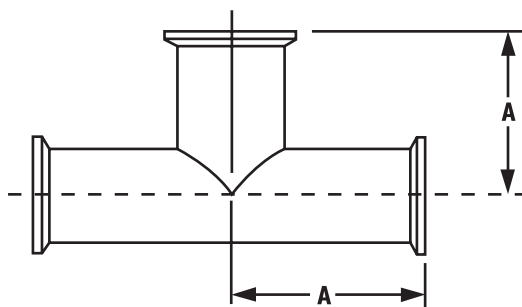
SIZE (inches) Diameter	A	
	in.	mm.
.750 x .500	3.0	76.2
1.000 x .500	3.5	88.9
1.000 x .750	3.0	76.2
1.500 x .500	4.5	114.3
1.500 x .750	4.0	101.6
1.500 x 1.00	4.0	101.6
2.000 x .500	6.5	165.1
2.000 x .750	6.0	152.4
2.000 x 1.000	6.0	152.4
2.000 x 1.500	4.0	101.6
2.500 x .500	8.5	215.9
2.500 x .750	8.0	203.2
2.500 x 1.000	8.0	203.2
2.500 x 1.500	6.0	152.4
2.500 x 2.00	4.25	107.9
3.000 x 1.000	10.0	254.0
3.000 x 1.500	8.0	203.2
3.000 x 2.000	6.25	158.8
3.000 x 2.500	4.25	107.9
4.000 x 1.000	14.125	358.8
4.000 x 1.500	12.125	308.0
4.000 x 2.000	10.375	263.5
4.000 x 2.500	8.375	212.7
4.000 x 3.000	6.375	161.9
6.000 x 4.000	9.0	228.6



## B32CW – Eccentric Reducer (TABLE DT-26)

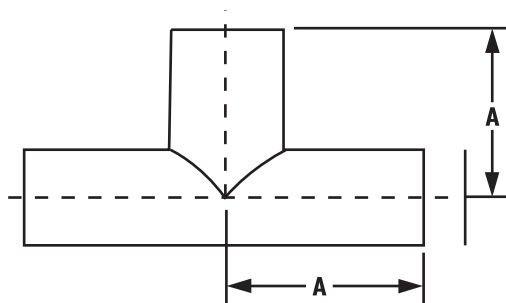
SIZE (inches) Diameter	A	
	in.	mm.
.750 x .500	3.0	76.2
1.000 x .500	3.5	88.9
1.000 x .750	3.0	76.2
1.500 x .500	4.5	114.3
1.500 x .750	4.0	101.6
1.500 x 1.00	4.0	101.6
2.000 x .500	6.5	165.1
2.000 x .750	6.0	152.4
2.000 x 1.000	6.0	152.4
2.000 x 1.500	4.0	101.6
2.500 x .500	8.5	215.9
2.500 x .750	8.0	203.2
2.500 x 1.000	8.0	203.2
2.500 x 1.500	6.0	152.4
2.500 x 2.00	4.25	107.9
3.000 x 1.000	10.0	254.0
3.000 x 1.500	8.0	203.2
3.000 x 2.000	6.25	158.8
3.000 x 2.500	4.25	107.9
4.000 x 1.000	14.125	358.8
4.000 x 1.500	12.125	308.0
4.000 x 2.000	10.375	263.5
4.000 x 2.500	8.375	212.7
4.000 x 3.000	6.375	161.9
6.000 x 4.000	9.0	228.6





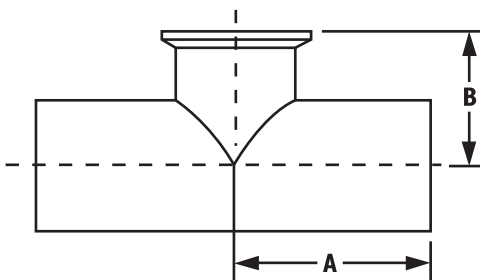
**B7MP – Tee** (TABLE DT-18)

SIZE (inches)	A	
	in.	mm.
.250	2.25	57.2
.375	2.25	57.2
.500	2.25	57.2
.750	2.375	60.3
1.000	2.625	66.7
1.500	2.875	73.0
2.000	3.375	85.7
2.500	3.625	92.1
3.000	3.875	98.4
4.000	4.75	120.7
6.000	7.13	181.0



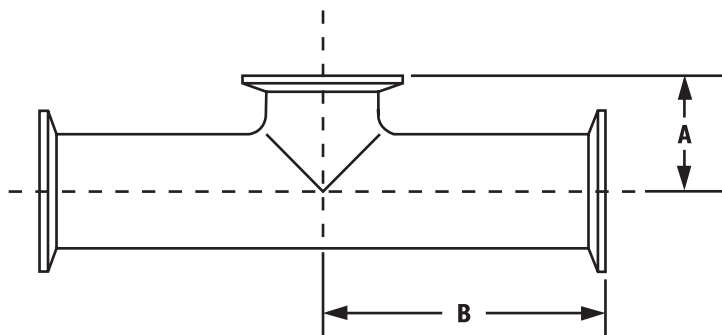
**B7WWW – Tee** (TABLE DT-9)

SIZE (inches)	A	
	in.	mm.
.250	1.75	44.5
.375	1.75	44.5
.500	1.875	47.6
.750	2.0	50.8
1.000	2.125	54.0
1.500	2.375	60.3
2.000	2.875	73.0
2.500	3.125	79.4
3.000	3.375	85.7
4.000	4.125	104.8
6.000	5.625	142.9



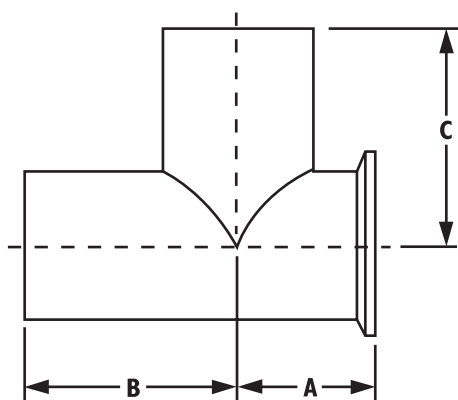
**B7WWS – Short Outlet** (TABLE DT-15)

