

D-070 250 psi



Multi-Functional Combination Air Valve **PATENTED**

Description

The D-070 Multi-Functional Combination Air Valve is a unique valve, operating without a float and utilizing the rolling diaphragm principle. This unique structure allows the dynamic air valve to discharge air from the water system in a controlled and gradual manner, thus preventing slam and local up-surges. When vacuum (down-surge) occurs, the valve reacts quickly to admit large volumes of air into the water system, thus impeding down-surges and, consequently, all pressure surges in the line. The air & vacuum component of the dynamic air valve is normally closed when the line is not operating, thus preventing the infiltration of debris and insects into the water system.

The flush tap, when engaged, will open the air & vacuum orifice and discharge water through it to flush the air valve and the pipeline.

Applications

- Pumping stations, deep wells and distribution lines.
- Systems that are prone to slam and local and system surges.
- Sites that require a combination of means to reduce water hammer or surges.
- Sites that require an air valve with a low profile due to lack of space.

Operation

When the system is charged and the pipeline begins to fill with water, air flows in the pipeline and enters into the dynamic air valve, raising the rolling diaphragm sealing assembly to the open position. Air is then discharged, mainly through the lower chamber large orifice as well as small amounts of air released through the upper chamber operating valve orifice. When the ensuing water enters the dynamic air valve, it fills the lower chamber and some of it flows up through the orifice chamber and enters into the upper operating chamber, raising the float of the operating valve which rolls the sealing mechanism to its sealed position. Pressure develops inside the upper operating chamber, bringing about a controlled lowering and sealing of the rolling diaphragm sealing assembly, which, in turn, closes the lower chamber large orifice.

NOTE: It is recommended to attach a drainage pipe to the connection on the large orifice outlet as some water will be expelled from the orifice during this closure stage. The size of the drainage pipe should be, at a minimum, the diameter of the outlet and the unattached end should remain open to the atmosphere.

At this stage, only the automatic air release component continues to function and releases air through its small orifice. With a reduction in line pressure, during drainage or shut-off, the pressure in the valve is reduced and is lower than the outside atmospheric pressure. The

vacuum created will cause the rolling diaphragm sealing assembly to rise up into its open position, opening the lower chamber large orifice and allowing the intake of air from the atmosphere into the system. When the system is pressurized, the D-070 can be used as a flush valve. The ball valve on the D-070 cover needs to be engaged in the open position. Once engaged, the air & vacuum orifice will open and water from the pipeline will be discharged through the air valve. When the ball valve is disengaged to the closed position, the air & vacuum orifice will close, shutting the water flow.

Main Features

- Working pressure range: 3 - 250 psi.
- Testing pressure: 360 psi.
- Maximum working temperature: 140° F.
- Maximum intermittent temperature: 194° F.
- Flush tap for the purpose of flushing both the air valve and the pipeline.
- Internal components are corrosion-resistant.
- Prevents slam and reduces water surges in the air valve and the pipeline.
- Prevents the intrusion of debris and contaminants into the system.
- Valve is lightweight and small for easy installation; its operation simple and reliable.
- Built-in connection at the outlet for surplus water drainage.
- Smooth and gradual closing unaffected by water flow.
- Extremely quiet closing.
- Automatic air release component releases large quantities of air without becoming obstructed.

Valve Selection

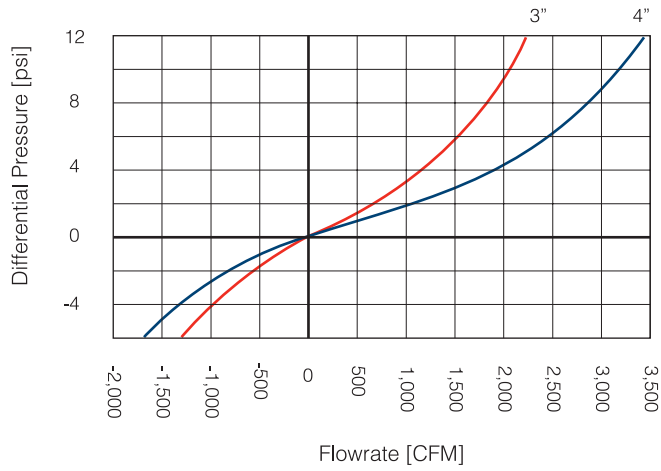
- Sizes: 3", 4", 6", 8" and 12".
- Valves are manufactured with flanged ends to meet any requested standard.
- Valve coating: fusion bonded epoxy coating in accordance with the standard DIN 30677-2.
- Other coatings are available upon request.
- Optional D-070 P – Sizes: 2", 3" (threaded or flanged); made of composite materials (suitable for agricultural installations) with a working pressure: 3 - 150 psi.
- Optional one-way D-070-I valve - intakes air only, without allowing air discharge.

