



Red Valve Company, Inc.®

SERIES 75 AND SERIES 70

Installation, Operation and Maintenance Manual



The Red Valve Series 75 and 70 Manual Pinch Valves are designed to provide reliability and long service life in a variety of tough applications, including both abrasive and corrosive processes.

The Series 75 and 70 are 100% full ported when completely open, resulting in no pressure drop. Closing is accomplished by two pinch bars closing simultaneously on centerline. A smooth venturi is maintained, and there are no cracks, crevices, or dead spots to clog or accumulate debris. The flexing action of the resilient sleeve actually breaks up residue or dewatered surfaces.

Red Valve Pinch Valve sleeves are available in a variety of elastomers and configurations to meet your specific application.

- Simple design
- No Packing to maintain, ever
- Cost effective
- No cavities or dead spots to bind valve operation
- Low maintenance

IMPORTANT

Please take a moment to review this manual. Before performing any maintenance on the valve be sure the pipeline has been depressurized. The improper installation or use of this product may result in personal injury, product failure, or reduced product life. Red Valve Company, Inc. can accept NO liability resulting from the improper use or installation of this product. If you have any questions or problems, please call the customer service department at (412) 279-0044. We appreciate your comments. Thank you for choosing Red Valve.

INSPECTION OF VALVE

When your Red Valve order arrives, check the contents carefully to assure no damage or loss occurred in transit.

Check flange faces of pipe for rough/damaged areas. Pipeline flanges must be flat, properly spaced, and parallel to achieve proper seal.

Flange faces must have a concentric or spiral phonographic finish made with a 1/64" deep V-groove. Smooth flange finishes, less than 250 AARH, or those with raised faces are not acceptable.

INSTALLATION

1. Do not clean the body flange surfaces with rough abrasive wheels, or the serrations will be removed and flange leakage may result. Do not use Permatex or RTV silicone on the metal flange surface. The compounds will fill in the serrations and flange leakage may result.
2. The flanges mating to the Series 70/75 should be serrated approximately 1/16" x 90°. Rubber will creep along smooth metal, PVC, or Teflon flanges, eventually causing a leak. Flange I.D. should match the sleeve I.D. and should be free of sharp edges which could cut into sleeve flanges. Weld neck or socket weld flanges are recommended. Slip on or screw on flanges have a larger I.D. and can cut the rubber sleeve. If slip on or screw on flanges must be used, grind off all sharp I.D. edges.
3. Do not use sharp tools, such as screwdrivers or crow bars, on the rubber during installation. This can cut and damage the flange face and cause possible leakage.
4. The valve should be completely open before installing the valve in the pipeline or tightening the flange bolts. Use bolts of correct length that will not extend out beyond the back of the flange. The use of bolts that are too long can cause them to bottom out on the valve body, causing permanent damage.
5. Stem Lubrication: Apply a liberal amount of grease with a gun at the grease fitting located below the handwheel, or on cap in middle of handwheel for smaller size valves.
6. For valves with stem seals and body gaskets, remove the drain plug in the bottom of the casting before operating valve.

Never use pipe flanges with a larger I.D. than sleeve I.D.

Never overtorque the valve when closing.

Never perform maintenance on valve if line is pressurized.

Never Use flange bolts that are too long.

Do grease stem liberally.

Do tighten all flange bolts evenly.

OPERATION

Red Valve Manually Actuated Pinch Valves consist of four major components, plus a position indicator:

Body The body or frame acts as a housing and support for the other valve components. It is not the primary pressure containing component.

Sleeve The sleeve is the primary pressure containing component and the only component in contact with the process fluid.

Mechanism The pinch mechanism incorporates a floating mechanism design. It may therefore feel loose when operating, since the mechanism is not attached to the body either internally or external-

ly. The floating design reduces the risk of binding from corrosion or long periods of inactivity.

Handwheel or Bevel Gear Handwheels and bevel gears are sized according to the torque required to operate the valve. Bevel gears are suggested on valve sizes larger than 6" in diameter and over 75 psi. If the valve fails to operate with the handwheel or bevel gear, do not attempt to use a "cheater bar" for added mechanical advantage. In order to avoid damage to the valve due to difficulty in opening/closing, please refer to the troubleshooting guide in this IOM.

Position Indicator The position indicator is a rod located in the central hub of the handwheel. When the indicator rod is flush with the handwheel, the valve is closed. The indicator rod rises as the valve is opened.

