

INSTALLATION, OPERATION AND MAINTENANCE MANUAL

Figures 280 & 290 Silent Check Valves



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280-290-IOM 121420



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

INSTALLATION, OPERATION and MAINTENANCE

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 use 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 decompresses 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 silent check valves are available in two styles.

Globe Style: The globe style valve body has integral flanges. Figure 280-D is supplied with flanges that are faced and drilled per ANSI B16.1 Class 125 while Figure 280-U has flanges per ANSI B16.1 Class 250.

Wafer Style: The wafer style valve has a compact body designed to be clamped between two flanges. Figure 290-U can be installed between ANSI Class 125 or Class 250 flanges while the Figure 290-D can only be installed between ANSI Class 125 flanges.

Both styles have an iron body and either bronze or stainless-steel 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. The seat in Figure 280 globe style valves is retained in the body by screws for transportation and installation in the pipeline. However, once installed, the seat is retained by the mating flange. Do not remove the upstream piping/flange while the downstream system is pressurized, or the seat may be dislodged from the body. The seat in wafer style Figure 290 valves is threaded into the body so no screws are used. 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.

The valve should be installed between standard ANSI B16.1 flat faced flanges. The inside diameter of the inlet side mating flange must be larger than the valve seat for proper seat retention.

In some size GA Industries silent check valves, there are two screws retaining the seat, but this is only for transportation. When installed, the seat must be retained by the inlet side mating flange.

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 inlet side gasket's inside diameter must overlap the bronze or stainless-steel body seat to provide a seal between the body and seat.

When wafer style valves are installed between Class 125, 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 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.

An isolating valve should be installed between the valve and the pipeline or system to facilitate maintenance. 10-inch and smaller Figure 280-D or 280-U globe style silent check valves have enough clearance to allow most butterfly valves to be directly bolted to its outlet. Refer to Table 1 for clearance dimensions. However, the plug shaft in 12-inch size valves extends past the outlet flange and may interfere with an adjacent valve's operation.

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 on a flat, stable surface with the flow arrow pointing down. For Figure 280 globe style valves, remove the screws (7) and lift out the seat (5), plug (4), spring (3) and bushing (2). Note that because of the construction of 12" Figure 280 globe valves, the seat will need to be retained before disassembly. Place a metal bar or piece of wood across the seat in between the retaining screws and secure to the valve flange with C-clamps. Remove the retaining screws and slowly open the C-clamps and remove. For Figure 290 wafer style valves, unscrew the seat from the body then lift out the plug, spring and bushing.

Inspect the seat surface. Superficial marks and discoloration are normal but replace the seat if it is gouged or has grooves indicating the valve had been leaking.

Inspect the plug for damage, especially the upper and lower stem to ensure they have not worn unevenly. If they are not round, it can lead to misalignment and leakage so the plug should be replaced. The rubber seat (6) is retained in a "dove-tail" groove in the seat (4) and can be pulled out if damaged.

Inspect all parts for wear and damage. Replace damaged parts.

REASSEMBLY

Reassembly is performed in reverse order from disassembly. Clean all parts especially the threaded, seating and sealing surfaces before reassembling valve. Worn parts should be replaced.

Install bushing (2) into body (1). Set spring (3) over bushing (2). Install new seat O-Ring (6) into dovetail groove in seat (4). Carefully install plug (4) so that downstream stem enters spring and bushing. Install seat (4) over upstream plug stem.

If globe style Figure 280 install seat retaining screws (7). Note that for 12-inch valves, the bar and C-clamps must be used to compress the spring so that the seat is flush with the flange face before installing the retaining screws. If wafer style Figure 290, thread seat (4) into body

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>

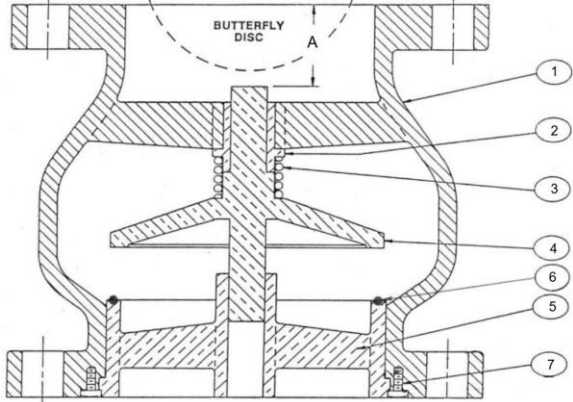


Figure 280 Globe Style

Table 1
Butterfly Valve Clearance

Size	A
2½"	1¾"
3"	1¾"
4"	1¾"
6"	2½"
8"	3¼"
10"	4¼"
12"	Not applicable

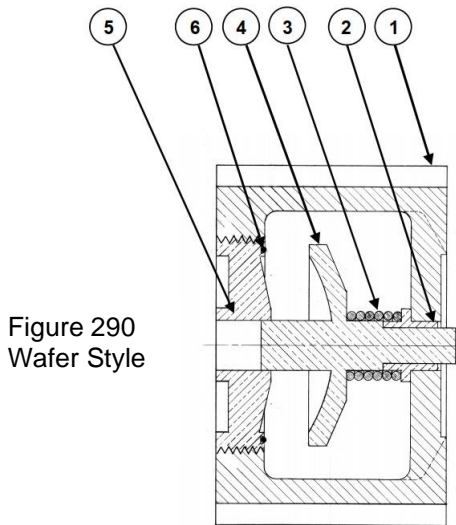


Figure 290
Wafer Style

Silent Check Valve

Item	Description	Standard Material
1	Body	Cast Iron
2	Bushing	Bronze or SS
3	Spring	Stainless Steel
4	Plug	Bronze or SS
5	Seat	Bronze or SS
6	Seat O-Ring	Rubber
7	Retaining Screw	Stainless Steel