Note

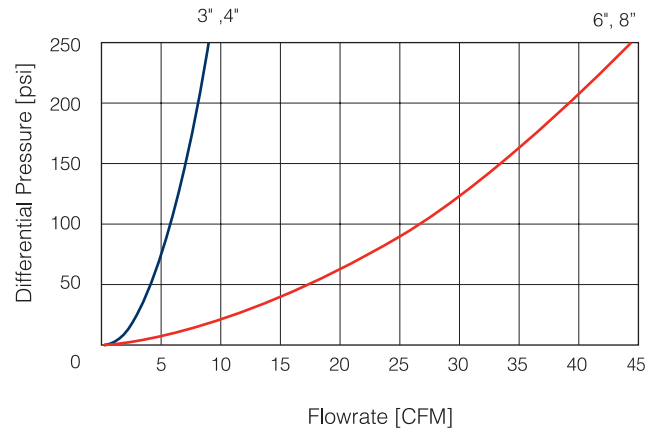
For best fit, it is recommended that the composition of liquids and system requirements be defined in advance.

When ordering, please indicate the model, dimensions, working pressure, threading/flange standard and special coatings.

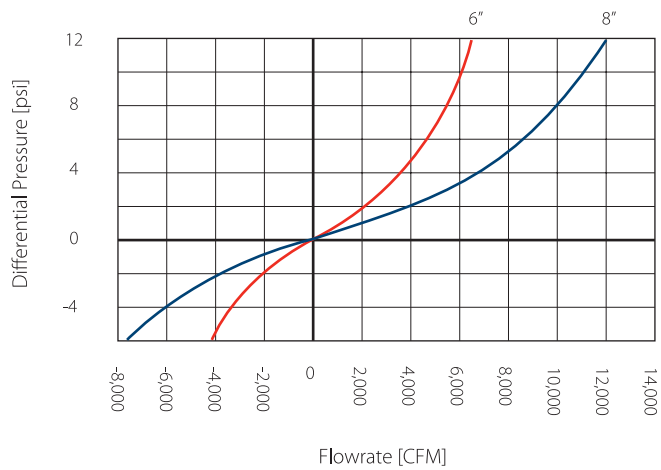
AIR & VACUUM FLOWRATE



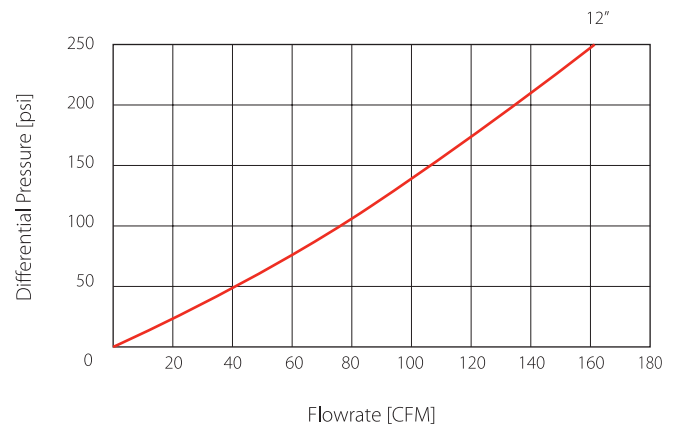
AIR RELEASE FLOW RATE



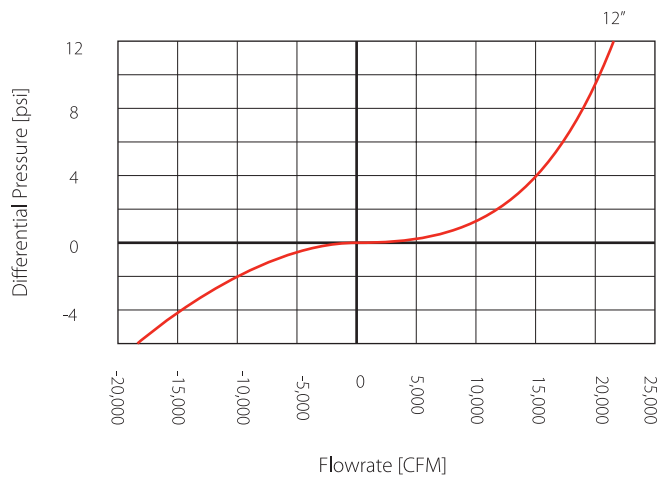
AIR & VACUUM FLOWRATE



AIR RELEASE FLOW RATE



AIR & VACUUM FLOWRATE

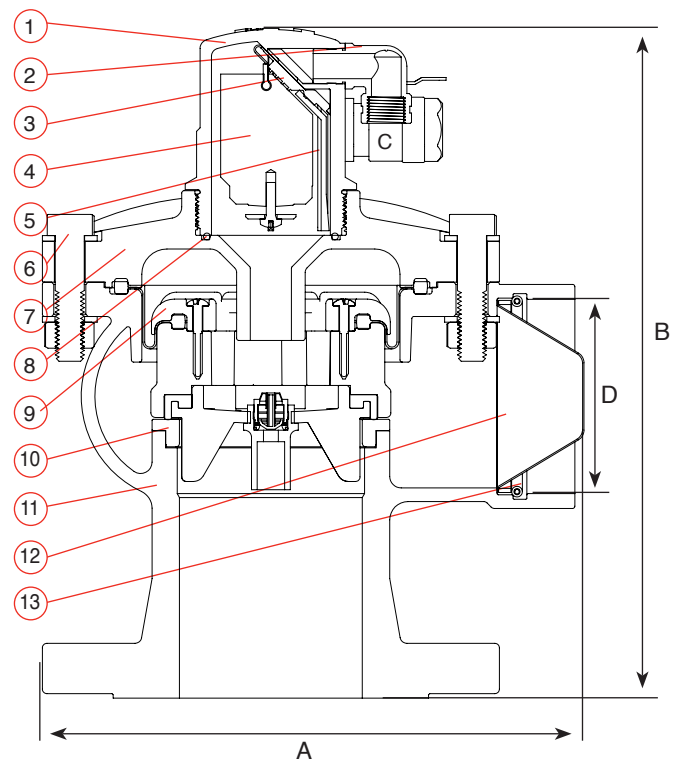
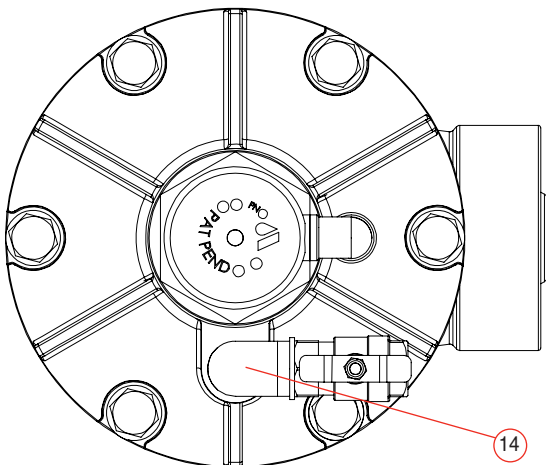


DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections		Weight Lbs.	Orifice Area Sq.in	
	A	B	C	D		A / V	Air Release
3"	9.3	11.5	3/8" NPT	3" NPT	31	7.99	0.012

PARTS LIST AND SPECIFICATION FOR 3"

No.	Part	Material
1.	Operating Valve Body	Reinforced Nylon
2.	Discharge Outlet	Polypropylene
3.	Rolling Seal	EPDM Rubber
4.	Operating Assembly	Foamed Polypropylene + Stainless Steel SAE 316
5.	Clamping Stem	Reinforced Nylon
6.	Bolt, Nut & Washer	Stainless Steel SAE 316
7.	Cover	Ductile Iron
8.	O-ring	BUNA- N
9.	Rolling Diaphragm Sealing Assy.	Reinforced Nylon + EPDM Rubber + SAE 316 St.St. + Natural Rubber + Fabric
10.	Orifice Seat	Stainless Steel SAE 316
11.	Body	Ductile Iron
12.	Bug Screen	Stainless Steel SAE 316
13.	Spring Lock Ring	Stainless Steel SAE 316
14.	Ball Valve	Stainless Steel SAE 316

