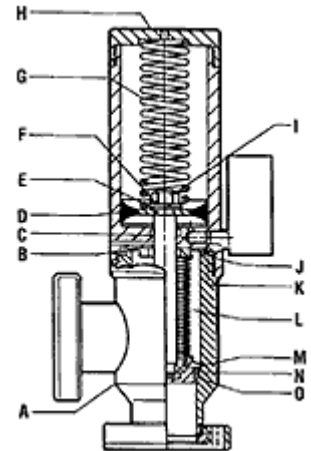


Operation and Maintenance of Pneumatically Actuated Valves

DESIGN FEATURES



- A. Unibody Design
- B. Actuator Shaft
- C. Shaft O-Ring
- D. Piston Cup
- E. Thread Seal
- F. Flat Washer
- G. Fail-Safe Spring
- H. Pneumatic Cylinder Cap
- I. Hex Nut
- J. Threaded Body Connection
- K. Body/Cylinder O-Ring
- L. Welded Bellows
- M. Ball Bearing Poppets
- N. Smoothly Tapered Sealing Seat
- O. Poppet O-Ring



OPERATION AND MAINTENANCE

- Viton[®] seals are limited to 204°C bakeouts (300°C for Kalrez[®]). Minimize baking of air-carried residue by having all ports under vacuum.
- If valve leaks, disassemble, clean, and replace O-rings. (If it still leaks, the actuator may need to be replaced.)

DISASSEMBLY

1. With valve closed, use Huntington valve wrench (Model VW-15) to loosen pneumatic cylinder cap and remove spring. (See note below.)
2. Loosen threaded pneumatic cylinder with valve wrench and remove from valve body. (On some valves, solenoid may have to be removed first.)
3. Compress bellows against poppet; grab shaft with vice grips (cover jaws with copper to prevent scratching or marring). Then, with socket wrench, remove hex nut, flat washer, thread seal and piston cup from end of actuator shaft. Separate actuator from pneumatic cylinder. Remove shaft O-ring and clean O-ring groove. (See note below.)
4. Remove body/cylinder O-ring and poppet O-ring; clean O-ring grooves, and inspect valve seat for dirt or damage.

REASSEMBLY

1. Before replacing O-rings or thread seal, coat each lightly with high-vacuum grease (Model [C-200-05](#)). Replace O-rings.
2. Apply piston grease generously to piston cup and inner wall of pneumatic cylinder (piston grease, Model C-300-02). Insert shaft into cylinder and place piston cup, thread seal, and flat washer over end of shaft. Hold shaft with copper covered jaws, screw on hex nut, and tighten. (See note below.)
3. Making sure all internal parts are clean and free of any particles; screw the pneumatic cylinder back onto the valve body and tighten with valve wrench.
4. Place spring in pneumatic cylinder; screw on cap, and tighten with valve wrench. Leak check, if possible. (See note below.)

Note: If only replacing the poppet O-ring and cleaning the sealing area, you may omit disassembly steps 1 and 3 and reassembly steps 2 and 4.

Ordering Information for Viton-Sealed Pneumatic Valves and Accessories

INSTALLATION AND OPERATION OF SOLENOID VALVES ON ELECTROPNEUMATICALLY OPERATED VALVES

Huntington electro-pneumatically operated vacuum valves are supplied with a solenoid valve installed on the pneumatic actuator cylinder.

This solenoid valve controls the flow of air into the pneumatic cylinder.

To activate, the solenoid valve must be connected to a 60-120-psi air line and an electrical source as follows:

1. Connect an air line to the 1/8-inch National Pipe Thread (NPT) port marked "IN."
2. Connect the two wire leads to an electrical power source as specified on the solenoid valve label.

