

# Fittings and Tubing

## Low Pressure "Speedbite", Single Ferrule to 15,000 psi (1034 bar)

Includes Check Valves, Filters & Couplings



### Principle of Operation:

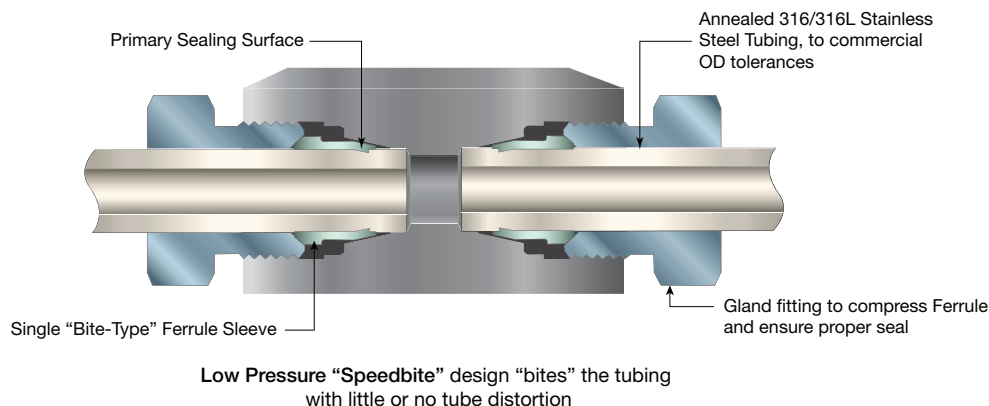
Parker Autoclave Engineers Low Pressure "Speedbite" and "Mini" Series fittings are designed to work with 10V/SW Series and Mini Series Low Pressure Valves as well as Low Pressure Tubing made of commercially sized 316/316L SS in the "Annealed" condition. Pressures to 15,000 psi and sizes from 1/16" to 1/2" are readily available.

The Speedbite connection is a single-ferrule bite-type compression fitting engineered for use with tubing designed by Parker Autoclave Engineers to a controlled hardness. Speedbite fittings employ a bite-type compression style single ferrule that is manually tightened.

### Low Pressure Fittings and Tubing Features:

- Single-ferrule compression sleeve connections for up to 15,000 psi MAWP
- Operating temperatures from -100°F (-73°C) to 650°F (343°C)
- Fast easy 1-1/4 turn make-up of connection
- Available sizes are 1/16", 1/8", 1/4", 3/8", and 1/2"
- Fittings manufactured in accordance with ASME B31.3 Chapter IX standards with UNS S31600/S31603 dual rated 316/316L material cold worked to Parker Autoclave proprietary standards (optional material available).
- Tubing manufactured to commercial OD tolerances ASTM A269 dual rated 316/316L material to a controlled hardness to facilitate proper ferrule bite.
- Molybdenum disulfide-coated gland nuts to prevent galling

All Parker Autoclave Engineers fittings are marked with manufacturers name, part number, material, heat code and maximum pressure for complete traceability.



ENGINEERING YOUR SUCCESS.

# Fittings and Tubing

Low Pressure Fittings - Pressures to 15,000 psi (1034 bar)



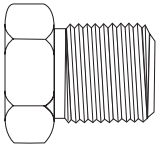
Each fitting or adapter use UNS S31600/31603 cold worked 316/316L Stainless Steel and are manufactured in accordance with ASME B31.3 Chapter IX standards. (Optional Materials available, contact factory for selection).

(See "Technical Brochure" for Pressure/Temperature effect on temperatures above ambient.)

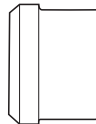
## Connection Components:

All valves and fittings are supplied complete with appropriate glands and compression sleeves. To order these components separately, use order numbers listed. When using plug, ferrule sleeve is not required. Tubing pressure caps can be found in Adapter Brochure.

**Gland**  
SMN ( )



**Ferrule Sleeve**  
SSL ( )



**Plug**  
SP ( )



( ) - Add Tube Size Code

- 1/8" - 20
- 1/4" - 40
- 3/8" - 60
- 1/2" - 80

1/16" tubing system components are available in the mini-fitting series starting on page 6. 1/16" tubing components can be used in 10V Series valves and fittings if required.

To ensure proper fit use Parker Autoclave Engineers tubing.

Example: 1/4" SW Series Gland - SMN40

Note: Special material glands are normally supplied with four flats in place of standard hex.

## NACE/ISO 15156 Compatibility

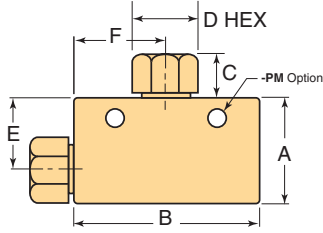
All PAE Low Pressure "Speedbite" Fittings and Tubing can be made with materials suitable for NACE/ISO 15156 requirements. As per NACE and ISO-15156, it is contingent on the end user to select this material. As this compatibility limits the use of "cold worked" materials, pressure reduction in MAWP can be expected. Please consult our Technical Brochure where we identify the more popular annealed materials along with the pressure reduction. Our Sour Oil and Gas brochure has a more complete description of the available options for pressures up to 30,000 psi.

NACE Suffix adder options:

"-SOG" suffix is used along with optional material to generate a hardness verification of pressure containing parts to generate a NACE certificate of compliance.

## Elbow

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F	G Thickness	
SL2200	W125	1/8 (3.18)	15,000 (1034)	.094 (2.39)	1.00 (24.40)	1.50 (38.10)	0.31 (7.87)	0.38 (9.53)	0.75 (19.05)	0.75 (19.05)	-	0.62 (15.75)
SL4400	SW250	1/4 (6.35)	15,000 (1034)	.188 (4.78)	1.38 (35.05)	2.00 (50.80)	0.44 (11.18)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)	-	0.75 (19.05)
SL6600	SW375	3/8 (9.53)	15,000 (1034)	.312 (7.92)	1.38 (35.05)	2.00 (50.80)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)	-	0.75 (19.05)
SL8800	SW500	1/2 (12.70)	10,000 (689)	.438 (11.13)	1.75 (44.45)	2.50 (63.50)	0.53 (13.46)	0.93 (23.62)	1.25 (31.75)	1.25 (31.75)	-	1.00 (25.40)



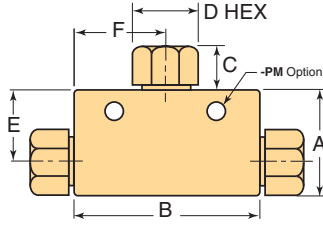
\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

For mounting hole option add suffix **PM** to catalog number. Consult factory for mounting hole dimensions.

