

# Wafer & Globe Style Silent Check Valves



## Operation and Maintenance Manual

Job Name: \_\_\_\_\_

Contractor: \_\_\_\_\_

Date: \_\_\_\_\_

## SAFETY MESSAGES

All safety messages in the instructions are flagged with an exclamation symbol and the word “Warning”. These messages indicate procedures that must be followed exactly to avoid equipment damage, physical injury, or death. Safety labels on the product indicate hazards that can cause equipment damage, physical injury, or death.



### **WARNING**

***Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of pipeline material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous pipeline materials.***

## PARTS

Order parts from your local Henry Pratt sales representative or directly from Henry Pratt Company. When ordering parts, please include the serial number located on the valve tag.

## WARRANTY ISSUE

Seller warrants that, at its option, it will repair, replace, or refund the unit purchase price of any products which are non-conforming due to Seller’s material or workmanship during the warranty period. The warranty period shall be twelve (12) months for parts and eighteen (18) months for all other goods after date of shipment. This shall be Buyer’s sole remedy. In order to maintain this product warranty, Buyer must give written notice to Seller’s Field Service Supervisor prior to any work being performed.

IN CONSIDERATION OF THE FOREGOING, SELLER EXCLUDES ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Seller does not warrant water operated metallic cylinders against damage caused by corrosion, electrolysis or mineral deposits. In no event shall warranty include valve removal or reinstallation.



### **WARNING**

***Read all applicable directions and instructions prior to any maintenance, troubleshooting or installation***



# Wafer & Globe Style Silent Check Valves

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## Wafer & Globe Style Silent Check Valves

### INTRODUCTION

This manual will provide the owner of a Wafer or Globe style silent check valve the information to operate and maintain the valve to ensure a long and satisfactory operating life. The silent type check valve is built with stainless trim to give years of trouble free operation and to ensure compliance to NSF61 or Annex G standards. The silent type check valve can be installed in either horizontal or vertical pipelines that carry clean water or air. This valve is not intended to carry fluids containing solids such as raw sewage or wastewater. This valve is not suited for fluids that contain hazardous gases.

The silent type check valve is designed to provide flow in the direction of the arrow marked on the outside nameplate, and instantaneously close upon sensing flow reversal. The nameplate will also indicate valve size, model number, working pressure and materials of construction.

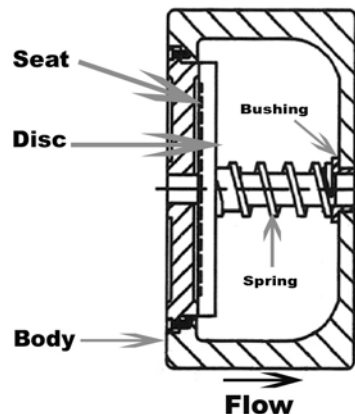
### RECEIVING AND STORAGE

When valves arrive on site they should be inspected for any shipping damage. Valves should be off loaded from their carrier without being dumped or dropped. When lifting the valve use lifting straps around the body and never lift a valve with straps or chains through the body.

Valves should remain in their original shipping container until ready to install into the pipeline. This will prevent any weather related damage to occur and void the warranty. For extended periods of storage the container should remain closed so to not expose the valves seat materials to direct sunlight or ozone.

### DESCRIPTION OF OPERATION

The silent type check valve is designed to prevent flow reversal in applications where this situation can occur. In pumping applications the pump will start the flow of water in the direction that is noted in figure 1.



**Figure 1**  
**Wafer Silent Check**

### DESCRIPTION OF OPERATION (Cont.)

The flow of water will push against the disc and force it back away from the body seat. The water will then flow through the valve between the disc and body seat, as long as the water pressure keeps the valve open. When the pump stops and water ceases to flow the spring behind the disc will push the disc closed against the body and seal off the flow of water in the opposite direction of flow. The disc closure occurs before the flow of water can reverse thus silencing the operation of the check valve. Typical check valve operation will cause valve slam or water hammer which is due to some degree of flow reversal.

