

PX20 Pressure Air Release Valve for Extreme Service (PX20B: PX20 Series with Backflushing Hoses)

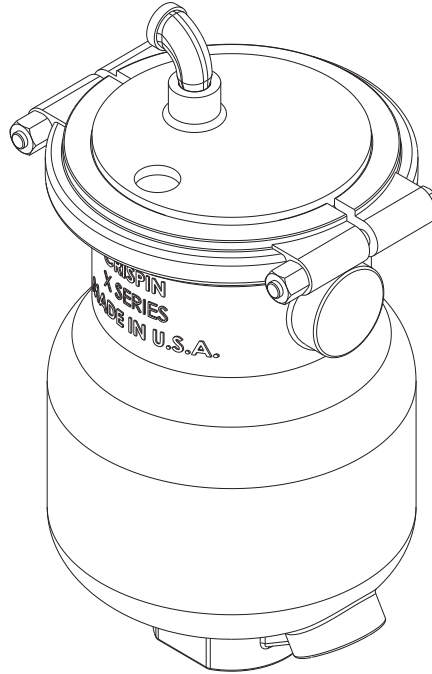


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PX20 and PX20B Series: Installation, Operation & Maintenance Manual

INTRODUCTION

The PX20 Series is part of Crispin Valve's X Series line, which is available in Air & Vacuum, Pressure Air Release and Universal Combinations for Water and Wastewater applications. The valves feature our exclusive Head Exchange System, with its head-fixed stainless steel internals that are replaceable in-line and on-site. To clean, simply loosen the head assembly, which is sealed in place by a sanitary clamp fitting. Pull out the original head, weighing less than 10lbs, and pop in a spare so that the original head can be cleaned at your leisure. All 316 stainless construction makes the X Series impervious to rust, and all Crispin Valves are tested to the latest ANSI/AWWA C512 Standards. This manual will provide you with the information to properly install and maintain the PX20 and PX20B Series Pressure Air Release Valves to ensure a long service life. Both are heavy-duty valves designed to stand up to the toughest industrial applications for years of trouble-free operation.



INSTALLATION

Please read this entire IOM Manual prior to proceeding with the installation. The installation of the valve is important for its proper operation. The valve must be installed in the vertical position. Next, lower the valve over the mating nipple or flange. If mounted on a nipple, using Teflon tape, apply tape to the mating pipe nipple. Lightly thread the valve of the pipe nipple until tight. If using a flanged connection, align and apply the flange gasket on the flange, and lower the valve onto the mating flange. Then tighten the flange bolts. If leakage occurs, check the connections and re-tape the threaded connection if necessary.

OPERATION

The Crispin PX20 and PX20B Series Pressure Air Release Valves are designed to release accumulating air while the line is in operation and under pressure.

When the line is filled and under pressure, liquid entering the valve raises the float and lever mechanism, carrying with it the pressure plunger in the main valve. When the liquid has raised the float to its limit, the pressure plunger also rests against its seat, which is the main valve. When this occurs, the valve is closed and no liquid can escape.

If the accumulating air rises into the valve while the line is in operation and under pressure, it will displace the liquid at the top of the valve body, and the float will begin to drop as the liquid level drops. As this occurs, the pressure valve will open, permitting escape of the accumulating air, after which the liquid level will rise and the valve will close.

The cycles will repeat automatically as each condition presents itself.



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DISASSEMBLY (See drawing on pg 4)

The valve does not have to be removed from the pipeline for disassembly. All work on the valve should be performed by a skilled mechanic using the proper tools.

1. Remove Clamp (33) by turning nuts counter clockwise. Remove Cover Assembly (18) from Valve Body (19) by lifting straight up.
2. Remove Screws (31) from Cover Assembly (18). Inspect the valve linkage assembly for bent parts.
3. Inspect the valve Plunger (23) for wear. If worn, replace and reset.
4. Inspect O-Ring Gasket (20). Replace if needed.

REASSEMBLY (See drawing on pg 4)

Prior to reassembly, all parts must be cleaned and gasket surfaces should be cleaned with a stiff wire brush in the direction of the serrations or machine marks. Worn parts, gaskets and seals should be replaced during reassembly.

1. Install the valve internals to the Cover Assembly (18) using Screws (31). Be sure to inspect, and if worn, replace the Seat (17).
2. Turn the Cover Assembly (18) upside down and move the linkage into the closed position to ensure that the linkage is not toggled or over extended.
3. Apply talcum powder to the Plunger (23). Work the linkage back and forth so that the contact between the Plunger (23) and the Seat (17) is visible. If proper contact is not evident, adjust the valve Plunger (23).
4. Apply the O-Ring Gasket (20) to the valve Body (19).
5. Gently lower the Cover Assembly (18) onto the valve Body (19). Once they are aligned, use the Clamp (33) around the two parts, and then tighten the Nuts (24).
6. Once complete with maintenance and with the Air Release Valve back on the main, gently close the Drain Valve (43) and reopen the isolation valve.

