



# QSS: Quick Set System

## Product Catalog

Compression Sleeve Valves and Fittings to 15,000 psi (1034 bar)

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



ENGINEERING YOUR SUCCESS.

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## QSS: Quick Set System - Bite-Type Compression Sleeve Connection System for Pressures to 15,000 psi.

### Safe, Reliable, Cost Effective

Parker Autoclave Engineers, the recognized world leading design and manufacturer of high pressure process instrumentation equipment to 150,000 psi (10342 bar) has engineered an advanced single bite-type compression sleeve fitting system called QSS (Quick Set System). Available for use with Cold Worked 1/8 hard Medium Pressure tubing sizes 1/4" through 1" O.D. and made from 316 SS, 2507® Super Duplex or Inconel 625™, this amazing tube and fitting system operates in all sizes - within these three material options - to 15,000 psi (1034 bar).

The single bite-type compression sleeve creates a uniform mechanical sealing surface not affected by surface scratches that can cause issues with more traditional dual ferrule compression type fittings while creating an “edge” that prevents tube extraction at these very high pressures. This vibration resistant design is capable of working in temperatures from -100° to 600°F (-73° to 316°C). The single piece design reduces the risk of lost ferrules, ferrule mix-up, vibration sensitivity, and multiple sealing points common to two-ferrule system.

In certain applications, the QSS sleeve-type fitting system can be an advantage for your installation. With only a wrench and/or torque wrench for the smaller sizes and our hydraulic set tool for the 9/16" size and up, only minimal training or knowledge is needed to create safe, resettable, tube end connections, reducing installation man hours by as much as 50% or more as compared to MP Cone and Thread designs.



# QSS: Quick Set System

## As SIMPLE as 1, 2, 3...

Assembly of Parker Autoclave Engineers' 1/4" and 3/8" QS Series fittings couldn't be more simple.

- 1) Slide on our inverted gland nut
- 2) Slide on our single ferrule
- 3) Insert into fitting body and tighten using the positioning mark on the outside of the gland nut for reference, from "wrench tight" turn 1 1/4" turns for full engagement.

**For sizes 9/16" and larger, our hydraulic QSS Set Tool is required to ensure a complete and superior tube seal on all tubing material options within this catalog.**

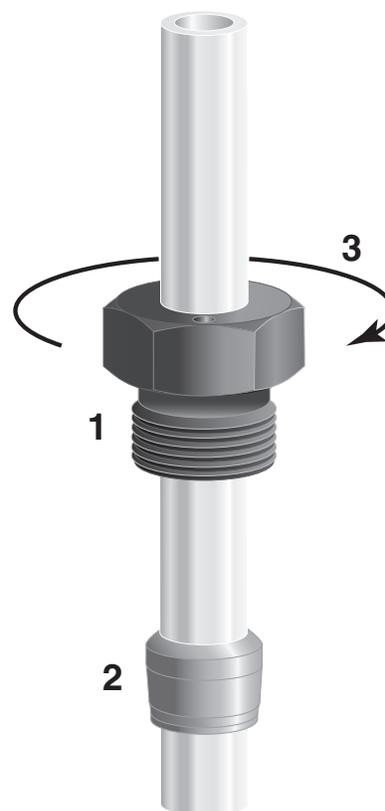
## Features

Proprietary single sleeve design provides superior tubing bite reducing failure from vibration

- Fewer parts to lose, reduced assembly errors
- Long tube-support area provides resistance to vibration and "tube stress"
- Components manufactured from either high strength cold worked 316 Stainless Steel, 2507<sup>®</sup> Super Duplex, or Inconel 625<sup>™</sup>.
- Molybdenum Disulfide coated gland nuts help prevent galling and allow for multiple remakes.

## Pressure Ratings

Pressure ratings for a fluid system are determined by the fitting or system component (including tubing) with the lowest pressure rating. Maximum pressure ratings are marked on all QS Series valves and fittings.



System Components Flow/Pressure			Working Pressure psi/bar**
Connection	Orifice Diameter in (mm)	Flow Area* in <sup>2</sup> (mm <sup>2</sup> )	@ Room Temperature
1/4"	0.109 (2.77)	0.009 (5.81)	15,000 (1034)
3/8"	0.203 (5.16)	0.032 (20.65)	15,000 (1034)
9/16"	0.359 (9.12)	0.101 (65.16)	15,000 (1034)
3/4"	0.516 (13.11)	0.209 (134.84)	15,000 (1034)
1"	0.688 (17.48)	0.371 (239.35)	15,000 (1034)

\* Flow area shown is minimum "system" flow area including tubing.

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

For operating temperatures over room temperature, see Parker Autoclave Engineers Technical Brochure for temperature compensation charts

# Needle Valves:

## QS Series Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave Engineers a reputation for reliable efficient product performance. Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, and oil and gas industries.

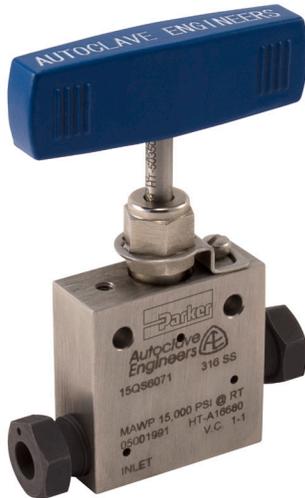
### Medium Pressure Valve Features:

- QS Bite-Type Compression Sleeve to 15,000 psi (1034 bar).
- Uses PAE Medium Pressure tubing in sizes 1/4" to 1.0".
- Cold worked 316 Stainless Steel as standard, 2507<sup>®</sup> Super Duplex, and Inconel 625<sup>™</sup> as options
- Operating temperature from -100°F (-73°C) to 600°F (315°C).
- Non-rotating stem prevents stem/seat galling.
- Anti-galling molybdenum disulfide coated gland nuts.
- Positioning mark included on 1/4" and 3/8" Gland nuts for manual assembly. (not needed if hydraulic set tool is used)
- Connection weep holes for safety and leak detection.
- Metal-to-metal seating achieves bubble-tight shut-off, longer stem/seat life in abrasive flow, greater durability for repeated on/off cycles and excellent corrosion resistance.
- PTFE encapsulated packing provides dependable stem and body sealing.
- Stem sleeve and packing gland materials have been selected to achieve extended thread cycle life and reduced handle torque.
- Choice of Vee or Regulating stem tip.
- Available in five body patterns.
- 1" valve bodies are 2507<sup>®</sup> Super Duplex

Parker Autoclave Engineers valves are complemented by a complete line of fittings, tubing, check valves and line filters. The QS Series uses Parker Autoclave Engineers' Quick Set compression sleeve design, providing fast easy make-up and reliable bubble-tight performance in liquid or gas service.

# Needle Valves:

**QS Series** Pressures to 15,000 psi (1034 bar)



Tube Outside Diameter Size inches	Connection Type	Orifice Size Inches (mm)	Rated Cv*	Pressure/Temperature Rating psi (bar) @ Room Temperature**
1/4	QS250	0.125 (3.18)	0.31	15,000 (1034)
3/8	QS375	0.219 (5.56)	0.75	15,000 (1034)
9/16	QS562	0.359 (9.12)	1.75	15,000 (1034)
3/4	QS750	0.516 (13.10)	2.80	15,000 (1034)
1	QS1000	0.688 (17.48)	5.20	15,000 (1034)

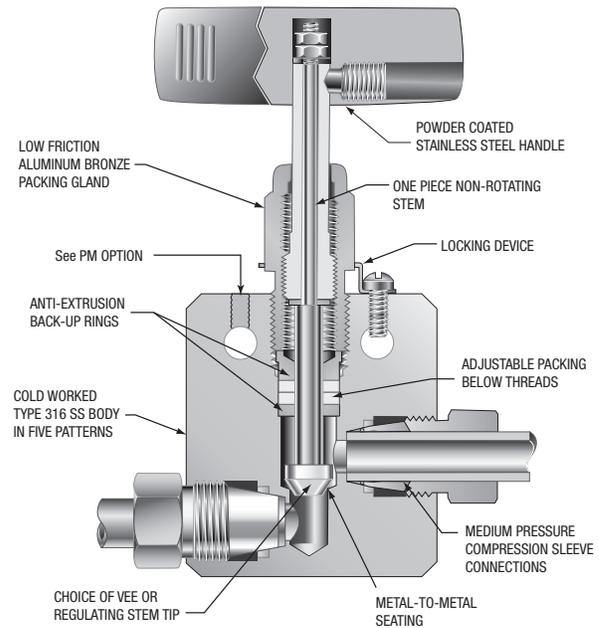
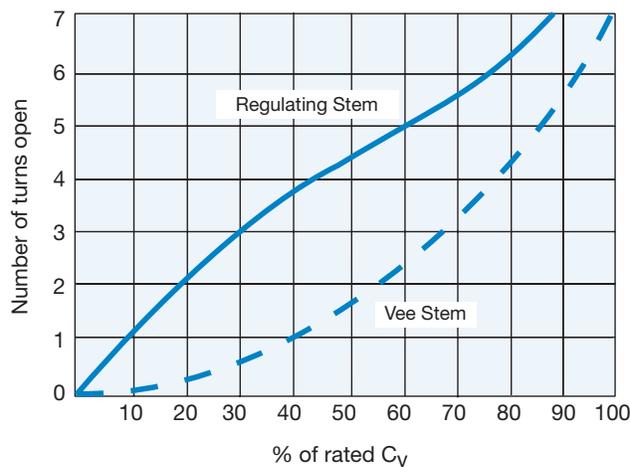
**Notes:**

\* Cv values shown are for 2-way straight valve pattern.

For 2-way angle patterns, increase Cv value 50% (Based on water)

\*\* For complete temperature ratings see pressure/temperature rating guide in Technical Information section.

## Generalized Flow Coefficient Curves (Cv)



To ensure proper fit use Parker Autoclave Engineers tubing

## Ordering Procedure

For complete information on available stem types, optional connections and additional valve options, see Needle Valve Options section or contact your Sales Representative. QS Series valves are furnished complete with connection components, unless otherwise specified.

Typical catalog number example: **15QS9071** (catalog number is created based on customer selection of product parameters, see below for example)

15QS	9	07	1	-	Options
Valve Series	Outside Diameter Tube size	Stem/Seat Type	Body Pattern		Options
15QS	4 = 1/4"	07 = Non-Rotating Vee Stem (on/off service)	1 = 2 way straight		For extreme temperature and other options, see Valve Options.  PM - Additional Screw Supplied
	6 = 3/8"	08 = Non-Rotating regulating stem (tapered tip for regulating and shutoff)	2 = 2 way angle		
	9 = 9/16"	87 = Vee Stem with replaceable seat	3 = 3 way, 2 on pressure		
	12 = 3/4"	87 = Regulating Stem with replaceable seat	4 = 3 way, 1 on pressure		
	16 = 1"		5 = 3 way, 2 stem manifold valve		

For valve options see next page

# Needle Valves:

## QS Series Pressures to 15,000 psi (1034 bar)

### Valve Options

#### Extreme Temperatures

Standard Parker Autoclave Engineers valves with PTFE packing may be operated to 450°F (232°C). High temperature packing and/or extended stuffing box are available for service from -100°F (-73°C) to 600°F (316°C) by adding the following suffixes to catalog order number.†

**TG** standard valve with PTFE glass packing to 600°F (316°C).

**GY** standard valve with graphite braided yarn packing to 600°F (316°C).

†Parker Autoclave Engineers does not recommend compression sleeve connections below -100°F (-73°C) or above 650°F (343°C). For additional valve options, contact your Sales Representative.

### Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog number for proper repair kit.  
(Example: **R15QS907**)

**Valve Bodies:** Replacement valve bodies are available. Order using the eight (8) digit part number found on the valve drawing or contact your Sales Representative for information.

Consult your Parker Autoclave Engineers representative for pricing on repair kits and valve bodies.

Catalog Number	Stem Type	Outside Dia. Tube	Orifice Dia.	Dimensions - inches (mm)												Block Thickness
				A	B	C	D	D <sub>1</sub>	E	F	G	G <sub>1</sub>	H*	M	N	
<b>2-Way Straight</b> (See Figure 1)																
15QS4071	VEE	1/4"	0.125	2.00	1.00	0.38	1.62	1.19	2.00	3.00	0.75	0.22	4.69	0.62	0.38	0.75
15QS4081	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.53)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(119.13)	(15.75)	(9.65)	(19.05)
15QS6071	VEE	3/8"	0.219	2.00	1.00	0.47	1.62	1.19	2.00	3.00	0.75	0.22	4.63	0.62	0.38	0.81
15QS6081	REG	(9.53)	(5.568)	(50.80)	(25.40)	(11.94)	(41.15)	(30.23)	(50.80)	(76.20)	(19.05)	(5.59)	(117.60)	(15.75)	(9.65)	(20.57)
15QS9071	VEE	9/16"	0.359	3.00	1.50	0.53	2.38	1.75	3.00	4.00	1.00	0.34	6.05	0.69	0.50	1.25
15QS9081	REG	(14.29)	(9.12)	(76.20)	(38.10)	(13.46)	(60.45)	(44.45)	(76.20)	(101.60)	(25.40)	(8.64)	(153.67)	(17.53)	(12.70)	(31.75)
15QS12071	VEE	3/4"	0.516	4.12	2.06	0.62	3.00	2.25	3.88	10.25	1.12	0.44	7.13	0.88	0.63	1.50
15QS12081	REG	(19.05)	(13.11)	(104.65)	(52.32)	(15.75)	(76.20)	(57.15)	(98.43)	(260.35)	(28.45)	(11.18)	(180.98)	(22.35)	(16.00)	(38.10)
15QS16071	VEE	1"	0.688	4.75	2.38	1.19	3.75	2.63	4.75	10.25	1.12	0.44	8.00	0.88	0.63	2.00
15QS16081	REG	(25.4)	(17.48)	(120.65)	(60.45)	(30.22)	(95.25)	(66.80)	(120.65)	(260.35)	(28.45)	(11.18)	(203.20)	(22.35)	(16.00)	(50.80)
<b>2-Way Angle</b> (See Figure 2)																
15QS4072	VEE	1/4"	0.125	2.00	1.00	0.38	1.19		2.44	3.00	0.75	0.22	4.81	0.62	0.38	0.75
15QS4082	REG	(6.35)	(3.18)	(50.80)	(25.40)	(9.53)	(41.15)		(61.98)	(76.20)	(19.05)	(5.59)	(122.17)	(15.75)	(9.65)	(19.05)
15QS6072	VEE	3/8"	0.219	2.00	1.00	0.47	1.20		2.56	3.00	0.75	0.22	4.93	0.62	0.38	0.81
15QS6082	REG	(9.53)	(5.568)	(50.80)	(25.40)	(11.94)	(30.48)		(65.02)	(76.20)	(19.05)	(5.59)	(125.22)	(15.75)	(9.65)	(20.57)
15QS9072	VEE	9/16"	0.359	3.00	1.50	0.53	1.69		3.50	4.00	1.00	0.34	6.55	0.69	0.50	1.25
15QS9082	REG	(14.29)	(9.12)	(76.20)	(38.10)	(13.46)	(42.88)		(88.90)	(101.60)	(25.40)	(8.64)	(166.37)	(17.53)	(12.70)	(31.75)
15QS12072	VEE	3/4"	0.516	4.12	2.06	0.62	2.19		4.63	10.25	1.12	0.44	7.88	0.88	0.63	1.50
15QS12082	REG	(19.05)	(13.11)	(104.65)	(52.32)	(15.75)	(55.58)		(117.48)	(260.35)	(28.45)	(11.18)	(200.15)	(22.35)	(16.00)	(38.10)
15QS16071	VEE	1"	0.688	4.75	2.38	1.19	3.75		5.38	10.25	1.12	0.44	8.63	0.88	0.63	2.00
15QS16081	REG	(25.4)	(17.48)	(120.65)	(60.45)	(30.22)	(95.25)		(136.65)	(260.35)	(28.45)	(11.18)	(219.20)	(22.35)	(16.00)	(50.80)

G - Packing gland mounting hole size

G<sub>1</sub> - Bracket mounting hole size

\* H Dimension is with stem in closed position.

\*\*1/8" straight and 3-Way/2 on pressure valves have offset tube connections

Panel mounting drill size: 0.22" all valves. 10-24 screw

For prompt service Parker Autoclave Engineers stock select products. Consult factory.

All Dimensions for reference only and are subject to change

Figure 1: 2-Way Straight

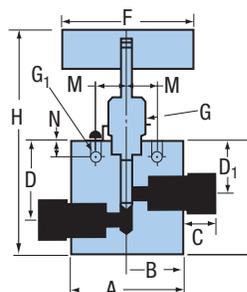
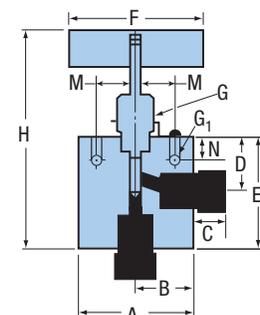


Figure 2: 2-Way Angle



# Needle Valves:

## QS Series Pressures to 15,000 psi (1034 bar)

Catalog Number	Stem Type	Outside Dia. Tube	Orifice Dia.	Dimensions - inches (mm)												Block Thickness
				A	B	C	D	D <sub>1</sub>	E	F	G	G <sub>1</sub>	H*	M	N	
<b>3-Way 2 on Pressure</b> (See Figure 3)																
15QS4073 15QS4083	VEE REG	1/4" (6.35)	0.125 (3.18)	2.00 (50.80)	1.00 (25.40)	0.38 (9.53)	1.62 (41.15)	1.19 (30.23)	2.63 (66.80)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	5.32 (135.13)	0.62 (15.75)	0.38 (9.65)	0.75 (19.05)
15QS6073 15QS6082	VEE REG	3/8" (9.53)	0.219 (5.568)	2.00 (50.80)	1.00 (25.40)	0.47 (11.94)	1.62 (41.15)	1.20 (30.48)	2.69 (68.33)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	5.32 (135.13)	0.62 (15.75)	0.38 (9.65)	0.81 (20.57)
15QS9073 15QS9083	VEE REG	9/16" (14.29)	0.359 (9.12)	3.00 (76.20)	1.50 (38.10)	0.53 (13.46)	2.38 (60.45)	1.69 (42.93)	3.94 (100.08)	4.00 (101.60)	1.00 (25.40)	0.34 (8.64)	6.99 (177.55)	0.69 (17.53)	0.50 (12.70)	1.25 (31.75)
15QS12073 15QS12083	VEE REG	3/4" (19.05)	0.516 (13.11)	4.12 (104.65)	2.06 (52.32)	0.62 (15.75)	3.00 (76.20)	2.19 (55.62)	5.12 (130.05)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	8.37 (212.60)	0.88 (22.35)	0.63 (16.00)	1.50 (38.10)
15QS16073 15QS16083	VEE REG	1" (25.4)	0.688 (17.48)	4.75 (120.65)	2.38 (60.45)	1.19 (30.23)	3.75 (95.25)	3.75 (95.25)	6.00 (150.40)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	9.25 (235.00)	0.88 (22.35)	0.63 (16.00)	2.00 (50.80)
<b>3-Way 1 on Pressure</b> (See Figure 4)																
15QS4074 15QS4084	VEE REG	1/4" (6.35)	0.125 (3.18)	2.00 (50.80)	1.00 (25.40)	0.38 (9.53)	1.19 (41.15)		2.44 (61.98)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	4.81 (122.17)	0.62 (15.75)	0.38 (9.65)	0.75 (19.05)
15QS6074 15QS6084	VEE REG	3/8" (9.53)	0.219 (5.568)	2.00 (50.80)	1.00 (25.40)	0.47 (11.94)	1.20 (30.48)		2.56 (65.02)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	4.93 (125.22)	0.62 (15.75)	0.38 (9.65)	0.81 (20.57)
15QS9074 15QS9084	VEE REG	9/16" (14.29)	0.359 (9.12)	3.00 (76.20)	1.50 (38.10)	0.53 (13.46)	1.69 (42.88)		3.50 (88.90)	4.00 (101.60)	1.00 (25.40)	0.34 (8.64)	6.55 (166.37)	0.69 (17.53)	0.50 (12.70)	1.25 (31.75)
15QS12074 15QS12084	VEE REG	3/4" (19.05)	0.516 (13.11)	4.12 (104.65)	2.06 (52.32)	0.62 (15.75)	2.19 (55.58)		4.63 (117.48)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	7.88 (200.15)	0.88 (22.35)	0.63 (16.00)	1.50 (38.10)
15QS16074 15QS16084	VEE REG	1" (25.4)	0.688 (17.48)	4.75 (120.65)	2.38 (60.45)	1.19 (30.23)	3.75 (95.30)		5.38 (136.65)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	8.63 (219.20)	0.88 (22.35)	0.63 (16.00)	2.00 (50.80)

G - Packing gland mounting hole drill size

G<sub>1</sub> - Bracket mounting hole size

\* H Dimension is with stem in closed position.