The only moving parts in the silent check valve are the disc and spring. The disc is centered over the body seat by a front and back post which rides in a front and back bushing. In between the back side of the disc and downstream bushing is the spring.

### INSTALLATION

The silent check valve is installed in the pipeline between two flanges. The flow arrow that is stamped on the nameplate must point in the direction of fluid flow when the pump is running or when the system is in operation. The valve can be installed either vertically or horizontally, with flow either up or down. For ease of future reference install the valve with the nameplate in the visible orientation.

The valve will be installed between two flanges in accordance with ANSI B16.1, Cl. 125, ANSI B16.5 Cl. 150 or AWWA C207, Cl. D or E. Flange faces must be flat faced and flanges with raised faces cannot be used. The flange gasket must have a material thickness of 1/16" or more, and must overlap the body seat to ensure a seal between the seat and the body.



### **WARNING**

***CAUTION: Do not install valves between flanges with raised faces. Damage to check valve will occur.***

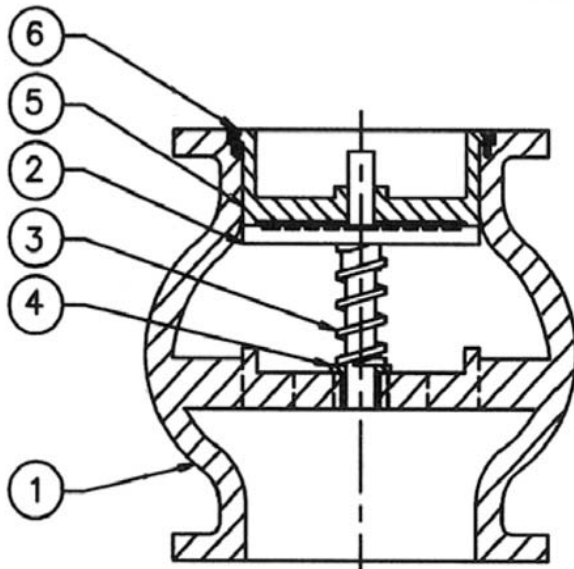
Lower valve into position between mating flanges using slings or chains wrapped around valve body. Never support the valve from within the valve body or valve trim.

## Wafer & Globe Style Silent Check Valves

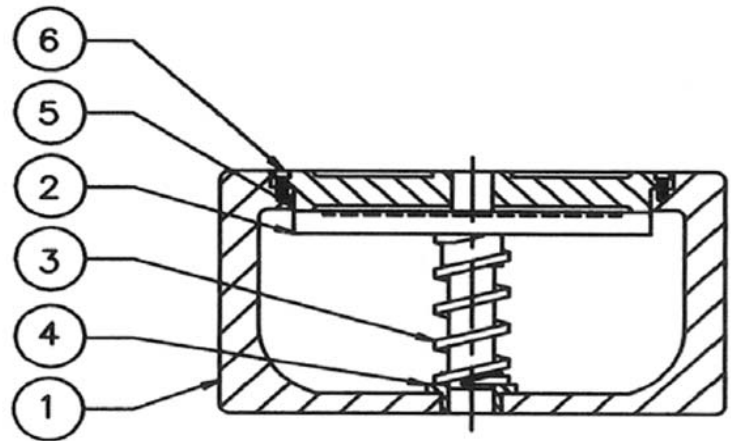
### VALVE CONSTRUCTION

The standard silent check valve body is made from ductile iron. The balance of the internal wetted components are made from type 304 stainless steel. The disc and spring are the only moving parts and require no lubrication or maintenance. Reference cross section figures #2 and #3.

The body seat is retained into the body by cap screws (6). Removing these cap screws will allow complete dis-assembly of the check valve. The cap disc screws WILL NOT retain the seat inside the check valve if the upstream pipe is removed. The pipeline must be de-watered before removing the upstream pipe.