MAINTENANCE

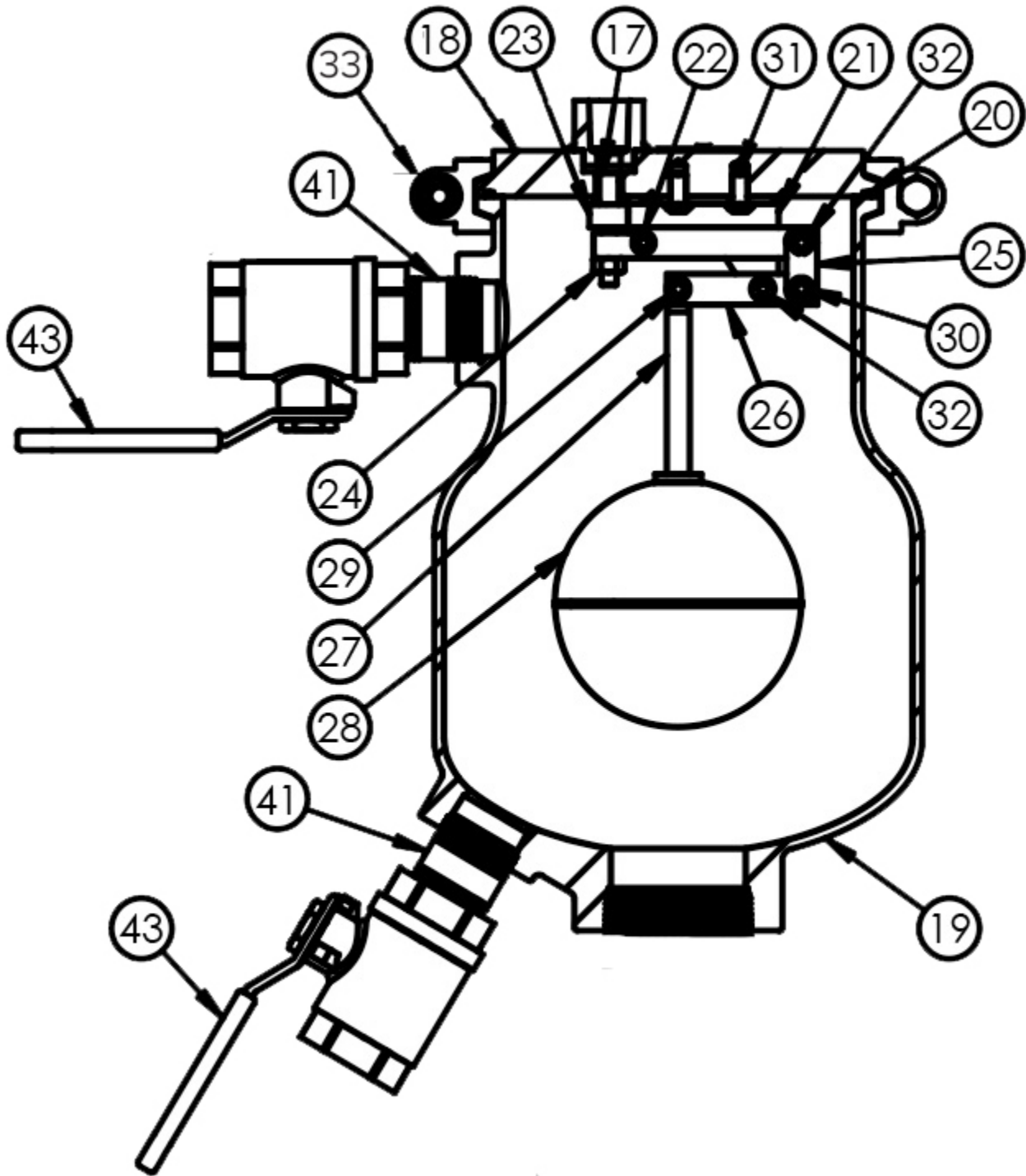
Although Crispin PX20 Series Pressure Air Release Valves do not require back flushing, it is recommended that a spare valve head assembly be kept on hand to “swap out” in the field. The head assembly removed from the valve can then be cleaned and put into stock to be used the next time a fresh head assembly is needed. Depending on each specific system, Crispin recommends that head assemblies be changed every 6-12 months. For customers who prefer a backflushing attachment (PX20B Series), instructions follow in the Backflushing section of this manual.

