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# PARKER P4-12 Series Miniature Actuator Bellows Valves Installation Instructions INI-231



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17000849 Rev A



### WELDED PORT CONNECTIONS:

Always consult your authorized Parker representative if questions arise.

Careful welding procedures are recommended and welding should be performed by trained, qualified personnel. Socket weld ports require the tube be inserted into the socket until bottomed against the stop. The tube is then to be backed out approximately 1/16 of an inch and then welded. This procedure will help in avoiding excessive static stress on the weld. It is recommended all Valves with socket weld or butt-weld ports be disassembled prior to welding, whenever possible. The Upper Bonnet assembly is now easily removed from the Valve Body. To prevent potential damage to the Valve Seat (if the Valve is not disassembled), place the Valve in the full open position and properly purge with gas.

PLEASE REQUEST A COPY OF THE PARKER BELLOWS VALVE MAINTENANCE INSTRUCTIONS FOR YOUR SPECIFIC VALVE WHEN VALVE DISASSEMBLY IS REQUIRED.

1. Loosen the Union Nut with a 1 inch open end wrench and unthread it completely from the Valve Body. The Upper Bonnet Assembly is easily removed from the body.
2. Remove the gasket from the Valve Body.
3. Perform the welding operation and then allow the Valve Body to properly cool. The cooling process must proceed naturally in room temperature air to help prevent metallurgical defects in either the weld or the Valve Body. Always consult your authorized Parker representative if questions arise.

**CAUTION: Do not damage the gasket or seat sealing surface on the Valve Body.**

4. Place the new Gasket in the Valve Body.
5. Reassemble the upper bonnet assembly to the Valve Body. Apply a small amount of lubricant, as consistent with the Valve's service requirements, to the Valve Body threads. Always contact your authorized Parker representative if questions arise.
6. Secure the Valve Body with a smooth-jawed hex socket wrench.
7. Torque the Union Nut to 50 Ft-lbs. (67 N-m) maximum

### VALVE CONNECTOR MAKE-UP INSTRUCTIONS

### TUBE FITTING CONNECTIONS:

1. Insert the tube into the Valve port until the tube bottoms out in the Valve body. Care should be exercised to insure the tube is properly aligned with the Valve body and port.
2. Normal make-up for port sizes 1 thru 3 (1/16 thru 3/16 inch) is 3/4 turn from finger tight. Normal make-up for port sizes 4 thru 16 (1/4 thru 1 inch) is 1 1/4 turn from finger tight.

PLEASE FOLLOW THE ABOVE DIRECTIONS FOR COUNTING THE NUMBER OF TURNS FOR PROPER FITTING MAKE-UP. DO NOT MAKE-UP TUBE FITTINGS BY TORQUE OR "FEEL". VARIABLES SUCH AS TUBING AND FITTING TOLERANCES, TUBE WALL THICKNESS, AND THE LUBRICITY OF NUT LUBRICANTS CAN RESULT IN AN IMPROPERLY ASSEMBLED TUBE FITTING CONNECTION.

### WARNING

FAILURE OR 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 applications 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.

ALL PARKER VALVES MUST PASS A RIGID OPERATIONAL AND LEAKAGE TEST BEFORE LEAVING THE FACTORY. IT IS RECOMMENDED AFTER ANY REASSEMBLY, THE VALVE SHOULD BE TESTED BY THE USER FOR OPERATION AND LEAKAGE. IF THESE INSTRUCTIONS ARE NOT FULLY COMPLIED WITH, THE REPAIRED PRODUCT MAY FAIL AND CAUSE DAMAGE TO PROPERTY OR INJURY TO PERSONS. PARKER HANNIFIN CANNOT ASSUME RESPONSIBILITY FOR PERFORMANCE OF A CUSTOMER SERVICED VALVE.

TABLE 1: MAXIMUM ALLOWABLE WORKING PRESSURES and TEMPERATURE

Air Actuated Models (Air Supply):	50 to 150 Psig	.3 Mpa to 1.0 Mpa
Normally Open	600 Psig at 70°F	4.1 Mpa 21°C
Normally Closed	200 Psig at 70°F	1.4 Mpa 21°C
Double Acting	700 Psig at 70°F	4.8 Mpa 21°C

**NOTE: Refer to Parker P4-12 Series Miniature Actuator Bellows Valve Maintenance Instruction, 17000852 (MI-131), when Valve disassembly is required. Always consult your authorized Parker representative if questions arise. The arrow on the Valve Body indicates the normal direction of flow. This is a packless Valve and requires no packing adjustment.**

### BOTTOM MOUNTED VALVES

1. Two # 10-32 tapped holes are provided on the bottom of the valve body for mounting the valves to a panel, wall or bracket.

### AIR ACTUATOR CONNECTIONS:

1. Air Actuator ports are 10-32UNF threads. When making thread connections to the air actuator, use a Parker Prestolok fitting (X68PL-4-10 x 32) made for this purpose. TFE tape should not be overhanging or covering the first external pipe thread.
2. Engage the external pipe connection into the actuator, hand tight.
3. With a proper wrench, continue to tighten the connection to a leak-tight joint.
4. It is recommended that no wrenching be applied to the actuator during this make-up but, rather be held firmly by hand. If clamping of the actuator for make up is unavoidable, be certain to gently clamp the entire length (or height) to avoid crushing.

### ULTRASEAL CONNECTIONS:

1. Insert the proper O-Ring into the UltraSeal fitting's O-Ring groove. Position the UltraSeal gland sealing face against the O-Ring, and then advance the Nut to a finger-tight position.
2. A positive seal is obtained by advancing the Nut no less than 1/4 turn from the finger-tight position. Proper UltraSeal make-up is achieved when a sharp rise in required application torque occurs, which indicates proper seal face contact and O-Ring seal compression into the UltraSeal groove.

### VACUSEAL CONNECTIONS:

1. A positive seal is obtained by advancing the Nut 1/8 turn from the finger-tight position.
2. A new gasket should be installed upon each fitting remake to insure system pressure integrity.

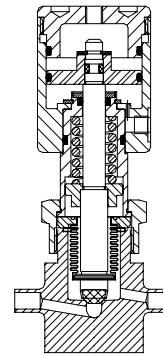


Figure 1 - Parker P4-12AC  
 Normally Closed Bellows Valve  
 Cross Section Assembly

FIGURE 1: P4-12AC  
 NORMALLY CLOSED

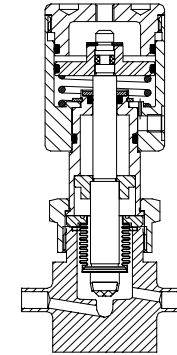


Figure 2 - Parker P4-12AO  
 Normally Open Bellows Valve  
 Cross Section Assembly

FIGURE 2: P4-12AO  
 NORMALLY OPEN

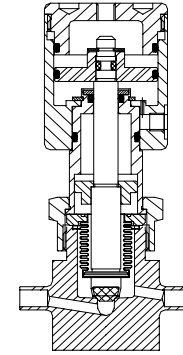


Figure 3 - Parker P4-12AD  
 Double Acting Bellows Valve  
 Cross Section Assembly

FIGURE 3: P4-12AD  
 DOUBLE ACTING