

# ONYX VALVE CO MODEL GSF AND GSD

## Installation & Maintenance

### Operation:

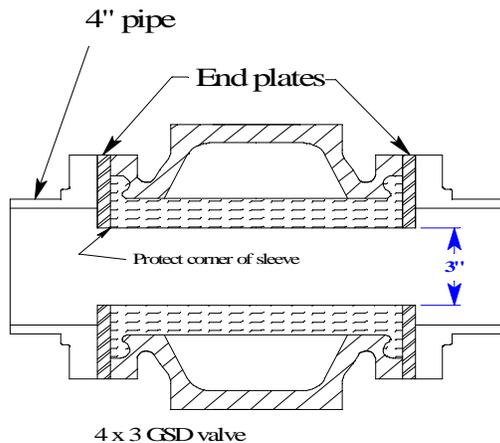
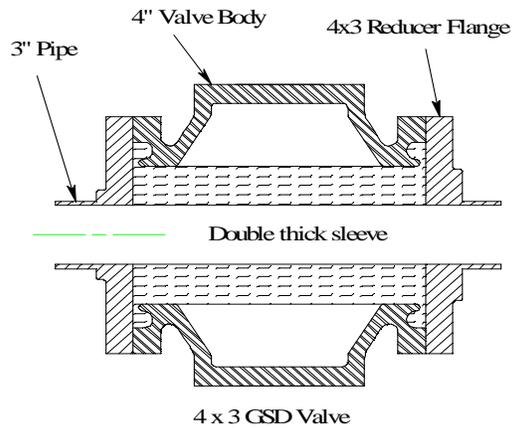
(04-2011)

The Onyx Series GSF and GSD valves operate very simply. Injecting compressed air into the iron housing collapses the rubber sleeve, stopping flow in the process pipe. Relieving air from the housing allows the rubber sleeve to open.

Although usually used for on/off service, the GSF and GSD can be used for throttling when combined with a transducer and booster relay. In process lines with vacuum conditions, we recommend a venturri pump to generate a counter-vacuum to pull the rubber sleeve open.

### Special Notes on the model GSD:

The GSD is a pinch valve with a double thick sleeve for greater wear life. To make room for the thicker sleeve, the valve body is increased by one nominal size. The normal method for installing the valve is to use reducer flanges. For example, a 3" GSD is really a 4" Valve with an undersized bore.



It is possible to install the GSD into a line where the pipe size matches the housing flanges. In this example, a 4x3 GSD, which has a 4" nominal housing and flanges, is installed in a 4" pipe line.

The valve has a 3" diameter bore, so there is a step going into the valve. (see illustration at left.) In this case, it is necessary to install end plates to protect the exposed edge of the valve sleeve. These end plates can be steel or UHMW-PE.

### Storage:

Correct storage yields improved sleeve life. Rubber sleeves are perishable. Ideal storage temperature is 50° F. We recommend the following storage procedures:

1. Store valves and sleeves in the coolest location possible. They can be stored in unheated locations, but allow maximum ventilation in areas subject to high summer temperatures. Do **NOT** store valves or sleeves in trailers, sheds or other poorly ventilated areas.
2. Avoid sunlight. Ultra-violet destroys rubber. Leave valves and sleeves in their box, or cover with black plastic.
3. Avoid ozone. Do not store near active electrical equipment.

4. For long term storage, coat exposed rubber parts every 6 months with silicone spray or liquid.

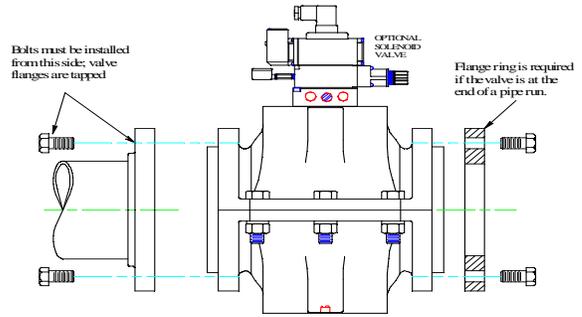
**Installation:**

1. **Safety:**

- a) Leakage: Consider the possibility of leakage due to improperly tightened flange bolts. Take precautions where liquids may drip onto electrical equipment or plant personnel, or combustible fluid may drain into a dangerous area.
- b) Pinch valve sleeves eventually wear out. When the sleeve fails, compressed air gets in the process pipe. Make sure that tanks, pumps, and other process equipment can safely withstand this additional pressure.
- c) Check the catalogue for max pressure rating for the valve. Do not exceed maximum recommended pressure for this valve.

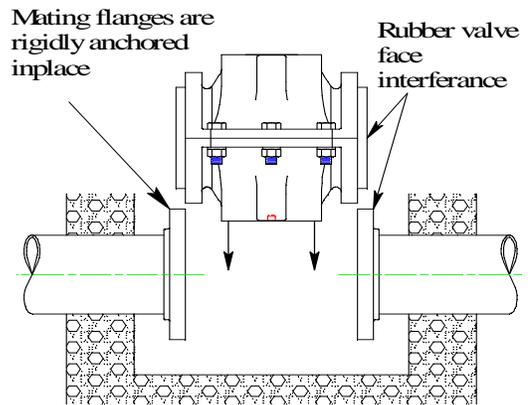
2. **Mating Flanges:**

- a) Use **flat face flanges** with the GSF and GSD pinch valves. Do not use serrated or raised face flanges. Steel, iron and non-metallic flanges are compatible with these valves.
- b) Flange bolts must be installed through the mating flanges. Flange bolts can **not** be inserted from the valve side of the flange assembly.