SERVICE

Parts and service are available from your local representative or distributor. Make note of the Valve size, operating pressure and model number as located on the valve tag.



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BACKFLUSHING (PX20B SERIES)

On sewage installations, PX20B series valves with backflush attachments are supplied, if ordered, with an inlet gate valve, two (2) drain valves on the side of the body, and a quick disconnect hose.

The backflush hose is attached to a fresh supply of water at 20-90 psi. With the hose coupled to the drain valve, the inlet gate valve is closed, and the bottom drain valve is opened, At this point, the sewer system pressure will blow off some of the solids. The top drain valve is then opened, and the valve is backflushed with the fresh water. When it appears that the solids have been removed, the top drain valve is closed before the bottom drain valve, so that remaining water is allowed to escape, and then the bottom drain valve is closed. Then, the inlet gate valve is opened slowly.

On combinations with the Pressure Valve piped out of the side of the Air and Vacuum Valve, the isolating valve between the Pressure Valve and the Air and Vacuum Valve is closed. The inlet to the Air and Vacuum Valve is closed, and its bottom 1” drain valve is opened to relive internal pressure and settled sludge. The bottom drain valve is also opened on the Pressure Valve for the same reason, and then backflushed with clean water. When the water passing out of the bottom drain valve is clear, this drain valve is closed, and the isolation valve is opened in order to facilitate backflushing of the Air and Vacuum Valve. After backflushing is complete, all drain valves are closed, and the isolation valves are opened slowly to put the valve back in service.

Valves in combination on a yoke assembly are backflushed individually using the procedure outlined above.

TROUBLESHOOTING (See drawing on pg 4)

PRESSURE SEWER VALVE

Seat Leakage

- 1) If a low volume leak persists with the Plunger (23) or Seat (17) against the orifice, then the Plunger (23) and/or Seat (17) should be adjusted or replaced.
- 2) If the valve has been in operation for more than 5 years, replace the Plunger (23) and Seat (17).
- 3) More frequent backflushing may be required to prevent debris from reaching the orifice area.

Valve Fails to Release Air

- 1) Backflush the valves to ensure that the internals are free to function.

AIR AND VACUUM SEWER VALVE

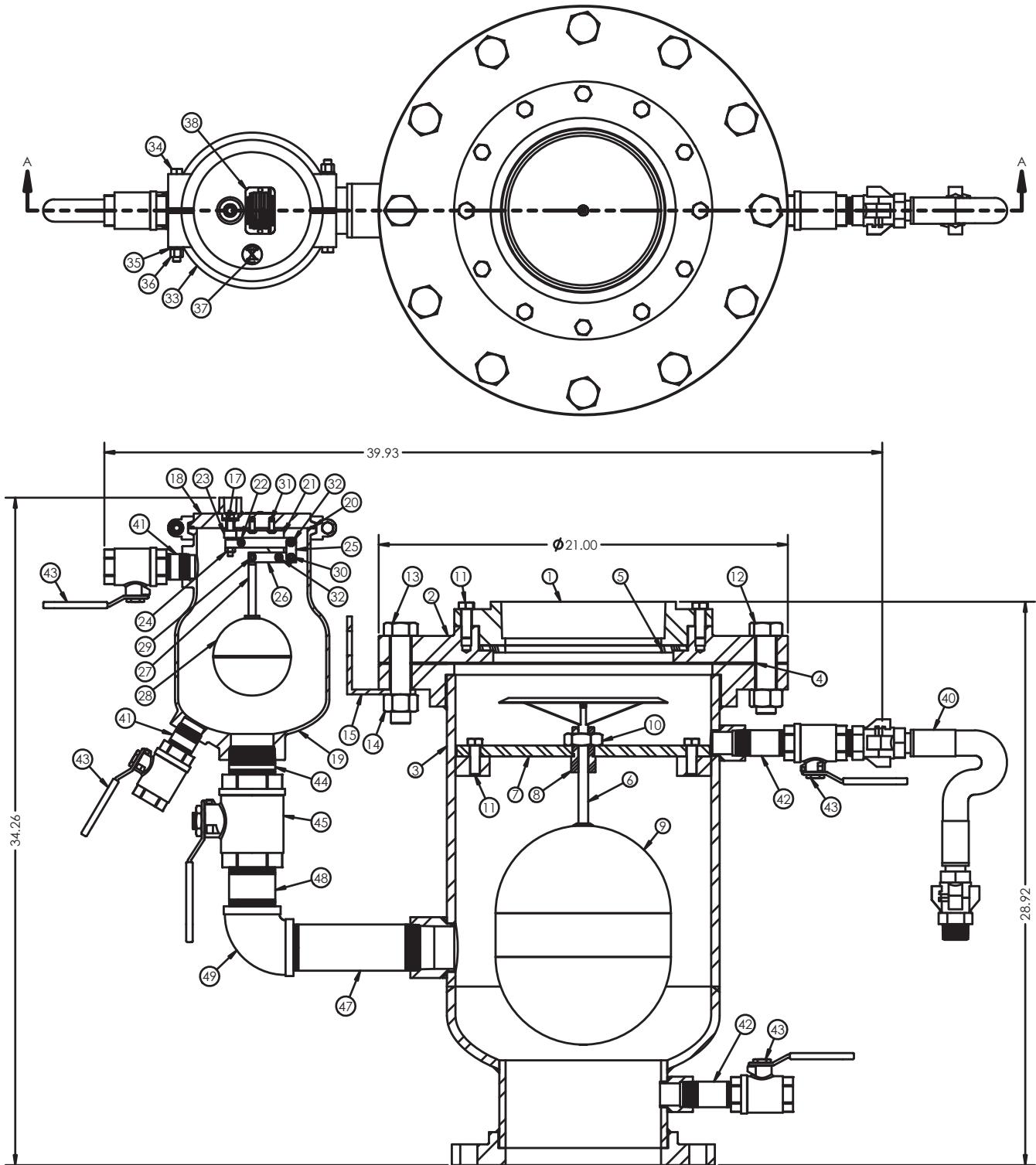
- 1) If the valve leaks on pressures less than 5 psi, then the seat material is too hard and should be replaced with a softer seat.
- 2) If leaks persist at low or high pressures, backflush the valve to remove debris from the seat area.
- 3) If water blows out of the top, the valve may not be sized properly.