MAINTENANCE

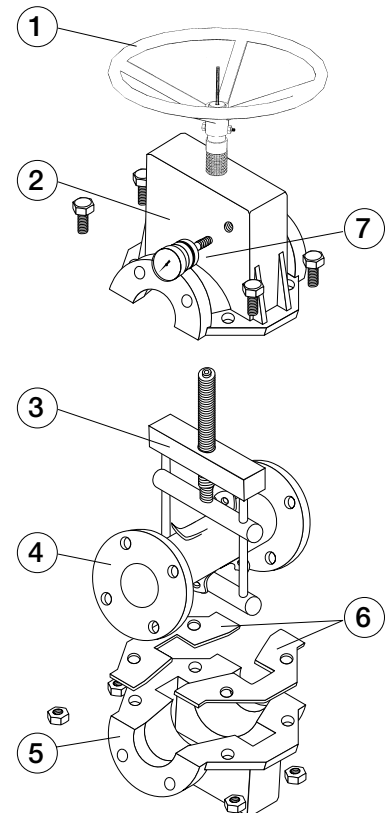
Lubrication: Manual Pinch Valves should be lubricated and actuated monthly. A high quality lithium grease is recommended for this purpose. The valve should be greased with the valve in the full closed position. The grease fitting is located on the hand-wheel cap on smaller size valves and on the stem below the handwheel for larger size valves. Apply grease until the unit is full, then cycle valve from full open to full closed position.

Sleeves: A spare sleeve is a factory recommended spare part for Manual Pinch Valves. When the valve is placed in service, a spare sleeve should be ordered.

Caution: Resilient sleeves are subject to deterioration from ozones, light, or chemicals. Spare replacement sleeves should be stored in a cool dry location away from exposure to light, electric motors, or harsh chemicals.

PARTS

1. Handwheel
2. Body Top
3. Pinching Mechanism Assembly
4. Sleeve
5. Body Bottom
6. Body Gaskets (optional)
7. Pressure Gauge (optional)



SLEEVE REPLACEMENT

1. Make certain that there is no pressure in the pipeline.
2. Remove the valve from the pipeline.
3. Disassemble valve, first removing handwheel, then removing the body bolts in the casting.
4. Lift off the top half of the valve body. Remove the old sleeve by buckling the flanges and sliding the sleeve through the mechanism. Buckling the flanges of the new sleeve, slide new sleeve through the mechanism.
5. If your sleeve is equipped with positive opening tabs, align the sleeve flange holes to the body flange holes before attaching tabs. This will assure easy installation in line.
6. Bolt top casting back to bottom casting, and reattach handwheel. Grease mechanism thoroughly and actuate valve from full closed to full open position. The valve is now ready to install back into the pipeline.

STORAGE

If your Manual Pinch Valve is to be stored for a period of time prior to installation, the following storage guidelines will help preserve your valve and assure trouble-free installation.

1. Store valve and any spare sleeves in a cool, clean, dry location.
2. Avoid exposure to light, electric motors, dirt, or chemicals. Resilient sleeves are subject to rapid deterioration when exposed to ozones and certain chemicals.
3. Grease stem liberally and store valve in the full open position. Do not stack other items on top of the valve.
4. Store Installation Operation Maintenance Manual with the valve so it will be readily available for installation.

TROUBLESHOOTING GUIDE

VALVE IS DIFFICULT TO OPERATE

Make certain valve stem is well greased. Check stem threads for damage or corrosion, especially following long periods of inactivity. Make sure pressure in the line does not exceed working pressure.

VALVE WILL NOT CLOSE FULLY, OR CHECK FLOW WHEN CLOSED

Possible obstruction in line. Open valve several turns to permit obstruction to flush past valve.

VALVE LEAKS AT FLANGE

Check flange bolts to assure no bolts are of excess length or bottom out on casting. Retighten all flange bolts uniformly.

POSITION INDICATOR DOES NOT RISE OR FALL

Make sure large nut on top of handwheel is tightened securely. Make sure that sufficient amount of grease is applied through fitting.

RETURNS

All returns must have standard Red Valve Co. return goods tags. Sleeves to be inspected by Red Valve Co. must have the tag firmly attached to the sleeve via the bolt holes, and must list the company, order number, address, valve serial no., your telephone number, operating temperature, pressure, closing frequency, fluid media, and total days in service.