SIZE (inches)	A		B	
	in.	mm.	in.	mm.
.250	1.75	44.5	1.0	25.4
.375	1.75	44.5	1.0	25.4
.500	1.875	47.6	1.0	25.4
.750	2.0	50.8	1.125	28.6
1.000	2.125	54.0	1.125	28.6
1.500	2.375	60.3	1.375	34.9
2.000	2.875	73.0	1.625	41.3
2.500	3.125	79.4	1.875	47.6
3.000	3.375	85.7	2.125	54.0
4.000	4.125	104.8	2.75	69.9
6.000	5.625	142.9	4.625	117.5



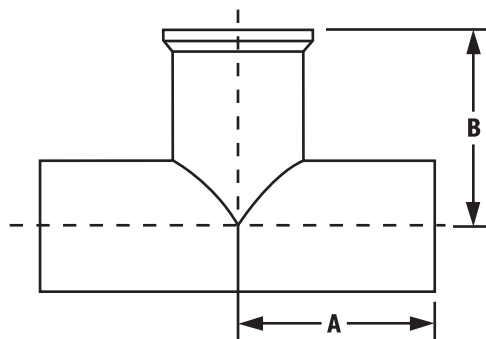
**B7MPS – Short Outlet** (TABLE DT-27)

SIZE (inches)	A		B	
	in.	mm.	in.	mm.
.500	1.000	25.4	2.250	57.2
.750	1.125	28.6	2.375	60.3
1.000	1.125	28.6	2.625	66.7
1.500	1.375	34.9	2.875	73.0
2.000	1.625	41.3	3.375	85.7
2.500	1.875	47.6	3.625	92.1
3.000	2.125	54.0	3.875	98.4
4.000	2.750	69.9	4.750	120.7
6.000	4.625	117.5	7.125	181.0



**B7WMSW – Tee** (TABLE DT-25)

SIZE (inches)	A		B		C	
	in.	mm.	in.	mm.	in.	mm.
.500	0.88	22.4	1.875	47.6	1.875	47.6
.750	1.0	25.4	2.0	50.4	2.0	50.4
1.000	1.125	28.5	2.125	53.9	2.125	53.9
1.500	1.375	35.1	2.375	60.3	2.375	60.3
2.000	1.625	41.2	2.875	73.0	2.875	73.0
2.500	1.875	47.8	3.125	79.4	3.125	79.4
3.000	2.125	53.9	3.375	85.7	3.375	85.7
4.000	2.75	69.9	4.125	104.8	4.125	104.8
6.000	4.625	117.5	5.625	142.9	5.625	142.9

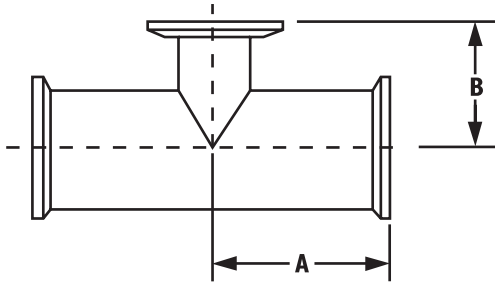


**B7WWM – Tee**

SIZE (inches)	A		B	
	in.	mm.	in.	mm.
.500	1.875	47.6	2.375	60.3
.750	2.0	50.8	2.5	63.5
1.000	2.125	54.0	2.625	66.7
1.500	2.375	60.3	2.875	73.0
2.000	2.875	73.0	3.375	85.7
2.500	3.125	79.4	3.625	92.1
3.000	3.375	85.7	3.875	98.4
4.000	4.125	104.8	4.75	120.7
6.000	5.625	142.9	7.125	181.0

# ASME - BPE Reducing Tees

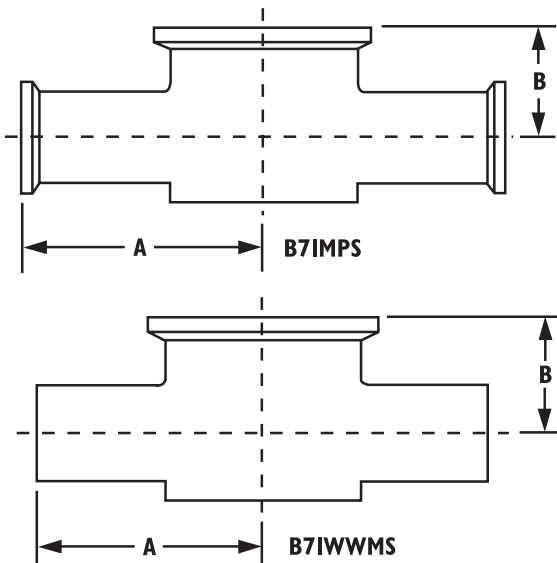
## B7RMP – Reducing Tee (TABLE DT-19)



