

Ball Valves

3-Way Series

Pressures to 20,000 psi (1379 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.

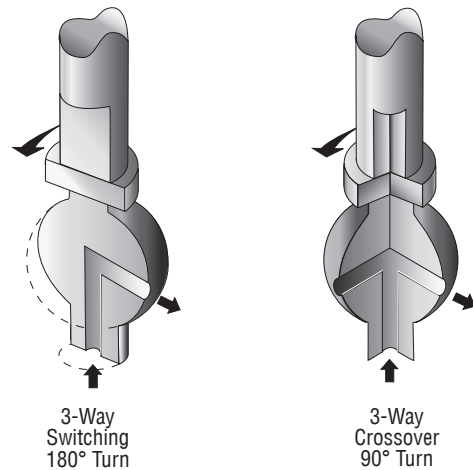
When it comes to high-pressure applications, these ball valves with the associated high-pressure components, provide the critical performance demanded by the high pressure market.

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 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.
- Optional wetted materials.
- Wide selection of tube and pipe end fittings available.
- Electric and pneumatic actuator options.



Flow Configuration



Applications:

- Laboratories
- Test Stands
- Control Panels
- Chemical Research
- Pilot Plants
- Water Blast Pumping Units
- High volume chemical injection skids



www.autoclave.com

Ball Valves - 3-Way Series

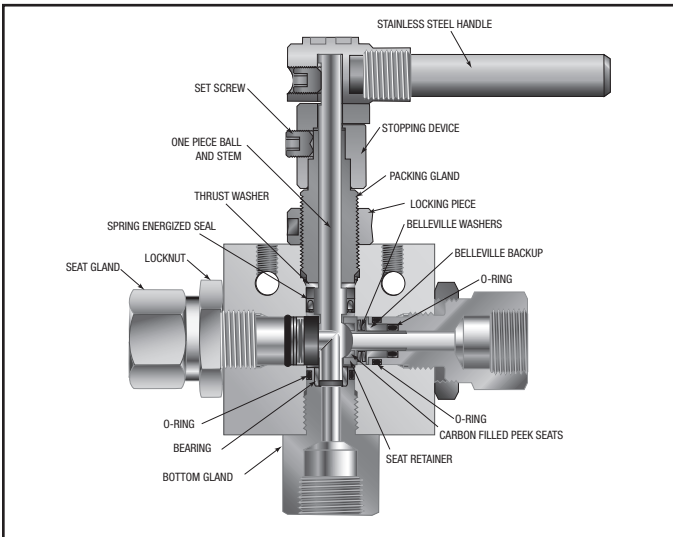
Ball Valves - 3/16" 3-Way Series

Pressures to 20,000 psi (1379 bar) .188" (4.77mm) Orifice

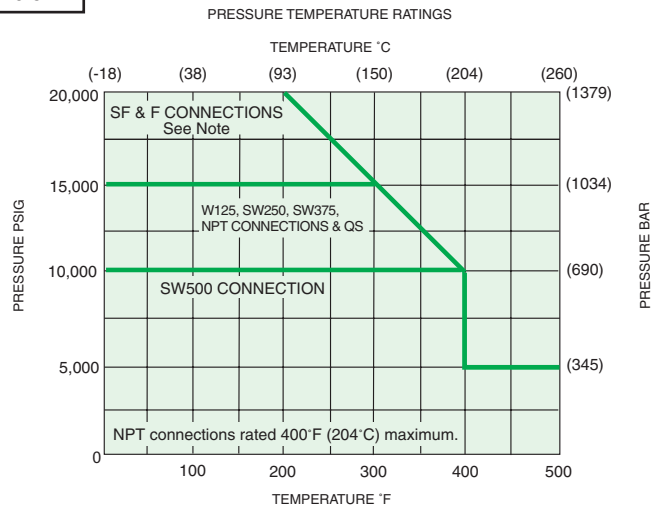
Connection	MAWP @ Room Temperature	Minimum Orifice inches(mm)	Valve Cv
W125	15,000 psi (1034 bar)	.094 (2.39)	0.18
SW250	15,000 psi (1034 bar)	.129 (3.28)	0.34
SW375	15,000 psi (1034 bar)	.188 (4.77)	0.5
SW500	10,000 psi (690 bar)	.188 (4.77)	0.5
SF250CX20	20,000 psi (1379 bar)	.109 (2.77)	0.26
SF375CX20	20,000 psi (1379 bar)	.188 (4.77)	0.5
SF562CX20	20,000 psi (1379 bar)	.188 (4.77)	0.5
F250C	20,000 psi (1379 bar)	.094 (2.39)	0.18
F375C	20,000 psi (1379 bar)	.125 (3.17)	0.33
F562C	20,000 psi (1379 bar)	.188 (4.77)	0.5
1/8" NPT	15,000 psi (1034 bar)	.188 (4.77)	0.5
1/4" NPT	15,000 psi (1034 bar)	.188 (4.77)	0.5
3/8" NPT	15,000 psi (1034 bar)	.188 (4.77)	0.5
1/2" NPT	15,000 psi (1034 bar)	.188 (4.77)	0.5
QS250	15,000 psi (1034 bar)	.157 (3.99)	0.44
QS375	15,000 psi (1034 bar)	.188 (4.77)	0.5



