

PRATT®

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OPERATION/MAINTENANCE MANUAL

720G Wafer and 821G Globe Style Silent Check Valves

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WARNING:

1. Read all applicable directions and instructions prior to any maintenance, troubleshooting or installation.
2. 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.
3. Order parts from your local Pratt sales representative or directly from Pratt. When ordering parts, please include the serial number located on the valve tag.

NOTE: "WARNING" and "CAUTION" messages (flagged with an exclamation symbol) indicate procedures that must be followed exactly to avoid equipment damage, physical injury, or death.

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720G WAFER and 821G GLOBE STYLE SILENT CHECK VALVES

General Information / Installation

OVERVIEW

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. 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.

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.

The body seat is retained into the body by cap screws. Removing these cap screws will allow complete disassembly 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.

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.

Maintenance Free

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.

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 horizontally or vertically, 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.

⚠ CAUTION: DO NOT install valves between flanges with raised faces. Damage to check valve will occur.



WAFER SILENT CHECK VALVE



GLOBE STYLE CHECK VALVE

Lower valve into position between mating flanges using slings or chains wrapped around valve body.

Maintenance

No Maintenance or Lubrication is required.

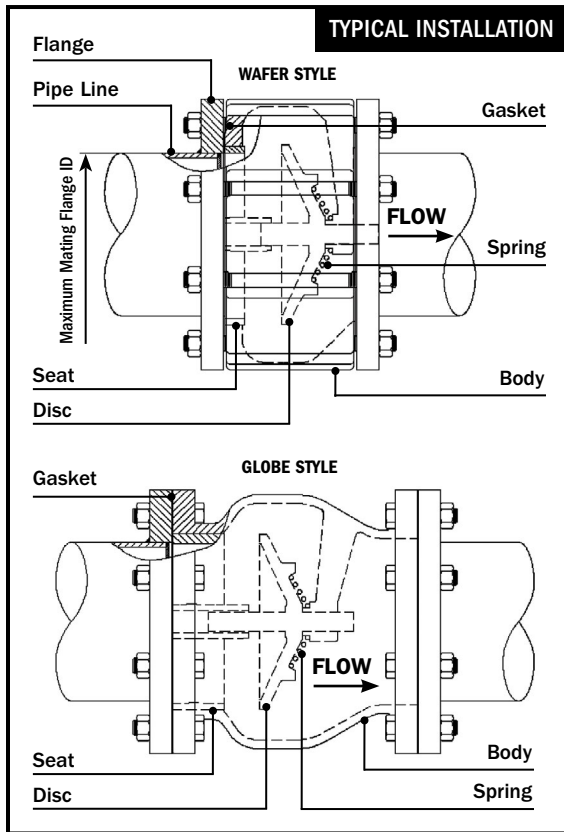
Spare Parts

Stocking of spare parts is not recommended.

720G WAFER and 821G GLOBE STYLE SILENT CHECK VALVES

Installation / Operation

Installation Requirements



NOTES:

1. Flat flanges and ring gaskets (rubber or compressed fiber) are required.
2. The mating companion flange I.D. must overlap the valve seat. This is required to provide proper seat retention.
3. The flange gasket must be properly centered and of the size indicated. This is required to achieve a seal between the seat O.D. and the body I.D. interface area.

Valve Size (inches)	Max. Allowable Flange I.D. (inches)	STANDARD RING GASKET DIMENSIONS		
		Gasket I.D. (inches)	O.D. for 125 lb Wafer Silent Check Valve (inches)	O.D. for 125 lb Globe Style Check Valve (inches)
2	2.76	2.56	4.09	4.09
2.5	2.76	2.87	4.84	4.84
3	3.35	3.50	5.35	5.35
4	4.72 s	4.53	6.46	6.46
6	6.50	6.42	8.66	8.66
8	8.27	8.46	10.67	10.67
10	10.24	10.16	13.03	13.03
12	12.40	12.20	14.84	14.84
14	14.37	13.98	-	17.32
16	16.34	16.34	-	19.29
18	17.72	17.72	-	21.26
20	19.88	19.88	-	23.43
24	24.25	24.02	-	28.15

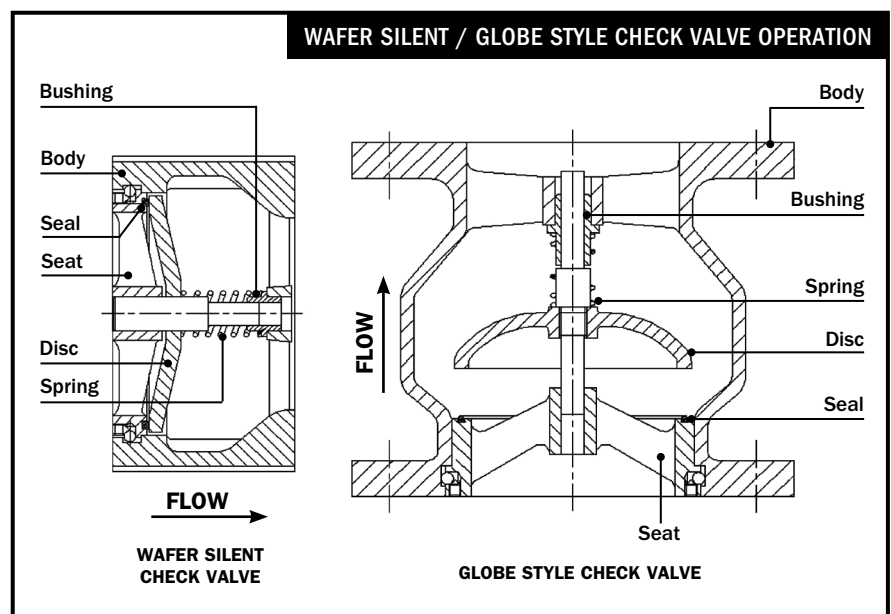
DESCRIPTION OF OPERATION

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 below.