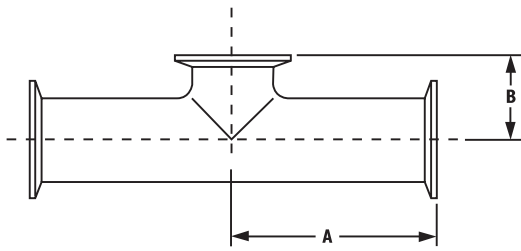
SIZE (inches) Diameter	A		B	
	in.	mm.	in.	mm.
.750 x .500	2.5	63.5	2.5	63.5
1.000 x .250	2.625	66.7	2.625	66.7
1.000 x .375	2.625	66.7	2.625	66.7
1.000 x .500	2.625	66.7	2.625	66.7
1.000 x .750	2.625	66.7	2.625	66.7
1.500 x .500	2.875	73.0	2.875	73.0
1.500 x .750	2.875	73.0	2.875	73.0
1.500 x 1.000	2.875	73.0	2.875	73.0
2.000 x .500	3.375	85.7	3.125	79.3
2.000 x .750	3.375	85.7	3.125	79.3
2.000 x 1.000	3.375	85.7	3.125	79.3
2.000 x 1.500	3.375	85.7	3.125	79.3
2.500 x .500	3.625	92.1	3.375	85.7
2.500 x .750	3.625	92.1	3.375	85.7
2.500 x 1.000	3.625	92.1	3.375	85.7
2.500 x 1.500	3.625	92.1	3.375	85.7
2.500 x 2.000	3.625	92.1	3.375	92.1
3.000 x .500	3.875	98.4	3.625	92.1
3.000 x .750	3.875	98.4	3.625	92.1
3.000 x 1.000	3.875	98.4	3.625	92.1
3.000 x 1.500	3.875	98.4	3.625	92.1
3.000 x 2.000	3.875	98.4	3.875	98.4
3.000 x 2.500	3.875	98.4	3.875	98.4
4.000 x .500	4.75	120.7	4.125	104.8
4.000 x .750	4.75	120.7	4.125	104.8
4.000 x 1.000	4.75	120.7	4.125	104.8
4.000 x 1.500	4.75	120.7	4.125	104.8
4.000 x 2.000	4.75	120.7	4.375	111.1
4.000 x 2.500	4.75	120.7	4.375	111.1
4.000 x 3.000	4.75	120.7	4.375	111.1
6.000 x 4.000	7.13	181.0	5.75	146.1

## B7IMPS – Clamp Instrument Tee (TABLE DT-29)

## B7IWWMS – Weld Instrument Tee (TABLE DT-28)

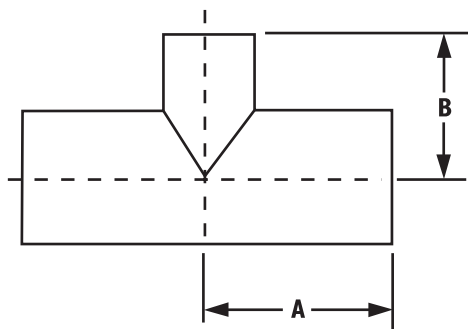


SIZE (inches)	Clamp - A		Weld - A		B	
	in.	mm.	in.	mm.	in.	mm.
.500 x 1.500	3.000	76.2	2.500	63.5	0.875	22.2
.750 x 1.500	3.000	76.2	2.500	63.5	1.000	25.4
1.000 x 1.500	3.000	76.2	2.500	63.5	1.125	28.6
.500 x 2.000	3.250	82.6	2.750	69.9	1.000	25.4
.750 x 2.000	3.250	82.6	2.750	69.9	1.125	28.6
1.000 x 2.000	3.250	82.6	2.750	69.9	1.250	31.8
1.500 x 2.000	3.250	82.6	2.750	69.9	1.500	38.1



**B7RMPS – Reducing Short Outlet** (TABLE DT-20)

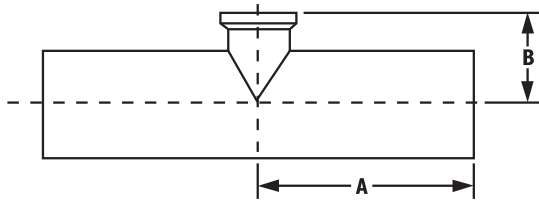
SIZE (inches) Diameter	A		B	
	in.	mm.	in.	mm.
.750 x .500	2.5	63.5	1.0	25.4
1.000 x .250	2.625	66.7	1.125	28.6
1.000 x .375	2.625	66.7	1.125	28.6
1.000 x .500	2.625	66.7	1.125	28.6
1.000 x .750	2.625	66.7	1.125	28.6
1.500 x .500	2.875	73.0	1.375	34.9
1.500 x .750	2.875	73.0	1.375	34.9
1.500 x 1.000	2.875	73.0	1.375	34.9
2.000 x .500	3.375	85.7	1.625	41.3
2.000 x .750	3.375	85.7	1.625	41.3
2.000 x 1.000	3.375	85.7	1.625	41.3
2.000 x 1.500	3.375	85.7	1.625	41.3
2.500 x .500	3.625	92.1	1.875	47.6
2.500 x .750	3.625	92.1	1.875	47.6
2.500 x 1.000	3.625	92.1	1.875	47.6
2.500 x 1.500	3.625	92.1	1.875	47.6
2.500 x 2.000	3.625	92.1	1.875	47.6
3.000 x .500	3.875	98.4	2.125	54.0
3.000 x .750	3.875	98.4	2.125	54.0
3.000 x 1.000	3.875	98.4	2.125	54.0
3.000 x 1.500	3.875	98.4	2.125	54.0
3.000 x 2.000	3.875	98.4	2.125	54.0
3.000 x 2.500	3.875	98.4	2.125	54.0
4.000 x .500	4.75	120.7	2.625	66.7
4.000 x .750	4.75	120.7	2.625	66.7
4.000 x 1.000	4.75	120.7	2.625	66.7
4.000 x 1.500	4.75	120.7	2.625	66.7
4.000 x 2.000	4.75	120.7	2.625	66.7
4.000 x 2.500	4.75	120.7	2.625	66.7
4.000 x 3.000	4.75	120.7	2.625	66.7
6.000 x 4.000	7.13	181.0	3.75	95.3



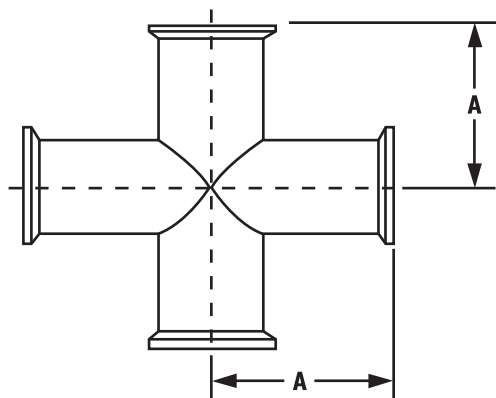
**B7RWWW – Reducing Tee** (TABLE DT-10)