NOTE: If the product being returned has been in contact with a hazardous chemical or material, an MSDS (Material Data Safety Sheet) must be provided with the return paperwork; otherwise the return will not be processed. **Any product that has been in contact with a hazardous substance MUST be cleaned prior to being returned to Red Valve, or the return will not be processed.**

BEVEL GEAR ACTUATOR

1. DESCRIPTION

For manually operated valves using a bevel gear actuator, the bevel gear is bolted to an actuator support bracket, or yoke. The bracket is bolted to the top half of the valve body. The stem passes through the bracket and is connected to a stem coupling attached to the bevel gear unit. The handwheel or chainwheel is connected directly to the bevel gear input shaft. In large line sizes or high pressure applications, a spur gear unit may be attached to the input shaft, and the handwheel or chainwheel attached to the spur gear.

2. INSTALLATION

The bevel gear is factory installed on the valve. If the handwheel or chainwheel needs to be installed, use the through bolts supplied.

3. OPERATION

The valve is closed by turning the handwheel clockwise, and opened by turning the handwheel counterclockwise.

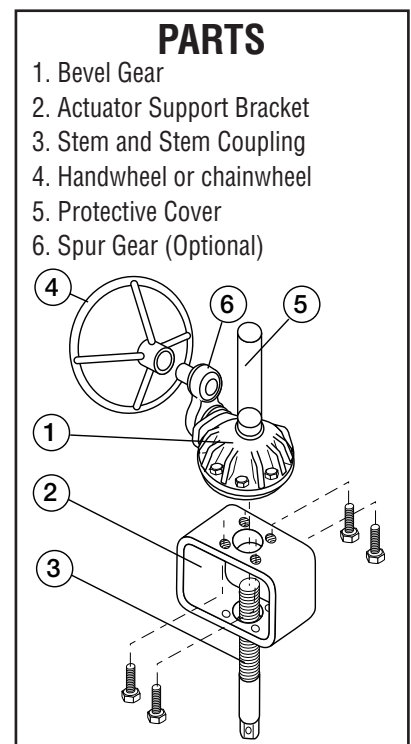
CAUTION: Due to the torque amplifying effect of the bevel gear, it is possible to overtorque the pinch mechanism and damage the valve.

4. MAINTENANCE

Red Valve recommends regular lubrication of all bevel gear units with high-quality grease on all grease fittings. In addition, the protective stem cover (5) should be removed and the stem (3) greased liberally. Be sure to replace the stem cover securely, or debris could get inside the bevel gear housing and hinder operation.

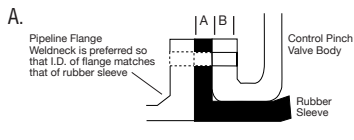
5. REMOVAL

To remove the bevel gear unit from the valve, begin by removing the handwheel or chainwheel by removing the through bolt that attaches it to the input shaft. Remove the through bolt(s) between the stem and stem coupling. For valves with position indicator rods, the position indicator rod must be removed first. This is done by turning the position indicator rod counterclockwise and lifting out. Remove all of the bolts that connect the bevel gear to the support bracket. Lift the bevel gear assembly off the valve.

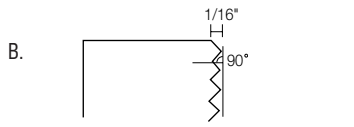


SERIES 75 FLANGE BOLTING SPECIFICATIONS

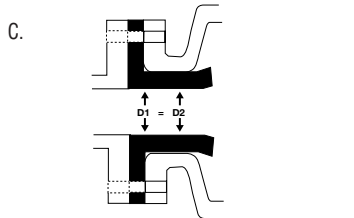
VALVE SIZE	NO. OF BOLTS	BOLT CIRCLE DIAMETER	THREAD SIZE	A	B	BOLT TORQUE (ft. lbs)
1"	4	3-1/8"	1/2" - 13 NC	1/2"	3/4"	20
1-1/2"	4	3-7/8"	1/2" - 13 NC	1/2"	5/8"	25
2"	4	4-3/4"	5/8" - 11 NC	1/2"	3/4"	40
2-1/2"	4	5-1/2"	5/8" - 11 NC	1/2"	3/4"	50
3"	4	6"	5/8" - 11 NC	1/2"	3/4"	55
4"	8	7-1/2"	5/8" - 11 NC	3/8"	7/8"	40
5"	8	8-1/2"	3/4" - 10 NC	3/8"	-	50
6"	8	9-1/2"	3/4" - 10 NC	5/8"	7/8"	60
8"	8	11-3/4"	3/4" - 10 NC	1"	1"	70
10"	12	14-1/4"	7/8" - 9 NC	1/2"	1"	70
12"	12	17"	7/8" - 9 NC	5/8"	1-1/4"	75
14"	12	18-3/4"	1" - 8 NC	1"	1-3/8"	100
16"	16	21-1/4"	1" - 8 NC	1"	1-7/16"	70
18"	16	22-3/4"	1-1/8" - 7 NC	1-1/2"	1-5/8"	55
20"	20	25"	1-1/8" - 7 NC	1-1/2"	1-3/4"	50
24"	20	29-1/2"	1-1/4" - 7 NC	1-1/2"	2"	70