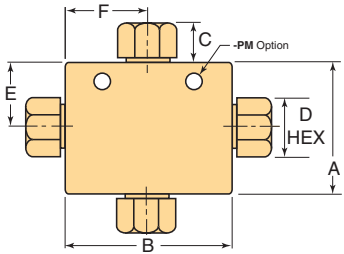
Elbow

## Tee

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F	G Thickness	
ST2220	W125	1/8 (3.18)	15,000 (1034)	.094 (2.39)	1.00 (24.40)	1.50 (38.10)	0.31 (7.87)	0.38 (9.53)	0.75 (19.05)	0.75 (19.05)	-	0.62 (15.75)
ST4440	SW250	1/4 (6.35)	15,000 (1034)	.188 (4.78)	1.38 (35.05)	2.00 (50.80)	0.44 (11.18)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)	-	0.75 (19.05)
ST6660	SW375	3/8 (9.53)	15,000 (1034)	.312 (7.92)	1.38 (35.05)	2.00 (50.80)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)	-	0.75 (19.05)
ST8880	SW500	1/2 (12.70)	10,000 (689)	.438 (11.13)	1.75 (44.45)	2.50 (63.50)	0.53 (13.46)	0.93 (23.62)	1.25 (31.75)	1.25 (31.75)	-	1.00 (25.40)
					<p>*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.</p> <p>For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.</p> <p>For mounting hole option add suffix <b>PM</b> to catalog number. Consult factory for mounting hole dimensions.</p>							
Tee												

## Cross

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F	G Thickness	
SX2222	W125	1/8 (3.18)	15,000 (1034)	.094 (2.39)	1.50 (38.10)	1.50 (38.10)	0.31 (7.87)	0.38 (9.53)	0.75 (19.05)	0.75 (19.05)	-	0.62 (15.75)
SX4444	SW250	1/4 (6.35)	15,000 (1034)	.188 (4.78)	2.00 (50.80)	2.00 (50.80)	0.44 (11.18)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)	-	0.75 (19.05)
SX6666	SW375	3/8 (9.53)	15,000 (1034)	.312 (7.92)	2.00 (50.80)	2.00 (50.80)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)	-	0.75 (19.05)
SX8888	SW500	1/2 (12.70)	10,000 (689)	.438 (11.13)	2.50 (63.50)	2.50 (63.50)	0.53 (13.46)	0.93 (23.62)	1.25 (31.75)	1.25 (31.75)	-	1.00 (25.40)



\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

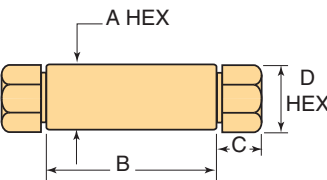
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

For mounting hole option add suffix **PM** to catalog number. Consult factory for mounting hole dimensions.

**Cross**

## Straight Coupling

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)						
					A	B	C	D Typical	E	F	G Thickness
15F2211	W125	1/8 (3.18)	15,000 (1034)	.094 (2.39)	0.50 (12.70)	1.25 (31.75)	0.31 (7.87)	0.38 (9.53)			-
6F4422	SW250	1/4 (6.35)	15,000 (1034)	.188 (4.78)	0.62 (15.75)	1.62 (41.15)	0.44 (11.18)	0.63 (15.88)			-
6F6622	SW375	3/8 (9.53)	15,000 (1034)	.312 (7.92)	0.75 (19.05)	0.75 (19.05)	0.53 (13.46)	0.75 (19.05)			-
4F8822	SW500	1/2 (12.70)	10,000 (689)	.438 (11.13)	1.00 (25.40)	2.00 (50.80)	0.53 (13.46)	0.93 (23.62)			-



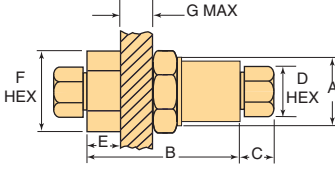
\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

For mounting hole option add suffix **PM** to catalog number. Consult factory for mounting hole dimensions.

**Straight Coupling**

## Bulkhead Coupling

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)						
					A	B	C	D Typical	E	F	G Thickness
15BF2211	W125	1/8 (3.18)	15,000 (1034)	.094 (2.39)	0.69 (17.53)	1.75 (44.45)	0.31 (7.87)	0.38 (9.53)	0.38 (9.53)	0.75 (19.05)	0.38 (9.53)
6BF4422	SW250	1/4 (6.35)	15,000 (1034)	.188 (4.78)	0.94 (23.88)	1.88 (47.75)	0.44 (11.18)	0.63 (15.88)	0.50 (12.70)	1.00 (25.403)	0.38 (9.53)
6BF6622	SW375	3/8 (9.53)	15,000 (1034)	.312 (7.92)	0.94 (23.88)	1.88 (47.75)	0.53 (13.46)	0.75 (19.05)	0.50 (12.70)	1.00 (25.403)	0.38 (9.53)
4BF8822	SW500	1/2 (12.70)	10,000 (689)	.438 (11.13)	1.12 (28.45)	2.38 (60.45)	0.53 (13.46)	0.93 (23.62)	0.78 (19.81)	1.38 (35.05)	0.38 (9.53)
					<p>*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.</p> <p>For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.</p> <p>For mounting hole option add suffix <b>PM</b> to catalog number. Consult factory for mounting hole dimensions.</p>						
<b>Bulkhead Coupling</b>											

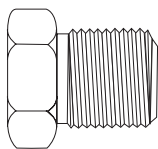
# Fittings and Tubing

Mini Series Fittings - Pressures to 15,000 psi (1034 bar)

## Connection Components:

All valves and fittings are supplied complete with appropriate glands and compression sleeves. To order these components separately, use order numbers listed. When using plug, ferrule sleeve is not required.

**Gland**  
SMN ( )

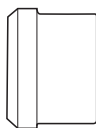


( ) - Add Tube Size Code

1/16" - 10  
1/8" - 20

Example:  
1/16" Gland Nut = SMN10

**Ferrule Sleeve**  
SSL ( )

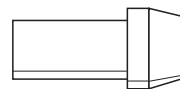


( ) - Add Tube Size Code

1/16" - 10  
1/8" - 20

Example:  
1/8" Ferrule Sleeve = SSL20

**Plug**  
SP ( )



( ) - Add Tube Size Code

1/16" - 10  
1/8" - 20

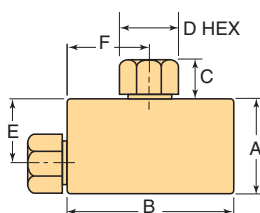
Example:  
1/8" Plug = SP20

**Note:** Special material glands are normally supplied with four flats in place of standard hex.

(See "Technical Brochure" for Pressure/Temperature effect on temperatures above ambient.)