SIZE (inches) Diameter	A		B	
	in.	mm.	in.	mm.
.750 x .500	2.0	50.8	2.0	50.8
1.000 x .250	2.125	54.0	2.125	54.0
1.000 x .375	2.125	54.0	2.125	54.0
1.000 x .500	2.125	54.0	2.125	54.0
1.000 x .750	2.125	54.0	2.125	54.0
1.500 x .500	2.375	60.3	2.375	60.3
1.500 x .750	2.375	60.3	2.375	60.3
1.500 x 1.000	2.375	60.3	2.375	60.3
2.000 x .500	2.875	73.0	2.625	66.7
2.000 x .750	2.875	73.0	2.625	66.7
2.000 x 1.000	2.875	73.0	2.625	66.7
2.000 x 1.500	2.875	73.0	2.625	66.7
2.500 x .500	3.125	79.4	2.875	73.0
2.500 x .750	3.125	79.4	2.875	73.0
2.500 x 1.000	3.125	79.4	2.875	73.0
2.500 x 1.500	3.125	79.4	2.875	73.0
2.500 x 2.000	3.125	79.4	2.875	73.0
3.000 x .500	3.375	85.7	3.125	79.4
3.000 x .750	3.375	85.7	3.125	79.4
3.000 x 1.000	3.375	85.7	3.125	79.4
3.000 x 1.500	3.375	85.7	3.125	79.4
3.000 x 2.000	3.375	85.7	3.125	79.4
3.000 x 2.500	3.375	85.7	3.125	79.4
4.000 x .500	4.125	104.8	3.625	92.1
4.000 x .750	4.125	104.8	3.625	92.1
4.000 x 1.000	4.125	104.8	3.625	92.1
4.000 x 1.500	4.125	104.8	3.625	92.1
4.000 x 2.000	4.125	104.8	3.875	98.4
4.000 x 2.500	4.125	104.8	3.875	98.4
4.000 x 3.000	4.125	104.8	3.875	98.4
6.000 x 4.000	5.625	142.9	5.125	130.2

## B7RWWMS – Reducing Tee (TABLE DT-14)

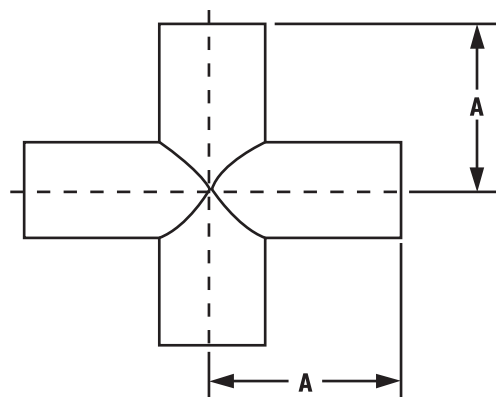


SIZE (inches) Diameter	A		B	
	in.	mm.	in.	mm.
.750 x .500	2.0	50.8	1.0	25.4
1.000 x .250	2.125	54.0	1.125	28.6
1.000 x .375	2.125	54.0	1.125	28.6
1.000 x .500	2.125	54.0	1.125	28.6
1.000 x .750	2.125	54.0	1.125	28.6
1.500 x .500	2.375	60.3	1.375	34.9
1.500 x .750	2.375	60.3	1.375	34.9
1.500 x 1.000	2.375	60.3	1.375	34.9
2.000 x .500	2.875	73.0	1.625	41.3
2.000 x .750	2.875	73.0	1.625	41.3
2.000 x 1.000	2.875	73.0	1.625	41.3
2.000 x 1.500	2.875	73.0	1.875	41.3
2.500 x .500	3.125	79.4	1.875	47.6
2.500 x .750	3.125	79.4	1.875	47.6
2.500 x 1.000	3.125	79.4	1.875	47.6
2.500 x 1.500	3.125	79.4	1.875	47.6
2.500 x 2.000	3.125	79.4	1.875	47.6
3.000 x .500	3.375	85.7	2.125	54.0
3.000 x .750	3.375	85.7	2.125	54.0
3.000 x 1.000	3.375	85.7	2.125	54.0
3.000 x 1.500	3.375	85.7	2.125	54.0
3.000 x 2.000	3.375	85.7	2.125	54.0
3.000 x 2.500	3.375	85.7	2.125	54.0
4.000 x .500	4.125	104.8	2.625	66.7
4.000 x .750	4.125	104.8	2.625	66.7
4.000 x 1.000	4.125	104.8	2.625	66.7
4.000 x 1.500	4.125	104.8	2.625	66.7
4.000 x 2.000	4.125	104.8	2.625	66.7
4.000 x 2.500	4.125	104.8	2.625	66.7
4.000 x 3.000	4.125	104.8	2.625	66.7
6.000 x 4.000	5.625	142.9	3.75	95.3



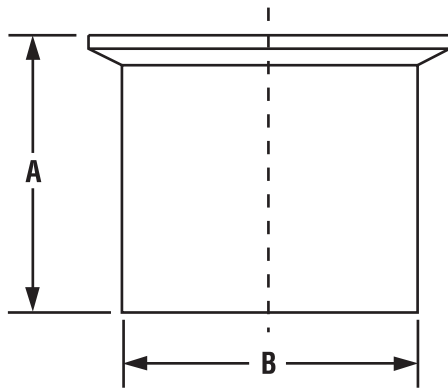
**B9MP – Cross** (TABLE DT-18)

SIZE (inches)	A	
	in.	mm.
.250	2.25	57.2
.375	2.25	57.2
.500	2.25	57.2
.750	2.375	60.3
1.000	2.625	66.7
1.500	2.875	73.0
2.000	3.375	85.7
2.500	3.625	92.1
3.000	3.875	98.4
4.000	4.75	120.7
6.000	7.13	181.0