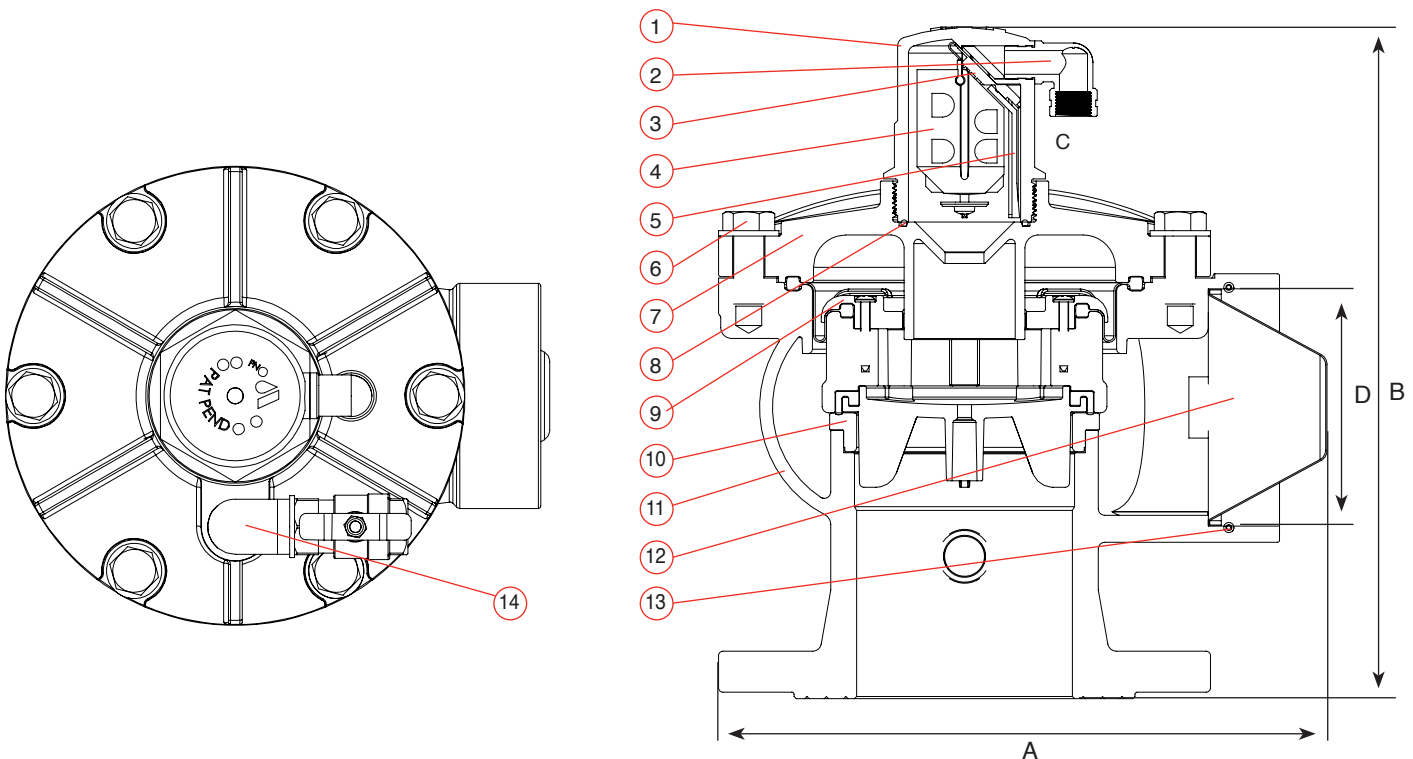


DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections		Weight Lbs.	Orifice Area Sq.in	
	A	B	C	D		A / V	Air Release
4"	10.3	12.2	3/8" NPT	4" NPT	39.68	12.17	0.012

PARTS LIST AND SPECIFICATION FOR 4"