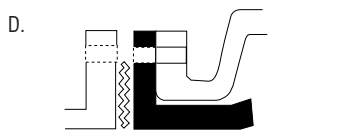
A. Standard pinch valves are built to schedule 40 pipe I.D. and to ANSI Class 125/150# flange and bolt circle specifications. It is recommended that the mating flanges are flat and full faced.



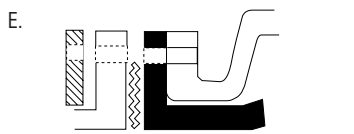
B. It is recommended that the mating flange be serrated to "grip" the rubber flange. The serrations should be cut 1/16" deep, with a 90 degree tool point. The pitch should be 8 (eight) cuts per inch.



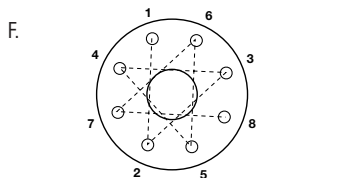
C. Mating flange ID must match the pinch valve sleeve ID.



D. When installing a pinch valve to a rubber, PVC, or any "slick" mating flange, we recommend that you install a metal serrated gasket between the two flanges to assist in the seal.



E. When bolting a pinch valve to a PVC or synthetic mating flange, use a split back-up retaining ring, since the mating flange will yield prior to generating enough force on the flange faces for a proper seal.



F. Torque all the flange bolts in a star pattern, first to 50% of tabulated values, then retorque to 100% of tabulated values. If greater torque is required, continue retorquing in increments of 50% of tabulated values. Use of high quality anti-seize compound on all bolt threads is recommended.

Variables such as the surface finish on bolt threads, type of anti-seize compound used, and surface finish of the mating flanges all have an effect on the minimum torque required to obtain a leak-tight flange seal.

RED VALVE WARRANTY

WARRANTIES - REMEDIES - DISCLAIMERS - LIMITATION OF LIABILITY

Unless otherwise agreed to in writing signed by Red Valve, all Products supplied by Red Valve will be described in the specifications set forth on the face hereof.

THE WARRANTIES SET FORTH IN THIS PROVISION ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER STATUTORY, EXPRESS OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OR TRADE).

Red Valve Products are guaranteed for a period of one year from date of shipment, against defective workmanship and material only, when properly installed, operated and serviced in accordance with Red Valve's recommendations. Replacement for items of Red Valve's manufacture will be made free of charge if proved to be defective within such year; but not claim for transportation, labor or consequential damages shall be allowed. We shall have the option of requiring the return of the defective product to our factory, with transportation charges prepaid, to establish the claim and our liability shall be limited to the repair or replacement of the defective product, F.O.B. our factory. Red Valve will not assume costs incurred to remove or install defective products nor shall we incur backcharges or liquidated damages as a result of warranty work. Red Valve does not guarantee resistance to corrosion erosion, abrasion or other sources of failure, nor does Red Valve guarantee a minimum length of service, or that the product shall be fit for any particular service. Failure of purchaser to give prompt written notice of any alleged defect under this guarantee forthwith upon its discovery, or use, and possession thereof after an attempt has been made and completed to remedy defects therein, or failure to return product or part for replacement as herein provided, or failure to install and operate said products and parts according to instructions furnished by Red Valve, or failure to pay entire contract price when due, shall be a waiver by purchaser of all rights under these representations. All orders accepted shall be deemed accepted subject to this warranty which shall be exclusive of any other or previous warranty, and shall be the only effective guarantee or warranty binding on Red Valve, anything on the contrary contained in purchaser's order, or represented by any agent or employee of Red Valve in writing or otherwise, notwithstanding implied warranties. RED VALVE MAKES NO WARRANTY THAT THE PRODUCTS, AUXILIARIES AND PARTS ARE MERCHANTABILITY OR FIT FOR ANY PARTICULAR PURPOSE.



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