**B9W – Cross** (TABLE DT-9)

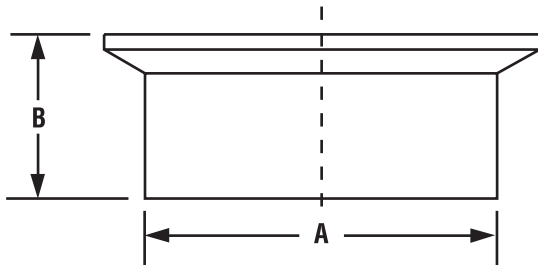
SIZE (inches)	A	
	in.	mm.
.250	1.75	44.5
.375	1.75	44.5
.500	1.875	47.6
.750	2.0	50.8
1.000	2.125	54.0
1.500	2.375	60.3
2.000	2.875	73.0
2.500	3.125	79.4
3.000	3.375	85.7
4.000	4.125	104.8
6.000	5.625	142.9



## B14A – Butt Welding Ferrule (TL14AM)

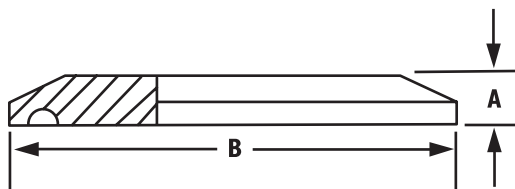
(TABLE DT-22)

SIZE A (inches)	B	
	in.	mm.
.250	1.75	44.5
.375	1.75	44.5
.500	1.75	44.5
.750	1.75	44.5
1.00	1.75	44.5
1.500	1.75	44.5
2.000	2.25	57.2
2.500	2.25	57.2
3.00	2.25	57.2
4.00	2.25	57.2
6.00	3.00	76.2



## 14WMP – Short Welding Ferrule

SIZE A (inches)	B	
	in.	mm.
.250	.500	44.5
.375	.500	44.5
.500	.500	44.5
.750	.500	44.5
1.00	.500	44.5
1.500	.500	44.5
2.000	.500	57.2
2.500	.500	57.2
3.000	.500	57.2
4.000	.625	57.2
6.000	.750	76.2

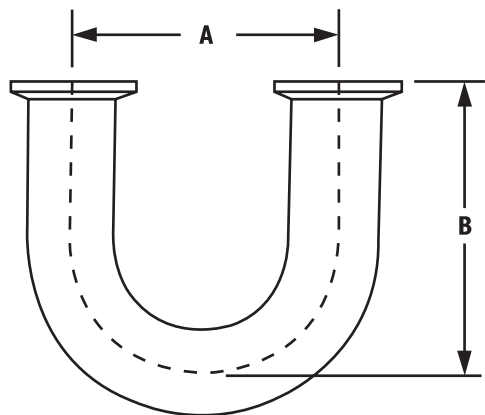


## B16AMP – Solid End Cap

SIZE (TUBE O.D.) (inches)	A (inches)	B (inches)
0.50 / .75	0.250	0.993
1.0 / 1.5	0.250	1.984
2.0	0.250	2.516
2.5	0.250	3.047
3.0	0.250	3.579
4.0	0.312	4.682
6.0	0.500	6.570

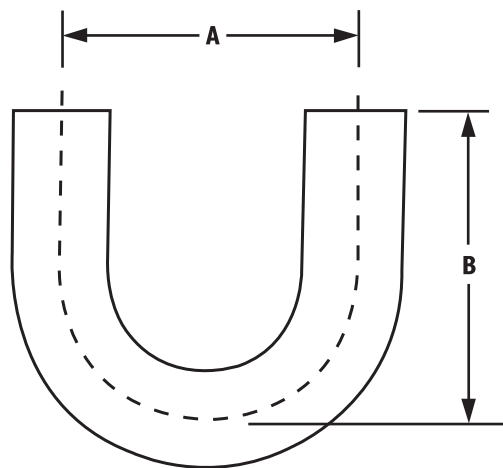


## B2UC – Hygienic Clamp Joint (TABLE DT-24)



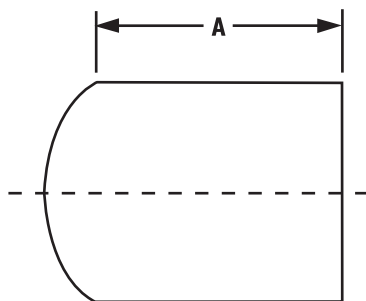
SIZE (inches)	A		B	
	in.	mm.	in.	mm.
.250	4.5	114.3	3.13	79.5
.375	4.5	114.3	3.13	79.5
.500	4.5	114.3	3.5	88.9
.750	4.5	114.3	3.5	88.9
1.000	4.5	114.3	3.5	88.9
1.500	6.0	152.4	5.0	127.0
2.000	6.0	152.4	5.5	139.7
2.500	7.5	190.5	6.5	165.1
3.000	9.0	228.6	7.0	177.8
4.000	12.0	304.8	9.125	231.8
6.000	18.0	457.2	13.0	330.2

## B2UW – Automatic Tube Weld (TABLE DT-23)

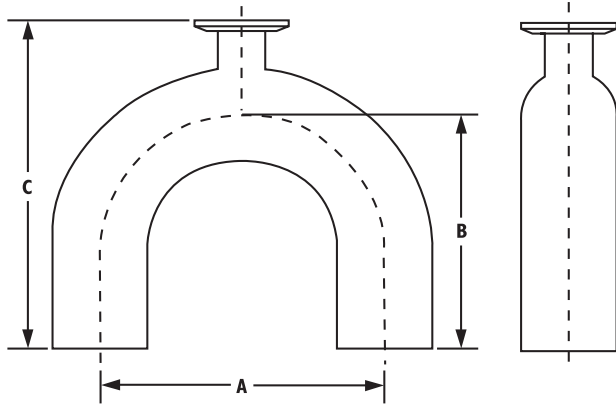


SIZE (inches)	A		B	
	in.	mm.	in.	mm.
.250	4.5	114.3	2.63	66.8
.375	4.5	114.3	2.63	66.8
.500	4.5	114.3	3.0	76.2
.750	4.5	114.3	3.0	76.2
1.000	4.5	114.3	3.0	76.2
1.500	6.0	152.4	4.5	114.3
2.000	6.0	152.4	5.0	127.0
2.500	7.5	190.5	5.75	146.1
3.000	9.0	228.6	6.5	165.1
4.000	12.0	304.8	8.5	215.9
6.000	18.0	457.2	11.5	292.1