No.	Part	Material
1.	Operating Valve Body	Reinforced Nylon
2.	Discharge Outlet	Polypropylene
3.	Rolling Seal	EPDM Rubber
4.	Operating Assembly	Foamed Polypropylene + St.St. SAE 316
5.	Clamping Stem	Reinforced Nylon
6.	Bolt, Nut & Washer	Stainless Steel SAE 316
7.	Cover	Ductile Iron
8.	O-ring	BUNA- N
9.	Rolling Diaphragm Sealing Assy.	Reinforced Nylon + EPDM Rubber + SAE 316 St.St. + Natural Rubber + Fabric
10.	Orifice Seat	Stainless Steel SAE 316
11.	Body	Ductile Iron
12.	Bug Screen	Stainless Steel SAE 316
13.	Spring Lock Ring	Stainless Steel SAE 316
14.	Ball Valve	Stainless Steel SAE 316

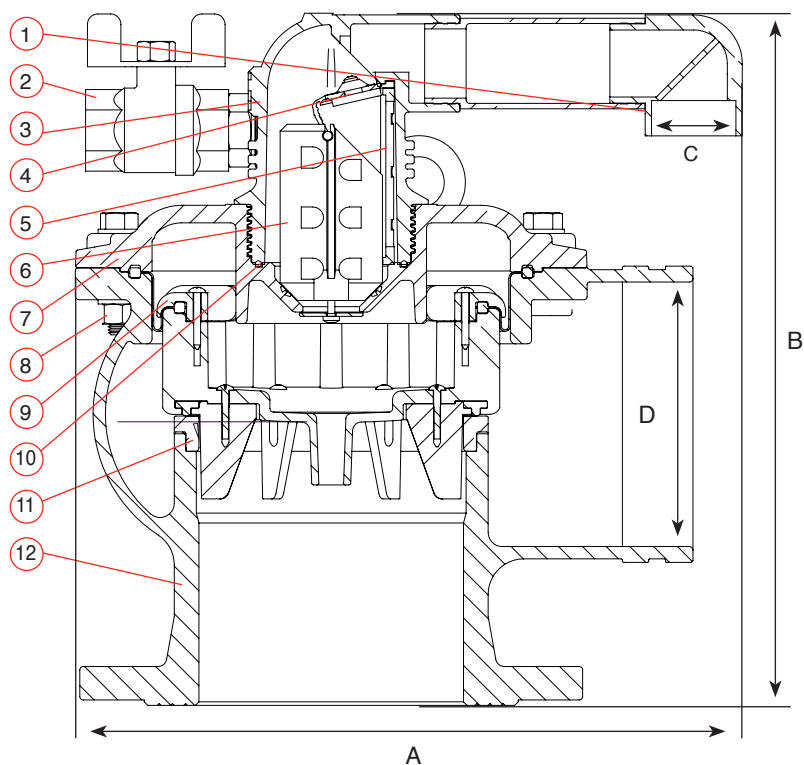


DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections		Weight Lbs.	Orifice Area Sq.in	
	A	B	C	D		A / V	Air Release
6"	14.5	15.4	1½" NPT	6" Victaulic	90	27.21	0.018

PARTS LIST AND SPECIFICATION FOR 6"

No.	Part	Material
1.	Discharge Outlet	Polypropylene
2.	Ball Valve	Stainless Steel SAE 316
3.	Operating Valve Body	Reinforced Nylon
4.	Sealing Assembly	E.P.D.M Rubber + Reinforced Nylon + Stainless Steel SAE 316
5.	Clamping Stem	Reinforced Nylon
6.	Operating Assembly	Foamed Polypropylene + Stainless Steel SAE 316
7.	Cover	Ductile Iron
8.	Bolt, Nut & Washer	Stainless Steel SAE 316
9.	Rolling Diaphragm Sealing Assy.	Reinforced Nylon + E.D.P.M. Rubber + SAE 316 St.St. + Natural Rubber + Fabric
10.	O-ring	BUNA- N
11.	Orifice Seat	Stainless Steel SAE 316
12.	Body	Ductile Iron