## Mini Series Elbow

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F		
MLE1100	W062	1/16 (1.59)	15,000 (1034)	.055 (1.40)	1.00 (24.40)	1.00 (24.40)	0.31 (7.87)	0.38 (9.53)	0.69 (17.45)	0.69 (17.45)	-	0.56 (14.27)
MLE2200	W125	1/8 (3.18)	15,000 (1034)	.093 (2.36)	1.00 (24.40)	1.00 (24.40)	0.31 (7.87)	0.38 (9.53)	0.69 (17.45)	0.69 (17.45)	-	0.56 (14.27)



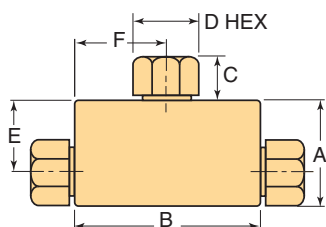
**Mini Series Elbow**

\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

## Mini Series Tee

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F		
MTE1110	W062	1/16 (1.59)	15,000 (1034)	.055 (1.40)	1.00 (24.40)	1.38 (34.93)	0.31 (7.87)	0.38 (9.53)	0.69 (17.45)	0.69 (17.45)	-	0.56 (14.27)
MTE2200	W125	1/8 (3.18)	15,000 (1034)	.093 (2.36)	1.00 (24.40)	1.38 (34.93)	0.31 (7.87)	0.38 (9.53)	0.69 (17.45)	0.69 (17.45)	-	0.56 (14.27)



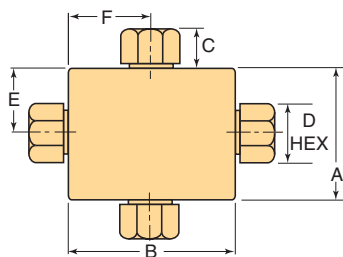
Mini Series Tee

\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

## Mini Series Cross

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F		
MXE1111	W062	1/16 (1.59)	15,000 (1034)	.055 (1.40)	1.38 (34.93)	1.38 (34.93)	0.31 (7.87)	0.38 (9.53)	0.69 (17.45)	0.69 (17.45)	-	0.56 (14.27)
MXE2222	W125	1/8 (3.18)	15,000 (1034)	.093 (2.36)	1.38 (34.93)	1.38 (34.93)	0.31 (7.87)	0.38 (9.53)	0.69 (17.45)	0.69 (17.45)	-	0.56 (14.27)



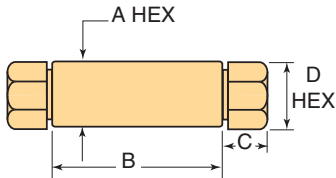
Mini Series Cross

\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

## Mini Series Straight Coupling

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Orifice inches (mm)	Dimensions - inches (mm)						
					A	B	C	D Typical	E	F	
MCE1110	W062	1/16 (1.59)	15,000 (1034)	.055 (1.40)	0.50 (12.70)	1.25 (31.75)	0.31 (7.87)	0.38 (9.53)			-
MCE2200	W125	1/8 (3.18)	15,000 (1034)	.093 (2.36)	0.50 (12.70)	1.25 (31.75)	0.31 (7.87)	0.38 (9.53)			-



\*Maximum pressure rating is based on the lowest rating of any component.

Actual working pressure may be determined by tubing pressure rating, if lower.

All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

**Mini Series Straight Coupling**



# Fittings and Tubing

## Low Pressure Tubing - Pressures to 15,000 psi (1034 bar)



Parker Autoclave Engineers offers a complete selection of annealed, seamless stainless steel tubing designed to match the performance standards of Parker Autoclave Low Pressure valves and fittings. This tubing is manufactured of UNS S316/ S31603, 316/316L Stainless Steel and furnished in random lengths between 20 feet (6 meters) and 26.5 feet (8 meters). In order to ensure proper sleeve “bite” into tubing, Parker Autoclave Engineers specifies and controls the strength and hardness levels of both the tube and sleeve materials.

### Inspection and Testing:

Parker Autoclave Engineers annealed low pressure tubing is inspected for compliance with specified defect restrictions as well as carburization or inter-granular carbide precipitation. The tubing outside diameter and wall thickness is controlled within close tolerance to assure proper fit. Sample pieces of tube (for each lot) are tested to confirm mechanical properties for proper compression sleeve “bite” and pressure capability. Furthermore, the sample tubes are pressure tested as a final check.

### Special Material:

In addition to the type 316/316L stainless steel tubing in the annealed condition listed in this section, Parker Autoclave Engineers has a limited stock of hard-to-obtain shorter lengths of the following tubing materials:

Monel\*, Inconel 600\*, Titanium Grade 2\*, Hastelloy C276\*, Inconel 625\*, and Incoloy 825\* (See Technical Catalog for additional information)

**Note:** \* Trademark names, Please consult factory for stock availability. NACE MR0175/ISO 15156 Options are available. Consult Factory.

### Tubing Tolerance:

Nominal Tubing Size inches	Tolerance/Outside Diameter inches (mm)
1/16	.064/.062 (1.62/1.57)
1/8	.128/.125 (3.25/3.18)
1/4	.254/.250 (6.45/6.35)
3/8	.379/.375 (9.74/9.53)
1/2	.505/.500 (12.83/12.70)

Tubing Details: 316/316L, UNS S31600/S31603 Stainless Steel (Annealed) to commercial OD sizing tolerances

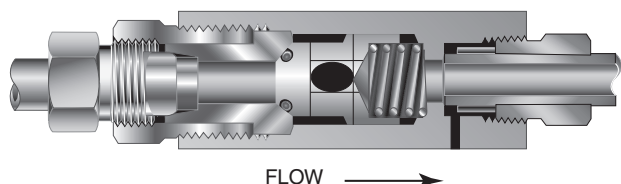
\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Catalog Number	Tube Material	Fits Connection Type	Tube Size inches (mm)			Flow Area in <sup>2</sup> (mm <sup>2</sup> )	Working Pressure psi (bar)*				
			Outside Diameter	Inside Diameter	Wall Thickness		-100 to 100°F (-73 to 37.8°C)	200°F (93°C)	400°F (204°C)	600°F (316°C)	650°F (343°C)
MS15-070	316SS	W062	1/16 (1.59)	0.026 (0.66)	.018 (0.45)	0.0005 (0.32)	15,000 (1034)	15,000 (1034)	14,400 (992)	13,600 (937)	12,600 (868)
MS15-200	316SS	W125	1/8 (3.18)	0.052 (1.32)	.036 (0.91)	0.002 (1.29)	15,000 (1034)	15,000 (1034)	14,400 (992)	13,600 (937)	12,600 (868)
MS15-051				0.062 (1.57)	.032 (0.81)	0.003 (1.94)	11,650 (803)	11,650 (803)	11,250 (715)	10,680 (730)	9,850 (630)
MS15-203	316SS	SW250	1/4 (6.35)	0.084 (2.13)	0.083 (2.11)	0.006 (3.87)	15,000 (1034)	15,000 (1034)	14,400 (992)	13,600 (937)	12,600 (868)
MS15-055				0.125 (3.18)	0.062 (1.57)	0.012 (7.74)	11,650 (8034)	11,650 (8034)	11,250 (775)	10,600 (730)	9,850 (679)
MS15-204	316SS	SW375	3/8 (9.53)	0.139 (3.53)	0.118 (3.00)	0.015 (9.79)	15,000 (1034)	15,000 (1034)	14,400 (992)	13,600 (937)	12,600 (868)
MS15-084				0.195 (4.95)	0.090 (2.29)	0.030 (19.40)	10,000 (690)	10,000 (690)	9,650 (665)	9,000 (620)	8,400 (580)
MS15-062				0.250 (6.35)	0.062 (1.57)	0.049 (31.61)	7,500 (517)	7,500 (517)	7,200 (496)	6,800 (468)	6,300 (434)
MS15-205	316SS	SW500	1/2 (12.70)	0.270 (6.86)	0.118 (3.00)	0.055 (35.48)	10,000 (689)	10,000 (689)	9,650 (665)	9,000 (620)	8,400 (579)
MS15-065				0.375 (9.53)	0.062 (1.57)	0.110 (70.97)	5,500 (379)	5,500 (379)	5,250 (361)	4,950 (341)	4,600 (317)