## B16W – Automatic Weld Cap (TABLE DT-30)

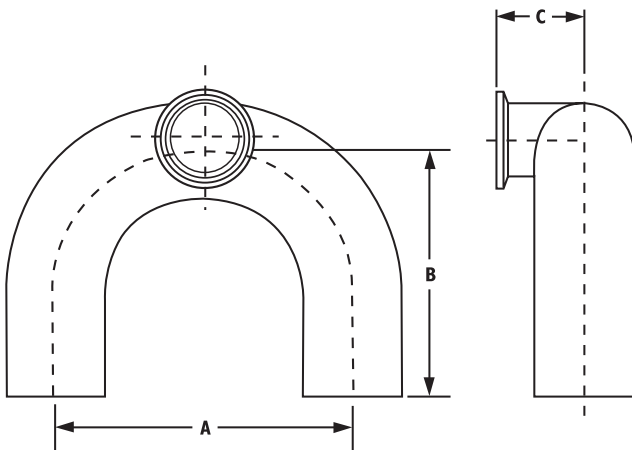


SIZE (inches)	A	
	in.	mm.
.500	1.500	38.1
.750	1.500	38.1
1.000	1.500	38.1
1.500	1.500	38.1
2.000	1.500	38.1
2.500	1.500	38.1
3.000	1.750	44.5
4.000	2.000	50.8
6.000	2.500	63.5



## B2UMPBOA – Bottom Outlet Drain

SIZE (inches)	A		B		C	
	in.	mm.	in.	mm.	in.	mm.
.500	4.5	114.3	3.5	88.9	3.781	96.0
.750	4.5	114.3	3.5	88.9	3.906	99.2
1.000	4.5	114.3	3.5	88.9	4.062	103.2
1.500	6.0	152.4	5.0	127.0	5.781	146.8
2.000	6.0	152.4	5.5	139.7	6.531	165.9
2.500	7.5	190.5	6.5	165.1	7.531	191.3
3.000	9.0	228.6	7.0	177.8	8.531	216.7
4.000	12.0	304.8	9.125	231.8	11.031	280.2
6.000	18.0	457.2	13.0	330.2		



## B2UMPSOA – Side Outlet Drain

SIZE (inches)	A		B		C	
	in.	mm.	in.	mm.	in.	mm.
.500	4.5	114.3	3.0	76.2	1.00	25.4
.750	4.5	114.3	3.0	76.2	1.125	28.6
1.000	4.5	114.3	3.0	76.2	1.250	31.8
1.500	6.0	152.4	4.5	114.3	1.500	38.1
2.000	6.0	152.4	5.0	127.0	1.750	44.5
2.500	7.5	190.5	5.75	146.1	2.00	50.8
3.000	9.0	228.6	6.5	165.1	2.250	57.2
4.000	12.0	304.8	8.5	215.9	2.750	69.9
6.000	18.0	457.2	11.5	292.1		

## Sanitary Stainless Product Family

Parker Sanitary Stainless offers a wide variety of sanitary flow components for use within the Food, Beverage, Dairy and Pharmaceutical processing industries. For additional information on any of the products shown below, contact your Parker distributor, or call 256-881-2040.



### Ball Valves

3-Piece full port ball valves come standard in 316 stainless and with PTFE cavity fillers. Valves may be ordered with customized Parker Actuation for a variety of product applications.



### Actuators

Parker offers a variety of actuation options for use with our sanitary processing valves. Products include pneumatic actuators, electric actuators and a wide range of control accessories.



### Check Valves

Disk-style check valves are machined from heat-traced 316L stainless, and feature sanitary clamp connections. EPDM gaskets are standard (Viton® and Silicone special order).



### Butterfly Valves

Butterfly valves will be available in both 4-position and 12-position handle configurations, and may be ordered with customized Parker Actuation. Several seat elastomers are available with platinum cured silicon standard.



### Sanitary Tubing

Sanitary tubing is manufactured in accordance with 3A or BPE standards. Tubing is available in a variety of polish configurations. Call your local Parker distributor for details on ordering.



### Sight Glasses

Sanitary sight glasses feature Pyrex glass and offer a visual inspection of product flow. Available in sanitary clamp and butt weld connections. Heat-traced 316L and EPDM gaskets are furnished as standard.



### Gaskets / O-Rings

Parker offers a wide variety of gaskets and o-rings in materials such as Buna, Silicon, PTFE, EPDM and more. Gaskets meet 3A and other regulatory standards.



### 4270 VFC Bulletin

For additional information on the full line of valve and flow components please request a copy of the 4270 VFC bulletin from Parker or your local distributor.