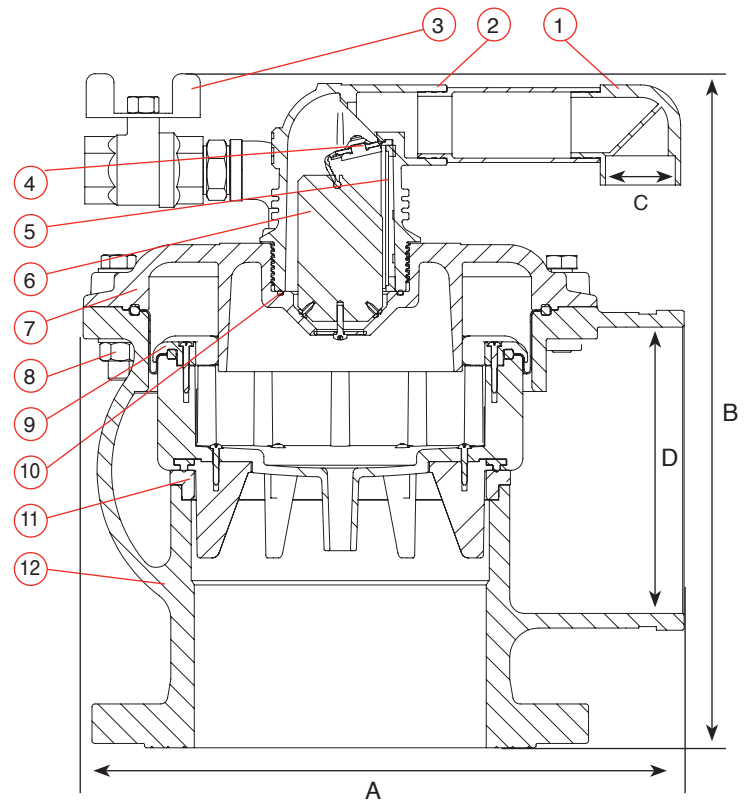


DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections		Weight Lbs.	Orifice Area Sq.in	
	A	B	C	D		A / V	Air Release
8"	18.1	18.2	1½" NPT	8" Victaulic	150	48.67	0.018

PARTS LIST AND SPECIFICATION FOR 8"

No.	Part	Material
1.	Discharge Outlet	Polypropylene
2.	Operating Valve Body	Reinforced Nylon
3.	Ball Valve	Stainless Steel SAE 316
4.	Sealing Assembly	E.P.D.M Rubber + Reinforced Nylon + St.St. SAE 316
5.	Clamping Stem	Reinforced Nylon
6.	Operating Assembly	Foamed Polypropylene + St.St. SAE 316
7.	Cover	Ductile Iron
8.	Bolt, Nut & Washer	Stainless Steel SAE 316
9.	Rolling Diaphragm Sealing Assy.	Reinforced Nylon + E.D.P.M. Rubber + SAE 316 St.St. + Natural Rubber + Fabric
10.	O-ring	BUNA- N
11.	Orifice Seat	Stainless Steel SAE 316
12.	Body	Ductile Iron



DIMENSIONS AND WEIGHTS

Size	Dimensions Inch		Connections		Weight Lbs.	Orifice Area Sq.in	
	A	B	C	D		A / V	Air Release
12"	22.28	28.5	12" Vic.	2" NPT	342.81	109.5	0.018 x 3

12" PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Body	Reinforced Nylon
2.	Discharge Outlet	Polypropylene
3.	Rolling Seal	E.P.D.M.
4.	Clamping Stem	Reinforced Nylon
5.	Float	Foamed Polypropylene
6.	O-Ring	BUNA-N
7.	Tube	Polyethylene
8.	Base	Stainless Steel SAE 316
9.	Strainer	Nylon
10.	Bolt, Nut & Washer	Stainless Steel SAE 316
11.	Cover	Ductile Iron
12.	Body	Ductile Iron
13.	Rolling Diaphragm Sealing Assy.	Reinforced Nylon + E.D.P.M. Rubber + St.St. SAE 316 + Natural Rubber + Fabric
14.	Orifice Seat	Stainless Steel SAE 316
15.	Ball Valve 1/2"	Stainless Steel SAE 316

Pilot Assembly Parts 17-23

16.	O-Ring	BUNA-N
17.	Body	Ductile Iron
18.	Internal Check Valve	Acetal
19.	Operating Valve Cover	Ductile Iron
20.	Operating Valve Orifice Seat	Stainless Steel SAE 316
21.	Operating Valve Orifice Seal	E.P.D.M.
22.	Operating Valve Float	Polycarbonate / Stainless steel SAE 316
23.	Operating Valve Plug	Stainless Steel SAE 316