MAWP: Maximum Allowable Working Pressure



NOTE: Critical gas applications such as Hydrogen or Helium should be evaluated on a case by case basis. Consult factory.

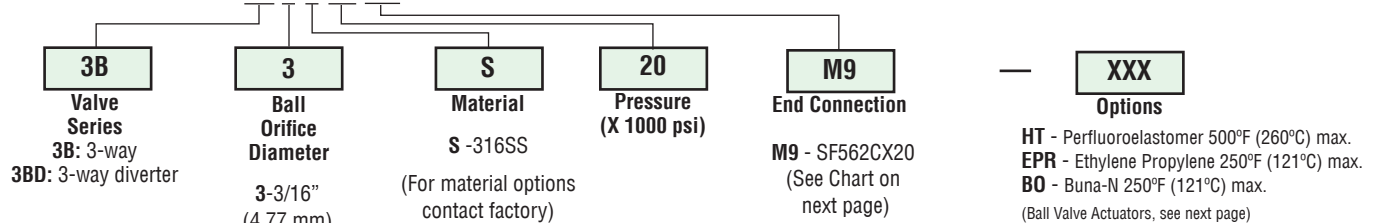


Pressure ratings are determined by the end connections chosen, see chart. Maximum Temperature rating is determined by the o-ring material (see description below)
Note: Maximum side connection inlet pressure 15,000 psi (1034 bar)

Ordering Procedure

For complete information on available end connections and material options, see next page. 3-way ball valves are furnished complete with tube or pipe connections. Standard valve has Viton o-rings [400°F (204°C) maximum].

Typical catalog number: **3B 3 S 20 M9**



All general terms and conditions of sale, including limitations of our liability, apply to all products and services sold.

End Connection Options

Catalog Number	End Connection Number	Connection	MAWP @ Room Temperature	Seat Gland Hex Inches(mm)
3B3S15L2 3BD3S15L2	L2	W125	15,000 psi (1034 bar)	1 (25.40)
3B3S15L4 3BD3S15L4	L4	SW250	15,000 psi (1034 bar)	1 (25.40)
3B3S15L6 3BD3S15L6	L6	SW375	15,000 psi (1034 bar)	1 (25.40)
3B3S10L8 3BD3S10L8	L8	SW500	10,000 psi (690 bar)	1 (25.40)
3B3S20M4 3BD3S20M4	M4	SF250CX20	20,000 psi (1379 bar)	1 (25.40)
3B3S20M6 3BD3S20M6	M6	SF375CX20	20,000 psi (1379 bar)	1 (25.40)
3B3S20M9 3BD3S20M9	M9	SF562CX20	20,000 psi (1379 bar)	1 (25.40)
3B3S20H4 3BD3S20H4	H4	F250C	20,000 psi (1379 bar)	1 (25.40)
3B3S20H6 3BD3S20H6	H6	F375C	20,000 psi (1379 bar)	1 (25.40)
3B3S20H9 3BD3S20H9	H9	F562C	20,000 psi (1379 bar)	1.38 (35.05)
3B3S15P2 3BD3S15P2	P2	1/8" NPT	15,000 psi (1034 bar)	1 (25.40)
3B3S15P4 3BD3S15P4	P4	1/4" NPT	15,000 psi (1034 bar)	1 (25.40)
3B3S15P6 3BD3S15P6	P6	3/8" NPT	15,000 psi (1034 bar)	1 (25.40)
3B3S15P8 3BD3S15P8	P8	1/2" NPT	15,000 psi (1034 bar)	1.38 (35.05)
3B3S15Q4 3BD3S15Q4	Q4	QS250	15,000 psi (1034 bar)	1 (25.40)
3B3S15Q6 3BD3S15Q6	Q6	QS375	15,000 psi (1034 bar)	1 (25.40)

See ball valve option/detail section for end connection details, material, and high temperature options.