## Chemical Compatibility Polymer Reference Guide CODE: E=Excellent G=Good F=Fair NR=Not Recommended

POLYMER	Nitrile Elastomer	Fluoroelastomer	Platinum Cured Silicone Elastomer	Peroxide Cured Silicone Elastomer	Ethylene-Propylene Diene Monomer	PolyTetra Fluoro Ethylene	PolySteel Polymer
<b>CHARACTERISTICS</b>							
ASTM D-1418 Designation	NBR	FKM	VMQ	VMQ	EPDM	PTFE	PTFE/316L
Common Trade Names	Buna-N	Viton Fluorel	Silastic Elastosil	Silastic Elastosil	Dutral Nordel	Teflon	
Typical Hygienic Industry Designate	U	SFY	RXPX	X	EPDM	G	GTS
Hygienic Color Code	RED	Yellow & White	Remains Clear	Pink	Green X3	Remains White	Remains Grey
Specific Gravity (Polymer)	1	1.8	1.1	1.1	0.85	2.13	2.25
Hardness Shore A Durometer (S)	30 - 95	80 OR 75	80 OR 70	70	70	55-Shore D	65-Shore D
Maximum Tensile (P.S.I.)	3000	2000	1200	1200	2500	4000	4600
Heat Resistance Intermittent	240Deg F	410Deg F	580Deg F	540Deg F	300Deg F	450Deg F	578Deg F
Continuous	210Deg F	380Deg F	490Deg F	460Deg F	260Deg F	400Deg F	526Deg F
Low Temperature Resistance	-65	-20	-85	-95	-70	-350	-370
Abrasion Resistance	G	G	F	F	F	F	F
Ozone Resistance	NR	E	E	E	E	E	E
Radiation (Gamma) Resistance	G	F	F	F	E	E	E
Recovery after Distortion	G	G	G	G	F-G	NR	G
Tear Resistance HOT	F	F	F	F	F	E	E
Tear Resistance COLD	F	F	F	F	G	E	E
Acids, Dilute	G	E	G	G	G	E	E
Alkalies	G	G	E	E	E	E	E
Alcohol, Glycols	E	G	E	E	E	E	E
Animal Oils & Fat	E	E	G	G	F	E	E
Soaps, Bleaches, Detergents	F-G	G	F	F	E	E	E
Steam	F	F	G	G	E	G	E
Vegetable Oils	E	E	E	E	G	E	E
Water	G	E	F	F	E	E	E

### Clamp Service Rating Chart in PSI

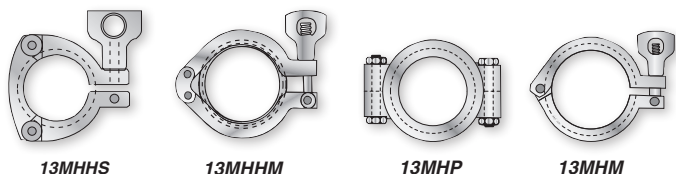
Size Tube OD	1/2" & 3/4"	1" & 1-1/2"	2"	2-1/2"	3"	4"	6"
<b>13MHHS - Screw tightened to maximum</b>							
at 70°F	—	600	550	450	350	350	—
at 250°F	—	300	275	225	175	175	—
<b>13HHM - Wing nut tightened to 25 in. lb. of torque</b>							
at 70°F	—	500	450	400	350	350	150
at 250°F	—	300	300	200	195	195	75
<b>13MHP - Bolts tightened to 20 ft. lb. of torque</b>							
at 70°F	2200	1500	1000	1000	1000	1000	300
at 250°F	1200	1200	800	800	800	800	200
<b>A13HHM - Wing nut tightened to 25 in. lb. of torque</b>							
at 70°F	—	500	450	400	350	350	150
at 250°F	—	300	250	200	175	175	75

\*PSI ratings based on hydrostatic test using standard gaskets molded from Buna-N. Ratings assume proper installation of ferrules, joint assembly and the absence of any shock pressure. Please contact Parker Hannifin for ratings at higher temperatures or utilizing other materials. For temperatures above 250° F, only 13MHP clamps are recommended.

### Dimensions of Clamp Connections for OD-Tubing

OD Outer Diameter (inches)	ID Inner Diameter (inches)	Wall Thickness (inches/gauge)	A Ferrule Face (inches)
1/4	0.35		
1/2	0.37	0.065 / 16ga.	0.984
3/4	0.62	0.065 / 16ga.	0.984
1	0.87	0.065 / 16ga.	1.984
1-1/2	1.37	0.065 / 16ga.	1.984
2	1.87	0.065 / 16ga.	2.516
2-1/2	2.37	0.065 / 16ga.	3.047
3	2.87	0.065 / 16ga.	3.579
4	3.87	0.083 / 14ga.	4.682
6		.109	

**For Surface Finish Chart, see page 3.**



The items described in this document and other documents or descriptions provided by Parker Hannifin Corporation, its subsidiaries and its authorized distributors are hereby offered for sale at prices to be established by Parker Hannifin Corporation, its subsidiaries and its authorized distributors. This offer and its acceptance by any customer ("Buyer") shall be governed by all of the following Terms and Conditions. Buyer's order for any such items, when communicated to Parker Hannifin Corporation, its subsidiary or an authorized distributor ("Seller") verbally or in writing, shall constitute acceptance of this offer.

**1. Terms and Conditions of Sale:** All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

**2. Payment:** Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that the Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

**3. Delivery:** Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

**4. Warranty:** Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from Parker Hannifin Corporation. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER.**

**ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. NOTWITHSTANDING THE FOREGOING, THERE ARE NO WARRANTIES WHATSOEVER ON ITEMS BUILT OR ACQUIRED WHOLLY OR PARTIALLY, TO BUYER'S DESIGNS OR SPECIFICATIONS.**

**5. Limitation of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.**

**6. Changes, Reschedules and Cancellations:** Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

**7. Special Tooling:** A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the notwithstanding any charges paid by Buyer. Unless otherwise agreed,

Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

**8. Buyer's Property:** Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property, Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

**9. Taxes:** Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

**10. Indemnity For Infringement of Intellectual Property Rights:** Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. Patents, U.S. Trademarks, copyrights, trade dress and trade secrets (hereinafter 'Intellectual Property Rights'). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights. If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

**11. Force Majeure:** Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter 'Events of Force Majeure'). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

**12. Entire Agreement/Governing Law:** The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

9/91-P

# Parker's Motion & Control Technologies

At Parker, we're guided by a relentless drive to help our customers become more productive and achieve higher levels of profitability by engineering the best systems for their requirements. It means looking at customer applications from many angles to find new ways to create value. Whatever the motion and control technology need, Parker has the experience, breadth of product and global reach to consistently deliver. No company knows more about motion and control technology than Parker. For further info call 1-800-C-Parker.