\*\*1/8" straight and 3-Way/2 on pressure valves have offset tube connections

Panel mounting drill size: 0.22" all valves. 10-24 screw

For prompt service Parker Autoclave Engineers stock select products. Consult factory.

All Dimensions for reference only and are subject to change

Figure 3: 3-Way 2 On Pressure

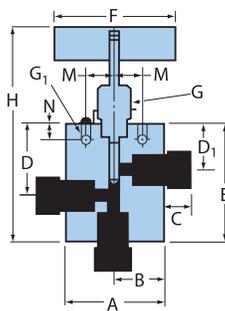
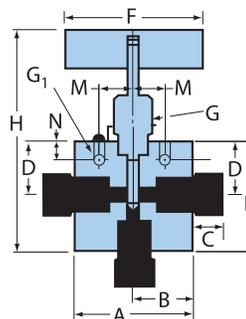


Figure 4: 3-Way 1 on Pressure



# Needle Valves:

## QS Series Pressures to 15,000 psi (1034 bar)

Catalog Number	Stem Type	Outside Dia. Tube	Orifice Dia.	Dimensions - inches (mm)												Block Thickness
				A	B	C	D	D <sub>1</sub>	E	F	G	G <sub>1</sub>	H*	M	N	
<b>2-Way Angle / Replaceable Seat</b> (See Figure 5)																
15QS4872 15QS4872	VEE REG	1/4" (6.35)	0.125 (3.18)	2.00 (50.80)	1.00 (25.40)	0.38 (9.53)	1.19 (30.23)	2.07 (52.58)	2.25 (57.15)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	5.66 (143.76)	0.62 (15.75)	0.38 (9.65)	0.75 (19.05)
15QS6873 15QS6882	VEE REG	3/8" (9.53)	0.219 (5.568)	2.00 (50.80)	1.00 (25.40)	0.47 (11.94)	1.20 (30.48)	2.14 (54.36)	2.25 (57.15)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	5.73 (145.54)	0.62 (15.75)	0.38 (9.65)	0.81 (20.57)
15QS9872 15QS9882	VEE REG	9/16" (14.29)	0.359 (9.12)	3.00 (76.20)	1.50 (38.10)	0.53 (13.46)	1.69 (42.92)	3.00 (76.20)	3.13 (79.50)	4.00 (101.60)	1.00 (25.40)	0.34 (8.64)	7.72 (196.09)	0.69 (17.53)	0.50 (12.70)	1.25 (31.75)
15QS12872 15QS12882	VEE REG	3/4" (19.05)	0.516 (13.11)	4.12 (104.65)	2.06 (52.32)	0.62 (15.75)	2.13 (54.10)	4.22 (107.19)	4.25 (107.95)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	9.60 (243.84)	0.88 (22.35)	0.63 (16.00)	1.50 (38.10)
15QS16872 15QS16882	VEE REG	1" (25.4)	0.688 (17.48)	4.75 (120.65)	2.38 (60.45)	1.19 (30.23)	3.75 (95.25)	4.91 (124.71)	5.25 (133.35)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	11.91 (302.51)	0.88 (22.35)	0.63 (16.00)	2.00 (50.80)
<b>3-Way / 2-Stem Manifold</b> (See Figure 6)																
15QS4075 15QS4085	VEE REG	1/4" (6.35)	0.125 (3.18)	2.00 (50.80)	1.00 (25.40)	0.38 (9.53)	1.69 (42.92)	1.19 (30.23)	3.38 (85.85)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	6.07 (154.18)	0.62 (15.75)	0.38 (9.65)	0.75 (19.05)
15QS6075 15QS6085	VEE REG	3/8" (9.53)	0.219 (5.568)	2.00 (50.80)	1.00 (25.40)	0.47 (11.94)	1.69 (42.92)	1.19 (30.23)	3.38 (85.85)	3.00 (76.20)	0.75 (19.05)	0.22 (5.59)	6.01 (152.65)	0.62 (15.75)	0.38 (9.65)	0.81 (20.57)
15QS9075 15QS9085	VEE REG	9/16" (14.29)	0.359 (9.12)	3.00 (76.20)	1.50 (38.10)	0.53 (13.46)	2.56 (65.02)	1.75 (44.45)	5.12 (130.05)	4.00 (101.60)	1.00 (25.40)	0.34 (8.64)	8.17 (207.52)	0.69 (17.53)	0.50 (12.70)	1.25 (31.75)
15QS12075 15QS12085	VEE REG	3/4" (19.05)	0.516 (13.11)	4.12 (104.65)	2.06 (52.32)	0.62 (15.75)	3.25 (82.55)	2.25 (57.15)	6.50 (165.10)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	9.75 (247.65)	0.88 (22.35)	0.63 (16.00)	1.50 (38.10)
15QS16075 15QS16085	VEE REG	1" (25.4)	0.688 (17.48)	4.75 (120.65)	2.38 (60.45)	1.19 (30.23)	3.75 (95.30)	2.63 (66.80)	7.50 (190.50)	10.25 (260.35)	1.12 (28.45)	0.44 (11.18)	10.75 (273.05)	0.88 (22.35)	0.63 (16.00)	2.00 (50.80)

G - Packing gland mounting hole drill size

G<sub>1</sub> - Bracket mounting hole size

\* H Dimension is with stem in closed position.

\*\*1/8" straight and 3-Way/2 on pressure valves have offset tube connections

Panel mounting drill size: 0.22" all valves. 10-24 screw

For prompt service Parker Autoclave Engineers stock select products. Consult factory.

All Dimensions for reference only and are subject to change

Figure 5: 2-Way Angle / Replaceable Seat

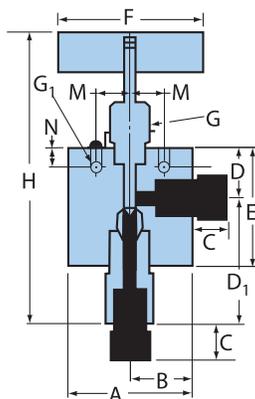
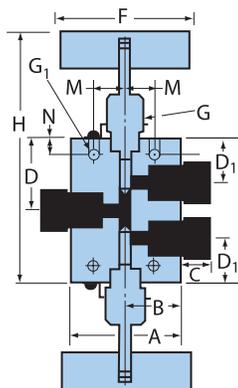


Figure 6: 3-Way / 2-Stem Manifold



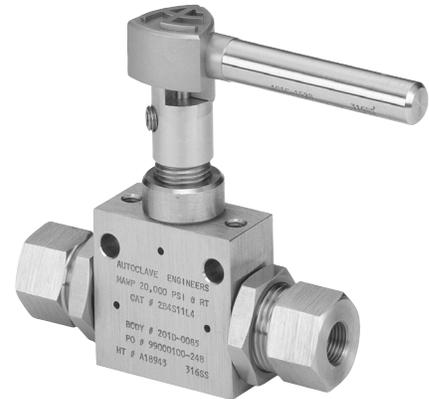
# Ball Valves: QS Series

## 2-Way Pressures to 15,000 psi (1034 bar)

Parker Autoclave Engineers high-pressure ball valves have been designed to provide superior quality for maximum performance within a variety of valve styles, sizes, and process connections. Some of the more unique design innovations include an integral one-piece trunnion mounted style ball and stem that eliminates the shear failure common in two piece designs, re-torqueable seat glands that result in longer seat life, and a low friction stem seal that reduces actuation torque and enhances cycle life.

These ball valves can also be modified to incorporate the use of special materials, seals for high temperature applications, subsea models, and valve actuators.

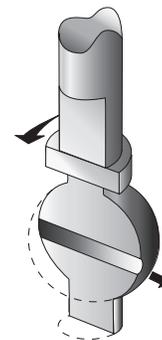
When it comes to high-pressure applications, these ball valves with the associated high-pressure components, provide the critical performance demanded by the high pressure market.



### PAE 2-Way Ball Valve Features:

- One-piece, trunnion mounted style, stem design eliminates shear failure and reduces the effects of side loading found in two piece designs.
- Re-torqueable seat glands for longer seat life.
- PEEK seats offer excellent resistance to chemicals, heat, and wear/abrasion.
- Full-port flow path minimizes pressure drop.
- 316 cold worked stainless steel valve construction.
- Low friction pressure assisted graphite filled PTFE stem seal increases cycle life and reduces operating torque.
- Quarter turn from open to close with positive stop.
- Viton o-rings for operation from 0°F (-17.8°C) to 400°F (204°C)
- Optional o-rings available for high-temperature applications to 500°F maximum.
- Electric and pneumatic actuator options.
- Cold worked 316 Stainless Steel as standard, 2507® Super Duplex, and Inconel 625™ as options

### Flow Configuration



Two-Way  
Shut-Off

### Applications:

- Laboratories
- Test Stands
- Control Panels
- Chemical Research
- Pilot Plants
- Water Blasting Pumping Units
- High Volume Chemical Injection Skids

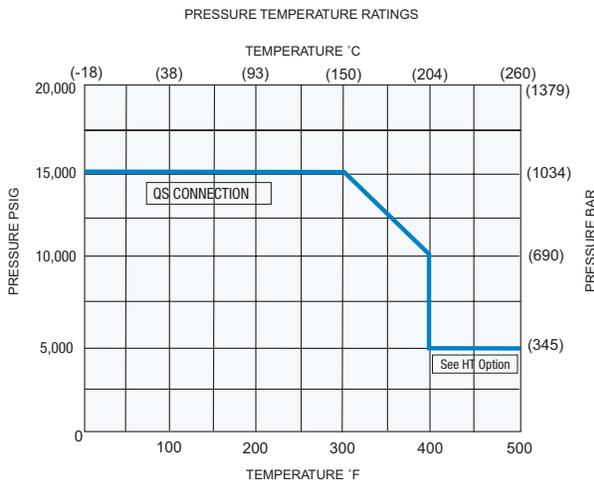
# Ball Valves: QS Series

1/4" 2-Way .250" (6.35mm) Orifice • Pressures to 15,000 psi (1034 bar)

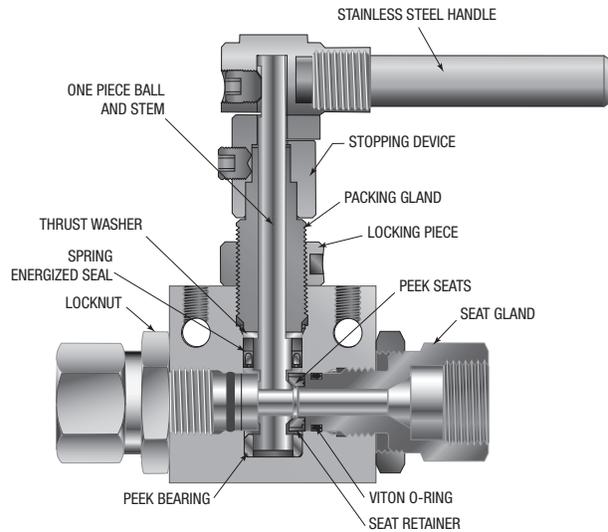
Connection	MAWP@ Room Temperature	Minimum Orifice inches (mm)
QS250	15,000 (1034)	.157 (3.99)
QS375	15,000 (1034)	.250 (6.35)
Valve C <sub>v</sub> = 1.51		
MAWP: Maximum Allowable Working Pressure C <sub>v</sub> listed is for maximum orifice size of .250 inches only. Consult factory for C <sub>v</sub> of valves with reduced orifice sizes.		



## Pressure/Temperature Chart



## Product Cutaway



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

## Ordering Procedure

Typical catalog number example: **2B4S15Q4** (catalog number is created based on customer selection of product parameters, see below for example)

2B	4	S	15	Q4	-	XXX
Valve Series	Ball Orifice Diameter	Material	Pressure (X 1000 psi)	End Connection		Options
2B = 2 way	4 = 1/4" (6.35 mm)	S = 316SS		Q4 = QS250 (See chart on next page)		HT = High Temperature (Ball Valve Actuators, see next page)

# Ball Valves: QS Series

1/4" 2-Way .250" (6.35mm) Orifice • Pressures to 15,000 psi (1034 bar)

## End Connections Options

Catalog Number	End Connection Number	Connection	MAWP@ Room Temperature	Seat Gland Hex inches (mm)
2B4S15Q4	Q4	QS250	15,000 psi (1034 bar)	1.0 (25.40)
2B4S15Q6	Q6	QS375	15,000 psi (1034 bar)	1.0 (25.40)

## Ball Valve Options

### **Pneumatic Actuator**

- AO - Air-to-open/spring to close
- AC - Air-to-close/spring to open
- AOC - Air-to-open-and-close (double action)

### **Electric Actuator**

- E01 - 120 volt AC 50/60 Hz
- E02 - 220 volt AC 50/60 Hz
- E03 - 24 VDC

### **Actuator Operating Temperature:**

- Pneumatic: -10°F to 175°F (-23°C to 79°C)
- Electric: 0°F to 160°F (-17.8°C to 71°C)

### **High Temperature Option:**

- HT - for media temperature up to 500°F (260°C)

See ball valve actuator section for full description, additional information, and options.

## Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog first 4 numbers for proper repair kit. (Example: **R2B4S**)

Consult your Parker Autoclave Engineers representative for pricing on repair kits.

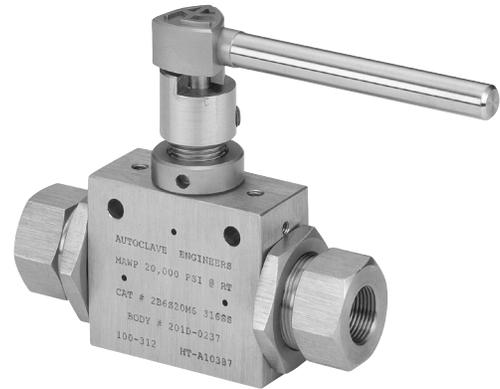
Refer to the Operation and Maintenance manual for proper maintenance procedures.

See page 18 for 2-Way Ball Valve dimensions.

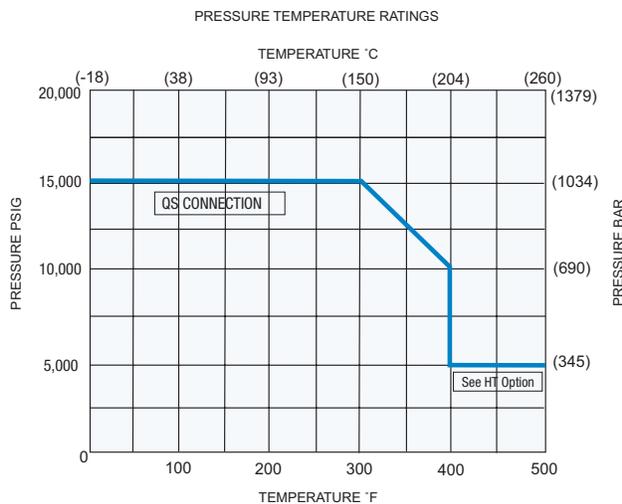
# Ball Valves: QS Series

3/8" 2-Way .359" (9.12 mm) Orifice • Pressures to 15,000 psi (1034 bar)

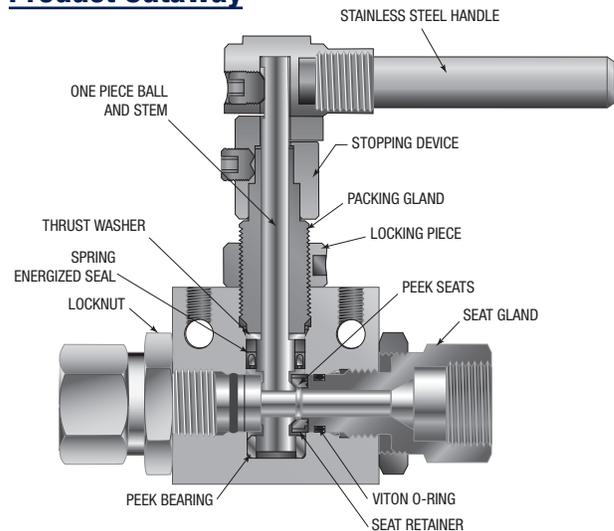
Connection	MAWP@ Room Temperature	Minimum Orifice inches (mm)
QS375	15,000 (1034)	.250 (6.35)
QS562	15,000 (1034)	.359 (9.12)
Valve $C_V = 3.09$		
MAWP: Maximum Allowable Working Pressure $C_V$ listed is for maximum orifice size of .250 inches only. Consult factory for $C_V$ of valves with reduced orifice sizes.		



## Pressure/Temperature Chart



## Product Cutaway



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

## Ordering Procedure

Typical catalog number example: **2B6S15Q9** (catalog number is created based on customer selection of product parameters, see below for example)

2B	6	S	15	Q9	-	XXX
Valve Series	Ball Orifice Diameter	Material	Pressure (X 1000 psi)	End Connection		Options
2B = 2 way	6 = 3/8" (9.52 mm)	S = 316SS		Q9 = QS562 (See chart on next page)		HT = High Temperature (Ball Valve Actuators, see next page)

# Ball Valves: QS Series

3/8" 2-Way .359" (9.12 mm) Orifice • Pressures to 15,000 psi (1034 bar)

## End Connections Options

Catalog Number	End Connection Number	Connection	MAWP@ Room Temperature	Seat Gland Hex inches (mm)
2B6S15Q6	Q6	QS375	15,000 psi (1034 bar)	1.38 (35.05)
2B6S15Q9	Q9	QS562	15,000 psi (1034 bar)	1.38 (35.05)

## Ball Valve Options

### **Pneumatic Actuator**

- AO - Air-to-open/spring to close
- AC - Air-to-close/spring to open
- AOC - Air-to-open-and-close (double action)

### **Electric Actuator**

- E01 - 120 volt AC 50/60 Hz
- E02 - 220 volt AC 50/60 Hz
- E03 - 24 VDC

### **Actuator Operating Temperature:**

- Pneumatic: -10°F to 175°F (-23°C to 79°C)
- Electric: 0°F to 160°F (-17.8°C to 71°C)

### **High Temperature Option:**

- HT - for media temperature up to 500°F (260°C)

See ball valve actuator section for full description, additional information, and options.

## Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog first 4 numbers for proper repair kit. (Example: **R2B6S**)

Consult your Parker Autoclave Engineers representative for pricing on repair kits.