*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 (diverter style only)
- AC - Air-to-close/Spring to open (diverter style only)
- AOC - Air-to-open-and-close (double action)

Electric Actuator:

- EO1 - 120 volt AC 50/60 Hz
- EO2 - 220 volt AC 50/60 Hz
- EO3 - 24 VDC (diverter style only)

Actuator Operating Temperature:

- Pneumatic: -10°F to 176°F (-23°C to 80°C)
- Electric: 0°F to 160°F (-17°C to 71°C)

High Temperature Option:

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

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog 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.

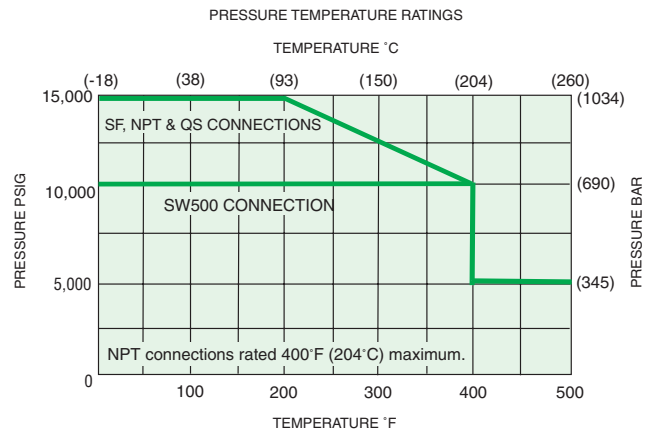
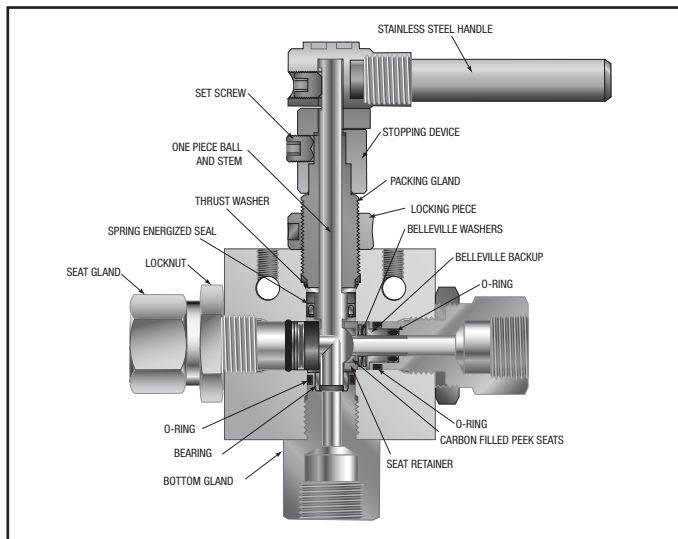
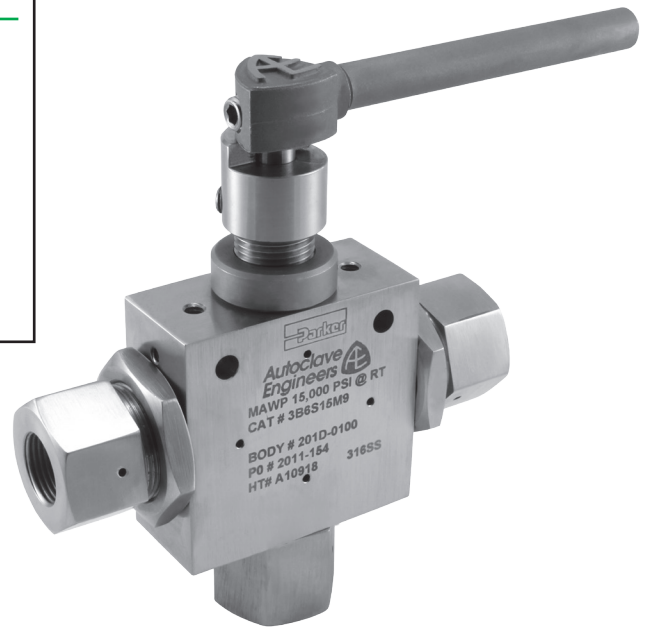
See ball valve actuator section for full description, additional information, and options.