**Figure #2  
Globe Style**



**Figure #3  
Wafer Style**

#### Materials of Construction

ITEM	QTY	DESCRIPTION	MATERIAL
1	1	BODY	DUCTILE IRON
2	1	DISC	STN. STL.
3	1	SPRING	STN. STL.
4	1	BUSHING	STN. STL.
5	1	SEAT	EPDM
6	AR	CAPSCREW	STN. STL.

## **MAINTENANCE**

The silent check valve is lubrication and maintenance free. Once the silent check valve is installed correctly it will provide the end user many years of trouble free service.

## ***TROUBLESHOOTING***

A list of problems and associated solutions are presented to assist in troubleshooting the valve assembly.

### Valve experiences noisy vibration or emits a chatter sound

- Flow velocity needs to be at least 4 feet per second or better.
- Noise sound like rocks flowing through pipe may indicate cavitation and flow is too high.
- Air could be in the flow media thus creating inconsistent flow density.
- Elbow directly upstream may cause turbulent flow pattern thus inconsistent media pressure may occur – Three pipe diameters of straight pipe upstream is the recommended practice of proper check valve placement.

### Valve Leakage

- Verify upstream gasket overlaps body seat.
- Metal to metal seated valves may require re-lapping.
- Debris caught in valve.

### Valve does not allow flow to occur

- Verify flow arrow is in proper orientation.
- Verify debris is not in line.

### Valve Slams

- Spring may have broken.
- Disc bushing is getting clogged with debris – disc is getting stuck open.

## **DISASSEMBLY**



### **WARNING**

***CAUTION: All work performed on any check valve should be made when the valve is fully removed from the pipeline and executed by a trained mechanic using the correct tools.***

1. Lay valve flat on bench with body seat facing up and flow arrow facing down. Using a piece of bar stock place the bar stock across the seat face and secure with and two C-clamps to the body flange. Remove the cap screws that hold the seat in place. Slowly back off the C-clamps to relieve pressure the disc spring is imposing onto the disc and seat. The spring will relax and then it is ok to remove the seat. Inspect the seating face for wear or condition of resilient seat.
2. Lift the disc from the body. Inspect the disc shafts and seating surface for wear. Minor dents and dings are normal, but significant wear areas will allow leakage to occur and a new seat will be required.
3. Remove disc spring and check overall condition for wear or cracks. Wear is normal but cracks indicate a potential failure and should be replaced.
4. Remove bushing and inspect for wear. The bushing ID should be about 1/32" larger than the OD of the disc pin. A bushing with an ob-round ID condition should be replaced.

## **REASSEMBLY**



### **WARNING**

***NOTE: Prior to assembly all parts should be cleaned and body gasket faces should be wire brushed to remove any residual gasket material to ensure an effective sealing surface. Never use old or used gaskets during installation.***

1. Insert bushing into body.
2. Place spring on disc shaft and insert disc shaft into busing thus retaining spring between bushing and disc.
3. Install seat with retaining screws. Body seat may need to be clamped down with C-clamps and bar stock in order to get screws engaged into body.
4. Install valve into pipeline using new gaskets. Tighten bolts around flange in a star pattern to achieve and even tightening of the flange around the valve.





## Wafer & Globe Style Silent Check Valves

### HOW TO CONTACT PRATT

#### HOW TO ORDER PARTS:

To order parts, contact our Parts Department:

Write: - Henry Pratt Company  
401 South Highland Avenue  
Aurora, IL 60506-5563

Attn: Parts Manager

Call - (630) 844-4000

Fax - (630) 844-4191

Please include valve serial number and description of part requested.

#### HOW TO OBTAIN SERVICE:

To obtain further information or secure field service, contact our Field Service Department:

Write: - Henry Pratt Company  
401 South Highland Avenue  
Aurora, IL 60506-5563

Attn: Field Service Manager

Call - (630) 844-4163

Fax - (630) 844-4160

Please include the following with your inquiry for service:

Henry Pratt Order Number:

Henry Pratt Item Number:

Valve Serial Number:

Type of Service Requested