

ONYX VALVE COMPANY

Model DHO & DBO

Installation & Maintenance

Table of Contents:

Dual Pinch(D), Hand Wheel (H), Open Body(O)
& Dual Pinch(D), Bevel Gear(B), Open Body(O)

Operation, Testing, Storage	2
Installation.....	3
Identification, Safety & Flanges	4
Bolt Torque Data.....	6
Maintenance	7
Sleeve Replacement.....	8
DHO Valve Nomenclature.....	10
Troubleshooting	14
Warranty, Questions & Contact Info	15



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DHO & DBO Definitions:

Dual Pinch (D), Handwheel Operated(H), Open Body(O) Valve versus: (DHO)
Dual Pinch(D), Bevel Gear Operated(B), Open Body(O) Valve (DBO)
configurations have the use the valve bodies & sleeves; however, the handwheel is mounted on top of the DHO valve, as the Bevel Gear Box allows the handwheel to mount on the side of the DBO valve.

OPERATION:

The Onyx DHO & DBO pinch valves are open frame valves without housing enclosure. The hand wheel rotates a stainless-steel stem that drives a pair of pinch bars to close the rubber sleeve bubble tight. Positive opening tabs molded into the sleeve attached to the pinch bar insure complete opening.

TESTING:

All Onyx pinch valves are tested to customer specifications before shipment. Unless otherwise specified, all valves are shipped assembled.

STORAGE

Correct storage extends valve life. The rubber sleeve in the valve is perishable. Ideal storage conditions are 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) Process fluid: Open frame pinch valves are designed to handle benign fluids such as storm water, sand and water solutions, mine tailings, etc. When the sleeve wears out, you can expect that the process fluid will spray out in the vicinity of the valve. Make sure that this is acceptable.
 - b) **WARNING: Open frame pinch valves are NOT designed to control acids, caustic, scalding hot, toxic, or flammable or other hazardous fluids. When the sleeve wears out in an open frame valve, process fluid is going to spray out all over the place. Hazardous fluid escaping from the valve can cause serious injury and/or property damage.** Always use an enclosed valve with secondary containment option for hazardous or noxious fluids.
 - c) 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 onto electrical equipment or plant personnel, or where combustible fluid may drain into a dangerous area.
 - d) After shut down: Pinch valves seat can hold pressure in a system for considerable time. Means should be provided to safely relieve pressure and drain lines.
2. **Flanges:** Onyx pinch valves are designed to work with standard ANSI 150# (or 300#) **flat face** flanges. No gasket is required; the sleeve face *is* the gasket. Be careful when using Victaulic type flanges, as the grooving machine often leaves a sharp edge inside the flange. This sharp edge will cut the rubber valve sleeve causing premature sleeve failure. Make absolutely sure that the inside edges of mating flanges are filed or ground smooth. Valve flanges have through holes and are designed to have an ANSI hex (not heavy hex) nut behind the flange. Flange bolts must be inserted from the mating flange side.
3. Model DHO & DBO pinch valves are full round ports. 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 old gasket material.
5. Inspect valve before installation. Report shipping damage before installation. **DO NOT INSTALL A VALVE KNOWN TO HAVE BEEN DAMAGED IN SHIPMENT.** Check inside the valve to make sure no foreign objects are present.
6. Pinch valves can be installed in any position with flow in either direction.

Do not install valve next to a source of extreme heat.

7. Close valve prior to installation. Make sure adjacent pipe is properly aligned. Adjacent pipe must have sufficient travel to insert valve and 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.)
 - i. 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 crisscross pattern. It may be necessary

BOLT TORQ in FT-LB			
VALVE SIZE	NO OF BOLTS	PINCH VALVE & DUCKBILL	
		*INTIAL TIGHTENING	*RE-TIGHTENING
1	4	30	50
1.5			
2			
2.5			
3			
4	8	45	65
5			
6			
8			
10	12	50	80
12			
14			
16	16	60	95
18			
20	20	65	150
24			
30	28	75	175
36	32		

* Allow at least one hour between the initial and re-tightening.

10. IMPORTANT - INSTALL SUFFICIENT PIPE SUPPORTS TO ISOLATE VALVE FROM EXCESSIVE FORCES.

MAINTENANCE

1. Visually inspect valve periodically.
2. Lubricate valve once a year. Coat stem (#7) with grease. If valve is in a dusty environment, grease may cause dust to stick to the stem: use light oil.

SLEEVE REPLACEMENT

WARNING: Prior to attempting for sleeve replacement, the valve must be in open position. Failure to having the valve in open position could result in equipment damage and/or serious personal injury.