NOTE: No special tools are required.



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8" Class 150, Fabricated Combination Sewer Valve with Back Flush

Sewer Air & Vacuum Release Valve Parts List

ITEM	DESCRIPTION	MATERIAL
1	TOP	316 SS
2	COVER FLANGE	316 SS
3	FABRICATED BODY	316 SS
4	FLANGE GASKET	Armstrong
5	SEAT	Buna-N Rubber
6	VALVE ASSEMBLY	316 SS
7	SEWER VALVE BAFFLE	316 SS
8	FLOAT ROD GUIDE	Nylatron
9	FLOAT	316 SS
10	ROD GUIDE NUT	316 SS
11	STAND BOLTS	316 SS
12	FLANGE BOLT	316 SS
13	LIFTING BOLT	316 SS
14	FLANGE NUT	316 SS
15	LIFTING LUG	Steel

Back Flush Parts List

ITEM	DESCRIPTION	MATERIAL
40	HOSE	CAD. PLT STL, Rubber
41	NIPPLE	316 SS
42	NIPPLE	316 SS
43	BALL VALVE	Brass
44	NIPPLE	316 SS
45	BALL VALVE	316 SS

Connecting Parts List

ITEM	DESCRIPTION	MATERIAL
47	NIPPLE	316 SS
48	NIPPLE	316 SS
49	ELBOW	316 SS

PX20 Pressure Air Release Valve Parts List

ITEM	DESCRIPTION	MATERIAL
17	VALVE SEAT	316 SS
18	COVER ASSEMBLY	316 SS
19	BODY	ASTM A351 GR CF8M
20	O-RING GASKET	Buna-N Rubber
21	FULCRUM ASSEMBLY	316 SS
22	VALVE LEVER	316 SS
23	PLUNGER	Buna-N/316 SS
24	PLUNGER NUT	316 SS
25	LINK	316 SS
26	FLOAT LEVER	316 SS
27	FLOAT ROD	316 SS
28	FLOAT	316 SS
29	BEARING PIN	316 SS
30	BEARING PIN	316 SS
31	SCREW	Steel
32	3/16 RETAINING RING	PH15-7 MO SS
33	CLAMP	ASTM A351 GR CF8M
34	CLAMP BOLT	316 SS
35	LOCKWASHER	316 SS
36	CLAMP NUT	316 SS
37	BLUE DOT	Aluminum
38	TAG	316 SS

Inlet Flange Data

Flange Diameter	13.50 in.
Flange Thickness	1.12 in.
Bolt Circle Diameter	11.75 in.
Number of Bolt Holes	8
Bolt Hole Diameter	0.88 in.

Orifice Data

Diameter	Working Pressure
3/16	20-200 psi

NOTES:

- 1) INLET SIZE: 8" CLASS 125 FLANGE; OUTLET SIZE: 8" NPT
- 2) OPER. PRESSURE: 20-150 PSIG
- 3) APPROX. WT: 423 LBS.



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