Refer to the Operation and Maintenance manual for proper maintenance procedures.

See page 18 for 2-Way Ball Valve dimensions.

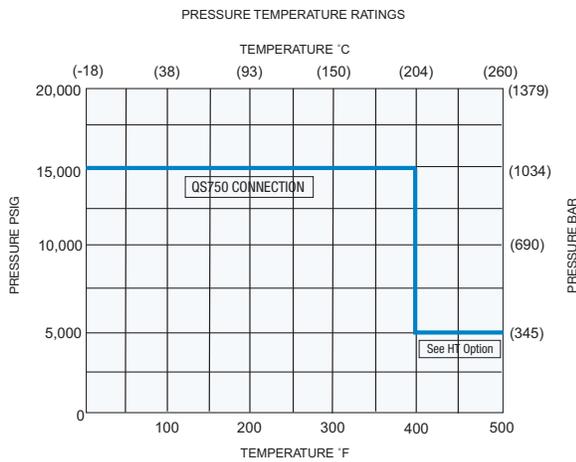
# Ball Valves: QS Series

1/2" 2-Way .500" (12.7 mm) Orifice • Pressures to 15,000 psi (1034 bar)

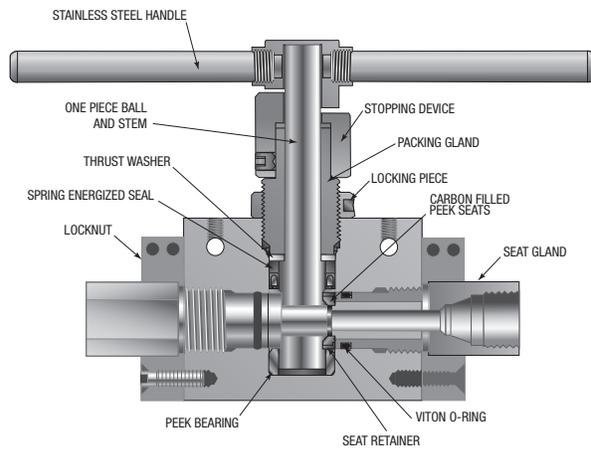
Connection	MAWP@ Room Temperature	Minimum Orifice inches (mm)
QS750	15,000 (1034)	.500 (12.70)
QS1000	15,000 (1034)	.500 (12.70)
Valve C <sub>v</sub> = 10.20		
MAWP: Maximum Allowable Working Pressure C <sub>v</sub> listed is for maximum orifice size of .250 inches only. Consult factory for C <sub>v</sub> of valves with reduced orifice sizes.		



## Pressure/Temperature Chart



## Product Cutaway



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

## Ordering Procedure

Typical catalog number example: **2B8S15Q12** (catalog number is created based on customer selection of product parameters, see below for example)

2B	8	S	15	Q12	-	XXX
Valve Series	Ball Orifice Diameter	Material	Pressure (X 1000 psi)	End Connection		Options
2B = 2 way	8 = 1/2" (12.7 mm)	S = 316SS		Q12 = QS750 (See chart on next page)		HT = High Temperature (Ball Valve Actuators, see next page)

# Ball Valves: QS Series

1/2" 2-Way .500" (12.7 mm) Orifice • Pressures to 15,000 psi (1034 bar)

## End Connections Options

Catalog Number	End Connection Number	Connection	MAWP@ Room Temperature	Seat Gland Hex/Square inches (mm)
2B8S15Q12	Q12	QS750	15,000 psi (1034 bar)	Hex: 1.75 (44.5)
2B8S15Q16	Q16	QS1000	15,000 psi (1034 bar)	Square: 2.00 (50.8)

## Ball Valve Options

### **Pneumatic Actuator**

- AO - Air-to-open/spring to close
- AC - Air-to-close/spring to open
- AOC - Air-to-open-and-close (double action)

### **Electric Actuator**

- E01 - 120 volt AC 50/60 Hz
- E02 - 220 volt AC 50/60 Hz
- E03 - 24 VDC

### **Actuator Operating Temperature:**

- Pneumatic: -10°F to 175°F (-23°C to 79°C)
- Electric: 0°F to 160°F (-17.8°C to 71°C)

### **High Temperature Option:**

- HT - for media temperature up to 500°F (260°C)

See ball valve actuator section for full description, additional information, and options.

## Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog first 4 numbers for proper repair kit. (Example: **R2B8S**)

Consult your Parker Autoclave Engineers representative for pricing on repair kits.

Refer to the Operation and Maintenance manual for proper maintenance procedures.

See page 18 for 2-Way Ball Valve dimensions.

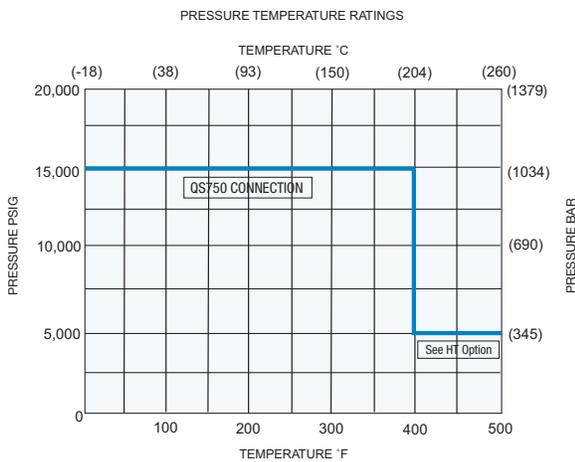
# Ball Valves: QS Series

3/4" 2-Way .750" (19.05 mm) Orifice • Pressures to 15,000 psi (1034 bar)

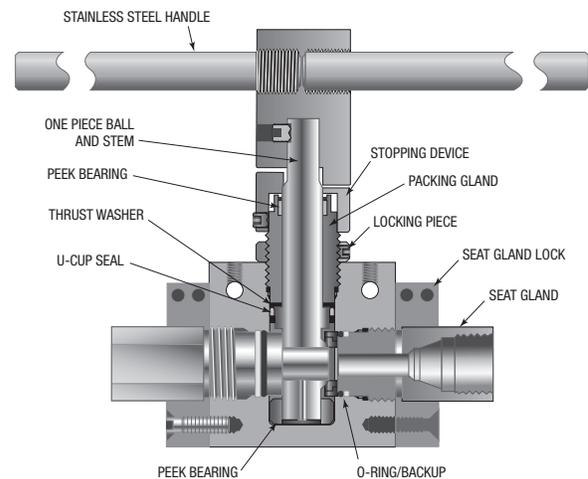
Connection	MAWP@ Room Temperature	Minimum Orifice inches (mm)
QS750	15,000 (1034)	.516 (13.11)
QS1000	15,000 (1034)	.688 (17.48)
Valve C <sub>v</sub> = 10.20		
MAWP: Maximum Allowable Working Pressure C <sub>v</sub> listed is for maximum orifice size of .250 inches only. Consult factory for C <sub>v</sub> of valves with reduced orifice sizes.		



## Pressure/Temperature Chart



## Product Cutaway



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

## Ordering Procedure

Typical catalog number example: **2B12S15Q12** (catalog number is created based on customer selection of product parameters, see below for example)

2B	12	S	15	Q12	-	XXX
Valve Series	Ball Orifice Diameter	Material	Pressure (X 1000 psi)	End Connection		Options
2B = 2 way	12 = 3/4" (19.05 mm)	S = 316SS		Q12 = QS750 (See chart on next page)		HT = High Temperature (Ball Valve Actuators, see next page)

# Ball Valves: QS Series

3/4" 2-Way .750" (19.05 mm) Orifice • Pressures to 15,000 psi (1034 bar)

## End Connections Options

Catalog Number	End Connection Number	Connection	MAWP@ Room Temperature	Seat Gland Hex/Square inches (mm)
2B12S15Q12	Q12	QS750	15,000 psi (1034 bar)	Hex: 1.75 (44.5)
2B12S15Q16	Q16	QS1000	15,000 psi (1034 bar)	Square: 2.00 (50.8)

## Ball Valve Options

### Pneumatic Actuator

- AO - Air-to-open/spring to close
- AC - Air-to-close/spring to open
- AOC - Air-to-open-and-close (double action)

### Electric Actuator

- E01 - 120 volt AC 50/60 Hz
- E02 - 220 volt AC 50/60 Hz
- E03 - 24 VDC

### Actuator Operating Temperature:

- Pneumatic: -10°F to 175°F (-23°C to 79°C)
- Electric: 0°F to 160°F (-17.8°C to 71°C)

### High Temperature Option:

- HT - for media temperature up to 500°F (260°C)

See ball valve actuator section for full description, additional information, and options.

## Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog first 4 numbers for proper repair kit. (Example: **R2B12S**)

Consult your Parker Autoclave Engineers representative for pricing on repair kits.

Refer to the Operation and Maintenance manual for proper maintenance procedures.

See page 18 for 2-Way Ball Valve dimensions.

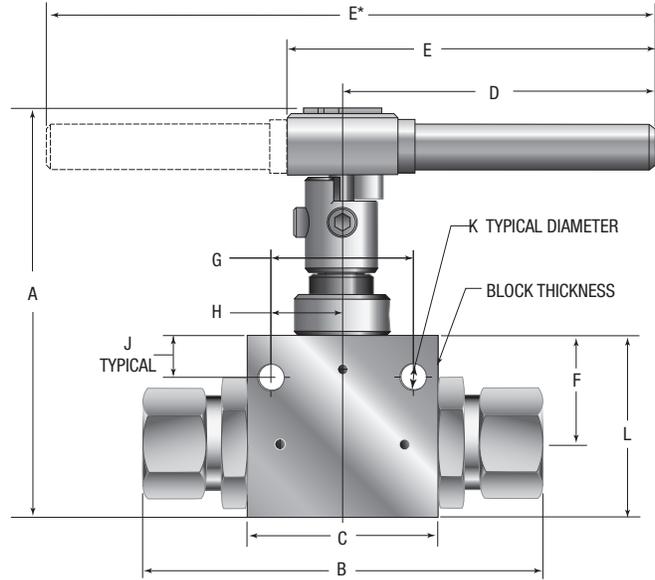
# Ball Valves: QS Series

## 2-Way Pressures to 15,000 psi (1034 bar)

### Ball Valve Dimensions - inches (mm)

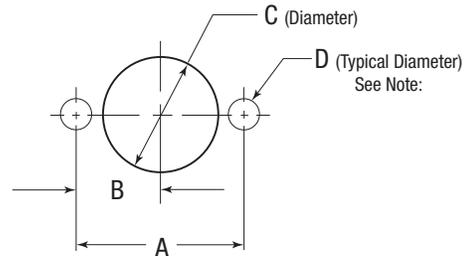
	VALVE MODELS			
	2B4S	2B6S	2B8S	2B12S
	1/4"	3/8"	1/2"	3/4"
<b>A</b>	4.33 (109.99)	4.97 (126.30)	6.43 (163.31)	10.13 (257.30)
<b>B</b>	4.19 (106.49)	6.27 (159.26)	10.85 (275.60)	9.18 (233.20)
<b>C</b>	2.00 (50.80)	3.00 (76.20)	4.13 (104.78)	4.50 (114.30)
<b>D</b>	3.37 (85.55)	4.99 (126.82)	5.12 (130.04)	11.00 (279.40)
<b>E</b>	3.90 (99.02)	5.52 (140.32)	10.25* (260.35)	22.00* (558.80)
<b>F</b>	1.13 (28.58)	1.38 (34.92)	1.75 (44.51)	2.47 (62.70)
<b>G</b>	1.50 (38.10)	2.00 (50.80)	3.00 (76.20)	3.25 (82.60)
<b>H</b>	0.75 (19.05)	1.00 (25.40)	1.50 (38.10)	1.63 (41.40)
<b>J</b>	0.43 (10.92)	0.41 (10.31)	0.50 (12.70)	0.69 (17.50)
<b>K</b>	0.28 (7.11)	0.28 (7.11)	0.28 (7.11)	0.41 (10.40)
<b>L</b>	1.91 (48.41)	2.50 (63.50)	3.55 (90.10)	4.50 (114.30)
Block Thickness	1.00 (25.40)	1.38 (34.92)	1.75 (44.45)	3.00 (76.20)

\* Double handle overall length



### Ball Valve Panel Mounting Dimensions - inches (mm)

	VALVE MODELS			
	2B4S	2B6S	2B8S	2B12S
	1/4"	3/8"	1/2"	3/4"
<b>A</b>	1.50 (38.10)	2.00 (50.80)	3.00 (76.20)	3.25 (82.60)
<b>B</b>	0.750 (19.05)	1.00 (25.40)	1.50 (38.10)	1.63 (41.40)
<b>C</b>	1.06 (26.92)	1.50 (38.10)	1.88 (47.63)	2.38 (60.30)
<b>D</b>	.28 (7.11)	.28 (7.11)	.28 (7.11)	.44 (11.20)
Body Mounting Thread	1/4" -20	1/4" -20	1/4" -20	3/8" -16



All dimensions are for reference only and are subject to change without notice.

# Ball Valves: QS Series

## 3-Way Pressures to 15,000 psi (1034 bar)

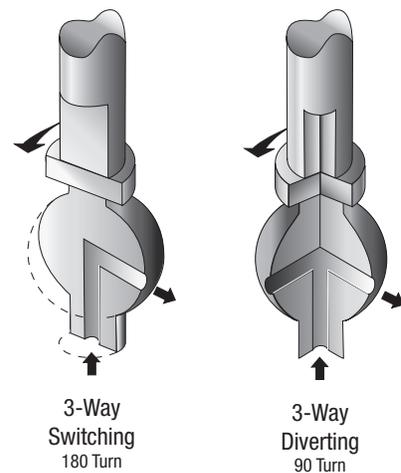
Parker Autoclave Engineers high-pressure 3-way ball valves have been designed to provide superior quality for maximum performance within a variety of valve styles, sizes, and process connections. Some of the more unique design innovations include an integral one-piece trunnion mounted style ball and stem that eliminates the shear failure common in two piece designs, re-torqueable seat glands that result in longer seat life, and a low friction stem seal that reduces actuation torque and enhances cycle life.

These 3-way ball valves can also be modified to incorporate the use of special materials, seals for high temperature applications, subsea models, and valve actuators.

When it comes to high-pressure applications, these ball valves with the associated high-pressure components, provide the critical performance demanded by the high pressure market.



### Flow Configuration



### PAE 3-Way Ball Valve Features:

- One-piece, trunnion mounted style, stem design eliminates shear failure found in two piece designs and reduces effects of side loading.
- Re-torqueable seat glands for longer seat life.
- Carbon filled PEEK seats offer excellent resistance to chemicals, heat, and wear/abrasion.
- Full-port flow path minimizes pressure drop.
- 316 cold worked stainless steel valve construction.
- Low friction pressure assisted graphite filled PTFE stem seal increases cycle life and reduces operating torque.
- Available in 90° turn diverter and 180° turn switching models.
- Viton o-rings for operation from 0°F (-17.8°C) to 400°F (204°C).
- Optional o-rings available for high-temperature applications.
- Electric and pneumatic actuator options.
- Cold worked 316 Stainless Steel as standard, 2507® Super Duplex, and Inconel 625™ as options

### Applications:

- Laboratories
- Test Stands
- Control Panels
- Chemical Research
- Pilot Plants
- Water Blasting Pumping Units
- High Volume Chemical Injection Skids

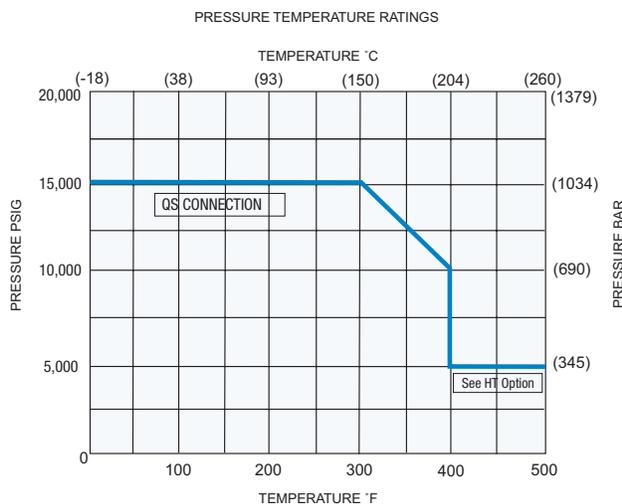
# Ball Valves: QS Series

3/16" 3-Way .187" (4.77 mm) Orifice • Pressures to 15,000 psi (1034 bar)

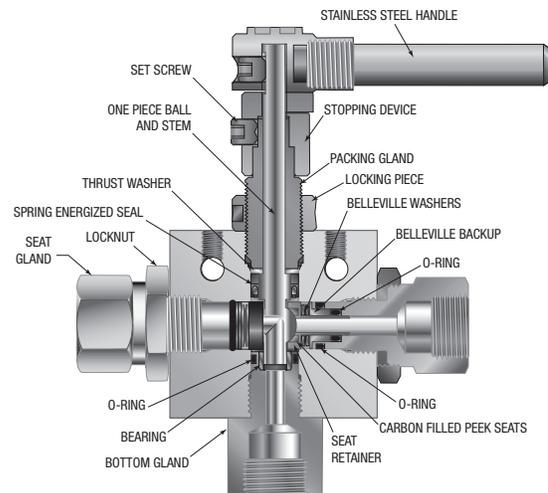
Connection	MAWP@ Room Temperature	Minimum Orifice inches (mm)
QS250	15,000 (1034)	.157 (3.99)
QS375	15,000 (1034)	.188 (4.77)
Valve $C_V = .50$		
MAWP: Maximum Allowable Working Pressure $C_V$ listed is for maximum orifice size of .250 inches only. Consult factory for $C_V$ of valves with reduced orifice sizes.		



## Pressure/Temperature Chart



## Product Cutaway



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

## Ordering Procedure

Typical catalog number example: **3B3S15Q4** (catalog number is created based on customer selection of product parameters, see below for example)

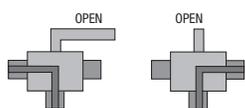
3B	3	S	15	Q4	-	XXX
Valve Series	Ball Orifice Diameter	Material	Pressure (X 1000 psi)	End Connection		Options
3B = 3 way switching 3BD = 3 way diverter	3 = 3/16" (4.77 mm)	S = 316SS		Q4 = QS250 (See chart on next page)		HT = High Temperature (Ball Valve Actuators, see next page)

# Ball Valves: QS Series

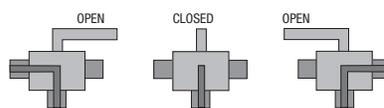
3/16" 3-Way .187" (4.77 mm) Orifice • Pressures to 15,000 psi (1034 bar)

## End Connection Options

Catalog Number	End Connection Number	Connection	MAWP@ Room Temperature	Seat Gland Hex inches (mm)
3B3S15Q4	Q4	QS250	15,000 psi (1034 bar)	1 (25.40)
3BD3S15Q4				
3B3S15Q6	Q6	QS375	15,000 psi (1034 bar)	1 (25.40)
3BD3S15Q6				



\*3-Way Diverter Valve  
90° Turn



3-Way Switching Valve  
180° Turn

\*The Diverter Valve design permits inlet flow through the bottom port. Outlet flow may be diverted to either valve side port.