1. Relieve process pressure and drain process line.
2. Remove valve from process line.
3. Keep the valve in the open position by having the valve stem retracted.
4. Remove positive opening tabs from upper and lower pinch bars (#9 & 10) by removing bolts, nuts and washers (#8A, 8B, 8C).
5. Remove the lower pinch bar by removing hex nuts, lock washers and jam nuts (#23A, 23C & 23D) from the guide rods (#23).
6. Turn **the manual hand wheel** clockwise to push the sleeve clear. If the valve is equipped with POF tabs, drive the pinch bar out far enough to access the POF hardware.
7. If sleeve (#1) is provided with positive opening tabs (integrally molded tabs bolted to the pinch bar), follow steps 'a' through 'e' below. If no positive opening tabs are provided, proceed directly to step 11.

a) Remove bolts, nuts and washers that secure the positive opening tabs to the pinch bar (8A, 8B, 8C). The sleeve (#1) is now free from the both pinch bars (#9 & 10). Discard old sleeve. Prepare new sleeve for installation.

b) Punch holes through the positive opening tabs using a gasket or pliers type punch. The diameter of the holes in tabs should be approximately equal to hole diameter in pinch bar.



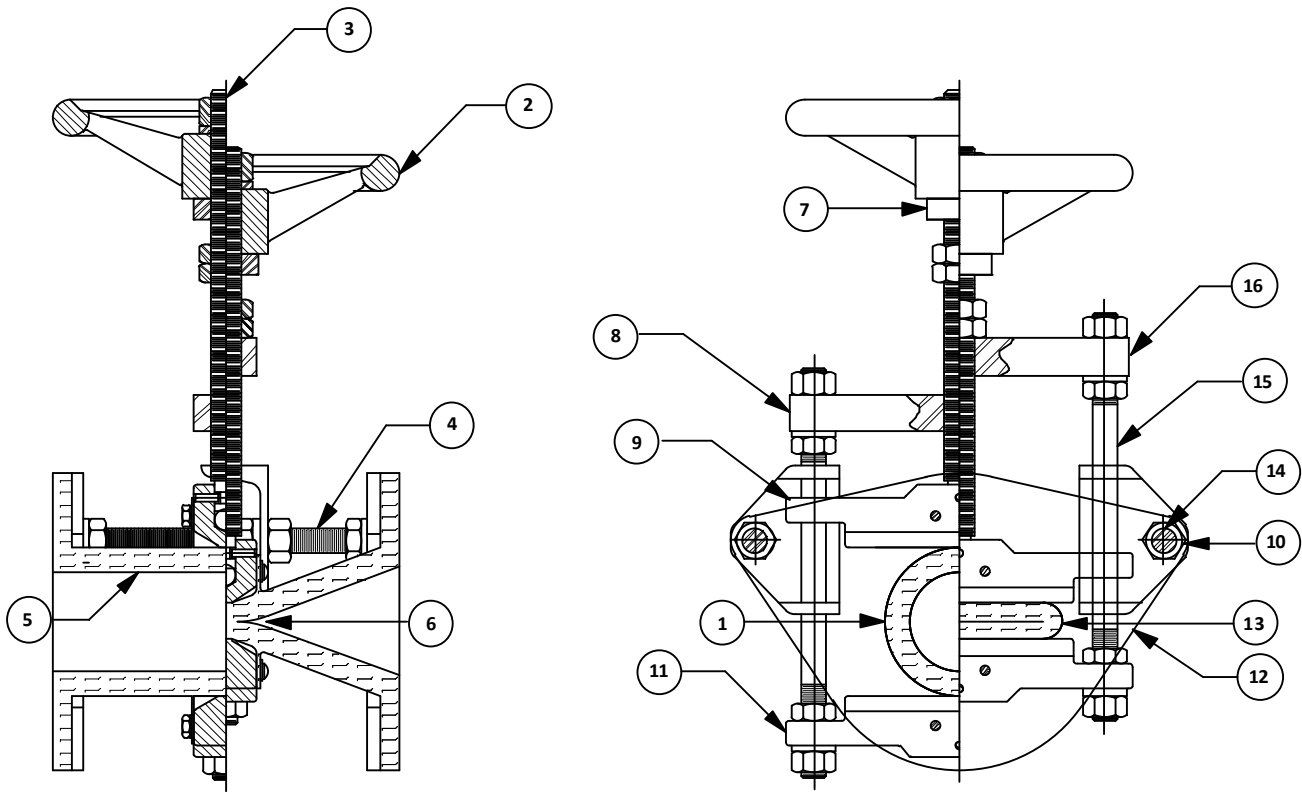
c) Positive opening tab holes must be in proper alignment with respect to the flange face holes.

d) Replace 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 do not puncture sleeve in closed position.

e) Trim the tabs even with the top surface of the pinch bar.