# Fittings and Tubing

**Low Pressure Check Valves** - Pressures to 15,000 psi (1034 bar)



**SWO Series O-Ring Check Valve**

Provide unidirectional flow and tight shut-off for liquids and gases with high reliability. When differential drops below cracking pressure, valve shuts off. **(Not for use as relief valve.)**

## Temperature Ranges:

Viton (FKM) O-ring (std.): 0° to 400°F (-18° to 204°C)  
 Buna-N O-ring (-**BO** suffix): 0° to 250°F (-18° to 121°C)  
 FFKM O-ring (-**KO** suffix): 30° to 500°F (-18° to 260°C)  
 PTFE O-ring (-**TO** suffix): -100° to 400°F (-73° to 204°C)  
 PTFE O-ring with Low Temp Spring (-**LTTO** suffix): to -100°F (-73°C)

**Cracking Pressure:** 20 psi (1.38 bar) ±30%. Springs for higher cracking pressures up to 100 psi available on special order for O-ring style check valves only.

**Installation:** Vertical or Horizontal as required. Flow Direction Arrow marked on valve body.

**CAUTION:** While testing has shown O-Rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling and age of the O-ring. FREQUENT INSPECTIONS SHOULD BE MADE to detect any deterioration, and O-rings replaced as required.

(See "Technical Brochure" for Pressure/Temperature effect on temperatures above ambient.)

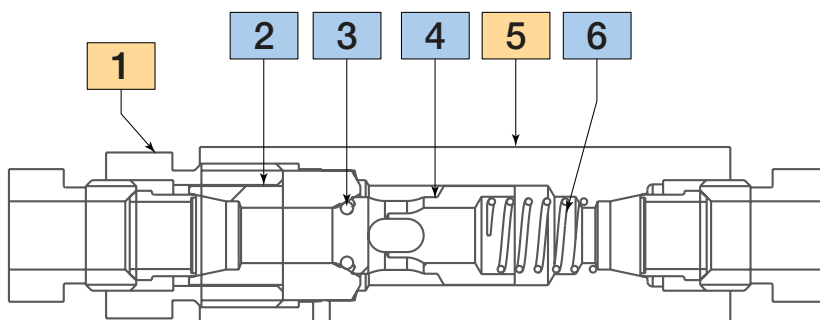
## Material of Construction:

Item #	Description	Material
1	Gland Nut	316 SS
2	Cover	316 SS
3	O-ring	FKM
4	Poppet	316 SS
5	Body	316 SS
6	Spring	302 SS

Typical spare parts found in Repair Kits

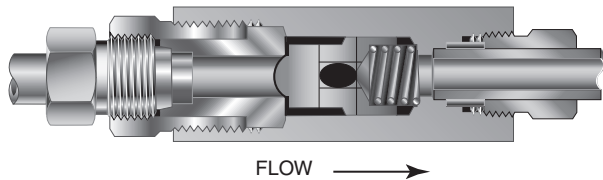
### O-Ring Check Valve Repair Kits:

Check Valves are easily repaired. Add "**R**" to front of valve catalog number for proper repair kit (example: RSWO8800)  
 See "Cover Torque" on page 14 for re-assembly. Include any catalog number suffix marked on original part when ordering repair kit.



# Fittings and Tubing

## Low Pressure Check Valves - Pressures to 15,000 psi (1034 bar)



**SWB Series Ball Check Valve**

Prevent reverse flow where leak-tight shut-off is not mandatory. When differential drops below cracking pressure, valve closes. With all-metal components, valve can be used up to 650°F (343°C). See Technical Information section for connection temperature limitations. **(Not for use as relief valve.)**

**Ball and poppet are an integral design** to assure positive, in-line seating without “chatter”. Poppet is designed essentially for axial flow with minimum pressure drop.

**Cracking Pressure:** 20 psi (1.38 bar) +/- 30%  
Optional cracking pressures **NOT** available in Ball Style Check Valves

**Temperature:** Minimum operating temperature for standard ball check valves 0°F (-17.8°C). For low temperature option to -100°F (-73°C) add suffix **LT** (Low temperature spring).

**Installation:** Vertical or Horizontal as required. Flow Direction Arrow marked on valve body.

**NOTE:** For optional material see Technical Brochure. Special material check valves are normally supplied with four flats in place of standard hex.

(See “Technical Brochure” for Pressure/Temperature effect on temperatures above ambient.)

## Material of Construction:

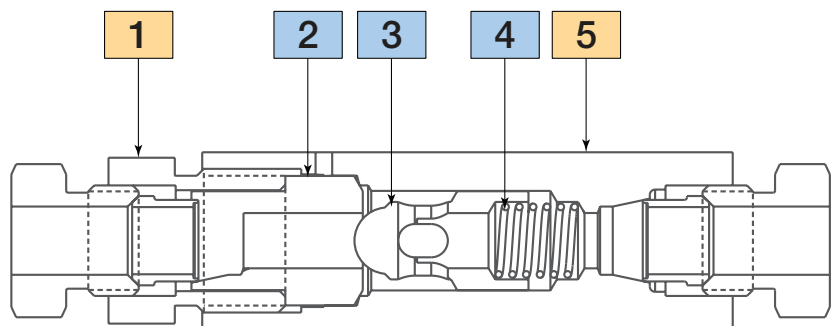
Item #	Description	Material
1	Gland Nut	316 SS
2	Cover	316 SS
3	Poppet	316 SS
4	Spring	302 SS
5	Body	316 SS

Typical spare parts found in Repair Kits

### Basic Ball Check Valve Repair Kits:

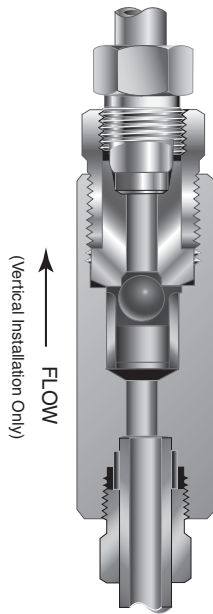
Check Valves are easily repaired. Add “**R**” to front of valve catalog number for proper repair kit (example: RSWB6600)

See “Cover Torque” on page 14 for re-assembly. Include any catalog number suffix marked on original part when ordering repair kit.