## Ball Valve Options

### Pneumatic Actuator

- AO - Air-to-open/spring to close
- AC - Air-to-close/spring to open
- AOC - Air-to-open-and-close (double action)

### Electric Actuator

- E01 - 120 volt AC 50/60 Hz
- E02 - 220 volt AC 50/60 Hz
- E03 - 24 VDC

### Actuator Operating Temperature:

- Pneumatic: -10°F to 175°F (-23°C to 79°C)
- Electric: 0°F to 160°F (-17.8°C to 71°C)

### High Temperature Option:

- HT - for media temperature up to 500°F (260°C)

See ball valve actuator section for full description, additional information, and options.

## Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog first 4 numbers for proper repair kit. (Example: **R3B3S**)

Consult your Parker Autoclave Engineers representative for pricing on repair kits. Refer to the Operation and Maintenance manual for proper maintenance procedures.

See ball valve actuator section for full description, additional information and options.

See page 26 for 3-Way Ball Valve dimensions.

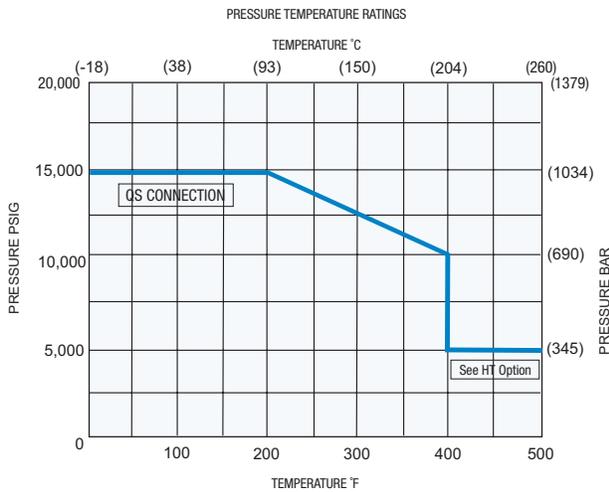
# Ball Valves: QS Series

3/8" 3-Way .328" (8.33 mm) Orifice • Pressures to 15,000 psi (1034 bar)

Connection	MAWP@ Room Temperature	Minimum Orifice inches (mm)
QS562	15,000 (1034)	.328 (8.33)
Valve $C_V = 2.1$		
MAWP: Maximum Allowable Working Pressure $C_V$ listed is for maximum orifice size of .250 inches only. Consult factory for $C_V$ of valves with reduced orifice sizes.		

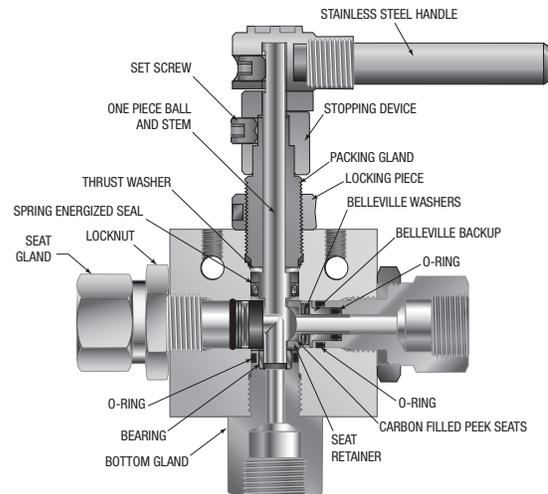


## Pressure/Temperature Chart



Side connection pressure not recommended.

## Product Cutaway



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

## Ordering Procedure

Typical catalog number example: **3B6S15Q9** (catalog number is created based on customer selection of product parameters, see below for example)

3B	6	S	15	Q9	-	XXX
Valve Series	Ball Orifice Diameter	Material	Pressure (X 1000 psi)	End Connection		Options
3B = 3 way switching 3BD = 3 way diverter	6 = 3/8" (9.52 mm)	S = 316SS		Q9 = QS562 (See chart on next page)		HT = High Temperature (Ball Valve Actuators, see next page)

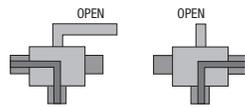
# Ball Valves: QS Series

3/8" 3-Way .328" (8.33 mm) Orifice • Pressures to 15,000 psi (1034 bar)

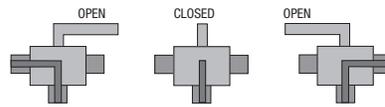
## End Connection Options

Catalog Number	End Connection Number	Connection	MAWP@ Room Temperature	Seat Gland Hex inches (mm)
3B6S15Q9	Q9	QS562	15,000 psi (1034 bar)	1.38 (35.05)
3BD6S15Q9				

MAWP: Maximum Allowable Working Pressure



\*3-Way Diverter Valve  
90° Turn



3-Way Switching Valve  
180° Turn

\*The Diverter Valve design permits inlet flow through the bottom port. Outlet flow may be diverted to either valve side port.

## Ball Valve Options

### Pneumatic Actuator

- AO - Air-to-open/spring to close
- AC - Air-to-close/spring to open
- AOC - Air-to-open-and-close (double action)

### Electric Actuator

- E01 - 120 volt AC 50/60 Hz
- E02 - 220 volt AC 50/60 Hz
- E03 - 24 VDC

### Actuator Operating Temperature:

- Pneumatic: -10°F to 175°F (-23°C to 79°C)
- Electric: 0°F to 160°F (-17.8°C to 71°C)

### High Temperature Option:

- HT - for media temperature up to 500°F (260°C)

See ball valve actuator section for full description, additional information, and options.

## Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog first 4 numbers for proper repair kit. (Example: **R3B6S**)

Consult your Parker Autoclave Engineers representative for pricing on repair kits. Refer to the Operation and Maintenance manual for proper maintenance procedures.

See ball valve actuator section for full description, additional information and options.

See page 26 for 3-Way Ball Valve dimensions.

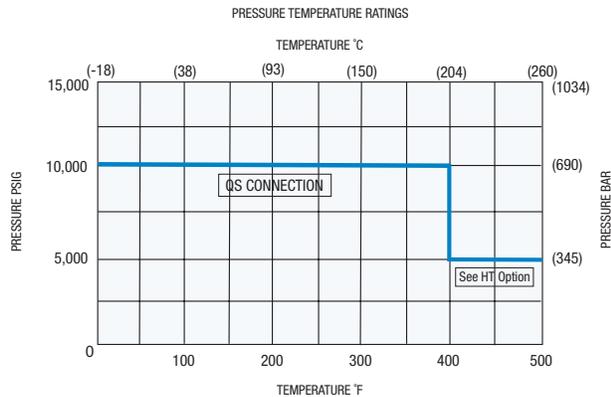
# Ball Valves: QS Series

1/2" 3-Way .500" (12.7 mm) Orifice • Pressures to 10,000 psi (690 bar)

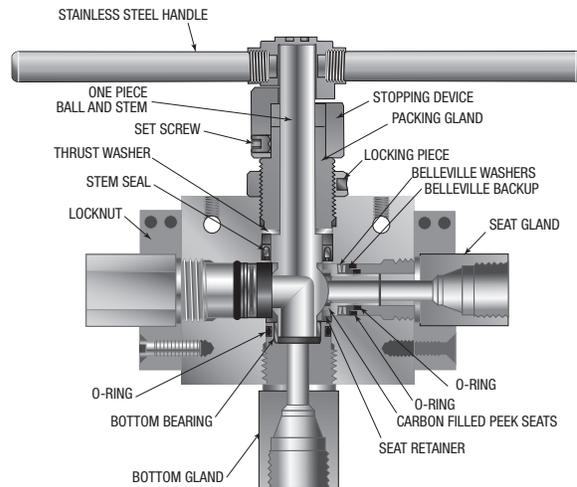
Connection	MAWP@ Room Temperature	Minimum Orifice inches (mm)
Male QS750	10,000 (690)	.500 (12.70)
Male QS1000	10,000 (690)	.500 (12.70)
Valve $C_V = 4.4$		
MAWP: Maximum Allowable Working Pressure $C_V$ listed is for maximum orifice size of .250 inches only. Consult factory for $C_V$ of valves with reduced orifice sizes.		



## Pressure/Temperature Chart



## Product Cutaway



NOTE: Ball valves are not recommended for critical gas applications such as Hydrogen, Helium or other small molecular gases.

## Ordering Procedure

Typical catalog number example: **3B8S10Q12** (catalog number is created based on customer selection of product parameters, see below for example)

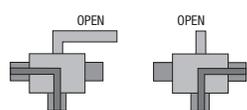
3B	8	S	10	Q12	-	XXX
Valve Series	Ball Orifice Diameter	Material	Pressure (X 1000 psi)	End Connection		Options
3B = 3 way switching 3BD = 3 way diverter	8 = 1/2" (12.7 mm)	S = 316SS		Q12 = QS750 (See chart on next page)		HT = High Temperature (Ball Valve Actuators, see next page)

# Ball Valves: QS Series

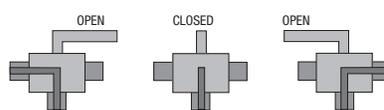
1/2" 3-Way .500" (12.7 mm) Orifice • Pressures to 10,000 psi (690 bar)

## End Connection Options

Catalog Number	End Connection Number	Connection	MAWP@ Room Temperature	Seat Gland Hex inches (mm)
3B8S10Q12	Q12	QS750	10,000 psi (690 bar)	1.75 (44.5)
3BD8S10Q12				
3B8S10Q16	Q16	QS1000	10,000 psi (690 bar)	Square 2.00 (50.8)
3BD8S10Q16				



\*3-Way Diverter Valve  
90° Turn



3-Way Switching Valve  
180° Turn

\*The Diverter Valve design permits inlet flow through the bottom port. Outlet flow may be diverted to either valve side port.

## Ball Valve Options

### Pneumatic Actuator

- AO - Air-to-open/spring to close
- AC - Air-to-close/spring to open
- AOC - Air-to-open-and-close (double action)

### Electric Actuator

- E01 - 120 volt AC 50/60 Hz
- E02 - 220 volt AC 50/60 Hz
- E03 - 24 VDC

### Actuator Operating Temperature:

- Pneumatic: -10°F to 175°F (-23°C to 79°C)
- Electric: 0°F to 160°F (-17.8°C to 71°C)

### High Temperature Option:

- HT - for media temperature up to 500°F (260°C)

See ball valve actuator section for full description, additional information, and options.

## Valve Maintenance

**Repair Kits:** add "R" to the front of valve catalog first 4 numbers for proper repair kit. (Example: **R3B8S**)

Consult your Parker Autoclave Engineers representative for pricing on repair kits. Refer to the Operation and Maintenance manual for proper maintenance procedures.

See ball valve actuator section for full description, additional information and options.

See page 26 for 3-Way Ball Valve dimensions.

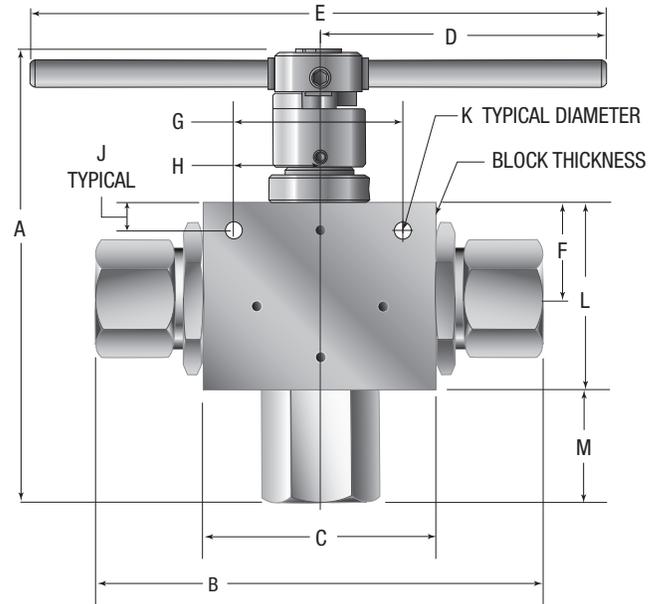
# Ball Valves: QS Series

## 3-Way Pressures to 15,000 psi (1034 bar)

### Ball Valve Dimensions - inches (mm)

	VALVE MODELS		
	3B3S/3BD3S	3B6S/3BD6S	3B8S/3BD8S
	3/16"	3/8"	1/2"
<b>A</b>	5.64 (143.35)	6.90 (175.26)	8.35 (212.08)
<b>B</b>	4.72 (119.94)	6.28 (159.51)	10.85 (275.59)
<b>C</b>	2.50 (63.50)	3.00 (76.20)	4.13 (104.78)
<b>D</b>	3.37 (85.55)	4.99 (126.82)	5.12 (130.04)
<b>E</b>	3.90 (99.02)	5.52 (140.32)	10.25* (260.35)
<b>F</b>	1.13 (28.58)	1.38 (34.92)	1.66 (42.16)
<b>G</b>	1.50 (38.10)	2.00 (50.80)	3.00 (76.20)
<b>H</b>	0.75 (19.05)	1.00 (25.40)	1.50 (38.10)
<b>J</b>	0.43 (10.92)	0.41 (10.31)	0.50 (12.70)
<b>K</b>	0.28 (7.11)	0.28 (7.11)	0.28 (7.11)
<b>L</b>	2.25 (57.15)	2.88 (73.03)	3.34 (84.94)
<b>M</b>	0.97 (24.64)	1.54 (39.11)	2.22 (56.39)
Block Thickness	1.00 (25.40)	1.38 (34.92)	1.75 (44.45)

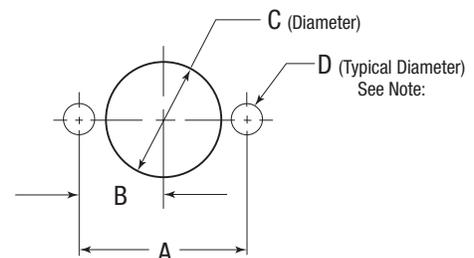
\* 3B8S10Q12 and 3BD8SQ12 Valves Only



### Ball Valve Panel Mounting Dimensions - inches (mm)

	VALVE MODELS		
	3B3S/3BD3S	3B6S/3BD6S	3B8S/3BD8S
	3/16"	3/8"	1/2"
<b>A</b>	1.50 (38.10)	2.00 (50.80)	3.00 (76.20)
<b>B</b>	0.750 (19.05)	1.00 (25.40)	1.50 (38.10)
<b>C</b>	1.06 (26.92)	1.50 (38.10)	1.88 (47.63)
<b>D</b>	.28 (7.11)	.28 (7.11)	.28 (7.11)

Note: Body Mounting 1/4" - 20 thread.



All dimensions are for reference only and are subject to change without notice.

# Ball Valves: QS Series

## Actuators Pneumatic and Electric

Parker Autoclave Engineers ball valves can be supplied with either pneumatic or electric operators for automated or remote operation.

Pneumatic and electric operators can be supplied with a variety of features and options. Operators are sized for each valve series to provide reliable and trouble free operation. Listed below are the operator features and available options.

### AE Ball Valve Actuator Features:

#### **Pneumatic Operators**

- Used for remote and automatic operation
- Air-to-open/spring-to-close (AO)
- Air-to-close/spring-to-open (AC)
- Air-to-open and close (double acting) (AOC)
- Limit switches or limit switches with visual indicators available
- High temperature option available.
- Stainless steel housing for corrosive applications available.
- Optional solenoid valve available
- Standard anodized aluminum housing
- Optional epoxy coated housing available

#### **Electric Operators**

- Interface with control systems for automated operation and monitoring
- 120 & 220 VAC, 50/60 Hz standard
- 24VDC
- Explosion proof available
- CE mark available

### Applications:

- Laboratories
- Test Stands
- Control Panels
- Chemical Research
- Pilot Plants
- Water Blasting Pumping Units
- High Volume Chemical Injection Skids



# Ball Valves: QS Series

## Actuators Pneumatic and Electric

### Pneumatic Operated Ball Valves

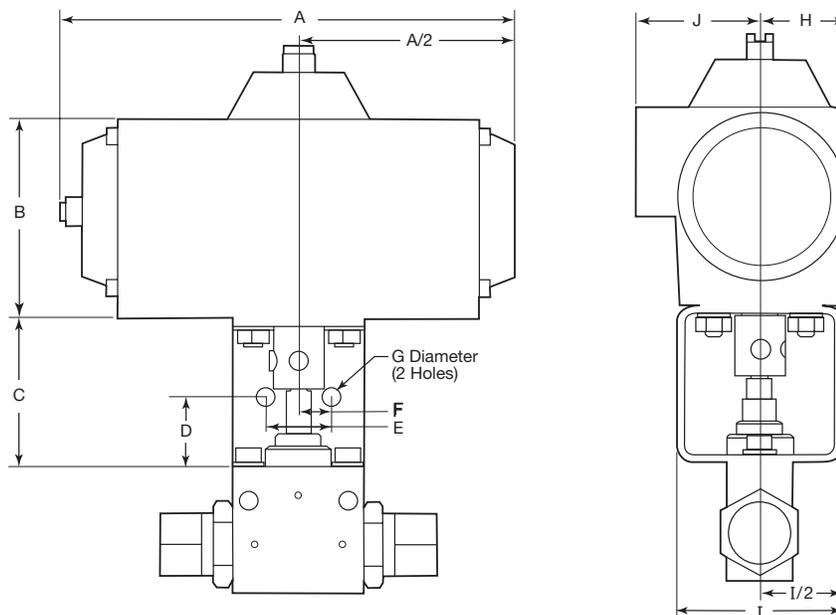
Add the suffix **-AO**, **-AC** or **-AOC<sup>†</sup>** to the appropriate valve catalog number for a complete valve assembly.

VALVE SERIES	Dimensions Data - inches (mm)										Minimum Required Air Pressure
	A	B	C	D	E	F	G	H	I	J	
2B4-AO/AC	6.85 (173.99)	3.20 (81.28)	2.50 (63.50)	1.25 (31.75)	1.00 (25.40)	0.50 (12.70)	0.28 (7.11)	1.30 (33.02)	2.50 (63.50)	1.88 (47.45)	80 psi (5.51 bar)
2B6-AO/AC	7.28 (184.91)	3.86 (98.04)	3.00 (76.20)	1.50 (38.10)	1.50 (38.10)	0.75 (19.05)	0.34 (8.64)	1.59 (40.39)	3.00 (76.20)	2.10 (53.34)	80 psi (5.51 bar)
2B8-AO/AC	9.38 (238.25)	4.62 (117.35)	3.00 (76.20)	1.50 (38.10)	2.00 (50.80)	1.00 (25.40)	0.53 (13.46)	2.00 (50.80)	3.00 (76.20)	2.48 (62.99)	80 psi (5.51 bar)
2B12-AO/AC	17.30 (439.42)	8.00 (203.20)	5.00 (127.00)	2.50 (63.50)	3.25 (82.55)	1.63 (41.40)	0.53 (13.46)	3.54 (89.92)	5.00 (127.00)	3.57 (90.68)	80 psi (5.51 bar)
3BD3-AO/AC <sup>††</sup>	6.85 (173.99)	3.20 (81.28)	2.50 (63.50)	1.25 (31.75)	1.00 (25.40)	0.50 (12.70)	0.28 (7.11)	1.30 (33.02)	2.50 (63.50)	1.88 (47.75)	80 psi (5.51 bar)
3BD6-AO/AC <sup>††</sup>	7.28 (184.91)	3.86 (98.04)	3.00 (76.20)	1.50 (38.10)	1.50 (38.10)	0.75 (19.05)	0.34 (8.64)	1.59 (40.39)	3.00 (76.20)	2.10 (53.34)	80 psi (5.51 bar)
3BD8-AO/AC <sup>††</sup>	9.38 (238.25)	4.62 (117.35)	3.00 (76.20)	1.50 (38.10)	2.00 (50.80)	1.00 (25.40)	0.53 (13.46)	2.00 (50.80)	3.00 (76.20)	2.48 (62.99)	80 psi (5.51 bar)

**NOTE:**

- Maximum allowable air pressure is 150 psi (10.34)
- 1/4" NPT female air connection
- AO: Air to open/spring to close
- AC: Air to close/spring to open
- AOC: Air to open/air to close (double acting)
- Actuators operating temperature: -10°F to 175°F (-23°C to 79°C)
- High temperature actuator option available, consult factory
- Stainless steel housing actuator models available, consult factory
- Actuators available with limit switches and visual indicators.
- Corrosion resistant anodized aluminum housing.
- Epoxy coated housing available.
- Solenoids available, direct or nipple mount.