Ball Valves - 3/8" 3-Way Series

Pressures to 15,000 psi (1034 bar) .326" (8.28 mm) Orifice

Connection	MAWP @ Room Temperature	Minimum Orifice inches(mm)	Valve Cv
SW500	10,000 psi (690 bar)	.326 (8.28)	2.1
SF375CX20	15,000 psi (1034 bar)	.203 (5.16)	1.1
SF562CX20	15,000 psi (1034 bar)	.312 (7.92)	2.0
SF750CX20	15,000 psi (1034 bar)	.326 (8.28)	2.1
1/4" NPT	15,000 psi (1034 bar)	.326 (8.28)	2.1
3/8" NPT	15,000 psi (1034 bar)	.326 (8.28)	2.1
1/2" NPT	15,000 psi (1034 bar)	.326 (8.28)	2.1
QS562	15,000 psi (1034 bar)	.326 (8.28)	2.1

MAWP: Maximum Allowable Working Pressure



Pressure ratings are determined by the end connections chosen, see chart. Maximum Temperature rating is determined by the o-ring material (see description below)

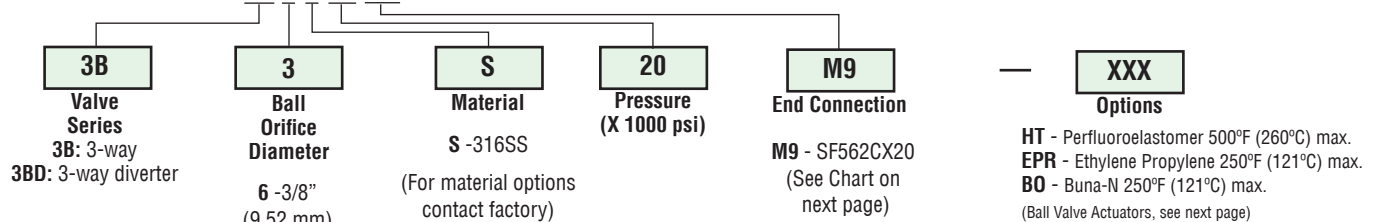
Note: Side connection pressure not recommended

NOTE: Critical gas applications such as Hydrogen or Helium should be evaluated on a case by case basis. Consult factory.

Ordering Procedure

For complete information on available end connections and material options, see next page. 3-way ball valves are furnished complete with tube or pipe connections. Standard valve has Viton o-rings [400°F (204°C) maximum].

Typical catalog number: **3B 6 S 15 M9**

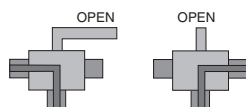


End Connection Options

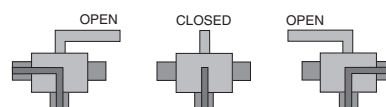
Catalog Number	End Connection Number	Connection	MAWP @ Room Temperature	Seat Gland Hex Inches(mm)
3B6S10L8 3BD6S10L8	L8	SW500	10,000 psi (690 bar)	1.38 (35.05)
3B6S15M6 3BD6S15M6	M6	SF375CX20	15,000 psi (1034 bar)	1.38 (35.05)
3B6S15M9 3BD6S15M9	M9	SF562CX20	15,000 psi (1034 bar)	1.38 (35.05)
3B6S15M12 3BD6S15M12	M12	SF750CX20	15,000 psi (1034 bar)	1.38 (35.05)
3B6S15P4 3BD6S15P4	P4	1/4" NPT	15,000 psi (1034 bar)	1.38 (35.05)
3B6S15P6 3BD6S15P6	P6	3/8" NPT	15,000 psi (1034 bar)	1.38 (35.05)
3B6S15P8 3BD6S15P8	P8	1/2" NPT	15,000 psi (1034 bar)	1.38 (35.05)
3B6S15Q9 3BD6S15Q9	Q9	QS562	15,000 psi (1034 bar)	1.38 (35.05)

MAWP: Maximum Allowable Working Pressure

See ball valve option/details section for end connection details, material, and high temperature options.