# Fittings and Tubing

**Low Pressure Check Valves** - Pressures to 15,000 psi (1034 bar)



**SWK Series Ball Type  
Excess Flow Valves**

Protects pressure gauges and pressure instrumentation from sudden surges in flow or venting in the event of line failure.

**Vertical Installation:** Since this type of check valve employs a non-spring loaded ball, valve **MUST** be installed in **VERTICAL** position with arrow on valve body pointing UP. (cover gland up).

**Resetting Valve:** Equalize the pressure across the ball. The ball will drop and reset automatically.

**Temperature:** Operating temperature for standard ball excess flow valves -100°F to 650°F (-73° to 343°C).

(See "Technical Brochure" for Pressure/Temperature effect on temperatures above ambient.)

## Material of Construction:

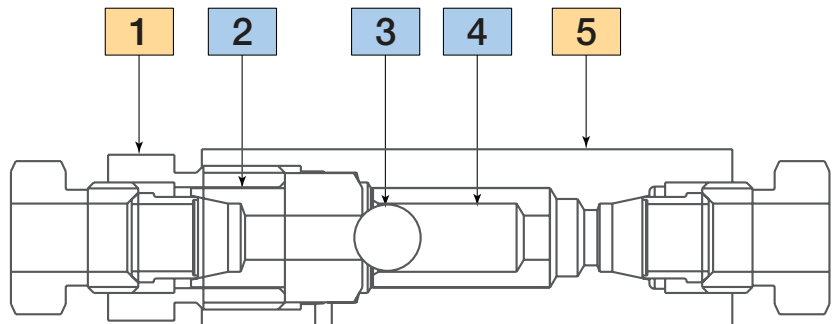
Item #	Description	Material
1	Gland Nut	316 SS
2	Cover	316 SS
3	Ball	302 SS
4	Sleeve	316 SS
5	Body	316SS

Typical spare parts found in Repair Kits

### Ball Type Excess Flow Repair Kits:

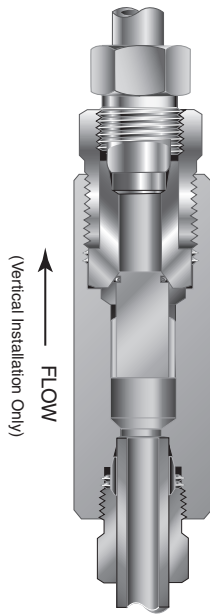
Excess Flow Valves are easily repaired. Add "**R**" to front of valve catalog number for proper repair kit. (example: RSWK8802)

See "Cover Torque" on page 14 for re-assembly. Include any catalog number suffix marked on original part when ordering repair kit.



# Fittings and Tubing

**Low Pressure Check Valves** - Pressures to 15,000 psi (1034 bar)



**SWKO Series O-Ring Type  
Excess Flow Valves**

Protects pressure gauges and other pressure instrumentation from sudden surges in flow due to operator error or line failure. This valve provides dependable, tight shut-off.

**Vertical Installation:** Since this type of check valve employs a non-spring loaded poppet, valve **MUST** be installed in **VERTICAL** position with arrow on valve body pointing UP. (cover gland up).

**Resetting Valve:** Equalize the pressure across the poppet. The poppet will drop and reset automatically.

## Temperature Ranges:

Viton (FKM) O-ring (std.): 0° to 400°F (-18° to 204°C)

Buna-N O-ring (-**BO** suffix): 0° to 250°F (-18° to 121°C)

PTFE O-ring (-**TO** suffix): -100° to 400°F (-73° to 204°C)

**CAUTION:** While testing has shown O-Rings to provide satisfactory service life, both cyclic and shelf life may vary widely with differing service conditions, properties of reactants, pressure and temperature cycling and age of the O-ring. **FREQUENT INSPECTIONS SHOULD BE MADE** to detect any deterioration, and O-rings replaced as required.

**CAUTION:** See Tubing section for proper selection of tubing.

(See “Technical Brochure” for Pressure/Temperature effect on temperatures above ambient.)

## Material of Construction:

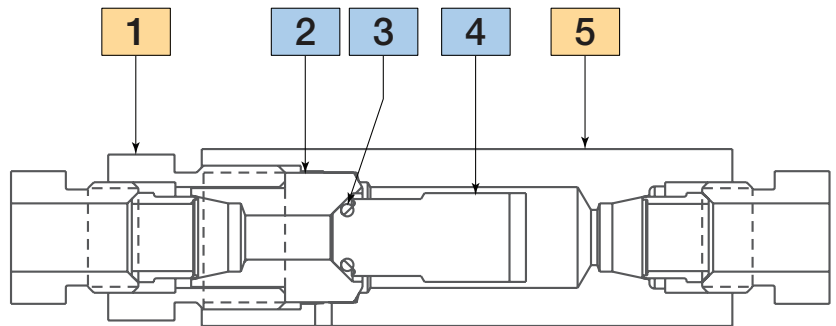
Item #	Description	Material
1	Gland Nut	316 SS
2	Cover	316 SS
3	O-Ring	FKM
4	Sleeve	316 SS
5	Body	316SS

Typical spare parts found in Repair Kits

### O-Ring Excess Flow Valve Repair Kits:

Excess Flow Valves are easily repaired. Add “**R**” to front of valve catalog number for proper repair kit (example: RSWKO6600)

See “Cover Torque” on page 14 for re-assembly. Include any catalog number suffix marked on original part when ordering repair kit.



