INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Figure F290
Wafer Silent Check Valves

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IOM F290 070522

WARNING: Cancer and Reproductive Harm – www.Prop65Warnings.ca.gov

INSTALLATION, OPERATION and MAINTENANCE
Globe Silent Check Valves

INTRODUCTION
This manual will provide the information to properly install, operate and maintain the valve to ensure a long service life. GA Industries Silent Check Valves are ruggedly constructed to provide years of trouble-free operation with minimal maintenance.

These Silent Check Valves are not intended for use with fluids containing suspended solids such as wastewater and sewage. There are other types of GA Industries check valves that are suitable for such applications.

CAUTION
The valve is NOT recommended for use with compressed air or other gases.

CAUTION
Silent Check Valves are not intended for used with hazardous, flammable, or toxic fluids.

The Shop Order (SO) Number, Figure Number, size and pressure rating are stamped on a nameplate attached to the valve. Please refer to the SO number when ordering parts.

DESCRIPTION OF OPERATION
GA Industries Silent Check Valves are designed to open fully to allow forward flow and close quickly to prevent reverse flow. While typically installed on the discharge of water pumps, they can be used elsewhere in piping systems to prevent reverse flow.

On pump startup, water enters the valve from, the seat end and pushes the disc away from the seat and compresses the spring.

Upon pump shutdown, the spring rapidly de-compresses and quickly pushes the disc back to the seat to close the valve. This rapid closure occurs before the reversing flow can slam the valve shut, thereby preventing water hammer.

The valve disc and the compression spring behind it are the only moving parts.

RECEIVING AND STORAGE
Inspect the valve upon receipt for damage during shipment. Carefully unload all valves to the ground without dropping.

The valves should remain in a clean, dry and weather protected area until installed. For long term storage (greater than 6 months) the rubber surfaces of the seat should be coated with a non-toxic lubricant such as "SuperLube" made by Synco Chemical. Do not expose the rubber parts to sunlight or ozone.

VALVE CONSTRUCTION
GA Industries Figure F290-D wafer style silent check valve has a compact body designed to be clamped between two flanges. Size 2” to 6” Figure F290-U can be installed between ANSI Class 125, 150, 250 or 300 flanges while the size 8” and 10” Figure F290-D can only be installed between ANSI Class 125 or 150 flanges.

The valve has a fusion bond epoxy coated ductile iron body and lead free bronze internal metal components. The valve seals drop tight when the plug mates with a replaceable rubber O-ring retained in a dove-tail groove in the seat. Optional metal-to-metal seated valves (indicated by an ”M”, e.g., F290-DM) do not employ a rubber seat. Refer to Page 4 for details of construction and parts location.

INSTALLATION
GA Industries silent check valves must be correctly installed for proper operation. The flow arrow or nameplate on the valve body must point to the direction of forward flow. The valve can be installed in a horizontal pipe or in a flow up vertical pipe. The valve should be installed with at least 3 diameters of upstream straight pipe to minimize turbulent flow through the valve which can contribute to vibration and premature wear.

CAUTION
Do not lift the valve by the bronze seat ring spokes

The valve should be installed between standard ANSI flat faced flanges. The inside diameter of the inlet side mating flange must be larger than the valve seat for proper seat retention.

If the mating inlet flange has an expanded inside diameter (such as cement lined pipe or slip-on pipe flange) a support ring must be installed between the pipe flange and the valve.

CAUTION
Valve and system damage may occur if mating inlet flange does not overlap valve seat.

Full face flange gaskets are recommended, and the inside diameter of the inlet side gasket must overlap the bronze body seat to provide a seal between the body and seat.

Remove all packing materials from the valve, including the tabs that retain the seat during shipping.

When wafer style valves are installed between Class 125 or 150 flanges, the flange bolts/studs are in the grooves on the outside of the body. When sizes 2-inch to 6-inch are installed between Class 250 or 300 flanges, the flange bolts/studs are outside the grooves.

If ring gaskets are used the bolt material shall be ASTM A307 Grade B (or equivalent). Higher strength bolting should only be used with full-face gaskets.

Lower heavy valves using slings or chains around the valve body and/or the lifting eye. Lubricate the bolts or studs and insert around flange. Lightly tighten bolts until gaps are eliminated. Torque bolts in an alternating pattern in graduated steps. If leakage occurs wait 24 hours and re-torque the bolts but do not compress the gasket more than 50% or exceed bolt maximum torque rating.