*3-Way Diverter Valve
90° Turn



3-Way Ball 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 (diverter style only)
- AC - Air-to-close/Spring to open (diverter style only)
- AOC - Air-to-open-and-close (double action)

Electric Actuator:

- EO1 - 120 volt AC 50/60 Hz
- EO2 - 220 volt AC 50/60 Hz
- EO3 - 24 VDC (diverter style only)

Actuator Operating Temperature:

- Pneumatic: -10°F to 176°F (-23°C to 80°C)
- Electric: 0°F to 160°F (-17°C to 71°C)

High Temperature Option:

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

Valve Maintenance

Repair Kits: add "R" to the front of valve catalog 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.

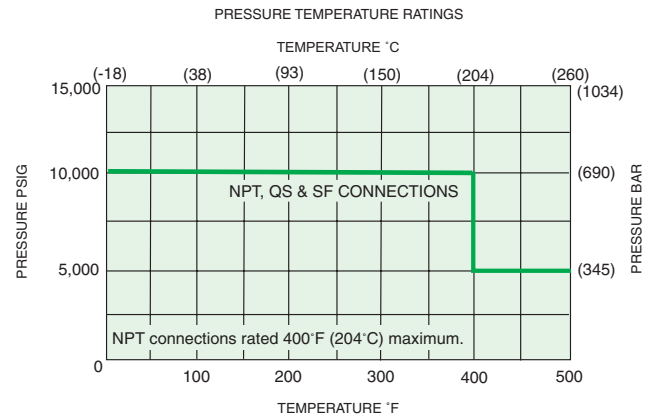
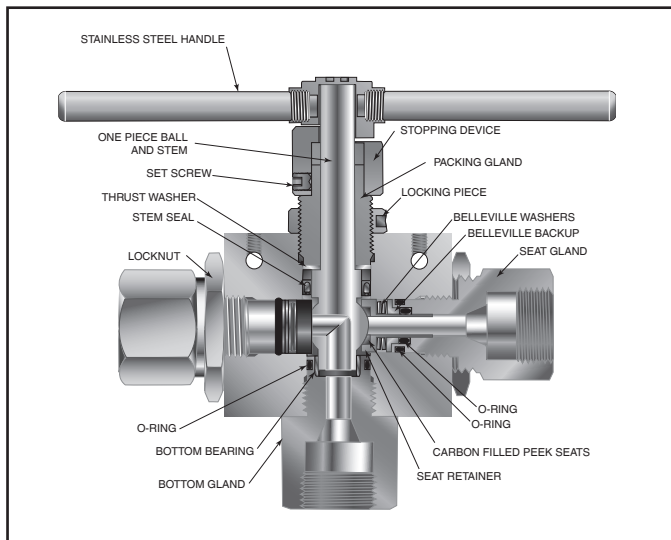
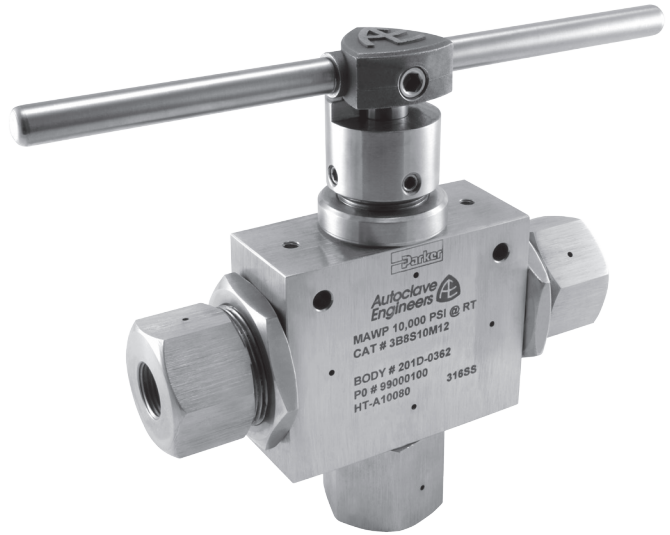
See ball valve actuator section for full description, additional information, and options.

