

Valve Series 4B6/4BS6

High Pressure Ball Valve

Operation and Maintenance Manual

Catalog: 02-9258ME

November 2015

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



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Model # _____

Serial # _____

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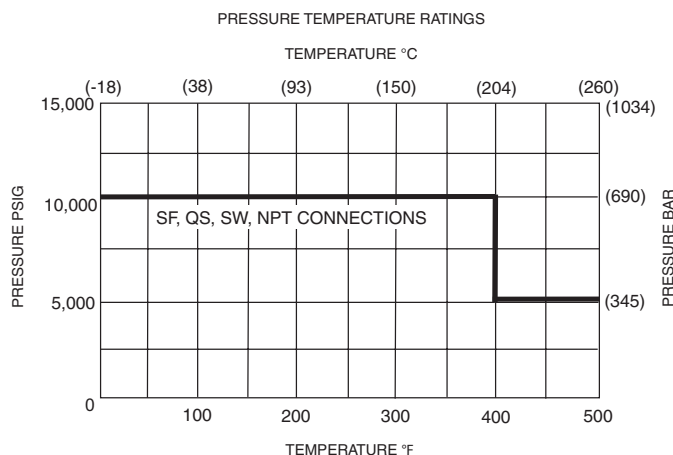
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Section 1.0 Introduction

The AE high pressure ball valve can be used at pressures up to 10,000 psi, depending on the tubing connections and operating temperatures.

The maximum operating media pressure at room temperature is etched on the valve body. The curve shown below can be used to find the maximum operating pressure at various media temperatures.



*pressure ratings are determined by the end connections chosen, see chart.

Section 2.0 Meaning of Safety Words

A safety related message is identified by a safety alert symbol and a signal word to indicate the level of risk involved with a particular hazard. The definitions of the three signal words are as follows:



indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

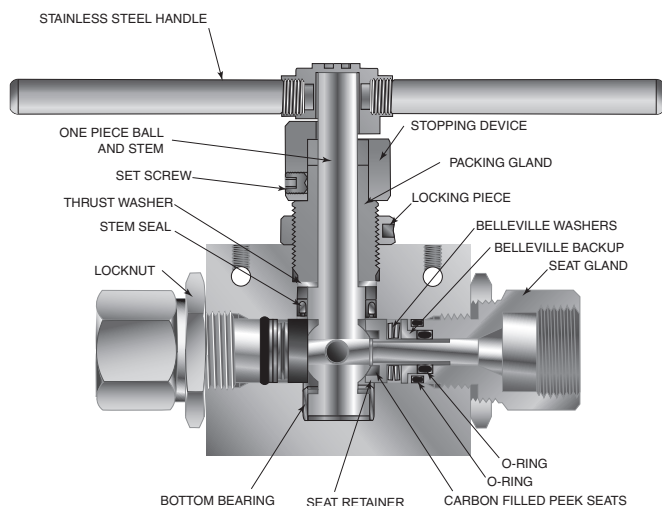


indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

Special notes intended to bring attention to procedures that must be followed to ensure proper installation and performance will be placed in a box labeled NOTICE.



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 inspection should be made to detect any deterioration and O-rings replaced as required.



Section 3.0 Installation

Refer to the instruction section of the Parker Autoclave Engineers' Valve, Fitting and Tubing Catalog for proper tubing connection installation. Refer to the manufacturer's literature when using air or electric operators.

Section 4.0 Precautions

Hold the seat glands and bottom gland with a wrench when tightening or loosening the tubing connections.



WARNING

DO NOT OPERATE the valve with more than 200 in-lbs. applied to the seat glands.

Section 5.0 Maintenance

Routine maintenance consists of tightening the seat glands periodically to compensate for seat wear. With no pressure in the valve, use the following procedures:

4.1 Seat Glands

- 4.1.1 While holding the seat glands and the body secure, loosen the tubing connections.
- 4.1.2 Loosen locknuts from seat glands.
- 4.1.3 With the handle in the "Open" position, gradually tighten the glands alternating from one gland to the other in increments of 25 in-lbs. until 175 in-lbs. has been

reached. The seat glands should be torqued in pairs. The pair consisting of those seat glands that are 180° from each other. So you torque one set of glands to 175 in-lbs. before moving on to the 2nd pair. Note: When a valve has excessive wear it may be necessary to use torque up to 200 in-lbs. All seats must be torqued to the same value.