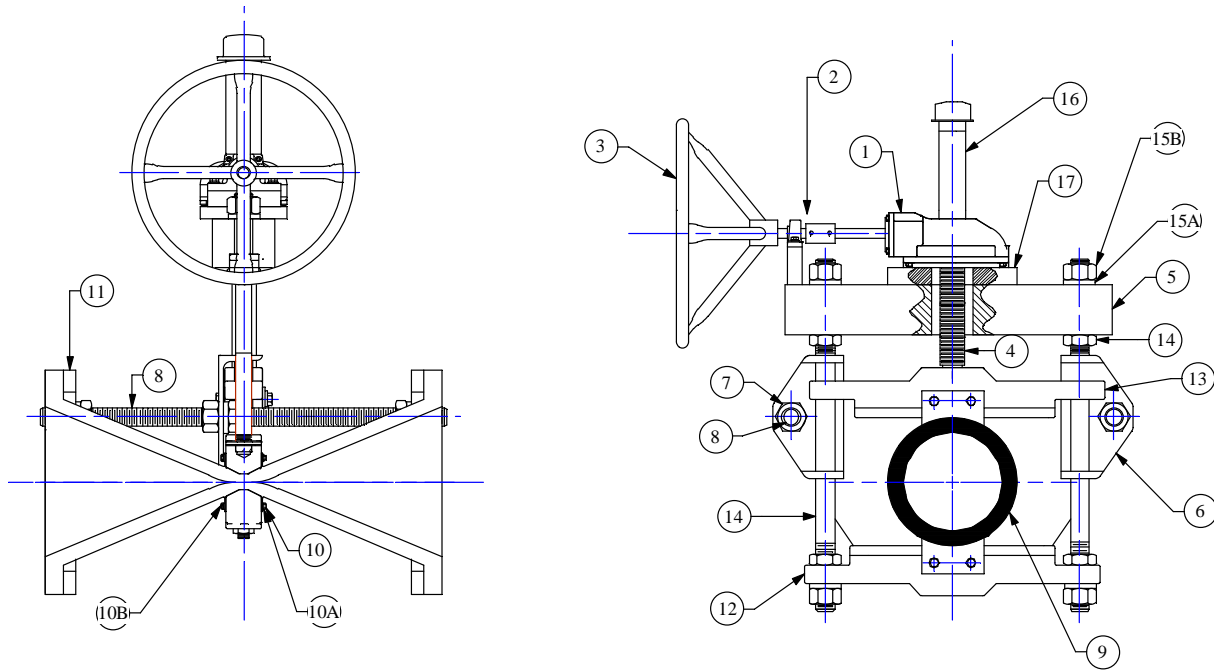
9. Apply a coat of silicone valve sealant to the mating flanges of the bonnet halves.
10. Coat the stem (#7) with a light application of grease or machine oil.
11. Insert new sleeve and reattach the lower pinch bar. Replace the nuts on the guide rods.
12. Reinstall valve in process line.





DHO SERIES VALVE

ITEM	DESCRIPTION
1	VALVE SLEEVE
2	HAND WHEEL
3	STEM
4	TIE-ROD
5	SLEEVE OPEN
6	SLEEVE CLOSED
7	HEX NUT
8	YOKE-CLOSED
9	UPPER PINCH BAR
10	TIE-ROD HEX NUT
11	LOWER PINCH BAR
12	FLANGE
13	SLEEVE CLOSED
14	TIE-ROD
15	GUIDE-ROD
16	YOKE-OPEN



DBO BEVEL GEAR

ITEM	DESCRIPTION
1	BEVEL-GEAR OPERATOR
2	BEVEL-GEAR EXTENSION (LARGER VALVE SIZES)
3	HANDWHEEL OPERATOR
4	VALVE STEM
5	YOKE
6	SIDE FRAME
7	TIE ROD NUT
8	TIE ROD NUT
9	SLEEVE
10	BOLT, POF
10A	WASHER, POF
10B	NUT, POF
11	FLANGE
12	LOWER PINCH BAR
13	UPPER PINCH BAR
14	GUIDE ROD
15	JAM NUT, GUIDE ROD
15A	WASHER, GUIDE ROD
15B	NUT, GUIDE ROD
16	STEM PROTECTOR
17	SPACER, YOKE-BEVEL-GEAR OPERATOR

Trouble Shooting:

Symptom:	Diagnosis	How to fix:
Process fluid is leaking out from around the stem and guide rods.	Sleeve is ruptured	Replace sleeve. See page-15
Process fluid is leaking through valve when it's supposed to be fully closed. Limit switch shows valve is in full closed position.	Wire draw failure through sleeve.	Replace sleeve. See page-15

ONYX VALVE CO

WARRANTY

The following statement of our Warranty and Claims Policy is intended to assist our customers in understanding the terms of our warranty, the circumstances under which we will honor claims, and the procedure for making claims.