Ball Valves - 1/2" 3-Way Series

Pressures to 10,000 psi (690 bar) .500" (12.7mm) Orifice

Connection	MAWP @ Room Temperature	Minimum Orifice inches(mm)
SF750CX20	10,000 psi (690 bar)	.500 (12.70)
SF1000CX20	10,000 psi (690 bar)	.500 (12.70)
3/4" NPT	10,000 psi (690 bar)	.500 (12.70)
1" NPT	10,000 psi (690 bar)	.500 (12.70)
QS750	10,000 psi (690 bar)	.500 (12.70)
QS1000	10,000 psi (690 bar)	.500 (12.70)
Valve C _v =4.4		

MAWP: Maximum Allowable Working Pressure



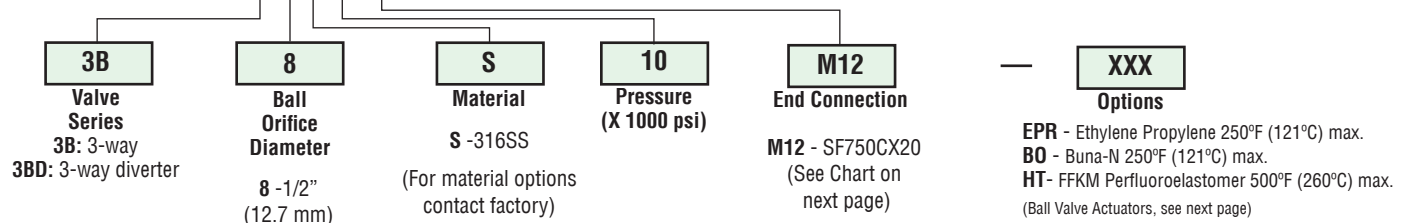
Pressure ratings are determined by the end connections chosen, see chart. Maximum Temperature rating is determined by the o-ring material (see description below)

NOTE: Critical gas applications such as Hydrogen or Helium should be evaluated on a case by case basis. Consult factory.

Ordering Procedure

For complete information on available end connections and material options, see next page. 3-way ball valves are furnished complete with tube or pipe connections. Standard valve has Viton o-rings [400°F (204°C) maximum].

Typical catalog number: **3B 8 S 10 M12**

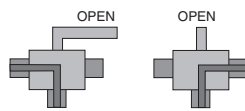


End Connection Options

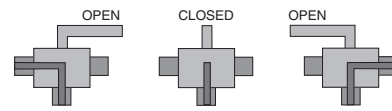
Catalog Number	End Connection Number	Connection	MAWP @ Room Temperature	Seat Gland Hex Inches(mm)
3B8S10M12 3BD8S10M12	M12	SF750CX20	10,000 psi (690 bar)	1.75 (44.5)
3B8S10M16 3BD8S10M16	M16	SF1000CX20	10,000 psi (690 bar)	1.75 (44.5)
3B8S10P12 3BD8S10P12	P12	3/4" NPT	10,000 psi (690 bar)	1.75 (44.5)
3B8S10P16 3BD8S10P16	P16	1" NPT	10,000 psi (690 bar)	1.75 (44.5)
3B8S10Q12 3BD8S10Q12	Q12	QS750	10,000 psi (690 bar)	1.75 (44.5)
3B8S10Q16 3BD8S10Q16	Q16	QS1000	10,000 psi (690 bar)	2.00 (50.8) square

MAWP: Maximum Allowable Working Pressure

See ball valve options for end connection details, material, and high temperature options.



*3-Way Diverter Valve
90° Turn



3-Way Ball 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 (diverter style only)
- AC - Air-to-open/Spring to close (diverter style only)
- 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 (diverter style only)

Actuator Operating Temperature:

- Pneumatic: -10°F to 176°F (-23°C to 80°C)
- Electric: 0°F to 160°F (-17°C to 71°C)