<sup>†</sup> AOC Actuator not shown consult factory  
<sup>††</sup> 3B3, 3B6, & 3B8 Series not shown consult factory



# Ball Valves: QS Series

## Actuators Pneumatic and Electric

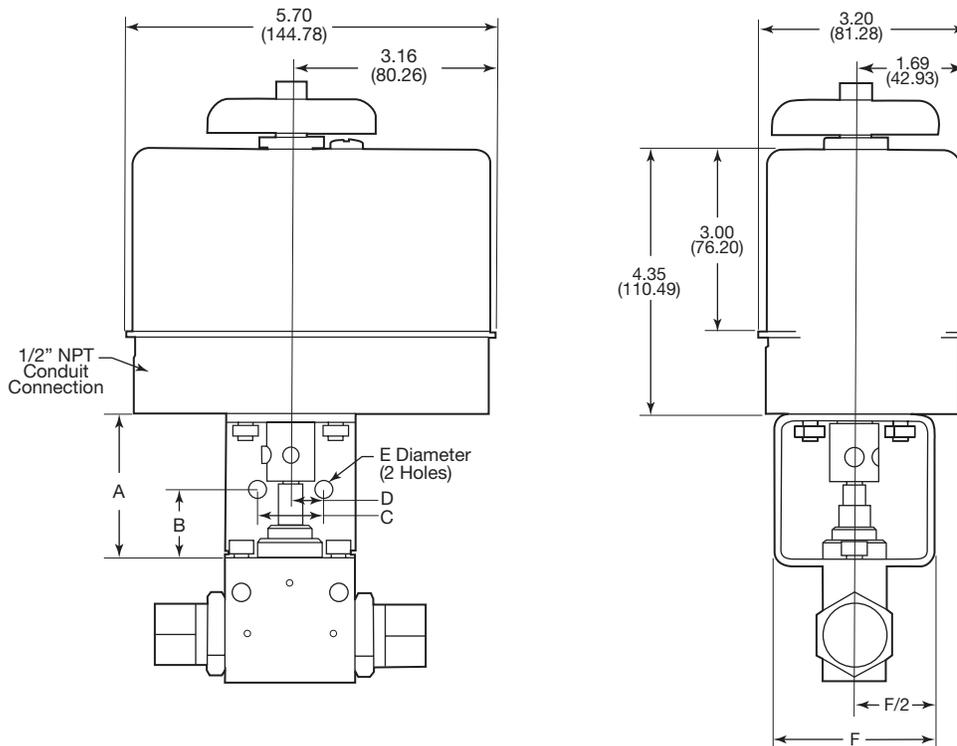
### Electric Operated Ball Valves

Add the suffix **-E01**, **-E02** or **-E03** to the appropriate valve catalog number for a complete valve assembly.

VALVE SERIES	Dimensions Data - inches (mm)						VOLTAGE
	A	B	C	D	E	F	
2B4-E01	2.50 (63.50)	1.25 (31.75)	1.00 (25.4)	0.50 (12.70)	0.28 (7.11)	2.50 (63.50)	120 VAC
2B4-E02							240 VAC
2B4-E03							24 VDC
2B6-E01	3.00 (76.2)	1.50 (38.1)	1.50 (38.1)	0.75 (19.05)	0.34 (8.64)	3.00 (76.2)	120 VAC
2B6-E02							240 VAC
2B6-E03							24 VDC
3BD3-E01†	2.50 (63.50)	1.25 (31.75)	1.00 (25.4)	0.50 (12.70)	0.28 (7.11)	2.50 (63.50)	120 VAC
3BD3-E02†							240 VAC
3BD3-E03†							24 VDC
3BD6-E01†	3.00 (76.2)	1.50 (38.1)	1.50 (38.1)	0.75 (19.05)	0.34 (8.64)	3.00 (76.2)	120 VAC
3BD6-E02†							240 VAC
3BD6-E03†							24 VDC

NOTE:

- Maximum allowable air pressure is 150 psi (10.34)
- 1/2" NPT female air connection
- Manual override
- Powder coated aluminum housing
- CE & CSA approved
- Actuators operating temperature: 0°F to 160°F (-17.8°C to 71°C)
- 120 and 240 Volt are 50/60 Hz, For other voltages consult factory
- †3B3 and 3B6 are same dimensions as the 3BD3 and 3BD6
- For other options consult factory



# Ball Valves: QS Series

## Actuators Pneumatic and Electric

### Electric Operated Ball Valves

Add the suffix **-E01**, **-E02** or **-E03** to the appropriate valve catalog number for a complete valve assembly.

VALVE SERIES	Dimensions Data - inches (mm)						VOLTAGE		
	A	B	C	D	E	F			
2B8-E01	3.00 (76.2)	1.50 (38.1)	2.00 (50.8)	1.00 (25.40)	0.53 (13.46)	3.00 (76.2)	120 VAC	See Figure 1	
2B8-E02							240 VAC		
2B8-E03							24 VDC		
3BD8-E01†	3.00 (76.2)	1.50 (38.1)	2.00 (50.80)	1.00 (25.40)	0.53 (13.46)	3.00 (76.2)	120 VAC		See Figure 2
3BD8-E02†							240 VAC		
3BD8-E03†							24 VDC		
2B12-E01	5.00 (127.00)	2.50 (63.50)	3.25 (82.55)	1.63 (41.40)	0.53 (13.46)	5.00 (127.00)	120 VAC	See Figure 2	
2B12-E02							240 VAC		

NOTE:

- E01: Electric 120 VAC
- E02: Electric 220 VAC
- E03: Electric 24 VDC
- For other voltages consult factory
- Actuator operating temperature: 0°F to 160°F (-17.8°C to 71°C)
- Powder coated aluminum housing
- CE & CSA approved for NEMA 4 and 4x
- For other options contact factory
- Manual override
- 1/2" NPT female air connector
- † 3B8 series are the same dimensions as the 3BD8

Figure 1

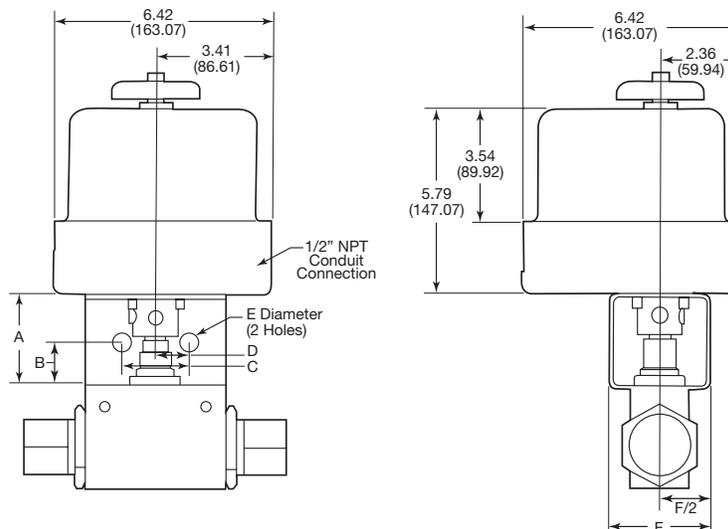
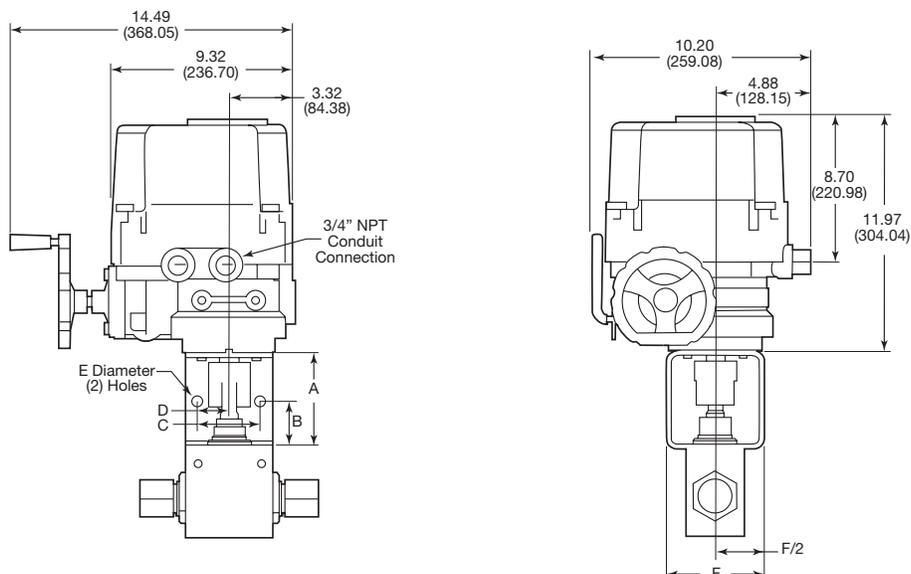


Figure 2



# Fittings and Tubing: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

Since 1945 Parker Autoclave Engineers has designed and built premium quality valves, fittings and tubing. This commitment to engineering and manufacturing excellence has earned Parker Autoclave Engineers a reputation for reliable, efficient product performance.

Parker Autoclave Engineers has long been established as the world leader in high pressure fluid handling components for the chemical/petrochemical, research, and oil and gas industries.

### QS Compression Sleeve Fitting and Tubing Features:

- QS single bite-type compression sleeve connection for 15,000 psi (1034 bar)
- Available sizes are 1/4, 3/8, 9/16, 3/4 and 1".
- Fittings and tubing manufactured from high strength cold worked 316 stainless steel. Options include 2507<sup>®</sup> Super Duplex and Inconel 625<sup>™</sup>
- Molybdenum disulfide-coated gland nuts to prevent galling.
- Gland nut positioning mark for assembly.
- Connection weep holes for safety and leak detection.
- Fast easy make-up of connection.
- Operating Temperatures from -100°F (-73°C) to 600°F (316°C).
- 1" QS fitting bodies are 2507<sup>®</sup> Super Duplex standard.

The Medium Pressure QS Series uses Parker Autoclave Engineers' Quick Set bite-type compression sleeve design. This single compression sleeve connection delivers fast, easy make-up and reliable bubble-tight performance in liquid or gas service.



# Fittings and Tubing: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

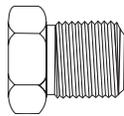
Parker Autoclave Engineers Medium Pressure QS Fittings are designed for use with QS Series valves and medium pressure tubing. These fittings feature improved bite-type compression connections with larger orifices for excellent flow capabilities.

Parker Autoclave Engineers fittings and components are manufactured of high strength stainless steel.

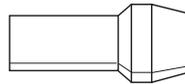


### Connection Components

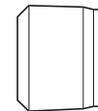
All Parker Autoclave Engineers valves and fittings are supplied complete with appropriate glands and sleeves. To order these components separately, use order numbers listed. When using plug, sleeve is not required.



**Gland**  
QSG ( )



**Plug**  
QSP ( )



**Sleeve**  
QSS ( )

Add tube size ( )

1/4" - 40

3/8" - 60

9/16" - 90

3/4" - 120

1" - 160

**Example: 1/4 Gland - QSG 40**

To ensure proper fit use Parker Autoclave Engineers tubing. For mounting hole option add suffix PM to catalog number. Consult factory for mounting hole dimensions.

### Elbow (see Figure 1)

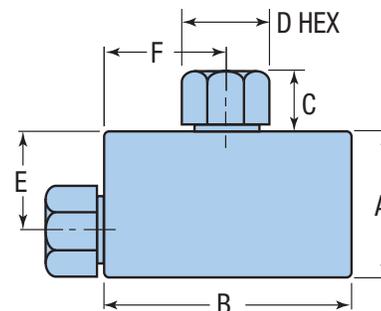
Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)	Minimum Opening	Dimensions - inches (mm)							
					A	B	C	D Typical	E	F	G	Block Thickness
QSL4400	QS250	1/4 (6.35)	15,000 (1034.20)	0.16 (3.99)	1.38 (34.93)	2.00 (50.80)	0.52 (13.23)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)
QSL6600	QS375	3/8 (9.53)	15,000 (1034.20)	0.25 (6.35)	1.50 (38.10)	2.00 (50.80)	0.55 (14.00)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)		0.81 (20.62)
QSL9900	QS562	9/16 (14.29)	15,000 (1034.20)	0.36 (9.12)	2.19 (55.58)	3.00 (76.20)	0.82 (20.83)	1.19 (30.18)	1.50 (38.10)	1.50 (38.10)		1.25 (31.75)
QSL12	QS750	3/4 (19.05)	15,000 (1034.20)	0.52 (13.11)	2.94 (74.63)	4.13 (104.78)	1.04 (26.37)	1.50 (38.10)	2.06 (52.40)	2.06 (52.40)		1.50 (38.10)
QSL16	QS1000	1 (25.4)	15,000 (1034.20)	0.688 (17.48)	3.5 (88.90)	4.75 (120.65)	1.19 (30.18)	1.75 (44.45)	2.38 (60.33)	2.38 (60.33)		2.00 (50.80)

\* 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.

1" QS fitting bodies are 2507 Super Duplex  
Sleeve material is IN718

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



ELBOW - Figure 1

# Fittings and Tubing: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

**Tee** (see Figure 2)

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F	G	
QST4440	QS250	1/4 (6.35)	15,000 (1034.20)	0.16 (3.99)	1.38 (34.93)	2.00 (50.80)	0.52 (13.23)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)
QST6660	QS375	3/8 (9.53)	15,000 (1034.20)	0.25 (6.35)	1.50 (38.10)	2.00 (50.80)	0.55 (14.00)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)		0.81 (20.62)
QST9990	QS562	9/16 (14.29)	15,000 (1034.20)	0.36 (9.12)	2.19 (55.58)	3.00 (76.20)	0.82 (20.83)	1.19 (30.18)	1.50 (38.10)	1.50 (38.10)		1.25 (31.75)
QST12	QS750	3/4 (19.05)	15,000 (1034.20)	0.52 (13.11)	2.94 (74.63)	4.13 (104.78)	1.04 (26.37)	1.50 (38.10)	2.06 (52.40)	2.06 (52.40)		1.50 (38.10)
QST16	QSF1000	1 (25.4)	15,000 (1034.20)	0.688 (17.48)	3.5 (88.90)	4.75 (120.65)	1.19 (30.18)	1.75 (44.45)	2.38 (60.33)	2.38 (60.33)		2.00 (50.80)

**Cross** (see Figure 3)

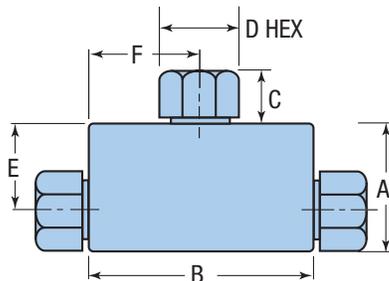
Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)*	Minimum Opening	Dimensions - inches (mm)							Block Thickness
					A	B	C	D Typical	E	F	G	
QSX4444	QS250	1/4 (6.35)	15,000 (1034.20)	0.16 (3.99)	2.00 (50.80)	2.00 (50.80)	0.52 (13.23)	0.63 (15.88)	1.00 (25.40)	1.00 (25.40)		0.75 (19.05)
QSX6666	QS375	3/8 (9.53)	15,000 (1034.20)	0.25 (6.35)	2.00 (50.80)	2.00 (50.80)	0.55 (14.00)	0.75 (19.05)	1.00 (25.40)	1.00 (25.40)		0.81 (20.62)
QSX9999	QS562	9/16 (14.29)	15,000 (1034.20)	0.36 (9.12)	3.00 (76.20)	3.00 (76.20)	0.82 (20.83)	1.19 (30.18)	1.50 (38.10)	1.50 (38.10)		1.25 (31.75)
QSX12	QS750	3/4 (19.05)	15,000 (1034.20)	0.52 (13.11)	4.13 (104.78)	4.13 (104.78)	1.04 (26.37)	1.50 (38.10)	2.06 (52.40)	2.06 (52.40)		1.50 (38.10)
QSX16	QSF1000	1 (25.4)	15,000 (1034.20)	0.688 (17.48)	4.75 (120.65)	4.75 (120.65)	1.19 (30.18)	1.75 (44.45)	2.38 (60.33)	2.38 (60.33)		2.00 (50.80)

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

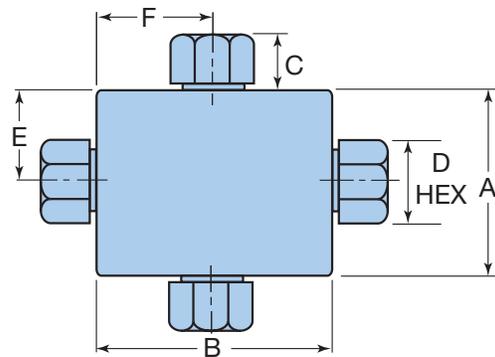
\* Maximum pressure rating is based on the lowest rating of any component.

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

1" QS fitting bodies are 2507 Super Duplex



TEE - Figure 2



CROSS - Figure 3

# Fittings and Tubing: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

### Straight Coupling (see Figure 4)

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)	Minimum Opening	Dimensions - inches (mm)			
					A	B	C	D Typical
15F440Q	QS250	1/4 (6.35)	15,000 (1034.20)	0.16 (3.99)	0.75 (19.05)	1.63 (41.28)	0.52 (13.23)	0.63 (15.88)
15F660Q	QS375	3/8 (9.53)	15,000 (1034.20)	0.25 (6.35)	0.81 (20.65)	1.75 (44.45)	0.55 (14.00)	0.75 (19.05)
15F990Q	QS562	9/16 (14.29)	15,000 (1034.20)	0.36 (9.12)	1.38 (34.93)	2.75 (69.85)	0.82 (20.83)	1.19 (30.18)
15F120Q	QS750	3/4 (19.05)	15,000 (1034.20)	0.52 (13.11)	1.50 (38.10)	3.75 (95.25)	1.04 (26.37)	1.50 (38.10)
15F160Q	QSF1000	1 (25.4)	15,000 (1034.20)	0.688 (17.48)	2.00 <sup>†</sup> (50.80)	4.00 (101.60)	1.19 (30.18)	1.75 (44.45)

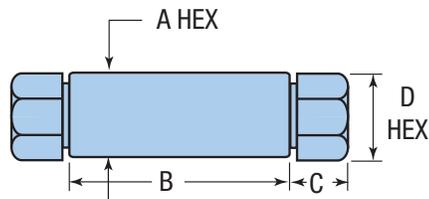
### Bulkhead Coupling (see Figure 5)

Catalog Number	Connection Type	Outside Diameter Tube	Pressure Rating psi (bar)	Minimum Opening	Dimensions - inches (mm)						
					A	B	C	D Typical	E	F	G
15BF440Q	QS250	1/4 (6.35)	15,000 (1034.20)	0.16 (3.99)	0.88 (22.23)	2.00 (50.80)	0.52 (13.23)	0.63 (15.88)	0.63 (15.88)	1.00 (25.40)	0.38 (9.53)
15BF660Q	QS375	3/8 (9.53)	15,000 (1034.20)	0.25 (6.35)	1.06 (27.00)	2.38 (60.33)	0.55 (14.00)	0.75 (19.05)	0.79 (19.94)	1.38 (34.93)	0.38 (9.53)
15BF990Q	QS562	9/16 (14.29)	15,000 (1034.20)	0.36 (9.12)	1.63 (41.40)	2.63 (66.68)	0.82 (20.83)	1.19 (30.18)	0.91 (22.99)	1.75 (44.45)	0.38 (9.53)
15BF120Q	QS750	3/4 (19.05)	15,000 (1034.20)	0.52 (13.11)	1.88 (47.63)	3.50 (88.90)	1.04 (26.37)	1.50 (38.10)	1.50 (38.10)	2.13 (53.98)	0.38 (9.53)
15BF160Q	QSF1000	1 (25.4)	15,000 (1034.20)	0.688 (17.48)	2.38 (60.33)	5.00 (127.00)	1.19 (30.18)	1.75 (44.45)	2.00 (50.80)	2.50 <sup>†</sup> (63.50)	0.38 (9.53)

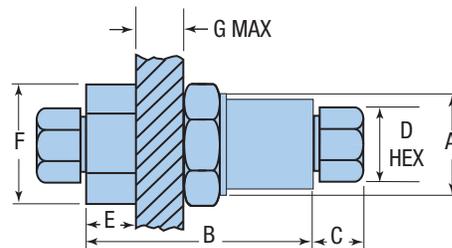
For mounting hole option add suffix PM to catalog number.  
Consult factory for mounting hole dimensions.  
\* Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower.  
† QS fitting bodies are 2507 Super Duplex  
† Distance across flats

All dimensions for reference only and subject to change.  
For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative.

