

PSI - Pratt Surge Inhibitor Check Valve

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Construction Specifications:

Sizes:	3" through 24" flanged ends
Body:	Ductile Iron
Disc:	Buna-N encapsulated steel
Seat:	45° non-slam seat
Flexor Assembly:	Stainless steel

How It Works

The Pratt Surge Inhibitor utilizes a reinforced flexible disc element. The materials of construction for the disc element are comprised of a stainless steel hinge pin with nylon reinforcement in the hinge section and a alloy steel disc plate, all of which, are fully encapsulated in a specially formulated rubber compound that resists wear and ensures years of maintenance free performance.

The hinge tab of the flexible disc is secured between the valve body and disc. The disc is able to pivot about the reinforced hinge section. The speed at which the valve closes depends upon the dynamic recovery factor of the disc. The Dynamic Recovery Factor (DRF), defines how fast the flexible disc will revert back to its original "at rest" shape. Sometimes the DRF may not be fast enough to inhibit valve slam, which can produce extreme pressure surges. With the Pratt Surge Inhibitor Check Valve, valve slam is reduced and therefore extreme pressure surges are reduced or eliminated. The Pratt Surge Inhibitor Check Valve utilizes a stainless steel flexor assembly that is affixed to the flexible disc. The flexor device increases the speed of closure by stiffening the hinge section of the disc, thus increasing the Dynamic Recovery Factor of the flexible disc assembly. The Flexor assembly is field adjustable without removing the valve from the line.

Features

Body

Ductile Iron in ASTM A-536 Grade 65-45-12, and features a full flow area providing 100% unrestricted flow and low head loss. Flanges are in full compliance with ANSI B16.1, Class 125.

Bonnet

Ductile iron domed access bonnet allows for easy removal and inspection of the flexible disc assembly.

Disc

The only moving part, featuring a fully Buna-N encapsulated steel disc with nylon reinforcement in the flex area. The molded elastomer with integral O-ring ensures a bubble-tight shut off, without backflow.

Flexor Assembly

This meticulously engineered stainless steel device, located within the valve, ensures quick, non-slam closure with no obstruction of flow path.

Body Seat

Constructed on a 45 degree angle to reduce the travel of the disc to the full open position; significantly reducing the potential for water hammer.

Flow

The flow area is equal to or greater than the equivalent pipe size throughout, resulting in low head losses, compared to other types of check valves.

Installation

Suitable for both horizontal and vertical pipelines with flow upward.

Coatings

The valve interior is fully coated with liquid thermosetting epoxy suitable for use in potable water service. The exterior is provided as standard with a universal primer enamel suitable for coating in the field. Special coatings can be furnished on request.

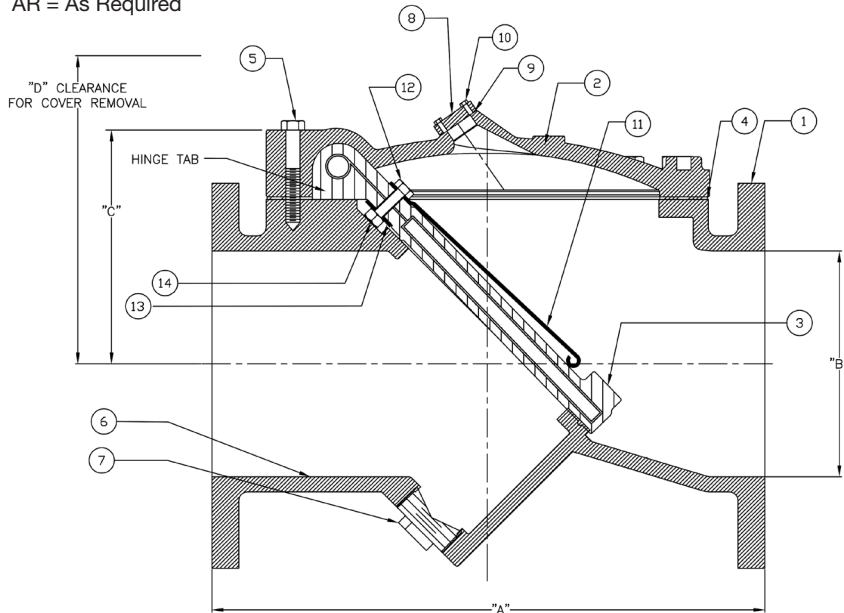
Accessories/Options

- Disc position indicator
- External backflow device - to manually open disc
- Proximity limit switch - to transmit an electrical signal to indicate when disc is open or closed
- EPDM disc option
- Stainless steel cover bolts

