

Valve Series 2B12/MAB12

High Pressure Ball Valve Operation and Maintenance Manual

Catalog: 02-9282ME

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



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Model #	Order #
Serial #	Mfg. Date
Drawing #	

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Section 1.0 Introduction

The PAE high pressure ball valve can be used at pressure up to 15,000 psi (1035 bar) 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.



Section 2.0 Installation

The ball valve can be installed with the flow in either direction.

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.



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.

Parker Autoclave Engineers reserves the right to alter the specifications given in this publication in line with our policy of continuous improvement. All general terms and conditions of sale including limitations of our liability, apply to all products and services sold.





Precautions

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

DO NOT OPERATE the valve with more than 35 in-lbs. (3.95 Nm) applied to the seat glands.

Ball valves can trap pressurized media inside the valve. Relieve this pressure by turning the handle to the "half-open" position before disassembling the valve.

Section 4.0 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 Remove lock device from seat glands
- 4.1.2 While holding the seat glands and the body secure, loosen the tubing connections
- 4.1.3 With the handle in the "Full Open " position, gradually tighten the glands alternating from one gland to the other in increments of 5 in. Ibs. (0.56 Nm) until 35 in. Ibs. (3.95 Nm) has been reached.

Do Not Apply More Than 35 In. Lbs. (3.95 Nm)

4.1.4 While holding seat gland secure with a wrench, tighten seat gland locknuts to the valve body.

Section 5.0 Assembly

General Assembly Procedure 3/4" Port 2-Way Ball Valve

- 1. Insert the bottom bearing into the bottom of the body.
- 2. Assemble PEEK bearing into packing gland and secure by installing retaining ring.
- 3. Using packing gland, delicately slide the stem seal and backup onto the upper shoulder of stem and lubricate the seal with o-ring grease.
- Generously lubricate both sides of the thrust washer with Jet Lube MP-50¹ and assemble the washer onto the stem behind the stem seals backup ring.
- 5. Lubricate the packing gland threads with Jet Lube MP-50¹ and slip the packing gland over the stem.
- 6. Lubricate the bottom bearing area and ball of the stem with o-ring grease.
- 7. With the ball hole parallel to the side ports, insert the stem assembly into the body center opening.
- 8. Screw the packing gland into the body until the opening of the ball is aligned properly. Note: Stem is free to move downward so be careful not to push stem itself.
- 9. When ball is aligned, back the packing gland out two complete turns while holding the stem in place, making sure the stem does not rotate.
- 10. Assemble locknuts onto the seat glands and lubricate the seat gland threads with Jet Lube MP-50¹.
- 11. Assemble the o-ring backup ring onto the seat gland groove.
- 12. Assemble the o-ring onto the seat gland groove in front of the backup.
- 13. Lubricate both the seal and backup outside the diameters with o-ring grease.
- 14. Set aside seat glands.
- 15. Place the seat assemblies that have already been pre-com pressed inside the retainers over the nose of the seat gland.
- 16. Screw the seat glands into the body hand tight on both sides.
- 17. Keeping the ball in the full open position, torque seat glands to 35 in-lb in 5 in-lb alternating increments.
- 18. While holding seat glands in place with a wrench, securely tighten locknuts on the seat glands against the body.
- 19. Screw packing gland snug into body with a small wrench. DO NOT OVER TIGHTEN. STOP WHEN YOU FEEL PACKING GLAND STOP ON STEM/THRUST WASHER.
- 20. Assemble locking piece onto packing gland against the body using a spanner wrench.
- 21. Position stopping device loosely on top of packing gland





and attach the hub and flat screw onto the flat of the stem. Turn stopping device clockwise until it hits the flat on the hub. Tighten the (2) set screws on the stopping device onto the packing gland.

22. Screw the two handles into the hub.

¹ MP-50 is a registered trademark of Jet-Lube Corporation

Valve Series	Connection Hex Seat g in (m	Coat gland	d Locknut Hex Size in (mm)	O-Ring Part Number			Coot	Tube Cland	Tube Cland
		Hex Size in (mm)		Viton (qty)	-EPR (qty)	Kal-Rez Comp. 3018 (qty)	PEEK (qty)	Hex Size in (mm)	Torque ft-lbs. (Nm)
2B12	SF1000CX20	1.88 (47.8)	2.25 (57.2)	90776 (2)	90891 (2)	-	101F-2171 (2)	1.38 (35.1)	125 (169.5)
	1/2" FNPT	1.88 (47.8)	2.25 (57.2)	90776 (2)	90891 (2)	-	101F-2171 (2)	-	-
	3/4" FNPT	1.88 (47.8)	2.25 (57.2)	90776 (2)	90891 (2)	-	101F-2171 (2)	-	-
	1" FNPT	1.88 (47.8)	2.25 (57.2)	90776 (2)	90891 (2)	-	101F-2171 (2)	-	-
	QS750	1.88 (47.8)	#	90776 (2)	90891 (2)	-	101F-2171 (2)	1.50 (38.1)	* *
	QS1000	1.88 (47.8)	#	90776 (2)	90891 (2)	-	101F-2171 (2)	1.75 (44.5)	* *
MAB12	3/4" MPI	1.88 (47.8)	#	90776 (2)	90891 (2)	-	101F-2171 (2)	1.25 (31.8)	* *
	1" MPI	1.88 (47.8)	#	90776 (2)	90891 (2)	-	101F-2171 (2)	1.50 (38.1)	* *

Section 6.0 Installation Summary Chart

** Use preset tool. For MPI- tighten 1/2 turn in connection. For QSS- tighten 1/4 turn in connection.

Using locking device.

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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Instrumentation Products Division Autoclave Engineers Operation 8325 Hessinger Drive Erie, PA 16509-4679 Tel: 814 860 5700 Fax: 814 860 5811 www.autoclave.com



Instrumentation Products Division Autoclave Engineers Operation, Houston 15340 Vantage Parkway, East Houston, TX 77032 Tel: 281 987 3828 Fax: 281 987 2318 Parker Hannifin Manufacturing Ltd. Instrumentation Products Division, Europe Industrial Estate Whitemill Wexford, Republic of Ireland Tel: 353 53 914 1566 Fax: 353 53 914 1582

Parker Hannifin Manufacturing Ltd.

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

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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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