As the vacuum valve opens, air will be forced out of the small hole in the top of the pneumatic cylinder cap. This is normal. However, if air continues to escape from this hole after the valve is open, the thread seal on the piston shaft is leaking and probably should be replaced. If air is escaping from the hole in the side of the pneumatic cylinder, the shaft O-ring seal is leaking and it should probably be replaced. Neither of the above mentioned leaks, however, will affect the vacuum integrity of the valve. The valve will continue to function efficiently unless the magnitude of the escaping air becomes so extreme that not enough air is contained in the cylinder to completely open the valve and keep it open. To replace either the thread seal or shaft O-ring seal, read the instructions on "[Disassembly](#)" and "[Reassembly](#)" of the pneumatically actu-

PNEUMATIC RIGHT-ANGLE VALVES		GASKET KITS	
Size	Model No.	Model No.	
3/8	PV-0370	PV-0370-G	
1/2	PV-050	PV-050-G	
5/8	PV-0620	PV-0620-G	
3/4	PV-075	PV-075-G	
1	PV-100	PV-100-G	
1-1/2	PV-150	PV-150-G	
2	PV-200	PV-200-G	
2-1/2	PV-250	PV-250-G	
3	PV-300	PV-300-G	

PNEUMATIC IN-LINE VALVES		GASKET KITS	
Size	Model No.	Model No.	
1	PVI-100	PV-100-G	
1-1/2	PVI-150	PV-150-G	
2	PVI-200	PV-200-G	
2-1/2	PVI-250	PV-250-G	

PNEUMATIC STRAIGHT-THROUGH VALVES		GASKET KITS	
Size	Model No.	Model No.	
3/4	PES-075	PES-075-G	
1-1/2	PES-150	PES-150-G	
2	PES-200	PES-200-G	

ACCESSORIES			
		Model No.	
Huntington Valve Wrench		VW-15	
High-Vacuum Grease	5.3 oz	C-200-05	
Valve Piston Grease	2.0 oz	C-300-02	
Anti-Seize Lubricant	1.0 oz Tube	C-609-01	
	9.0 oz Can	C-609-09	

WARRANTY

HUNTINGTON MECHANICAL LABORATORIES, INC. (hereafter called "HML") warrants products it manufactures (except for electronic equipment, tubes and other expendable items as covered below) against defects in materials and workmanship for a period of twelve (12) months from the date of shipment to the buyer. Liability under this warranty is expressly limited to replacement or repair of defective parts. HML may at any time discharge its warranty as to any of its products by refunding the purchase price and taking back the product(s). This warranty applies only to parts manufactured, and labor provided, by HML under valid warning claims received by HML within the applicable warranty period and subject to the terms and conditions hereof. All warranty replacement or repair of parts shall be limited to equipment malfunctions which, in the sole opinion of HML, are due or traceable to defects in original materials or workmanship. Malfunctions caused by abuse or neglect of the equipment are expressly not covered by this warranty. HML expressly disclaims responsibility for any loss or damage caused by the use of its products other than accordance with proper operating and safety procedures. Reasonable care must be taken by the user to avoid hazards.

Expendable Items. Expendable items such as tubes, heaters, sources, bellows, etc., by their nature, may not function for one year. If such items fail to give reasonable service for a reasonable period of time, as determined solely by , they will be repaired or replaced by HML. At its election in-warranty repaired or replaced parts are warranted only for the remaining unexpired portion of the original warranty period applicable to the parts which have been repaired or replaced. After expiration of the applicable warranty period, the buyer shall be charged at HML's current prices for the parts and labor, plus transportation.

Except as stated herein, HML makes no warranty, express or implied (either in fact or by operation of law). HML shall have no liability for special or consequential damages of any kind or from any cause arising out of the sale installation, or use of any of its products. Statements made by any person, including representatives of HML, which are inconsistent or in conflict with the terms of the warranty shall not be binding upon HML unless reduced to writing and approved by an authorized officer of HML.

Electronic Equipment. Electronic equipment including gauges and controllers are covered for a period of (90) days from the date of purchase.

Tubes and Filaments. Thermocouple gauge tubes, and ionization gauge tubes are unconditionally guaranteed to meet specifications upon the customer's incoming inspection.