Union Couplings are designed with a removable seat insert allowing disassembly and tubing removal without the necessity of loosening other items in a line.



STRAIGHT COUPLING- Figure 4



BULKHEAD COUPLING- Figure 5

# Tubing: QS Series

## Medium Pressure Pressures to 15,000 psi (1034 bar)

Parker Autoclave Engineers offers a complete selection of austenetic, cold drawn stainless steel tubing designed to match the performance standards of Parker Autoclave Engineers valves and fittings.

Parker Autoclave Engineers medium pressure tubing is manufactured specifically for high pressure applications requiring both strength and corrosion resistance. The tubing is furnished in random lengths between 20 feet (6 meters) and 26.5 feet (8.0 meters). The average is 24 feet (7.3 meters). Medium Pressure Tubing is available in five sizes and a variety of materials.

### Inspection and Testing

Parker Autoclave Engineer's medium pressure tubing is inspected to assure freedom from seams, laps, fissures or other flaws, as well as carburization or intergranular carbide precipitation. The outside and inside diameters of the tubing are subject to special inspection and are controlled within close tolerances to assure proper fit. Sample pieces of tube for each lot are tested to confirm mechanical properties. Hydrostatic testing is also performed on a statistical basis and is conducted at the working pressure of the tube. Parker Autoclave Engineers will perform 100% hydrostatic testing at additional cost if desired.

### Special Materials

In addition to the type 316/316L and 304/304L stainless steel tubing listed in this section, Parker Autoclave Engineers also makes available 2507<sup>®</sup> Super Duplex and Inconel 625<sup>™</sup> materials with no loss of pressure rating. Please consult factory for stock availability.

### Tubing Sizes

Nominal Tubing Size - inches (mm)

- 1/4" (6.35)
- 3/8" (9.53)
- 9/16" (14.27)
- 3/4" (19.05)
- 1" (25.4)

Note:

Tubing outside diameter dimensions are not standard commercial sizes.  
Tubing outside sizes are specific to Parker Autoclave Engineers design requirements.  
Parker Autoclave Engineers components will not be compatible with other manufactured tubing.



# Tubing: QS Series

## Medium Pressure Pressures to 15,000 psi (1034 bar)

### 316 Stainless Steel

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		-425 to 100°F -252 to 37.8°C	200°F 93°C	400°F 204°C	600°F 316°C
MS15-092	316SS	QS250	1/4 (6.35)	0.109 (2.77)	0.070 (1.78)	0.009 (6.81)	20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)
MS15-093	316SS	QS375	3/8 (9.53)	0.203 (6.16)	0.086 (2.18)	0.032 (20.66)	20,000 (1378.93)	20,000 (1378.93)	19,250 (1327.22)	18,050 (1244.48)
MS15-097	316SS	QS562	9/16 (14.29)	0.359 (9.12)	0.101 (2.67)	0.101 (2.67)	15,000 (1034.19)	15,000 (1034.19)	14,400 (992.82)	13,650 (941.12)
MS15-098	316SS	QS750	3/4 (19.05)	0.516 (13.11)	0.117 (2.97)	0.209 (134.84)	15,000 (1034.19)	15,000 (1034.19)	14,400 (992.82)	13,650 (941.12)
MS15-099	316SS	QS1000	1 (25.4)	0.688 (17.48)	0.156 (3.96)	0.371 (239.36)	15,000 (1034.19)	15,000 (1034.19)	14,400 (992.82)	13,650 (941.12)

### 2507 Super Duplex

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		-50 to 100°F -45 to 40°C	200°F 93°C	400°F 204°C	600°F 316°C
MS15-503	2507	QS250	1/4 (6.35)	0.109 (2.77)	0.070 (1.78)	0.009 (6.81)	15,000 (1034.19)	13,650 (941.1)	11,400 (786.0)	10,500 (724.05)
MS15-504	2507	QS375	3/8 (9.53)	0.203 (6.16)	0.086 (2.18)	0.032 (20.66)	15,000 (1034.19)	13,650 (941.1)	11,400 (786.0)	10,500 (724.05)
MS15-500	2507	QS562	9/16 (14.29)	0.359 (9.12)	0.101 (2.67)	0.101 (2.67)	15,000 (1034.19)	13,650 (941.1)	11,400 (786.0)	10,500 (724.05)
MS15-501	2507	QS750	3/4 (19.05)	0.516 (13.11)	0.117 (2.97)	0.209 (134.84)	15,000 (1034.19)	13,650 (941.1)	11,400 (786.0)	10,500 (724.05)
MS15-502	2507	QS1000	1 (25.4)	0.688 (17.48)	0.156 (3.96)	0.371 (239.36)	15,000 (1034.19)	13,650 (941.1)	11,400 (786.0)	10,500 (724.05)

### Inconel 625

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		-425 to 100°F -252 to 37.8°C	200°F 93°C	400°F 204°C	600°F 316°C
13234	IN625	QS250	1/4 (6.35)	0.109 (2.77)	0.070 (1.78)	0.009 (5.81)	15,000 (1034.19)	15,000 (1034.19)	15,000 (1034.19)	14,250 (982.50)
13062	IN625	QS375	3/8 (9.53)	0.203 (6.16)	0.086 (2.18)	0.032 (20.65)	15,000 (1034.19)	15,000 (1034.19)	15,000 (1034.19)	14,250 (982.50)
13233	IN625	QS562	9/16 (14.29)	0.312 (7.92)	0.125 (3.18)	0.076 (49.03)	15,000 (1034.19)	15,000 (1034.19)	15,000 (1034.19)	14,250 (982.50)
13232	IN625	QS750	3/4 (19.05)	0.438 (11.12)	0.156 (3.96)	0.151 (97.42)	15,000 (1034.19)	15,000 (1034.19)	15,000 (1034.19)	14,250 (982.50)
13231	IN625	QS1000	1 (25.4)	0.562 (14.28)	0.219 (5.56)	0.248 (160.00)	15,000 (1034.19)	15,000 (1034.19)	15,000 (1034.19)	14,250 (982.50)

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

Actual working pressure may be determined by tubing pressure rating, if lower. For prompt service, Parker Autoclave Engineers stocks select products. Consult your local representative. All dimensions for reference only and subject to change.

# Nipples: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

For rapid system make-up, Parker Autoclave Engineers supplies pre-assembled nipples in various sizes and lengths for Parker Autoclave QSS valves and fittings.

### Special Lengths

In addition to the standard lengths listed in the table below, nipples are available in any custom length. Consult factory.

### Materials

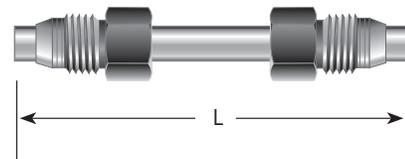
Catalog numbers in table refer to Type 316 Stainless Steel.



Catalog Number					Fits Connection Type	Tube size inches (mm)		Working Pressure at 100°F (37.8°C) psi (bar)
Nipple Length Inches (mm)						OD	ID	
4.00"	6.00"	8.00"	10.00"	12.00"				
(101.60)	(152.40)	(203.20)	(254.60)	(304.80)				
QNA4404-316	QNA4406-316	QNA4408-316	QNA44010-316	QNA44012-316	QS250	1/4" (6.35)	0.109 (2.77)	15,000 (1034.16)
QNA6604-316	QNA6606-316	QNA6608-316	QNA66010-316	QNA66012-316	QS375	3/8" (9.53)	0.203 (5.16)	15,000 (1034.16)
	QNA9906-316	QNA9908-316	QNA99010-316	QNA99012-316	QS562	9/16" (14.29)	0.359 (9.12)	15,000 (1034.16)
		QNA1208-316	QNA12010-316	QNA12012-316	QS750	3/4" (19.05)	0.516 (13.11)	15,000 (1034.16)
		QNA1608-316	QNA16010-316	QNA16012-316	QS1000	1" (25.40)	0.688 (17.48)	15,000 (1034.16)

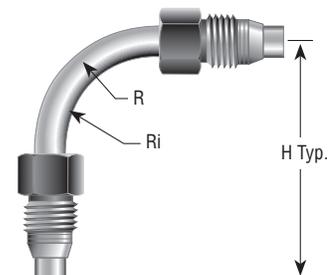
### Close Tube Port Connectors

Model	Size Inches (mm)	Fits Connection Type	Dimension "L" Inches (mm)
QTS4403.25	1/4" (6.35)	QS250	3.25 (82.55)
QTS6603.50	3/8" (9.53)	QS375	3.50 (88.90)
QTS9905.25	9/16" (14.29)	QS562	5.25 (133.35)
QTS1206.375	3/4" (19.05)	QS750	6.38 (162.10)



### Elbow Tube

Model	Size Inches (mm)	Fits Connection Type	Dimension "H" Inches (mm)	Mean Radius "R" Inches (mm)	Inside Radius "Ri" Inches (mm)
QTE44-90	1/4" (6.35)	QS250	3.25 (82.55)	0.563 (14.30)	0.438 (11.13)
QTE66-90	3/8" (9.53)	QS375	3.50 (88.90)	0.938 (23.83)	0.75 (19.05)
QTE99-90	9/16" (14.29)	QS562	7.50 (190.50)	2.906 (73.82)	2.625 (66.68)
QTE12-90	3/4" (19.05)	QS750	10.00 (254.00)	3.875 (98.43)	3.5 (88.9)
QTE16-90	1" (25.40)	QS1000	11.50 (292.10)	5.125 (13.30)	4.625 (117.48)



# Check Valves: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

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.)**

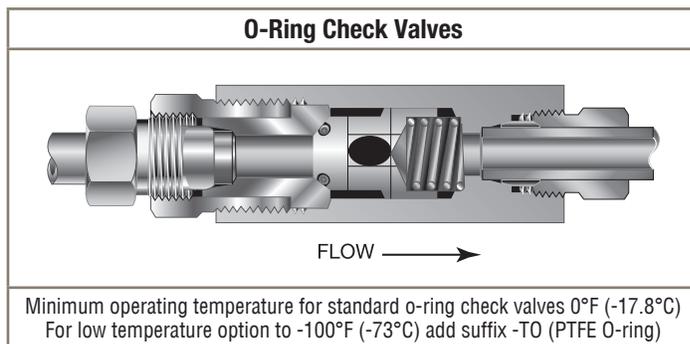
**Materials:** 316 Stainless Steel: Body, cover, poppet, cover gland. 300 Stainless Steel: Spring. Except 1" (see note). Standard O-ring: Viton, for operation to 400° F (204°C). Buna-N or PTFE available for 250°F (121°C) or 400°F (204°C) respectively; specify when ordering.

**\*Cracking Pressure:** 20 psi (1.38 bar)  $\pm$ 30%. Springs for higher cracking pressures (up to 100 psi (6.89bar)) available on special order for O-ring style checkvalves only.

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 600°F (316°C). See Technical Information section for connection temperature limitations. **(Not for use as a 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.

**Materials:** 316 Stainless Steel: Body, cover, cover gland, ball poppet. 300 Series Stainless Steel: Spring. Except 1" (see note).



**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.

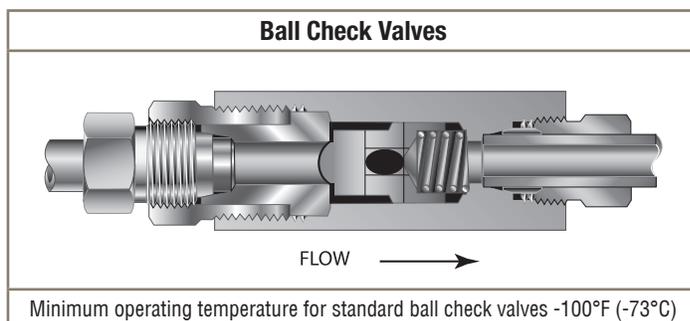
**Note:**

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

1" check valve bodies, cover and cover gland are 2507 Super Duplex standard.

\*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.



# Check Valves: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

### O-Ring Check Valves (see Figure 1)

Catalog Number	Fits Connection Type	Pressure Rating psi (bar)*	Orifice inches (mm)	Rated C <sub>v</sub>	Dimensions - inches (mm)				
					A	B	C	D Typical	Hex
QS04400	QS250	15,000 (1034.20)	0.188 (4.78)	0.15	3.18 (80.77)	2.56 (65.02)	0.44 (11.18)	0.63 (16.00)	0.81 (20.57)
QS06600	QS375	15,000 (1034.20)	0.312 (7.93)	0.63	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
QS09900	QS562	15,000 (1034.20)	0.359 (9.12)	2.30	5.21 (132.33)	4.50 (114.30)	0.81 (20.57)	1.19 (30.18)	1.75 (44.45)
QS012	QS750	15,000 (1034.20)	0.516 (13.11)	4.70	6.40 (162.56)	5.50 (139.70)	1.03 (26.16)	1.50 (38.10)	1.88 <sup>†</sup> (47.75)
QS016	QSF1000	15,000 (1034.20)	0.688 (17.48)	14.00	8.92 (226.57)	7.52 (191.01)	1.19 (30.23)	1.75 (44.45)	3.00 <sup>†</sup> (76.20)

### Ball Check Valves (see Figure 1)

Catalog Number	Fits Connection Type	Pressure Rating psi (bar)*	Orifice inches (mm)	Rated C <sub>v</sub>	Dimensions - inches (mm)				
					A	B	C	D Typical	Hex
QSB4400	QS250	15,000 (1034.20)	0.188 (4.78)	0.15	3.18 (80.77)	2.56 (65.02)	0.44 (11.18)	0.63 (16.00)	0.81 (20.57)
QSB6600	QS375	15,000 (1034.20)	0.312 (7.93)	0.63	3.56 (90.42)	3.00 (76.20)	0.53 (13.46)	0.75 (19.05)	1.00 (25.40)
QSB9900	QS562	15,000 (1034.20)	0.359 (9.12)	2.30	5.21 (132.33)	4.50 (114.30)	0.81 (20.57)	1.19 (30.18)	1.75 (44.45)
QSB12	QS750	15,000 (1034.20)	0.516 (13.11)	4.70	6.40 (162.56)	5.50 (139.70)	1.03 (26.16)	1.50 (38.10)	1.88 <sup>†</sup> (47.75)
QSB16	QS1000	15,000 (1034.20)	0.688 (17.48)	14.00	8.92 (226.57)	7.52 (191.01)	1.19 (30.23)	1.75 (44.45)	3.00 <sup>†</sup> (76.20)

<sup>†</sup>Distance across flats

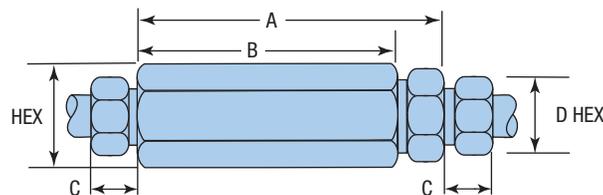
**Note:**

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

1" check valve bodies, cover, and cover gland are 2507 Super Duplex standard.

\*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 VALVES - Figure 1**

# Male/Female Adapters: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

Male /female adapters are designed to adapt a female connection to another size and/or type of connection without the need for additional couplings. In selecting an adapter involving two different sized connections, the larger connection should be on the male end where it is possible to maximize the mechanical strength of the adapter.

### Materials

All Parker Autoclave Engineers adapters are precision machined from high strength stainless steel.

### To use this chart:

1. Locate MALE end in vertical column.
2. Locate desired FEMALE end of adapter across top of chart.
3. Catalog number of required adapter is located at intersection of columns.
4. For one piece adapter add-OP to suffix of part number.

MALE END		FEMALE END											
		Connection Size and Type			Quick Set				Medium Pressure				
					1/4" QS250	3/8" QS375	9/16" QS562	3/4" QS750	1/4" SF250CX	3/8" SF375CX	9/16" SF562CX	3/4" SF750CX	1" SF1000CX
	<b>Fits this Female Connection</b>	Pressure Rating PSI (bar)*	15,000 (1034.20)	15,000 (1034.20)	15,000 (1034.20)	15,000 (1034.20)	20,000 (1378.93)	20,000 (1378.93)	20,000 (1378.93)	20,000 (1378.93)	20,000 (1378.93)		
Quick Set	1/4"	<b>QS250</b>	15,000 (1034.20)	15M46QQ	15M49QQ	15M412QQ	15M44Q6	15M46Q6	15M49Q6	15M412Q6	15M416Q6		
	3/8"	<b>QS375</b>	15,000 (1034.20)	15M64QQ		15M612QQ	15M64Q6	15M66Q6	15M69Q6	15M612Q6	15M616Q6		
	9/16"	<b>QS562</b>	15,000 (1034.20)	15M94QQ	15M96QQ		15M912QQ	15M94Q6	15M96Q6	15M99Q6	15M912Q6		
	3/4"	<b>QS760</b>	15,000 (1034.20)	15M124QQ	15M126QQ	15M129QQ		15M124Q6	15M126Q6	15M129Q6	15M1212Q6		
	Medium Pressure	1/4"	<b>SF250CX</b>	20,000 (1378.93)	15M44KQ	15M46KQ	15M49KQ	15M412KQ	<b>NOTE: NPT (Pipe) connections</b> <ul style="list-style-type: none"> <li>• NPT threads must be sealed using a high quality PTFE tape and/or PTFE paste product. Refer to thread sealant manufacturer's instructions on how to apply thread sealant.</li> <li>• Sealing performance may vary based on many factors such as pressure, temperature, media, thread quality, thread material, proper thread engagement and proper use of thread sealant.</li> <li>• Customer should limit the number of times an NPT fitting is assembled and disassembled because thread deformation during assembly will result in deteriorating seal quality over time. When using only PTFE tape, consider using thread lubrication to prevent galling of mating parts.</li> <li>• NPT pipe threads rated -100 (-73° C) to 400°F (204°C).</li> </ul>				
		3/8"	<b>SF376CX</b>	20,000 (1378.93)	15M64KQ	15M64KQ	15M69KQ	15M612KQ					
		9/16"	<b>SF562CX</b>	20,000 (1378.93)	15M94KQ	15M96KQ	15M99KQ	15M912KQ					
		3/4"	<b>SF750CX</b>	20,000 (1378.93)	15M124KQ	15M126KQ	15M129KQ	15M1212KQ					
		1"	<b>SF1000CX</b>	20,000 (1378.93)	15M164KQ	15M166KQ	15M169KQ	15M1612KQ					
	High Pressure	1/4"	<b>F250C</b>	60,000 (4136.85)	15M44BQ	15M46BQ	15M49BQ	15M412BQ					
		3/8"	<b>F375C</b>	60,000 (4136.85)	15M64BQ	15M64BQ	15M69BQ	15M612BQ					
		9/16"	<b>F562C</b>	60,000 (4136.85)	15M94BQ	15M96BQ	15M99BQ	15M912BQ					
	National Pipe Thread (NPT)	1/4"	<b>NPT</b>	15,000 (1034.20)	15M44NQ	15M46NQ	15M49NQ	15M412NQ					
		3/8"	<b>NPT</b>	15,000 (1034.20)	15M64NQ	15M64NQ	15M69NQ	15M612NQ					
		9/16"	<b>NPT</b>	15,000 (1034.20)	15M94NQ	15M96NQ	15M99NQ	15M912NQ					
		3/4"	<b>NPT</b>	10,000 (689.45)	15M124NQ	15M126NQ	15M129NQ	15M1212NQ					
1"		<b>NPT</b>	10,000 (689.45)	15M164NQ	15M166NQ	15M169NQ	15M1216NQ						

Note:

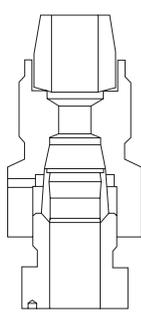
All Parker Autoclave Engineers adapters are supplied complete with appropriate gland nuts and sleeves unless specified without.

