

ONYX VALVE CO MODEL DHC

Installation & Maintenance

OPERATION:

(04-2011)

To close the valve, turn the hand wheel clockwise until you feel the valve seat firmly. To open the valve, turn the hand wheel counter-clockwise.

The Onyx series DHC is a manually operated, full round full port pinch valve with two pinch bars that close on centerline. This valve mechanism drives a pair of pinch bars to close the rubber sleeve bubble tight. Positive opening tabs molded into the sleeve attached to the pinch bars insure complete opening.

TESTING:

All Onyx pinch valves are tested to customer specifications before shipment. Unless otherwise specified, all valves are shipped assembled with all accessories piped, mounted, and calibrated.

STORAGE

Correct storage procedures extend valve life. The rubber sleeve in the valve is perishable. Ideal storage conditions are 10°C (50°F) and 60% relative humidity.

1. Keep valves and spare sleeves as cool as possible. They can be stored in an unheated area, but allow maximum ventilation in storage areas subject to high ambient summer temperatures. Truck trailers and storage sheds become incredibly hot during summer months. Avoid such locations.
2. Avoid sunlight. Ultra-violet light accelerates the deterioration of rubber. Leave the valve in its box. If not feasible to box the valve, cover the sleeve with black plastic.
3. Avoid ozone. DO NOT STORE valve near active electrical equipment. For long-term storage, coat the face and inside the sleeve with silicone spray or liquid.

INSTALLATION:

1. Safety considerations.
 - a) Leakage: Consider the possibility of flange leakage due to improper tightening of flange bolts. Pinch valves handle abrasive fluids; it may be reasonable to expect the sleeve to eventually wear out. Precautions should be taken where liquids may drip down onto electrical equipment or plant personnel, and where combustible fluid may drain into a dangerous area.
 - b) After shut down: Pinch valves seat gas tight and may hold pressure in a system for a considerable length of time. Means should be provided to safely relieve this pressure and drain lines.
2. Allow as long a straight run as possible into and out of throttling valves. A good rule of thumb is 10 to 20 pipe diameters up stream, and 3 to 5 pipe diameters down stream.
3. Select a valve location for easy access. Locate the valve where it can be reached for service and sleeve replacement.

4. Be sure pipeline is clean. Foreign material left in the pipeline can damage valves. Clean the mating flanges of adjacent pipe. Remove any old gasket material.
5. Inspect the valve before installation. Report any shipping damage before installation. **DO NOT INSTALL A VALVE KNOWN TO HAVE BEEN DAMAGED IN SHIPMENT.** Check inside the valve sleeve to make sure no foreign objects are present.
6. The model DHC pinch valves can be installed in any attitude with flow in either direction.
7. Make sure adjacent pipe is properly aligned. Adjacent pipe must have sufficient travel to insert valve and then draw tight to compress sleeve faces; valve will not stretch. Add an expansion joint if necessary to obtain required free play. Make certain adjacent pipe has sufficient free play to allow removal and reinstallation of the valve. (Flange gaskets are not required, but may be used for spacers if necessary.)

Coat faces of valve sleeve with silicone lubricant to facilitate installation and later removal of the valve and to preserve the resiliency of the rubber.

8. Bolt valve into pipeline. Snug up the bolts gently in a criss cross pattern. It may be necessary to re tighten bolts later after the rubber has taken set.
9. **IMPORTANT - INSTALL SUFFICIENT PIPE SUPPORTS TO ISOLATE VALVE BODY FROM EXCESSIVE FORCES.**
10. This pinch valve has a drain plug (#2E) located in the bottom of the bonnet assembly (#2). The plug can be left in place, or you can remove it to serve as a tell tale. If the sleeve wears out, process fluid will visibly drip from this hole. You may want to run pipe from the hole to a drain for good house keeping. Another reason to remove this plug is to prevent any build up of moisture which could accumulate inside the valve body and freeze during cold weather.

MAINTENANCE

1. Visually inspect valve periodically.
2. Lubricate valve once a year.

Coat stem (#4) where it passes through the drive nut (#63) and flange bearing (#2D) with grease.