Do Not Apply More Than 200 In-Lbs.

- 4.1.4 Tighten locknuts while holding seat glands secure with wrench.

Section 6.0 Assembly

General Assembly Procedure 3/8" Port 4-Way Ball Valve

1. Drop bottom bearing into valve body.
2. Using packing gland, delicately slide the stem seal and backup onto the upper shoulder of stem and lubricate the OD of the seal with o-ring grease.
3. Lubricate the top of the upper shoulder of stem with Jet Lube SS30¹ and slip the thrust washer onto the stem.
4. Lubricate the top of the thrust washer with Jet Lube SS30¹.
5. Lubricate the packing gland threads with Jet Lube SS30¹ and slip the packing gland onto the stem. Lubricate bottom bearing area of the stem and the ball with o-ring grease.
6. With the stem flat facing left of the body inlet, insert the packing gland/stem assembly into the body center opening.
7. Screw the packing gland into the body until the opening of the ball is aligned properly.
8. When ball is aligned, back packing gland out one and a half turns.
9. Press seats into seat retainers using vice and straight faces if necessary.
10. Assemble 2 belleville washers onto seat retainer with the inside diameters of the washers face to face.
11. Place belleville backup washer on the seat retainers against the belleville washers with the large face of the washer facing the bellevilles.
12. Place the o-ring onto the seat retainer behind the belleville backup washer and lubricate with o-ring grease.
13. Assemble locknut loosely onto seat gland.
14. Install o-rings onto the seat glands and lube the o-rings with o-ring grease.
15. Lubricate seat gland threads with Jet Lube SS30¹.
16. Press retainer assembly into the seat gland being careful not to damage the o-ring.
17. Insert seat glands onto body and hand tight on each side.
18. Keeping ball in full open position, torque seat glands to 175 in-lbs. at 25 in-lbs. alternating increments. The seat glands should be torqued in pairs. The pair consisting of those seat glands that are 180° from each other. So you torque one set of glands to 175 in-lbs. before moving on to the 2nd pair. If necessary, a maximum torque of 200 in-lbs.

can be applied on the seat glands. All seat glands must be torqued to the same value.

19. While holding seat glands in place with a wrench, tighten locknuts to the body.
20. Hand tighten packing gland.
21. Assemble locking piece onto packing gland and use a spanner wrench to tighten it to the body.
22. Position stopping device loosely on top of packing gland.

23. Attach the handle assembly onto the flat of the stem.

24. Turn stopping device clockwise until it hits the handle hub. Tighten the two (2) set screws on the stopping device onto the packing gland.

¹ SS30 is a registered trademark of Jet-Lube Corporation

Section 7.0 Installation Summary Chart

Valve Series	Connection	Seat gland Hex Size in (mm)	Locknut Hex Size in (mm)	Tube Gland Hex Size in (mm)	Tube Gland Torque ft-lbs. (Nm)
4B6/4BS6	SW500	1.38 (34.9)	1.75 (44.5)	.94 (23.8)	*
	SF375CX	1.38 (34.9)	1.75 (44.5)	.63 (15.9)	30 (40.7)
	SF562CX20	1.38 (34.9)	1.75 (44.5)	.94 (23.8)	55 (74.6)
	SF750CX20	1.38 (34.9)	1.75 (44.5)	1.19 (30.2)	90 (122)
	1/4" FNPT	1.38 (34.9)	1.75 (44.5)	-	-
	3/8" FNPT	1.38 (34.9)	1.75 (44.5)	-	-
	3/4" FNPT	1.38 (34.9)	1.75 (44.5)	-	-

* Torque wrench not required for PAE Speedbite tube connections. Tighten gland until sleeve begins to grip tubing then 1-1/4 turn.

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.

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Caution! Do not mix or interchange component 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 interface with common commercial instrument tubing and are designed to only connect with tubing manufactured to Parker Autoclave Engineers AES specifications. Failure to do so is unsafe and will void warranty.

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