## SWO O-Ring Check Valves

Catalog Number	Fits Connection Type	Pressure Rating psi (bar)*	Orifice inches (mm)	Rated Cv	Cover Torque ft.lb (Nm)	Dimensions - inches (mm)				
						A	B	C	D Typical	Hex
SWO2200	W125	15,000 (1034)	.094 (2.39)	.15	.20 (27)	2.25 (57.15)	1.88 (47.75)	0.31 (7.87)	0.38 (9.6)	0.63 (15.88)
SWO4400	SW250	15,000 (1034)	.188 (4.78)	.63	.20 (27)	3.18 (80.77)	2.56 (65.02)	0.44 (11.18)	0.63 (15.88)	0.81 (20.57)
SWO6600	SW375	15,000 (1034)	.250 (6.35)	1.70	.55 (75)	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
SWO8800	SW500	10,000 (689)	.375 (9.53)	3.40	.70 (95)	4.18 (106.17)	3.50 (89.90)	0.53 (13.46)	0.93 (23.62)	1.38 (35.05)

## SWB Ball Check Valves

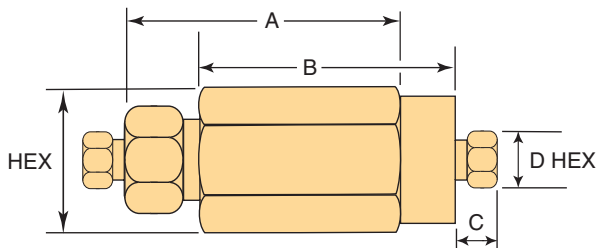
SWB2200	W125	15,000 (1034)	.094 (2.39)	.15	.20 (27)	2.25 (57.15)	1.88 (47.75)	0.31 (7.87)	0.38 (9.6)	0.63 (15.88)
SWB4400	SW250	15,000 (1034)	.188 (4.78)	.63	.45 (61)	3.18 (80.77)	2.56 (65.02)	0.44 (11.18)	0.63 (15.88)	0.81 (20.57)
SWB6600	SW375	15,000 (1034)	.250 (6.35)	1.70	.55 (75)	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
SWB8800	SW500	10,000 (689)	.375 (9.53)	3.40	.50 (68)	4.18 (106.17)	3.50 (89.90)	0.53 (13.46)	0.93 (23.62)	1.38 (35.05)

## SWK Ball Type Excess Flow Valves

SWK2202	W125	15,000 (1034)	.094 (2.39)	.12†	.20 (27)	2.25 (57.15)	1.88 (47.75)	0.31 (7.87)	0.38 (9.6)	0.63 (15.88)
SWK4402	SW250	15,000 (1034)	.188 (4.78)	.37†	.40 (54)	3.18 (80.77)	2.56 (65.02)	0.44 (11.18)	0.63 (15.88)	0.81 (20.57)
SWK6602	SW375	15,000 (1034)	.250 (6.35)	.104†	.80 (110)	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
SWK8802	SW500	10,000 (689)	.375 (9.53)	.212†	.50 (68)	4.18 (106.17)	3.50 (89.90)	0.53 (13.46)	0.93 (23.62)	1.38 (35.05)

## SWKO O-Ring Type Excess Flow Valves

SWKO4400	SW250	15,000 (1034)	.188 (4.78)	3††	.40 (54)	3.12 (79.25)	2.56 (65.02)	0.44 (11.18)	0.63 (15.88)	0.81 (20.57)
SWKO6600	SW375	15,000 (1034)	.250 (6.35)	5††	.40 (54)	3.50 (88.90)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
SWKO8800	SW500	10,000 (689)	.375 (9.53)	10††	.50 (68)	4.31 (109.47)	3.50 (89.90)	0.53 (13.46)	0.93 (23.62)	1.38 (35.05)



### Note:

All check valves are furnished complete with connection components unless otherwise specified.

† Check Flow\*\* - water, GPM

†† Check Flow\*\* - CFM, nitrogen @ 500 psi (34.47 bar), RT

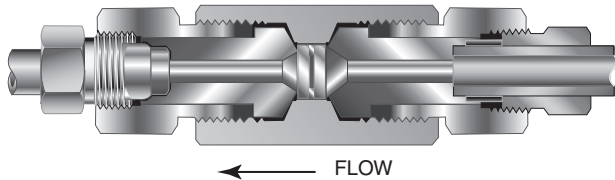
\*\* - For flow using alternate fluids, consult Parker Autoclave Engineers.

\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change. For prompt service, Parker Autoclave stocks select products. Consult your local representative.

### Check and Excess Flow Valves

# Fittings and Tubing

**Low Pressure Line Filter** - Pressures to 15,000 psi (1034 bar)



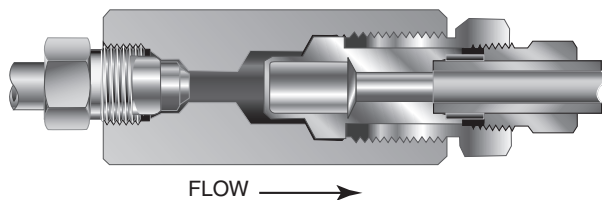
**SLF Series Dual Disc Line Filters**

Dual-Disc Line Filters are utilized in numerous industrial, chemical processing, aerospace, nuclear and other applications. With the dual-disc design, large contaminant particles are trapped by the upstream filter element before they can reach and clog the smaller micron-size downstream element. Filter elements can be easily replaced.

## Materials:

Body, Cover, and Gland Nut - CW 316/316L Stainless Steel

**Filter Element:** 316L Stainless Steel, Sintered Disc Type  
Downstream/upstream micron size 35/65 is standard. 5/10 or 10/35 also available when specified. Other element combinations available on special order.



**SWF Series Cup Type Line Filters**

High Flow Cup-Type Line Filters are recommended in low pressure systems requiring both high flow rates and maximum filter surface area. Widely used in the industrial and chemical processing fields, the cup design offers as much as six times the effective filter area as compared to disc-type units. In addition, the filter elements can be quickly and easily replaced.

## Materials:

Body, Cover, and Gland Nut - CW 316/316L Stainless Steel.

**Filter Element:** 316L Stainless Steel, Sintered Cup Type.  
Standard elements available in choice of 5, 35 or 65 micron sizes. **Note:** Filter ratings are nominal.

**Spare Parts:** Filter Elements are only replaceable part with either filter type. See chart on page 14 for Filter Element part numbers.

**Temperature Range:** Both Models -100° to 650°F (-73° to 343°C). (See "Technical Brochure" for Pressure/Temperature effect on temperatures above ambient.)

NOTE 1: All filters furnished complete with connection components unless otherwise specified. All dimensions for reference only and subject to change. For optional materials, see Needle Valve Options section

NOTE 2: Parker Autoclave Engineers disc and cup type filters are designed to filter small amounts of process particles. It is recommended that all fluids are thoroughly cleaned prior to entering the higher pressure system.

NOTE 3: Special material filters are normally supplied with four flats in place of standard hex.

NOTE 4: Pressure differential not to exceed 1,000 psi (69 bar) in a flowing condition. Filter replacement is recommended.

NOTE 5: Larger micron size filter element is installed on the upstream (inlet) side.