Also grease the Guide Rods (#77) where they pass through the bearings (#2E and 3C). If valve is in a dusty environment, grease may cause dirt to stick to the stem and rods; use light oil.

3. Suggestion: If the valve is on critical service, or if you are controlling abrasive slurry, contact the factory to **order a spare sleeve in advance**. Don't wait for a sleeve failure at 11 PM on Christmas Eve to decide that you want a replacement sleeve.

SLEEVE REPLACEMENT

1. Relieve process pressure and drain process line. Open the pinch valve.
2. Remove valve from process line.
3. Split the bonnet assembly (#2), separating the upper bonnet half from the lower bonnet half by removing bonnet bolts, nuts, and washers (#2A, 2B, 2C). Gently pry the bonnet halves apart.

4. Remove the lower pinch bar (#10) by removing the hex nuts (#23A) from the tie rods (#23).
5. If sleeve (#1) is provided with POF tabs (Positive Opening Feature - integrally molded tabs bolted to the pinch bar), follow steps 'a' through 'f' below. If no positive opening tabs are provided, then proceed directly to step 6.
 - a) Remove bolts, nuts and washers (#8A, 8B, 8C) that secure the POF tabs to the lower pinch bar (#10). The sleeve (#1) is now free from the lower pinch bar.
 - b) Turn the hand wheel (#62) clockwise to eject the sleeve (#1) from the upper bonnet. Remove the POF screws, nuts, and washers (#8A, 8B, 8C) from the upper pinch bar and the rubber sleeve. The sleeve (#1) is now free from the upper pinch bar (#9).
 - c) Discard old sleeve. Prepare new sleeve for installation.
 - d) POF tabs are designed to have holes punched in the field using a gasket hole or pliers type punch. Hole diameter in tabs should be approximately equal to hole diameter in the pinch bar.
 - e) POF tab holes must be punched in proper alignment with respect to the flange face holes, or there will be hell to pay when you reinstall the valve.

Make certain the flange holes in the rubber sleeve face align with the drilled holes in the metal bonnet assembly. **It is very difficult to twist the rubber sleeve into position to align these holes later.**

- f) Replace POF tab bolts, nuts and washers (#8A, 8B, 8C). Use flat washers on every hole. If you replace bolts (#8A), cut or grind flush with nut (#8C) so bolts will not puncture sleeve in closed position.
6. Apply a coat of silicone valve seal (#2F) to the mating flanges of the bonnet assembly (#2).
7. Insert new sleeve and replace lower pinch bar (#10). Replace the nuts (#23A) on the tie rods (#23).
8. Replace the lower bonnet half. Bonnets are matched and must be oriented as they were originally or tie rods will not line up properly.

Replace bonnet hardware (#2A, 2B & 2C).
9. Reinstall valve in process line.
10. Coat the stem (#7) where it passes through the drive nut (#63) and bearing (#2G) with a light application of grease or machine oil.