Valve Maintenance

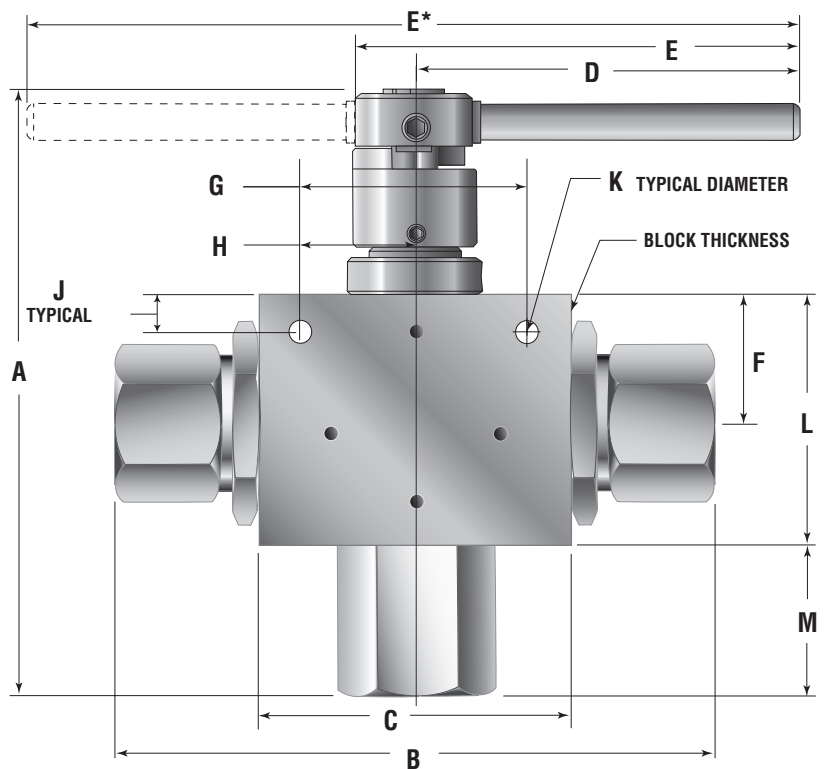
Repair Kits: add "R" to the front of valve catalog numbers for proper repair kit.
(Example: **R3B8S**)

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.

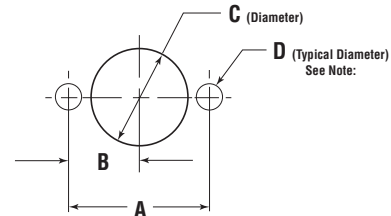
Ball Valve Dimensions - inches (mm)

	VALVE MODELS		
	3B3S/3BD3S	3B6S/3BD6S	3B8S/3BD8S
A	5.66 (143.76)	6.55 (166.37)	7.82 (198.63)
B	4.72 (119.94)	5.74 (145.79)	7.77 (197.36)
C	2.50 (63.50)	3.00 (76.20)	4.13 (104.78)
D	3.37 (85.55)	4.99 (126.82)	5.09 (129.29)
E	3.90 (99.02)	5.52 (140.32)	*10.18 (258.57)
F	1.13 (28.58)	1.38 (34.93)	1.66 (42.16)
G	1.50 (38.10)	2.00 (50.80)	3.00 (76.20)
H	0.75 (19.05)	1.00 (25.40)	1.50 (38.10)
J	0.43 (10.92)	0.41 (10.31)	0.50 (12.70)
K	0.28 (7.11)	0.28 (7.11)	0.28 (7.11)
L	2.26 (57.40)	2.88 (73.03)	3.34 (84.94)
M	0.97 (24.64)	1.19 (30.22)	1.69 (42.93)
Block Thickness	1.00 (25.40)	1.38 (34.92)	1.75 (44.45)



Ball Valve Panel Mounting Dimensions - inches (mm)

	VALVE MODELS		
	3B3S/3BD3S	3B6S/3BD6S	3B8S/3BD8S
A	1.500 (38.10)	2.000 (50.80)	3.000 (76.20)
B	0.750 (19.05)	1.000 (25.40)	1.500 (38.10)
C	1.06 (26.92)	1.50 (38.10)	1.88 (47.63)
D	0.28 (7.11)	0.28 (7.11)	0.28 (7.11)



All dimensions are for reference only and are subject to change without notice.
Note: Body mounting 1/4" - 20 thread

WARNING

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

This document and other information from Parker Hannifin Corporation, its subsidiaries and authorized distributors provide product and/or system options for further investigation by users having technical expertise. It is important that you analyze all aspects of your application and review the information concerning the product or system in the current product catalog. Due to the variety of operating conditions and applications for these products or systems, the user, through its own analysis and testing, is solely responsible for making the final selection of the products and systems and assuring that all performance, safety and warning requirements of the application are met. The products described herein, including without limitation, product features, specifications, designs, availability and pricing, are subject to change by Parker Hannifin Corporation and its subsidiaries at any time without notice.

Offer of Sale

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

© 2017 Parker Hannifin Corporation | Autoclave Engineers is a registered trademark of the Parker Hannifin Corporation

02-0106SE January 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.

ISO-9001 Certified