D-070 PN 16

Water Supply

Dynamic Combination Air Valve PATENTED

Description

The D-070 Dynamic 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: 0.2 - 16 bar.
- Testing pressure: 25 bar.
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- 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.

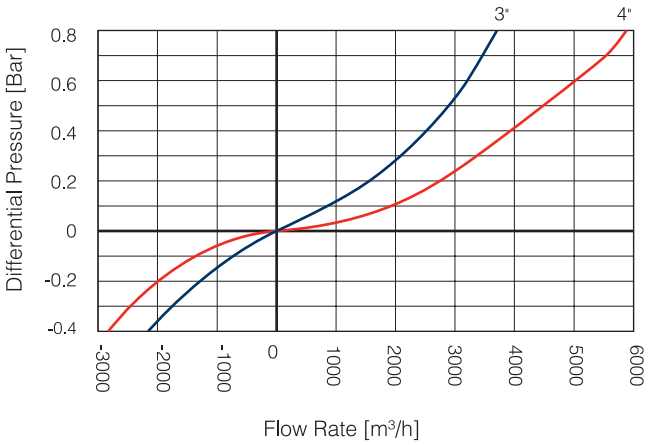
Valve Selection

- Sizes: 3”, 4”, 6”, 8” and 12”.
- Valves are manufactured with flanged ends to meet any requested standard.
- Valve coating: fusion bonded epoxy coating according to the standard DIN 30677-2.
- Other coatings are available upon request.
- Optional D-070 P – Sizes: 2”, 3” (threaded or flanged) & 4”(flanged only); made of composite materials (suitable for agricultural installations) with a working pressure: 0.2 - 10 bar.
- Optional one-way D-070-I valve - intakes air only, without allowing air discharge.
- **D-070 T** Valve with flushing tap, can be used for flushing both the valve and the pipeline.
- **Bug Screen** Attached to the valve outlet, prevents the intrusion of debris or insects into the air valve.

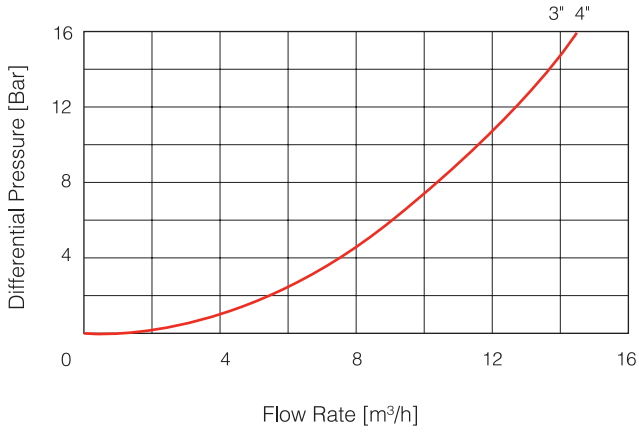
Note

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 FLOW RATE



AUTOMATIC AIR RELEASE FLOW RATE



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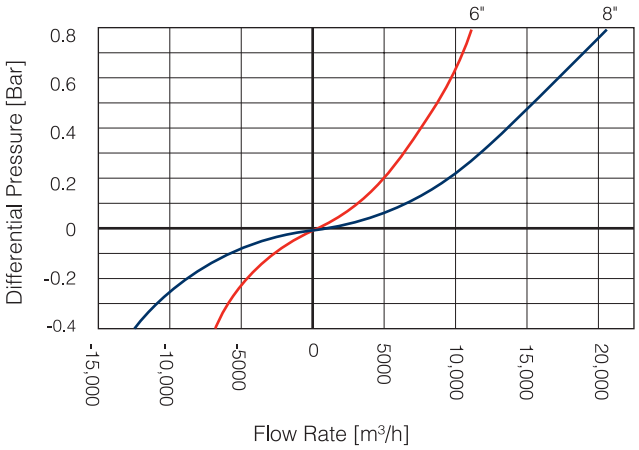

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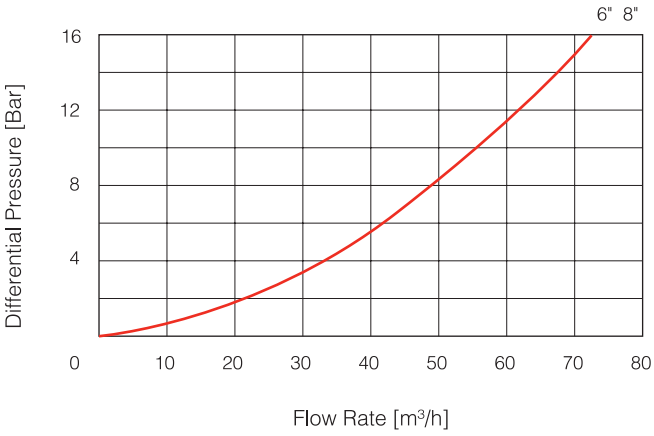

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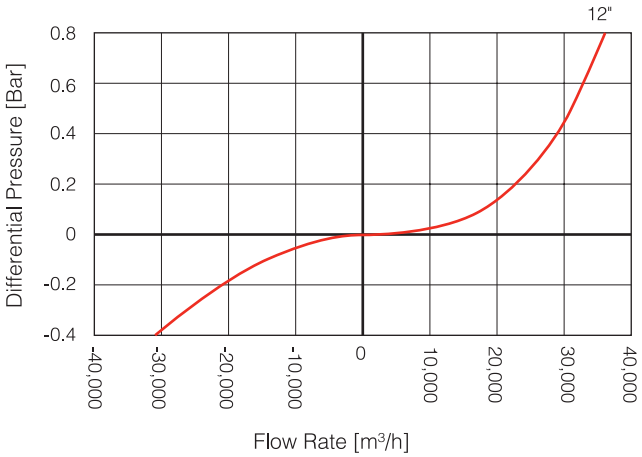