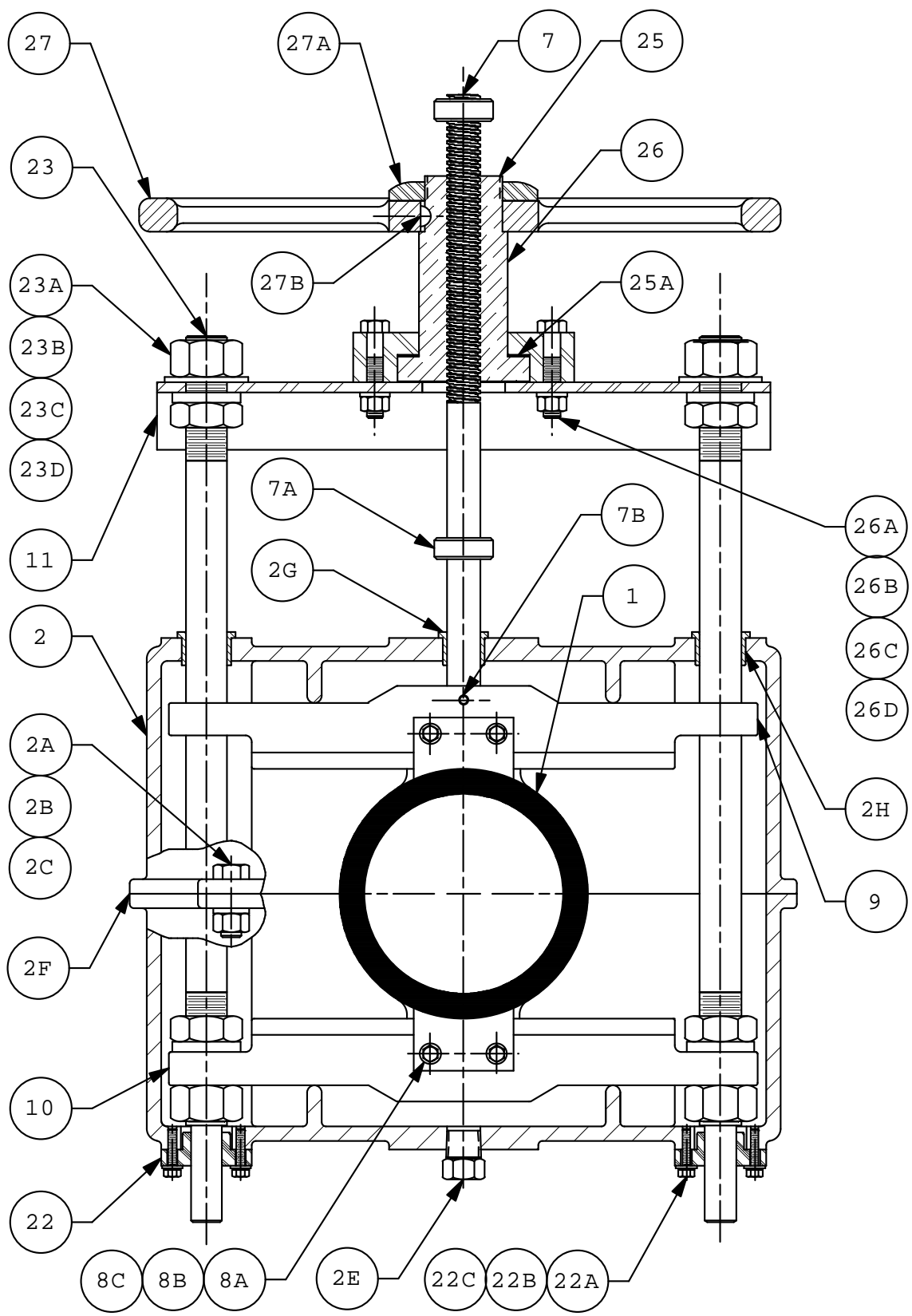
Questions ?

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ITEM	NOMENCLATURE
1	SLEEVE
2	BONNET ASSEMBLY
2A	BOLT, BONNET
2B	LOCK WASHER, BONNET
2C	NUT, BONNET
2E	PLUG, BONNET
2F	SEALANT, BONNET
2G	BEARING, BONNET-STEM
2H	BEARING, BONNET-GUIDE ROD
7	STEM, VALVE
7A	MECHANICAL STOP, VALVE
7B	ROLL PIN, STEM-UPPER PINCH BAR
8A	BOLT, POF
8B	WASHER, POF
8C	NUT, POF
9	UPPER PINCH BAR
10	LOWER PINCH BAR
11	YOKE
22	ALIGNMENT BEARING
22A	BOLT, ALIGNMENT BEARING
22B	WASHER, ALIGNMENT BEARING
22C	LOCK WASHER, ALIGNMENT BEARING
23	GUIDE ROD
23A	NUT, GUIDE ROD
23B	WASHER, GUIDE ROD
23C	LOCK WASHER, GUIDE ROD
23D	JAM NUT, GUIDE ROD
25	BRASS NUT
25A	NYLATRON WASHER
26	BRASS NUT CAP
26A	BOLT, BRASS NUT CAP
26B	NUT, BRASS NUT CAP
26C	LOCK WASHER, BRASS NUT CAP
26D	GREASE FITTING, BRASS NUT CAP
27	HAND WHEEL
27A	RETAING NUT, HAND WHEEL
27B	KEY, WOODRUFF