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. 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.



720G WAFER and 821G GLOBE STYLE SILENT CHECK VALVES

Troubleshooting / Disassembly / Reassembly

TROUBLESHOOTING

PROBLEM	SOLUTION
Valve experiences noisy vibration or emits a chatter sound	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • Verify flow arrow is in proper orientation. • Verify debris is not in line.
Valve Slams	<ul style="list-style-type: none"> • Spring may have broken. • Disc bushing is getting clogged with debris – disc is getting stuck open.

DISASSEMBLY/REASSEMBLY

Disassembly

⚠ CAUTION: Always 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 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 and resilient seat for wear.

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

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.

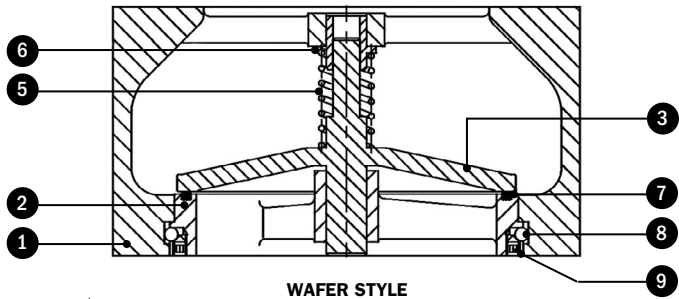
2. Place spring on disc shaft and insert disc shaft into bushing thus retaining spring between bushing and disc.

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.

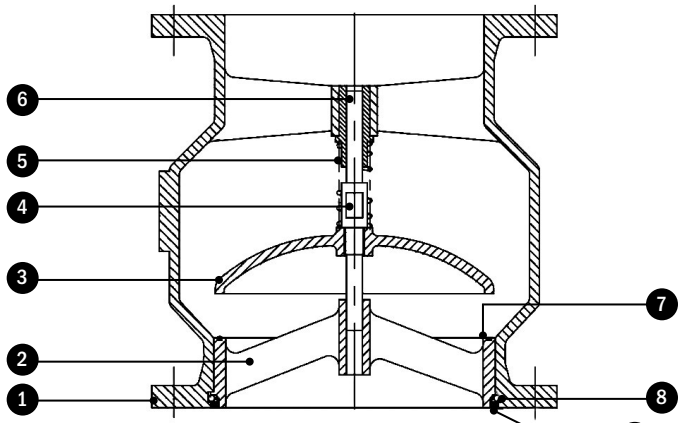
4. Install valve into pipeline using new gaskets. Tighten bolts around flange in a star pattern to achieve an even tightening of the flange around the valve.

720G WAFER and 821G GLOBE STYLE SILENT CHECK VALVES

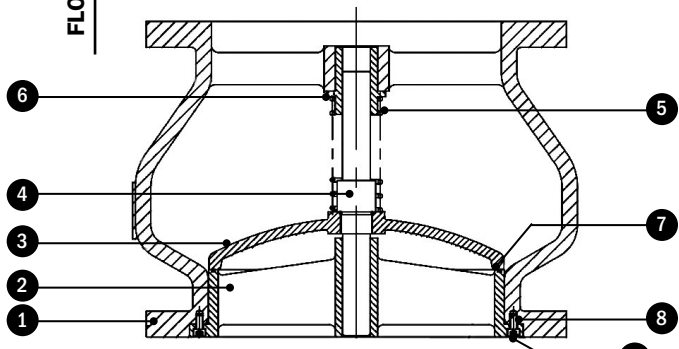
Parts Information



WAFER STYLE



GLOBE STYLE (2" - 12")



GLOBE STYLE (14" - 24")

PARTS LIST

ID	DESCRIPTION	MATERIAL
1	Body	Ductile Iron ASTM A536
2	Seat	304 Stainless Steel
3	Disc	304 Stainless Steel
4	Stem	304 Stainless Steel
5	Wafer Style: Spring Globe Style: Spring 2" - 16" Spring 18" - 24"	316 Stainless Steel 316 Stainless Steel 304 Stainless Steel
6	Guide Bushing	Bronze ASTM B584
7	Seal	EPDM
8	Wafer Style: Steel Ball Globe Style: Steel Ball (2" - 12") Seat O-Ring (14" - 24")	304 Stainless Steel 316 Stainless Steel EPDM
9	Wafer Style: Set Screw Globe Style: SHCS	316 Stainless Steel 304 Stainless Steel

TO ORDER: Contact our Parts Department.

Pratt
401 South Highland Avenue
Aurora, IL 60506-5563
Attn: Parts Manager
630.844.4000

When ordering parts, please include the serial number located on the valve tag and description of part requested.

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