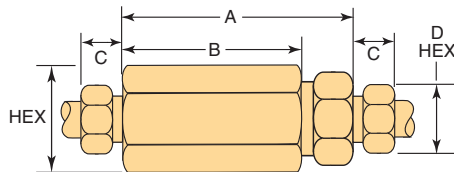
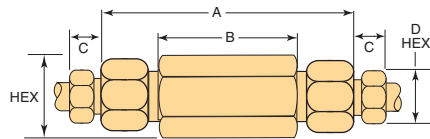


## SLF Dual Disc Line Filters

Catalog Number	Pressure Rating psi (bar)*	Orifice inches (mm)	Micron Size**	Replacement Filters P/N	Connection Size and Type	Effective Filter Elements Area in <sup>2</sup> (mm <sup>2</sup> )	Dimensions - inches (mm)				
							A	B	C	D Typical	Hex
SLF2200	15,000 (1034)	.094 (2.39)	35/65	65um=P-0562	W125	.06 (38.70)	2.31 (58.67)	1.25 (31.75)	0.31 (7.87)	0.38 (9.6)	0.62 (15.74)
SLF2200-5/10			5/10	35um=P-0870							
SLF2200-10/35			10/35	10um=P-1750 5um=P-1749							
SLF4400	15,000 (1034)	.125 (3.18)	35/65	65um=P-0650	SW250	.15 (96.77)	2.94 (75.56)	1.68 (42.67)	0.44 (11.17)	0.63 (15.88)	0.81 (20.57)
SLF4400-5/10			5/10	35um=P-0805							
SLF4400-10/35			10/35	10um=P-1785 5um=P-1650							
SLF6600	15,000 (1034)	.188 (4.78)	35/65	65um=P-0650	SW375	.15 (96.77)	2.94 (75.56)	1.68 (42.67)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
SLF6600-5/10			5/10	35um=P-0805							
SLF6600-10/35			10/35	10um=P-1785 5um=P-1650							
SLF8800	10,000 (689)	.250 (6.35)	35/65	65um=P-0764	SW500	.25 (161.29)	3.56 (90.42)	1.94 (49.27)	0.53 (13.46)	0.93 (23.62)	1.18 (29.97)
SLF8800-5/10			5/10	35um=P-0794							
SLF8800-10/35			10/35	10um=P-1784 5um=P-1783							

## SWF Cup Type Line Filters

SWF4-5	15,000 (1034)	.188 (4.78)	5	201A-2916	SW250	.81 (522.57)	3.18 (80.77)	2.56 (65.02)	0.44 (11.17)	0.63 (15.88)	0.81 (20.57)
SWF4-35			35	203A-2916							
SWF4-65			65	204A-2916							
SWF6-5	15,000 (1034)	.312 (7.92)	5	201A-2916	SW375	.81 (522.57)	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
SWF6-35			35	203A-2916							
SWF6-65			65	204A-2916							
SWF8-5	10,000 (689)	.438 (11.13)	5	205A-2916	SW500	1.53 (987.09)	3.18 (80.77)	2.56 (65.02)	0.53 (13.46)	0.93 (23.62)	1.38 (35.05)
SWF8-35			35	207A-2916							
SWF8-65			65	208A-2916							



\*\* Larger micron size filter element is installed on upstream (inlet) side. All filters furnished complete with connection components unless otherwise specified.

Other micron sizes available on special order. Change last digits of the catalog number accordingly. For optional materials, see Needle Valve Options section.

\*Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. All dimensions for reference only and subject to change.

For connection make-up instructions see "Tools and Installation" brochure.

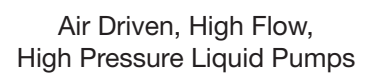
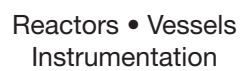
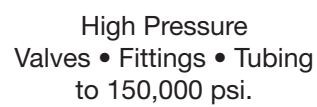
SLF Dual Disc Line Filters

SWF Cup Type Line Filters



## This image shows a full page of blank, lined paper. It features approximately 28 horizontal grey lines spaced evenly apart, typical of standard notebook paper. The lines extend across the entire width of the page, leaving small margins at the top and bottom. There are no vertical lines, text, or other markings present.

## This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



THIS IS PARKER

# 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 information call 1-800-C-Parker.

MARKET	KEY MARKETS		KEY PRODUCTS	
 <b>AEROSPACE</b>	Aircraft Engines Commercial Commerical Transports Military Aircraft Regional Transports	Business and General Aviation Land-Based Weapons Systems Missiles and Launch Vehicles Unmanned Aerial Vehicles	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
 <b>CLIMATE CONTROL</b>	Agriculture Food, Beverage and Dairy Precision Cooling Transportation	Air Conditioning Life Sciences & Medical Processing	Co2 Controls Electronic Controllers Filter Driers Hand Shut-Off Valves Hose & Fittings	Pressure Regulating Valves Refrigerant Distributors Safety Relief Valves Solenoid Valves Thermostatic Expansion Valves
 <b>ELECTRO-MECHANICAL</b>	Aerospace Life Science & Medical Packaging Machinery Plastics Machinery & Converting Semiconductor & Electronics Factory Automation	Machine Tools Paper Machinery Primary Metals Textile Wire & Cable	AC/DC Drives & Systems Electric Actuators, Gantry Robots & Slides Electrohydrostatic Actuation Systems Electromechanical Actuation Systems Human Machine Interface	Linear Motors Stepper Motors, Servo Motors Drives & Controls Structural Extrusions
 <b>FILTRATION</b>	Food & Beverage Life Sciences Mobile Equipment Power Generation Transportation	Industrial Machinery Marine Oil & Gas Process	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
 <b>FLUID and GAS HANDLING</b>	Aerospace Agriculture Bulk Chemical Handling Construction Machinery Food & Beverage Fuel & Gas Delivery	Industrial Machinery Mobile Oil & Gas Transportation Welding	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
 <b>HYDRAULICS</b>	Aerospace Aerial lift Agriculture Construction Machinery Forestry	Industrial Machinery Mining Oil & Gas Power Generation & Energy Truck Hydraulics	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
 <b>PNEUMATICS</b>	Aerospace Conveyor & Material Handling Factory Automation Life Science & Medical	Machine Tools Packaging Machinery Transportation & Automotive	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
 <b>PROCESS CONTROL</b>	Chemical & Refining Food, Beverage & Dairy Medical & Dental	Microelectronics Oil & Gas Power Generation	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
 <b>SEALING and SHIELDING</b>	Aerospace Chemical Processing Consumer Energy, Oil & Gas Fluid Power General Industrial	Information Technology Life Sciences Military Semiconductor Transportation	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