\* The maximum pressure rating for an adapter is determined by the connection component with the LOWEST pressure rating; that is, the two end connections and the tubing or pipe used, whichever is LOWER.

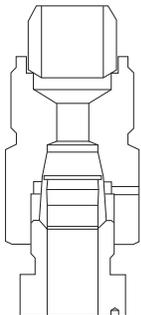
CAUTION: See appropriate pressure section in reference to proper selection of tubing.

# Male/Female Adapters: QS Series

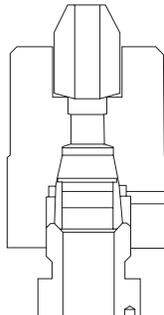
Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)



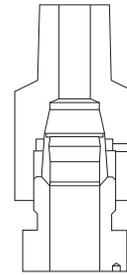
Quick Set Female  
to  
Quick Set Male



Quick Set Female  
to  
Medium Pressure Male



Quick Set Female  
to  
High Pressure Male



Quick Set Female  
to  
National Pipe Male

FEMALE END							
High Pressure			National Pipe Thread (NPT)				
1/4" F250C	3/8" F375C	9/16" F562C	1/4" NPT	3/8" NPT	1/2" NPT	3/4" NPT	1" NPT
60,000 (4136.85)	60,000 (4136.85)	150,000 (10342.14)	15,000 (1034.20)	15,000 (1034.20)	15,000 (1034.20)	10,000 (689.45)	10,000 (689.45)
15M44Q3	15M46Q3	15M49Q3	15M44Q8	15M46Q8	15M48Q8	10M412Q8	10M416Q8
15M64Q3	15M66Q3	15M69Q3	15M64Q8	15M66Q8	15M68Q8	10M612Q8	10M616Q8
15M94Q3	15M96Q3	15M99Q3	15M94Q8	15M96Q8	15M98Q8	10M912Q8	10M916Q8
15M124Q3	15M126Q3	15M129Q3	15M124Q8	15M126Q8	15M128Q8	10M1212Q8	10M1216Q8

AE Male/Female Adapters are available in a "one-piece" design.

They are identical to the two piece designs in length and can be ordered by adding the suffix - OP to the two piece adapter part numbers listed.

For prompt service, Autoclave stocks select products. Consult factory.

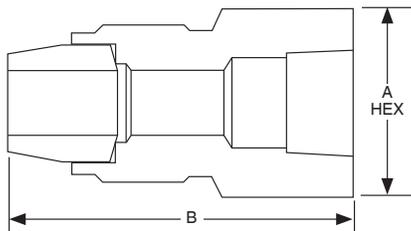
# Male/Female Adapters: QS Series

Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

## QSS to Pipe

Male End Fits this Connection	Female End	Catalog Number	Dimension inches (mm)	
			A HEX	B
QS250	QS250			
QS250	QS375	15M46QQ		
QS250	QS562	15M49QQ	1.38 (34.9)	2.25 (57.1)
QS250	QS750	15M412QQ		
QS250	QS250CX	15M44Q6		
QS250	SF375CX	15M46Q6		
QS250	SF562CX	15M49Q6		
QS250	SF750CX	15M412Q6		
QS250	SF1000CX	15M416Q6		
QS250	F250C	15M44Q3		
QS250	F375C	15M46Q3		
QS250	F562C	10M49Q3		
QS250	1/4 NPT	15M44Q8	0.75 (19.1)	1.69 (42.9)
QS250	3/8 NPT	15M46Q8		
QS250	1/2 NPT	15M48Q8		
QS250	3/4 NPT	10M412Q8		
QS250	1 NPT	10M416Q8		
QS375	QS250	15M64QQ	0.75 (19.1)	1.40 (35.6)
QS375	QS375			
QS375	QS562	15M69QQ		
QS375	QS750	15M612QQ	1.50 (38.1)	2.78 (70.6)
QS375	SF250CX	15M64Q6		
QS375	SF375CX	15M66Q6	0.75 (19.1)	1.66 (42.2)
QS375	SF562CX	15M69Q6	1.00 (25.4)	1.78 (45.2)
QS375	SF750CX	15M612Q6		
QS375	SF1000CX	15M616Q6		
QS375	F250C	15M64Q3		
QS375	F375C	15M66Q3		
QS375	F562C	15M69Q3		
QS375	1/4 NPT	15M64Q8	0.75 (19.1)	1.66 (42.2)
QS375	3/8 NPT	15M66Q8	1.00 (25.4)	1.78 (45.3)
QS375	1/2 NPT	15M68Q8	1.19 (30.1)	2.16 (54.8)
QS375	3/4 NPT	10M612Q8		
QS375	1 NPT	10M616Q8		

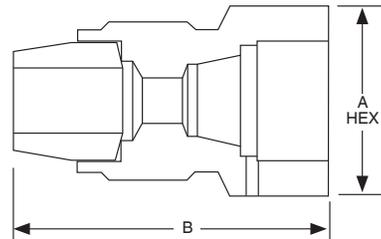
For prompt service, Parker Autoclave Engineers stocks select products. Consult factory.



## QSS to QSS

Male End Fits this Connection	Female End	Catalog Number	Dimension inches (mm)	
			A HEX	B
QS562	QS250	15M94QQ	1.00 (25.4)	1.00 (25.4)
QS562	QS375	15M96QQ	1.00 (25.4)	1.00 (25.4)
QS562	QS562		1.50 (38.1)	3.16 (80.3)
QS562	QS750	15M912QQ		
QS562	SF250CX	15M94Q6		
QS562	SF375CX	15M96Q6		
QS562	SF562CX	15M99Q6		
QS562	SF750CX	15M912Q6		
QS562	SF1000CX	15M916Q6		
QS562	F250C	15M94Q3		
QS562	F375C	15M96Q3		
QS562	F562C	15M99Q3		
QS562	1/4 NPT	15M94Q8	1.19 (30.1)	2.22 (56.4)
QS562	3/8 NPT	15M96Q8	1.19 (30.1)	2.22 (56.4)
QS562	1/2 NPT	15M98Q8	1.19 (30.1)	2.41 (61.1)
QS562	3/4 NPT	10M912Q8	1.38 (35.1)	2.56 (65.0)
QS562	1 NPT	10M916Q8		
QS750	QS250	15M124QQ		
QS750	QS375	15M126QQ	1.50 (38.1)	2.53 (64.1)
QS750	QS562	15M129QQ	1.38 (35.1)	2.56 (65.0)
QS750	QS750			
QS750	SF250CX	15M124Q6		
QS750	SF375CX	15M126Q6		
QS750	SF562CX	15M129Q6		
QS750	SF750CX	15M1212Q6		
QS750	SF1000CX	15M1216Q6		
QS750	F250C	15M124Q3		
QS750	F375C	15M126Q3		
QS750	F562C	15M129Q3		
QS750	1/4 NPT	15M124Q8	0.75 (19.1)	1.66 (42.2)
QS750	3/8 NPT	15M126Q8	1.00 (25.4)	1.78 (45.3)
QS750	1/2 NPT	15M128Q8	1.19 (30.1)	2.16 (54.8)
QS750	3/4 NPT	10M1212Q8		
QS750	1 NPT	10M1216Q8		

Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. Note: For pressure rating see selection chart. All Dimensions for reference only and subject to change. Adapter configurations may vary from outline shown.



# Male/Female Adapters: QS Series

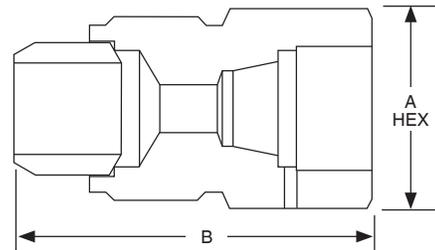
Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

## MP to QSS

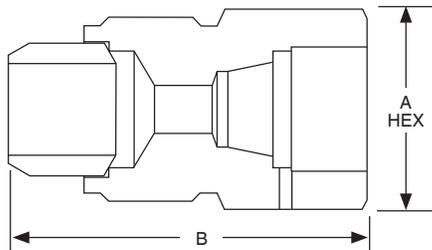
Male End Fits this Connection	Female End	Catalog Number	Dimension inches (mm)	
			A HEX	B
SF250CX	QS250	15M44KQ	0.75 (19.1)	1.68 (42.7)
SF250CX	QS375	15M46KQ	0.81 (20.6)	1.68 (42.7)
SF250CX	QS562	15M49KQ	1.19 (30.2)	2.22 (56.4)
SF250CX	QS750	15M412KQ		
SF375CX	QS250	15M64KQ	0.75 (19.1)	1.63 (41.4)
SF375CX	QS375	15M66KQ	0.81 (20.6)	1.81 (46.1)
SF375CX	QS562	15M69KQ		
SF375CX	QS750	15M612KQ	1.50 (38.1)	3.00 (76.2)
SF562CX	QS250	15M94KQ	0.94 (23.8)	1.75 (44.5)
SF562CX	QS375	10M96KQ	0.94 (23.8)	1.75 (44.5)
SF562CX	QS562	15M99KQ	1.38 (34.9)	2.50 (63.5)
SF562CX	QS750	15M912KQ	1.50 (38.1)	3.25 (82.6)
SF750CX	QS250	15M124KQ		
SF750CX	QS375	15M126KQ		
SF750CX	QS562	15M129KQ	1.38 (34.9)	2.67 (67.8)
SF750CX	QS750	15M1212KQ	1.50 (38.1)	3.06 (77.8)
SF1000CX	QS250	15M164KQ		
SF1000CX	QS375	15M166KQ		
SF1000CX	QS562	15M169KQ	1.50 (38.1)	2.88 (73.0)
SF1000CX	QS750	15M1612KQ	1.50 (38.1)	3.38 (85.7)

## HP to QSS

Male End Fits this Connection	Female End	Catalog Number	Dimension inches (mm)	
			A HEX	B
F250C	QS250	15M44BQ	0.75 (19.1)	1.31 (33.3)
F250C	QS375	15M46BQ	0.81 (20.6)	1.56 (39.7)
F250C	QS562	15M49BQ		
F250C	QS750	15M412BQ		
F375C	QS250	15M64BQ		
F375C	QS375	15M66BQ	0.81 (20.6)	1.69 (42.9)
F375C	QS562	15M69BQ		
F375C	QS750	15M612BQ		
F562C	QS250	15M94BQ	1.19 (30.1)	1.81 (46.1)
F562C	QS375	10M96BQ	1.19 (30.1)	1.69 (42.9)
F562C	QS562	15M99BQ	1.38 (34.9)	2.32 (58.8)
F562C	QS750	15M912BQ	1.50 (38.1)	3.06 (77.8)



Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. Note: For pressure rating see selection chart. All Dimensions for reference only and subject to change. Adapter configurations may vary from outline shown.



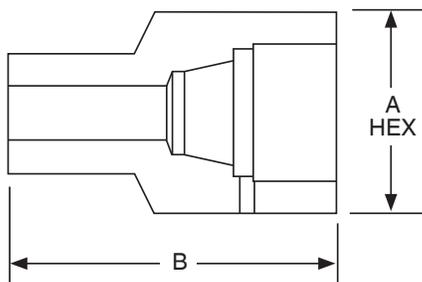
# Male/Female Adapters: QS Series

Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

## NPT to QSS

Male End Fits this Connection	Female End	Catalog Number	Dimension inches (mm)	
			A HEX	B
1/4 NPT	QS250	15M44NQ	0.75 (19.1)	1.44 (36.5)
1/4 NPT	QS375	15M46NQ	0.81 (20.6)	1.63 (41.3)
1/4 NPT	QS562	15M49NQ	1.38 (35.1)	2.13 (53.5)
1/4 NPT	QS750	15M412NQ		
3/8 NPT	QS250	15M64NQ	0.75 (19.1)	1.50 (38.1)
3/8 NPT	QS375	15M66NQ	0.81 (20.6)	1.63 (41.3)
3/8 NPT	QS562	15M69NQ	1.38 (35.1)	2.13 (53.5)
3/8 NPT	QS750	15M612NQ		
1/2 NPT	QS250	15M84NQ	0.94 (23.8)	1.75 (44.5)
1/2 NPT	QS375	10M86NQ	0.94 (23.8)	1.63 (41.3)
1/2 NPT	QS562	15M89NQ	1.38 (34.9)	2.25 (57.2)
1/2 NPT	QS750	15M812NQ		
3/4 NPT	QS250	10M124NQ		
3/4 NPT	QS375	10M126NQ		
3/4 NPT	QS562	10M129NQ	1.38 (34.9)	2.38 (60.3)
3/4 NPT	QS750	10M1212NQ	1.50 (38.1)	2.81 (71.4)
1 NPT	QS250	10M164NQ		
1 NPT	QS375	10M166NQ		
1 NPT	QS562	10M169NQ	1.50 (38.1)	2.38 (60.3)
1 NPT	QS750	10M1612NQ	1.50 (38.1)	2.38 (60.3)

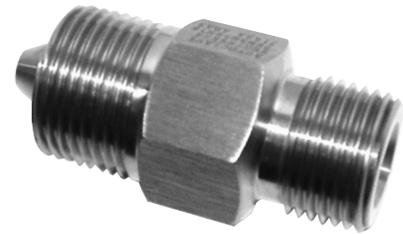
Maximum pressure rating is based on the lowest rating of any component. Actual working pressure may be determined by tubing pressure rating, if lower. Note: For pressure rating see selection chart. All Dimensions for reference only and subject to change. Adapter configurations may vary from outline shown.



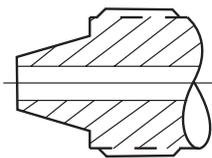
# Male/Male Adapters: QS Series

## Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

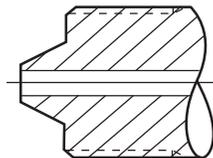
Parker Autoclave Engineer's standard male-to-male one piece adapters are available in multiple configurations. Standard male-to-male adapters are machined from cold worked stainless steel. Contact your local Sales Representative for optional information. The following tables list our standard adapters with dimensions.



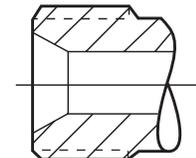
### Adapter End Configuration



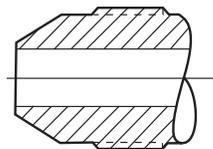
**QS Series**



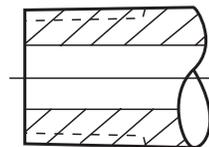
**"H"  
High Pressure**



**"RH" Reverse  
High Pressure  
(also known as Type M)**



**"M"  
Medium Pressure**



**"P"  
National Pipe  
Tapered**

### Ordering Procedure

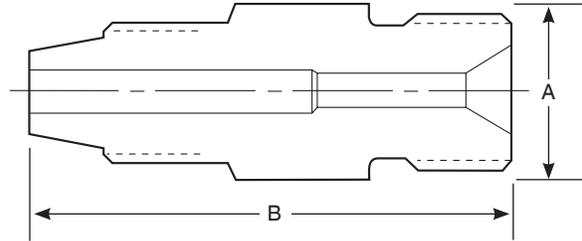
Typical catalog number example: <b>15MAQ4H9</b> (catalog number is created based on customer selection of product parameters, see below for example)				
<b>15</b>	<b>MA</b>	<b>Q4</b>	<b>H9</b>	
Pressure (X 1000 psi)	Male Adapter	<b>Available End Connections</b> (see selections below)		
<b>Q4</b> = 1/4" QS Series <b>Q6</b> = 3/8" QS Series <b>Q9</b> = 9/16" QS Series <b>Q12</b> = 3/4" QS Series	<b>M4</b> = 1/4" Medium Pressure <b>M6</b> = 3/8" Medium Pressure <b>M9</b> = 9/16" Medium Pressure <b>M12</b> = 3/4" Medium Pressure <b>M16</b> = 1" Medium Pressure	<b>H4</b> = 1/4" High Pressure <b>H5</b> = 5/16" High Pressure <b>H6</b> = 3/8" High Pressure <b>H9</b> = 9/16" High Pressure	<b>P4</b> = 1/4" NPT <b>P6</b> = 3/8" NPT <b>P8</b> = 1/2" NPT <b>P12</b> = 3/4" NPT <b>P16</b> = 1" NPT	<b>RH9</b> = 9/16" -18 Reverse High <b>RH12</b> = 3/4" -16 Reverse High <b>RH14</b> = 7/8" -14 Reverse High <b>RH16</b> = 1" -12 Reverse High <b>RH21</b> = 1-5/16" -12 Reverse High

# Male/Male Adapters: QS Series

Compression Sleeve Connection Pressures to 15,000 psi (1034 bar)

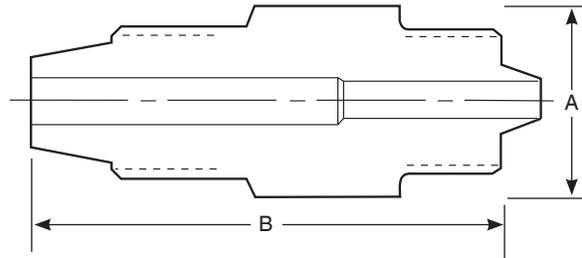
## QS Series to Reverse High Pressure Adapters

Catalog Number	Connection QS	Connection RH	Dimension inches (mm)	
			A HEX	B
15MAQ4RH9	QS250	9/16"	.63 (15.9)	1.70 (43.2)
15MAQ6RH9	QS375	9/16"	.75 (19.1)	1.81 (46.2)
15MAQ9RH9	QS562	9/16"	1.19 (30.1)	2.25 (57.1)
15MAQ9RH12	QS562	3/4"	1.19 (30.1)	2.38 (60.3)
15MAQ9RH16	QS562	1"	1.19 (30.1)	2.56 (65.1)
15MAQ12RH9	QS750	9/16"	1.38 (35.1)	3.00 (76.2)
15MAQ16RH9	QS1000	9/16"	1.75 (44.45)	3.25 (82.55)



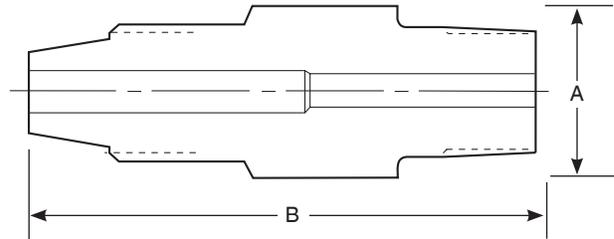
## QS Series to High Pressure Adapters

Catalog Number	Connection QS	Connection HP	Dimension inches (mm)	
			A HEX	B
15MAQ9H4	QS562	1/4"	0.75 (19.1)	2.00 (50.8)



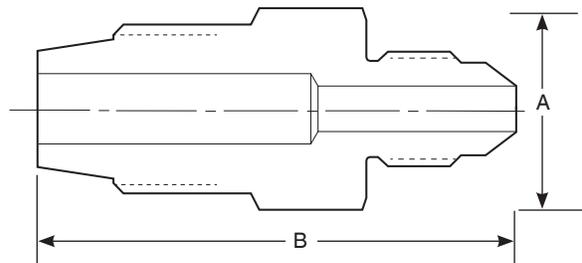
## QS Series to NPT Adapters

Catalog Number	Connection QS	Connection NPT	Dimension inches (mm)	
			A HEX	B
15MAQ6P4	QS375	1/4"	1.19 (30.1)	2.44 (62.0)
15MAQ6P8	QS375	1/2"	.94 (23.9)	2.19 (55.6)
15MAQ9P4	QS562	1/4"	1.00 (25.4)	2.44 (62.0)



## QS Series to JIC Adapters

Catalog Number	Connection QS	Connection JIC	Dimension inches (mm)	
			A HEX	B
15MAQ6J4	QS375	1/4"	0.75 (19.05)	1.75 (44.5)



# Tools, Installation, Operation & Maintenance: QS Series

## QSS Assembly Procedure

### 1/4" & 3/8" Tubing Size (Standard setting operation)

See next page for setting with hydraulic tool. (Setting with hydraulic tool is recommended but not required).