- c) If the valve is at the end of a pipe run, you must install a flange ring on the discharge end of the valve to seal the air properly.

- d) Design the installation so the valve can be removed for service and reinstalled. Remember that pinch valve sleeves wear out and have to be replaced. The rubber sleeve is molded slightly longer than the valve housing to provide enough compression in the rubber to prevent leaks. If the mating pipe flanges are rigidly anchored in concrete or permanently welded into a steel structure, you might be able to remove the valve from the line for servicing, but there will be hell to pay when you attempt to reinstall the valve. The protruding rubber faces of the sleeve will thwart any attempt to get the valve back into place. Connecting the mating flanges to your process pipe with a Victaulic or Dresser type coupling will facilitate removal and replacement of the valve.

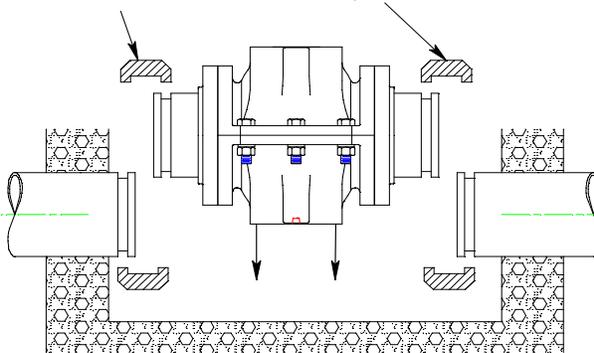


- e) By using split couplings, the mating flanges can be attached to the valve and tightened prior to installation. Then the entire assembly can be dropped into place and secured with the split couplings.

f) Make sure that mating flanges are smooth and properly de-burred. Any sharp edges on the inside corner of mating flanges will cut the rubber sleeve causing premature failure.

3. Inspect the valve before installation. **Do not install a damaged valve.** Check inside valve to be sure no foreign objects are present.
4. Do not install valve near a source of extreme heat.

Victaulic or Dresser couplings  
make installation and service easy!



5. Locate the valve where it can be reached for service. Allow room to service auxiliary instrumentation. Orient the valve so operators can see gauges.
6. Be sure pipe line is clean. Foreign material left in the pipe can damage valve. Remove any residual gasket material from mating flanges.
7. Valve can be installed in any attitude with flow in either direction. Install valve with drain port facing down.
8. Gaskets are not required.
9. Bolt the valve into the pipe line. Snug the bolts gently in a criss cross pattern. Do not use excessive torque on flange bolts. Max torque required is 40 ft lb.
10. Attach air supply to the connection in valve housing.



**NO OIL OR GREASE**

**Important:** No Oil or Grease  
Do Not use lubricated air

Oil in the system will attack the rubber sleeve, causing damage and reducing sleeve life.  
Do Not allow any petroleum based oil or grease to contact the rubber sleeve.

11. **Important:**  
Use a pressure regulator on the supply air to this valve. Correct air pressure increases sleeve life.

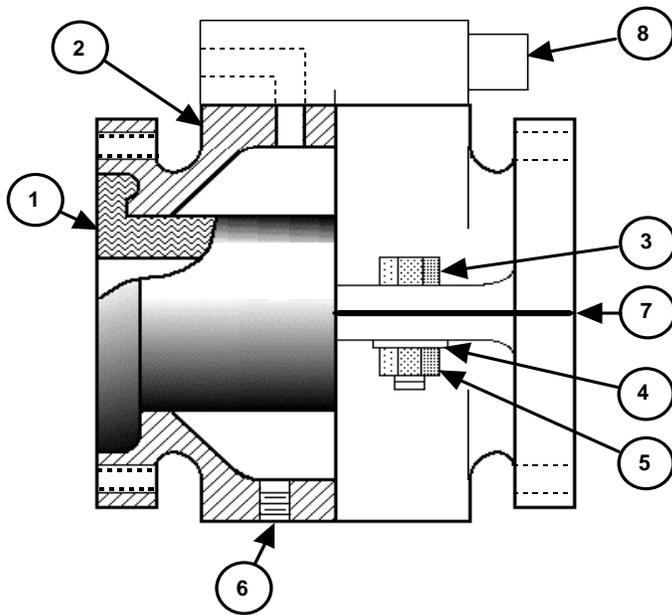
**Set air pressure regulator 40 to 50 psi over maximum process pressure that the valve has to close against.**

Too low pressure allows the valve to leak, causing erosion failure of the sleeve.

Too high pressure stresses reinforcing fabric, leading to premature collapse.

### **Sleeve Replacement:**

1. If the valve is in a critical service, you might want to consider stocking a spare sleeve on site.
2. Relieve pressure and drain process pipe.
3. Turn off supply air.
4. Disconnect air and electric lines from valve.
5. Remove the valve from the pipe.
6. Remove the bonnet bolts (#3, 4, 5) and separate the bonnet sections (#2).
7. Remove the old rubber sleeve (#1).
8. Insert the new sleeve into the housing.
9. Replace housing gaskets (#7).
10. Reassemble the housing assembly. Replace the housing bolts, washers, and nuts.



Item	Description
1	Sleeve
2	Bonnet
3	Bolts, Bonnet
4	Lock Washer, Bonnet
5	Nuts, Bonnet
6	Drain Plug
7	Gasket
8	Solenoid Valve (Optional)

**Questions ?**

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