## AEROSPACE

### Key Markets

- Aircraft engines
- Business & general aviation
- Commercial transports
- Land-based weapons systems
- Military aircraft
- Missiles & launch vehicles
- Regional transports
- Unmanned aerial vehicles

### Key Products

- Flight control systems & components
- Fluid conveyance systems
- Fluid metering delivery & atomization devices
- Fuel systems & components
- Hydraulic systems & components
- Inert nitrogen generating systems
- Pneumatic systems & components
- Wheels & brakes



## CLIMATE CONTROL

### Key Markets

- Agriculture
- Air conditioning
- Food, beverage & dairy
- Life sciences & medical
- Precision cooling
- Processing
- Transportation

### Key Products

- CO<sub>2</sub> controls
- Electronic controllers
- Filter driers
- Hand shut-off valves
- Hose & fittings
- Pressure regulating valves
- Refrigerant distributors
- Safety relief valves
- Solenoid valves
- Thermostatic expansion valves



## ELECTROMECHANICAL

### Key Markets

- Aerospace
- Factory automation
- Life science & medical
- Machine tools
- Packaging machinery
- Paper machinery
- Plastics machinery & converting
- Primary metals
- Semiconductor & electronics
- Textile
- Wire & cable

### Key Products

- AC/DC drives & systems
- Electric actuators, gantry robots & slides
- Electrohydraulic actuation systems
- Electromechanical actuation systems
- Human machine interface
- Linear motors
- Stepper motors, servo motors, drives & controls
- Structural extrusions



## FILTRATION

### Key Markets

- Food & beverage
- Industrial machinery
- Life sciences
- Marine
- Mobile equipment
- Oil & gas
- Power generation
- Process
- Transportation

### Key Products

- Analytical gas generators
- Compressed air & gas filters
- Condition monitoring
- Engine air, fuel & oil filtration & systems
- Hydraulic, lubrication & coolant filters
- Process, chemical, water & microfiltration filters
- Nitrogen, hydrogen & zero air generators



## FLUID & GAS HANDLING

### Key Markets

- Aerospace
- Agriculture
- Bulk chemical handling
- Construction machinery
- Food & beverage
- Fuel & gas delivery
- Industrial machinery
- Mobile
- Oil & gas
- Transportation
- Welding

### Key Products

- Brass fittings & valves
- Diagnostic equipment
- Fluid conveyance systems
- Industrial hose
- PTFE & PFA hose, tubing & plastic fittings
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



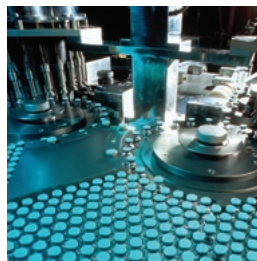
## HYDRAULICS

### Key Markets

- Aerospace
- Aerial lift
- Agriculture
- Construction machinery
- Forestry
- Industrial machinery
- Mining
- Oil & gas
- Power generation & energy
- Truck hydraulics

### Key Products

- Diagnostic equipment
- Hydraulic cylinders & accumulators
- Hydraulic motors & pumps
- Hydraulic systems
- Hydraulic valves & controls
- Power take-offs
- Rubber & thermoplastic hose & couplings
- Tube fittings & adapters
- Quick disconnects



## PNEUMATICS

### Key Markets

- Aerospace
- Conveyor & material handling
- Factory automation
- Life science & medical
- Machine tools
- Packaging machinery
- Transportation & automotive

### Key Products

- Air preparation
- Brass fittings & valves
- Manifolds
- Pneumatic accessories
- Pneumatic actuators & grippers
- Pneumatic valves & controls
- Quick disconnects
- Rotary actuators
- Rubber & thermoplastic hose & couplings
- Structural extrusions
- Thermoplastic tubing & fittings
- Vacuum generators, cups & sensors



## PROCESS CONTROL

### Key Markets

- Chemical & refining
- Food, beverage & dairy
- Medical & dental
- Microelectronics
- Oil & gas
- Power generation

### Key Products

- Analytical sample conditioning products & systems
- Fluoropolymer chemical delivery fittings, valves & pumps
- High purity gas delivery fittings, valves & regulators
- Instrumentation fittings, valves & regulators
- Medium pressure fittings & valves
- Process control manifolds



## SEALING & SHIELDING

### Key Markets

- Aerospace
- Chemical processing
- Consumer
- Energy, oil & gas
- Fluid power
- General industrial
- Information technology
- Life sciences
- Military
- Semiconductor
- Telecommunications
- Transportation

### Key Products

- Dynamic seals
- Elastomeric o-rings
- EMI shielding
- Extruded & precision-cut, fabricated elastomeric seals
- Homogeneous & inserted elastomeric shapes
- High temperature metal seals
- Metal & plastic retained composite seals
- Thermal management



ENGINEERING YOUR SUCCESS.

# Sales Offices Worldwide

## **Parker Hannifin Corporation**

Instrumentation Products Division  
1005 A Cleaner Way  
Huntsville, AL 35805  
USA  
phone 256 881 2040  
fax 256 8815072  
[www.parker.com/ipdus](http://www.parker.com/ipdus)

## **Parker Hannifin Corporation**

Instrumentation Products Division  
2651 Alabama Highway 21 North  
Jacksonville, AL 36265-681  
USA  
phone 256 435 2130  
fax 256 435 7718  
[www.parker.com/ipdus](http://www.parker.com/ipdus)

## **Parker Hannifin Corporation**

Instrumentation Products Division  
6575 Tram Road  
Beaumont, TX 77713  
USA  
phone 409 924 0300  
fax 409 924 0301  
[www.parker.com/ipdus](http://www.parker.com/ipdus)

## **Parker Hannifin plc**

Instrumentation Products Division  
Riverside Road  
Pottington Business Park  
Barnstaple, Devon EX31 1NP  
England  
phone +44 0 1271 313131  
fax +44 0 1271 373636  
email [ipd@parker.com](mailto:ipd@parker.com)  
[www.parker.com/ipd](http://www.parker.com/ipd)

---

Catalog 4270 June 2009 DP



Parker Hannifin Corporation  
**Instrumentation Products Division**  
1005 A Cleaner Way  
Huntsville, AL 35805  
phone 256 881 2040  
fax 256 881 5072  
[www.parker.com/ipdus](http://www.parker.com/ipdus)

Your Local Authorized Parker Distributor