1. Cut tubing to length and deburr. Allow extra length for proper engagement (per table below).

Outside Diameter Tube Size inches (mm)	Extra Allowance for Engagement ** inches (mm)
1/4" (6.35)	0.75 (19.05)
3/8" (9.53)	0.81 (20.64)

2. Slip gland and sleeve onto tubing.

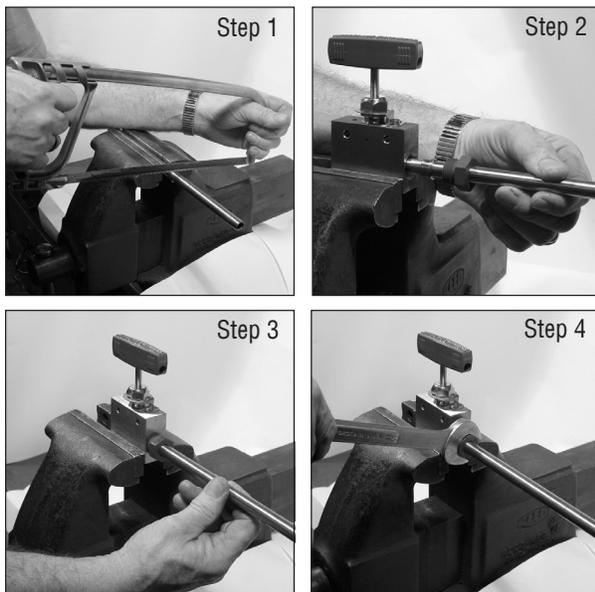
Note: Be sure to remove gland and sleeve from components and slide them onto the tubing before inserting the tubing into the components.

### Make sure larger end of sleeve is toward gland.

Push tubing into valve or fitting until it bottoms. Lubricate gland nut threads to aid in assembly. If process tolerable, a slight amount of inert grease on the nose of the compression sleeve is recommended to improve seal ability.

3. TIGHTEN GLAND NUT UNTIL SLEEVE BEGINS TO GRIP TUBING.

4. Note starting position of wrench. †Tighten gland nut 1-1/4 turns to complete the QSS connection.\* (Avoid using fitting as pre-set tool more than 5 times or incorrect ferrule sets could occur.) For large projects, hydraulic set tool is highly recommended.)



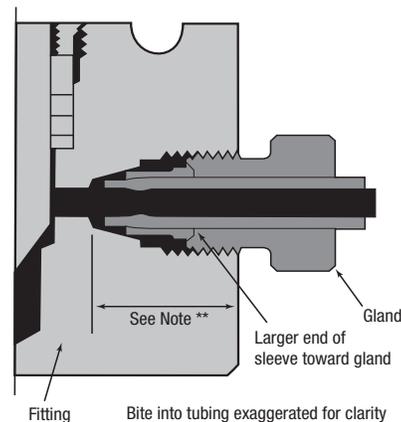
Torque values can be used for both initial setting and reassembly connections. See the following page for reassembly values and ranges.

### Initial Settings Torque ft-lbs (NM)

1/4"	40 (54.3)
3/8"	80 (108.5)

## Completed Connection

The illustration below shows the condition of sleeve and tubing after completion of "sleeve setting." The sleeve has cut into the tubing as it moved forward into the tapered seat, upsetting material ahead of it and establishing a shoulder on the tubing to provide positive mechanical support for the tubing end-load. A properly set sleeve cannot be displaced back and forth along the tubing but may be rotated around the tubing.



## Reassembly

To reassemble a 1/4 or 3/8 connection, insert tubing with sleeve and gland nut into valve or fitting. Tighten gland nut until the sleeve begins to grip tubing. Tighten gland with a wrench 1/4 of a turn for a gas-tight seal. After frequent reassemblies, it may take less than 1/4 turn to affect a gas-tight seal and as little as 1/8 of a turn may be sufficient.

\* No special torque wrenches or mandrels required.

\*\* Distance tubing protrudes into connection from face of fitting.

† A small blind hole on the face of the gland is provided for a starting position reference.

Parker Autoclave Engineers Medium Pressure tubing is required for these connection components. When assembling tubing into fittings such as rack systems, alignment of tubing is critical in connection make up. Do not force tubing into alignment with connections as bending stress will effect the sealing capability of the connections.

# Tools, Installation, Operation & Maintenance: QS Series

## QSS Assembly Procedure

### Hydraulic Set Tool Assembly

1. Cut tubing to length and deburr. Allow extra length for proper engagement (per table below).

Outside Diameter Tube Size inches (mm)	Extra Allowance for Engagement ** inches (mm)
1/4" (6.35)	0.75 (19.05)
3/8" (9.53)	0.81 (20.64)
9/16" (14.27)	1.25 (31.75)
3/4" (19.04)	1.63 (41.28)
1" (25.4)	1.75 (44.45)

2. Slip gland nut and sleeve onto tubing. Lubricate the nose of the compression sleeve or the tapered die surface with a metal to metal lubricant. We recommend Jetlube MP-50. Make sure larger end of sleeve is toward gland nut. Push tubing into hydraulic set tool until it bottoms into the setting die. For the 1" size only, assemble the split nut (2A-1) around the tubing between the sleeve and gland with the larger counter bore towards the gland and thread into the cap. Be sure both the split nut and cap have been tightened down and neither can be moved by hand. The cap should always be flush with the top of the housing (2A-2) while the split nut will not. Skip step 3.

3. Thread gland nut into cap until the hex touches the top surface. **Gland nut must be fully engaged.**

4. Pressurize cylinder up to the set pressure (per table below.)

**DO NOT EXCEED THE SET PRESSURE.**

**AS WITH ALL HIGH PRESSURE EQUIPMENT, USE CAUTION DURING OPERATION. SET TOOL MAWP IS 10,000 PSI (690 BAR).**

Outside Diameter Tube Size inches (mm)	Set Pressure For Full Tubing Bite psi (bar)
1/4" (6.35) 3/8" (9.53)	4,500 (310) to 5,000 (344)
9/16" (14.27)	5,000 (345) to 6,000 (414)
3/4" (19.04)	9,000 (620) to 10,000 (690)
1" (25.4)	9,000 (620) to 9,500 (655)

Vent all pressure from hydraulic cylinder. Remove gland assembly from preset tool and inspect biting end of sleeve. Looking inside the biting end of the sleeve you should see a shoulder pushed up from the tubing material. A properly set sleeve must spin freely to achieve a seal. If the sleeve is seized in place after setting, discard and make another. **Do not set a sleeve more than once.**

\*\* Distance tubing protrudes into connection from face of fitting.

† A small blind hole on the face of the gland is provided for a starting position reference.

5. Install gland assembly into valve/fitting. If process tolerable, a slight amount of inert grease on the nose of the compression sleeve should be used to aid sealing. Lubrication of gland threads will also aid in assembly.

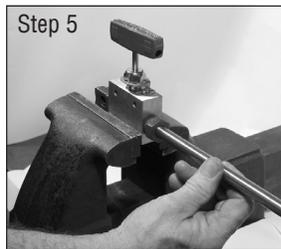
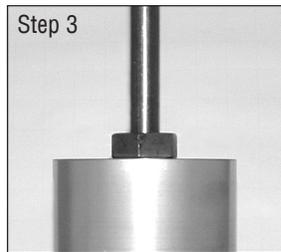
**TIGHTEN GLAND NUT UNTIL SLEEVE BEGINS TO GRIP TUBING.**

6. Note starting position of wrench.† Tighten gland nut 1/4 turn to complete the QSS connection. Since the mechanical bite has already been completed with the hydraulic set tool, it is permissible to vary the torque to achieve sealing. **If torque values are required, use the following:**

Size (in)	Required Torque ft-lbs (Nm)	Maximum Torque ft-lbs (Nm)	Torque Wrench Adapter Size	Adapter Part #
1/4"	30 (40.7)	50 (67.8)	5/8"	P-1683
3/8"	35 (47.5)	75 (101.6)	3/4"	P-9813
9/16"	90 (122.0)	175 (237)	1-3/16"	P-1689
3/4"	175 (237.3)	325 (440)	1-1/2"	P-6040
1"	375 (508.4)	635 (861)	1-3/4"	P91269



# Tools, Installation, Operation & Maintenance: QS Series Hydraulic Sleeve Set Tool Assembly



## **Completed Connection**

The hydraulically set sleeve has cut into the tubing as it moved forward into the tapered seat, upsetting material ahead of it and establishing a shoulder on the tubing to provide positive mechanical support for the tubing end-load. A properly set sleeve cannot be displaced back and forth along the tubing but may be rotated around the tubing.

## **Reassembly**

To reassemble a connection, insert tubing with sleeve and gland nut into valve or fitting. Install gland into valve/fitting.

**TIGHTEN GLAND NUT UNTIL SLEEVE BEGINS TO GRIP TUBING.**

Note starting position of wrench.† Tighten gland nut 1/4 turn to complete the QSS connection or use torque settings as specified in chart on page 48.

Parker Autoclave Engineers Medium Pressure tubing is required for these connection components. When assembling tubing into fittings such as in rack systems, alignment of tubing is critical in connection make up. Do not force tubing into alignment with connections as bending stress will effect the sealing capability of the connections.

# Tools, Installation, Operation & Maintenance: QS Series Hydraulic Sleeve Set Tool Assembly

The Parker Autoclave Engineers hydraulic sleeve set tool is designed for use with the QS Series glands, sleeves and Autoclave tubing. This tool is required to set the sleeve for the 9/16" and 3/4" sizes and suggested for the 1/4" and 3/8" sizes. It not only produces the required bite into the tubing, it is much easier than trying to set the sleeve the conventional method. The tool comes in a self contained portable, lockable case complete with hand or air pump, cap and dies for all sizes.

## Features

**Case Dimensions:** 28"W x 14.25"H x 13.75"D (711cm x 362cm x 292cm)

**Total Weight:** 69 lbs. (31 Kg)

**Hand Pump:** Single stage hydraulic (standard)

**Hydraulic Cylinder:** 10,000 psi, 2.5" 25 ton

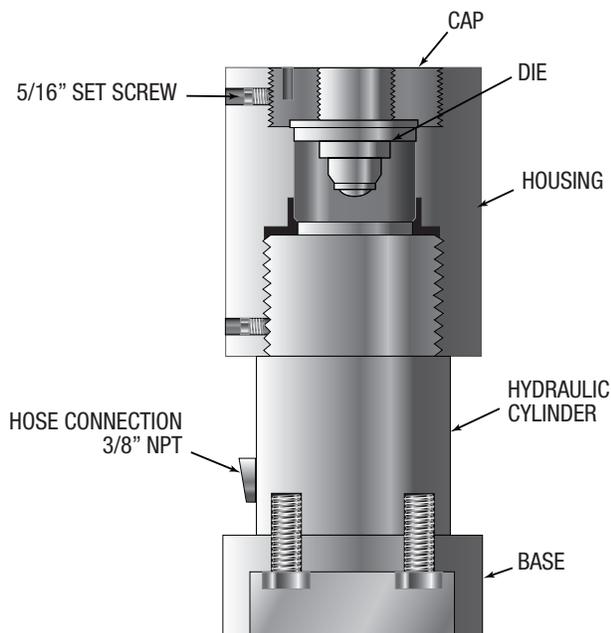
**Base & Housing:** Aluminum anodized

**Die and Cap:** Precision hardened steel

**Gauge:** 15,000 psi (1034 bar)

**Air-operated hydraulic pump option** can be furnished in place of standard hand pump. (Add "-A" to order number). Operating pressure 0 to 10,000 psi (0 to 690 bar).

Required air pressure, 30 psi (2.1 bar) minimum 120 psi (8.3 bar) maximum. Reservoir capacity: 24 cu. in. (393cm<sup>3</sup>). Air lubricator/air separator is recommended for air operated units.



## Tooling Installation and Changing Sizes

To change tooling to another size only requires interchanging 2 parts.

1. Loosen the 5/16" set screw that locks the threaded cap from rotating.
2. Using a 5/32" hex key to rotate and remove the threaded steel cap from the aluminum housing.
3. Turn the tool assembly upside down to remove the die from inside the housing.
4. Install the die of the appropriate connection size you wish to use. The solid side of the die should be facing down towards the hydraulic cylinder.
5. Install the appropriate size cap to match the size of the die. Insert cap with the 5/32" hex up. Rotate with a 5/32" hex key until it bottoms out on the shoulder side of the housing.
6. Thread in the 5/16" set screw until it bottoms out on the cap threads. Tighten set screw to prevent movement during use.

## Ordering Information



HST-912A Kit



(Hand pump)

# Tools, Installation, Operation & Maintenance: QS Series Hydraulic Sleeve Set Tool

**HST-912:** Complete tool kit with hand pump

**HST-912TW:** Complete tool kit with torque wrench and adapters

**HST-912A:** Complete tool kit with air-operated pump (Air operated pump #P-1948)

**HST-912ATW:** Complete tool kit with torque wrench and adapters

Description	Part #	Description	Part #
Hydraulic Cylinder	90588	3/4" Cap	HTSC12
Gauge	90594	9/16" Cap	HSTC9
Adapter	90593	Tool Chest	P-10011
Base	101F-3407	Moly Paste	P-9766
Housing	101F-3408	1/4" Die	HSTD4
Hydraulic Pump	P-1893	1/4" Cap	HSTC4
Hose	P-1894	3/8" Die	HSTD6
3/4" Die	HSTD12	3/8" cap	HSTC6
9/16" Die	HSTD9		
<b>Additional Items</b>			
<b>Kits with Torque Wrench (TW) and adapters</b>			
10-150 ft-lbs (14-203 Nm) Torque Wrench	AE003325	1-3/16" Wrench Adapter	AE003324
50- 250 ft-lbs (68-339 Nm) Torque Wrench	AE003326	1-1/2" Wrench Adapter	AE00170
5/8" Wrench Adapter	AE003321	100-600 ft-lbs (136-814 Nm) Torque Wrench	AE003327
3/4" Wrench Adapter	AE003322		

**HST-S:** Complete stand mounted system that includes everything in the HST-912ATW plus the required tooling for the 1" size connections. Not shown. Note: 1" tubing torque wrench and adapter not included. Consult factory for replacement parts.



Hydraulic Set Tool (HST-S)

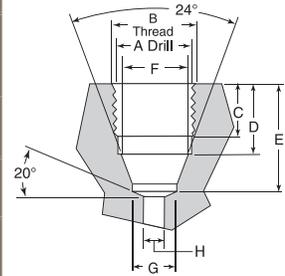
The Parker Autoclave Engineers hydraulic set tool system is a complete tool for all tubing sizes from 1/4" to 1.0". Design on a movable stand with shelf for tooling it comes complete with all required caps and dies, two hydraulic cylinders, torque wrenches and adapters. The smaller hydraulic cylinder is used from 1/4" through 3/4" sizes and the larger is for the 1" size. A foot actuated air operated pump is standard making sleeve setting easy and fast. Hydraulic cylinders are mounded with the ability to swivel from vertical to horizontal for ease of long tubing lengths. This system is available for purchase or rentals.

<b>Optional for 1" Tubing</b>	
Description	Part #
100 to 600 ft-lbs (136-814 Nm) Torque Wrench	AE003327
1-3/4" Wrench Adapter	AE001067

# Tools, Installation, Operation & Maintenance: QS Series Connection Dimensions

## Parker Autoclave QS

Tube Outside Diameter (inches)	Connection Type	Dimensions inches (mm)							
		A	B	C	D	E	F	G	H
1/4"	QSF250	29/64 (11.5)	1/2 -20	0.34 (8.6)	0.44 (11.1)	0.59 (17.5)	0.34 (8.6)	"F" 0.257 (6.5)	0.15 (3.81)
3/8"	QSF375	37/64 (14.7)	5/8 -18	0.38 (9.7)	0.47 (11.9)	0.75 (19.1)	0.48 (12.1)	.038 (9.7)	0.25 (6.35)
9/16"	QSF562	7/8 (22.2)	15/16 -16	0.57 (14.5)	0.704 (17.9)	1.25 (31.8)	0.712 (18.1)	.57 (14.5)	0.359 (9.12)
3/4"	QSF750	1-13/16 (30.15)	1-1/4 -18	0.83 (21.08)	1.00 (25.40)	1.56 (39.62)	0.95 (24.13)	.76 (19.30)	0.576 (14.6)
1"	QSF1000	1-9/16 (39.70)	1-5/8 -16	0.75 (19.1)	.88 (22.2)	1.56 (39.62)	1.24 (31.5)	1.02 (26.0)	0.688 (17.5)



Note: All dimensions are shown for reference only and should not be considered as actual machining dimensions.

\*For port diameter please see orifice sizes for specific valves and fittings.

All threads are manufactured to a class 2A or 2B fit.

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02-1253BE July 2017



**Instrumentation Products Division**  
Autoclave Engineers Operation  
8325 Hessinger Drive  
Erie, Pennsylvania 16509-4679 USA  
PH: 814-860-5700 FAX: 814-860-5811  
www.autoclave.com

Parker Hannifin Manufacturing Ltd.  
**Instrumentation Products Division, Europe**  
Industrial Estate Whitemill  
Wexford, Republic of Ireland  
PH: 353 53 914 1566  
FAX: 353 53 914 1582

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

**Caution!** Parker Autoclave Engineers Valves, Fittings and Tools are not designed to work with common commercial instrument tubing and will only work with tubing built to Parker Autoclave Engineers AES Specifications. Failure to do so will void warranty.

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