If installed outdoors, below ground in a vault or in an unheated area, adequate freeze protection must be provided.

PREVENTIVE MAINTENANCE
GA Industries silent check valves require no scheduled lubrication, adjustment, or preventive maintenance.

A periodic inspection should be performed to listen for leakage when the pump is shut down and the valve is closed. If leakage is evident, isolate the valve, remove it from the pipeline and inspect seating surfaces for wear or damage.

TROUBLESHOOTING

- Valve Chatters or Vibrates
  Verify the flow velocity through the valve is at least the 4 ft/sec necessary to compress and stabilize the spring.

  Turbulent flow through the valve can cause instability, verify at least 3 diameters of straight pipe upstream of the valve.

  Cavitation sounds like rocks are passing through the valve and results from extremely high flowing velocity

- Valve Leakage
  Verify the inside diameter of the inlet flange gasket overlaps the seat and body

  Verify the seat is flush with the flange face. If the seat has lifted above the flange face mating flange and gasket are not properly retaining the seat.

  Inspect seating surface and rubber O-ring for wear and/or damage. Replace as needed.

- Valve Does Not Pass Flow
  Verify valve is installed with the flow arrow in the correct direction

  Verify there's no debris in the valve preventing it from opening.

- Valve Slams
  Inspect spring for damage, replace if needed

WARNING
Removing the valve from the line or disassembling the valve while there is pressure in the valve body may result in injury or damage to the valve

DISASSEMBLY
The valve should be removed from the line before disassembly. A skilled technician with proper tools should perform all work. No special tools are required.

Set the valve, with the flow arrow pointing down, on wooden blocks or 2 x 4's under the body outboard of the bronze seat so that it can drop out of the body. Ensure the surface beneath the valve will not damage the internal components when they drop out of the valve.

Place a metal rod on top of the stem inside the bushing. Hit the top of the rod with a hammer or mallet and the internal components should drop out of the valve body.

Inspect the seating surfaces. For rubber seated valves, superficial marks, or discoloration on the mating surface of the plug are normal but replace the seat if it is gouged or has grooves indicating the valve had been leaking. The rubber seat is retained in a "dove-tail" groove in the seat and can be pulled out if damaged

The plug and seat sealing surfaces on metal-to-metal seated valves cannot show any evidence of wear or it will leak excessively.

Inspect the plug for damage, especially the guiding surfaces to ensure they have not worn unevenly. If they are not round, it can lead to misalignment and leakage so they should be replaced.

REASSEMBLY
Clean all parts especially the seating and sealing surfaces before reassembling valve. Worn parts should be replaced.

Set valve body on a flat surface with the flow arrow pointing down. Install bushing (2) into body (1). Set spring (3) over bushing (2). Install poppet stem in bushing. If rubber seated, lubricate and install new O-ring (7) in dove-tail groove in seat being careful not to damage or cut the O-ring during installation.

Lubricate the O-Ring (6) and install in the groove on the OD of the seat. It is very important to lubricate this O-ring to prevent damage during installation which will cause a leak and not allow the seat to enter the body.

Place the seat into the valve making sure the seat stem enters the poppet and the poppet enters the bushing.

Using two hands, push down on the seat to pop it into the body. Larger valves may require a 2 x 4 to be placed across the seat and hit with a hammer.

Install valve in line with new gaskets, tighten flange bolts, carefully introduce pressure and check for leaks

REPLACEMENT PARTS
Genuine replacement parts are available from your local VAG/GA Industries representative or from the factory:

VAG USA, LLC
234 Clay Avenue
Mars, PA 16046 USA
Telephone: 724-776-1020
Fax: 724-776-1254
E-mail: quotes-ga@vag-group.com

Please have the nameplate data available when ordering parts.

WARRANTY
The Warranty for GA Industries valves is included in our Terms and Conditions which can be found here: https://gaindustries.com/terms

Silent Check Valve

Item	Description	Standard Material
1	Body	Ductile Iron
2	Bushing	Bronze
3	Spring	Stainless Steel
4	Poppet	Lead-free Bronze
5	Seat Ring	Lead-free Bronze
6	Seat O-Ring	EPDM Rubber
7	Seal	EPDM Rubber