1 Warranty on Products Manufactured by Us.

We warrant Products manufactured by us to be free from defects in material and workmanship for a period of one year from the date of shipment from our factory or warehouse.

Our liability under this warranty or in connection with any other claim relating to our Products is limited to the repair, or at our option, the replacement or refund of the purchase price of any products or parts or components which are returned to us freight prepaid which are defective in material or workmanship. Products or parts or components that are repaired or replaced by us will be returned to our customer freight collect.

With regards to rubber components, Onyx Valve does not guarantee resistance to erosion, abrasion or other sources of failure, nor does Onyx Valve guarantee a minimum length of service or that the product shall be fit for any particular service.

2. Products of Other Manufacturers.

We make no warranty with regard to any products not manufactured by us. The only warranty that attaches to such Products is that warranty, if any, of the manufacturer of such Products. Our Customer Service Department should be consulted if our customers have questions as to whether particular products are covered by our warranty or are separately warranted by their manufacturers.

3 Limitation of Liability.

The only warranty that we make to our customers is that summarized above.

WE DO NOT MAKE ANY OTHER EXPRESS WARRANTIES OR ANY IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR USE.

In addition, we do not assume and we expressly disclaim any liability for (i) any special, indirect, incidental, or consequential damages which anyone may suffer as the result of the sale, delivery, servicing, use, or loss of use, of any Product, or (ii) any charges or expenses of any nature that are incurred without our express written consent.

Our total liability under our warranty or in connection with any claim involving any Product is expressly limited to the purchase price of the Product in respect of which damages are claimed.

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 Onyx 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 Onyx Valve.

4. What Is Not Covered By Our Warranty; Types of Damages and Claims For Which We Are Not Responsible.

The following are examples of the kinds of defects which are not covered by our warranty: defects which are caused by improper installation, improper or abnormal use or operation, or improper storage or handling; defects caused by our customer's failure to perform normal preventive maintenance; defects caused by the use of replacement parts not manufactured or supplied by us; defects caused by repairs by persons not authorized by us; defects caused by modifications or alterations made by our customer, and any damage to our Product occurring while it is in our customer's possession. Since these are examples and not a complete list, we suggest that our customers contact our Customer Service Department if they have any questions concerning the scope of our warranty.

Additional costs incurred by our customers because of delays in delivery are consequential damages for which we are not responsible.

Risk of loss or damage to our Products passes to our customer when we tender our Products to the carrier. Although we cannot process transit damage claims with any carrier on a customer's behalf, we will provide reasonable assistance to our customers when such claims arise.

5. Consultations with Customers.

When so requested, our engineers and other personnel may consult with our customers concerning our Products. While our employees offer their best judgment on any question, the ultimate responsibility for selecting that Product which will perform the functions and applications desired by the customer rests with the customer. As noted above, we make no warranty, express or implied, as to the fitness of any Product for any particular purpose or use.

6. How to Make a Claim.

Within the limits of the terms and conditions set forth on our quotation and acknowledgment forms and in this Warranty and Claims Policy, we will honor reasonable and justified claims when adequate evidence is provided to show that our Product was defective.

Whenever a customer has a claim concerning a Product, the customer should contact the Customer Service Department. CUSTOMERS SHOULD NOT RETURN ANY PRODUCTS OR PARTS OR COMPONENTS TO US WITHOUT FIRST CONTACTING US.

When contacting us, customers should have the following information available:

1. Customer name, location, purchase order number and date of purchase.
2. Serial number.
3. Product/Model number.
4. Equipment installation date.
5. Equipment failure date.
6. Application or service of unit.
7. Details of claim.

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. Onyx Valve Co will not assume costs incurred to remove or install defective products nor shall we incur back charges or liquidated damages as a result of warranty work.

We will notify the customer whether it will be necessary to return the Product or part or component to us. If so, we will issue the customer an "AUTHORIZED RETURN GOODS NUMBER" that must be attached to the Product or part or component before returning it. All items returned to us must be returned freight prepaid.

If we determine that the Product or part or component is defective and that the defect is covered by our warranty, we will, as explained above, correct the defect or refund the purchase price.

Customers should promptly inspect all Products upon delivery. Customers must make claims for shortages within 20 days after the date of shipment from our factory or warehouse. We suggest that shortages be noted on the bill of lading or packing list, which should then be sent to our Customer Service Department for verification.

All other claims must be submitted within 60 days after the date of shipment from our factory or warehouse, or in the case of an alleged breach of warranty, within 60 days after the date within the warranty period on which the defect is or should have been discovered.

Claims may not be deducted from payments made to us unless we have so agreed in writing in advance.

Questions?

Contact Onyx Valve Company

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