# Parker Worldwide

## North America

**USA** – Corporate, Cleveland, OH  
Tel: +1 256 896 3000

**USA** – IPD, Huntsville, AL  
Tel: +1 256 881 2040  
ipdcct@parker.com

**USA** – IPD, (Autoclave), Erie, PA  
Tel: +1 814 860 5700  
ipdaect@parker.com

**CA** – Canada, Grimsby, Ontario  
Tel: +1 905-945-2274  
ipd\_canada@parker.com

## South America

**AR** – Argentina, Buenos Aires  
Tel: +54 3327 44 4129  
falecom@parker.com

**BR** – Brazil, Diadema, SP  
Tel: +55 11 4360 6700  
falecom@parker.com

**CL** – Chile, Santiago  
Tel: +56 (0) 2 2303 9640  
falecom@parker.com

**MX** – Mexico, Toluca  
Tel: +52 722 275 4200  
contacto@parker.com

## Asia Pacific

**AU** – Australia, Dandenong  
Tel: +61 (0)2 9842 5150  
customer.service.au@parker.com

**CN** – China, Shanghai  
Tel: +86 21 2899 5000  
INGtechnical.china@parker.com

**HK** – Hong Kong  
Tel: +852 2428 8008

**IN** – India, Mumbai  
Tel: +91 22 6513 7081-85

**ID** – Indonesia, Tangerang  
Tel: +62 2977 7900  
parker.id@parker.com

**JP** – Japan, Tokyo  
Tel: +(81) 3 6365 4020  
infophj@parker.com

**KR** – South Korea, Seoul  
Tel: +82 2 559 0400  
parkerkr@parker.com

**MY** – Malaysia, Selangor  
Tel: +603 784 90 800  
parkermy@parker.com

**SG** – Singapore,  
Tel: +65 6887 6300  
parker.sg@parker.com

**TH** – Thailand, Bangkok  
Tel: +66 2 186 7000  
phthailand@parker.com

**TW** – Taiwan, Taipei  
Tel: +886 2 2298 8987  
enquiry.taiwan@parker.com

**VN** – Vietnam, Hochi Minh City  
Tel: +848 382 508 56  
parker\_viet@parker.com

## Europe, Middle East, Africa

**AE** – UAE, Dubai  
Tel: +971 4 812 7100  
parker.me@parker.com

**AT** – Austria, Wiener Neustadt  
Tel: +43 (0)2622 23501-0  
parker.austria@parker.com

**AT** – Eastern Europe, Wiener Neustadt  
Tel: +43 (0)2622 23501 900  
parker.easteurope@parker.com

**AZ** – Azerbaijan, Baku  
Tel: +994 50 2233 458  
parker.azerbaijan@parker.com

**BE/LU** – Belgium, Nivelles  
Tel: +32 (0)67 280 900  
parker.belgium@parker.com

**BG** – Bulgaria, Sofia  
Tel: +359 2 980 1344  
parker.bulgaria@parker.com

**BY** – Belarus, Minsk  
Tel: +48 (0)22 573 24 00  
parker.belarus@parker.com

**CH** – Switzerland, Etoy  
Tel: +41 (0) 21 821 87 00  
parker.switzerland@parker.com

**CZ** – Czech Republic, Klecany  
Tel: +420 284 083 111  
parker.czechrepublic@parker.com

**DE** – Germany, Kaarst  
Tel: +49 (0)2131 4016 0  
parker.germany@parker.com

**DK** – Denmark, Ballerup  
Tel: +45 43 56 04 00  
parker.denmark@parker.com

**ES** – Spain, Madrid  
Tel: +34 902 33 00 01  
parker.spain@parker.com

**FI** – Finland, Vantaa  
Tel: +358 (0)20 753 2500  
parker.finland@parker.com

**FR** – France, Contamine s/Arve  
Tel: +33 (0)4 50 25 80 25  
parker.france@parker.com

**GR** – Greece, Athens  
Tel: +30 210 933 6450  
parker.greece@parker.com

**HU** – Hungary, Budapest  
Tel: +36 223 885 470  
parker.hungary@parker.com

**IE** – Ireland, Dublin  
Tel: +353 (0)1 466 6370  
parker.ireland@parker.com

**IT** – Italy, Corsico (MI)  
Tel: +39 02 45 19 21  
parker.italy@parker.com

**KZ** – Kazakhstan, Almaty  
Tel: +7 7273 561 000  
parker.easteurope@parker.com

**NL** – The Netherlands, Oldenzaal  
Tel: +31 (0)541 585 000  
parker.nl@parker.com

**NO** – Norway, Stavanger  
Tel: +47 66 75 34 00  
parker.norway@parker.com

**PL** – Poland, Warsaw  
Tel: +48 (0)22 573 24 00  
parker.poland@parker.com

**PT** – Portugal, Leca da Palmeira  
Tel: +351 22 999 7360  
parker.portugal@parker.com

**RO** – Romania, Bucharest  
Tel: +40 21 252 1382  
parker.romania@parker.com

**RU** – Russia, Moscow  
Tel: +7 495 645-2156  
parker.russia@parker.com

**SE** – Sweden, Spånga  
Tel: +46 (0)8 59 79 50 00  
parker.sweden@parker.com

**SK** – Slovakia, Banská Bystrica  
Tel: +421 484 162 252  
parker.slovakia@parker.com

**SL** – Slovenia, Novo Mesto  
Tel: +386 7 337 6650  
parker.slovenia@parker.com

**TR** – Turkey, Istanbul  
Tel: +90 216 4997081  
parker.turkey@parker.com

**UA** – Ukraine, Kiev  
Tel: +48 (0)22 573 24 00  
parker.ukraine@parker.com

**UK** – United Kingdom, Warwick  
Tel: +44 (0)1926 317 878  
parker.uk@parker.com

**ZA** – South Africa, Kempton Park  
Tel: +27 (0)11 961 0700  
parker.southafrica@parker.com

## ! CAUTION !

Do not mix or interchange component parts or tubing with those of other manufacturers. Doing so is unsafe and will void warranty.

Parker Autoclave Engineers Valves, Fittings, and Tools are not designed to interface with common commercial instrument tubing and are designed to only connect with tubing manufactured to Parker Autoclave Engineers AES specifications. Failure to do so is unsafe and will void warranty.

## 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.

## Offer of Sale

The items described in this document are available for sale by Parker Hannifin Corporation, its subsidiaries or its authorized distributors. Any sale contract entered by Parker will be governed by the provisions stated in Parker's standard terms and conditions of sale (copy available upon request).



Instrumentation Products Division  
Autoclave Engineers Operation  
8325 Hessinger Drive  
Erie, PA 16509-4679  
Tel: 814 860 5700  
Fax: 814 860 5811  
[www.autoclave.com](http://www.autoclave.com)  
[www.parker.com/ipd](http://www.parker.com/ipd)

Instrumentation Products Division  
Division Headquarters  
1005 A Cleaner Way  
Huntsville, AL 35805 USA  
Tel: 256 881 2040  
Fax: 256 881 5072

Parker Hannifin Manufacturing Ltd.  
Instrumentation Products Division,  
Europe  
Riverside Road  
Pottington Business Park  
Barnstaple, UK, EX31 1NP, UK  
Tel: 44 1271 313131  
Fax: 44 1271 373636