Materials of Construction

Item	Qty	Description	Material	ASTM Designation
1	1	Body	Ductile Iron	ASTM A-536-GR 65-45-12
2	1	Bonnet	Ductile Iron	ASTM A-536-GR 65-45-12
3	1	Disc	Steel/Buna-N/Nylon Reinf.	ASTM-A36 D2000 BK 807
4	1	Gasket	Rubber (Buna-N)	D2000 BK 807
5	AR	Cap Bolts	Steel/Zinc	SAE Grade 5 - Zinc Plated
6	1	Interior Lining	Epoxy	—
7	1	Plug	Ductile Iron	ASTM A-536-GR 65-45-12
8	1	Boss Cover	Ductile Iron	ASTM A-536-GR 65-45-12
9	1	O-Ring	Rubber (Buna-N)	D2000 BK 807
10	4	Boss Cover Bolts	Steel/Zinc	SAE Grade 5 - Zinc Plated
11	1	Flexor Assembly	Stainless Steel	301 Stainless Steel
12	AR	Flexor Assembly Bolts	Stainless Steel	316 Stainless Steel
13	1	Flexor Assembly Back Pit	Stainless Steel	301 Stainless Steel
14	AR	Flexor Assembly Hex Nuts	Stainless Steel	316 Stainless Steel

AR = As Required



Dimension 'D' Clearance Required to Remove Access Cover

Valve Size	A	B	C	D
3	9.5	3.0	3.88	9.00
4	11.5	4.0	4.63	9.63
6	15.0	6.0	5.88	11.00
8	19.5	8.0	7.63	13.75
10	24.5	10.0	9.88	16.00
12	27.5	12.0	11.38	18.50
14	31.0	14.0	13.38	20.50
16	32.0	16.0	15.38	23.50
18	36.0	18.0	17.13	25.25
20	40.0	20.0	19.13	29.25
24	48.0	24.0	22.75	32.75

Flanges are per ANSI B16.1 Class 125/150 Flat Faced

Suggested Specification

Check valve shall be of the flanged, full body type with no internal moving parts except for the resilient disc. The flanged ends shall be manufactured in accordance with ANSI B16.1 Class 125. Valves shall be rated to 250 psi for all sizes.

The valves shall be designed, manufactured, tested and certified to American Water Works Association Standard ANSI/AWWA C508.

The valves used in potable water service shall be certified to NSF/ANSI 61 Drinking Water System Components – Health Effects, and certified to be Lead-Free in accordance with NSF/ANSI 372.

The valves shall have flanges with drilling to ANSI B16.1, Class 125.

The valve body shall be constructed of ductile iron ASTM A-536 Grade 65-45-12 with flow area equal to the nominal pipe inside diameter throughout the valve. Seat shall be constructed on a 45 degree angle to reduce disc travel. The seat and internal body shall be fully coated with a two part thermosetting epoxy suitable for use in both potable water and wastewater applications.

The domed bonnet shall be manufactured of ductile iron ASTM A-536 Grade 65-45-12. The bonnet-to-body seal shall be provided by a gasket to allow easy removal and replacement of the access bonnet. Bonnet bolting shall be SAE Grade 5.

The resilient disc shall feature a fully encapsulated alloy steel pressure plate with integral molded O-ring on the face of the elastomer. Nylon reinforcements shall be provided in the flexible hinge area of the disc assembly. Non-slam closing characteristics shall be provided via a 35 degree disc stroke and a flexor assembly, which together, requires no more than 0.25 psi of cracking pressure to open the disc. The disc surge inhibitor assembly shall be replaceable and adjustable in the field without removing the valve from the line. The valve disc shall be cycle tested 1 million times, in accordance with ANSI/AWWA C508, and show no evidence of wear, cracking or distortion.

If requested, a mechanical disc position indicator and limit switch or a bottom mounted back flow device shall be provided.

Pratt Surge Inhibitor Check Valves shall be Pratt Model PSI as manufactured by the Henry Pratt Company.