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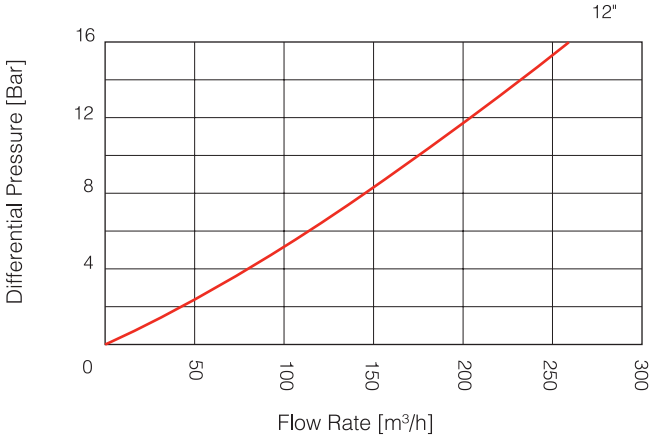


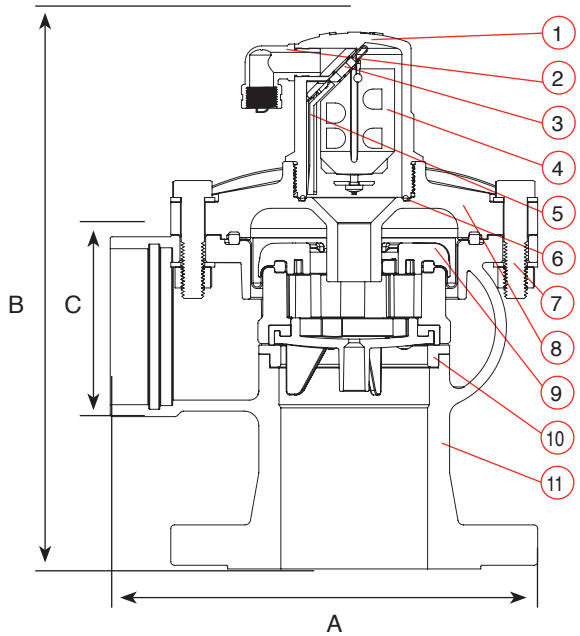
DIMENSIONS AND WEIGHTS

Nominal Size	Dimensions mm A	B	Connections C	D	Weight Kg.	Orifice Area mm² Auto.	A &V
3" (80 mm)	233	293	3" Vic / BSP / NPSM	3/8" BSP Female	13.5	7.8	5153
4" (100 mm)	260	311.5	4" Vic.	3/8" BSP Female	16.9	7.8	7850
6" (150 mm)	378	392	6" Vic.	1½" BSP Female	39	12	17553
8" (200 mm)	410	454	8" Vic.	1½" BSP Female	69.5	12	31400
12" (300mm)	565.9	724.5	12" Vic.	2" BSP Female	155.5	12x3	70650

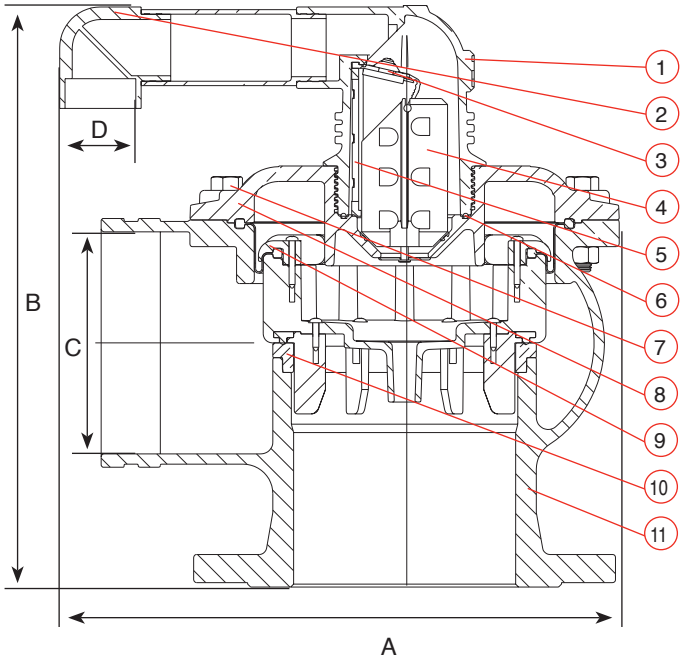
3" - 8" PARTS LIST AND SPECIFICATION

No.	Part		Material
1.	Operating Valve Body		Reinforced Nylon
2.	Discharge Outlet		Polypropylene
3.	Rolling Seal	3" 4"	EPDM
	Sealing Assembly	6" 8"	EPDM + Reinforced Nylon + Stainless Steel 316
4.	Operating Assembly		Foamed Polypropylene + Stainless Steel 304 + Acetal
5.	Clamping Stem		Reinforced Nylon
6.	O-ring		BUNA-N
7.	Bolt, Nut & Washer		Steel Zinc Cobalt Coated
8.	Cover	3" 4"	Reinforced Nylon
		6" 8 "	Ductile Iron
9.	Rolling Diaphragm Sealing Assy.		Reinforced Nylon + EPDM + Stainless Steel 304 + Natural Rubber + Fabric
10.	Orifice Seat		Bronze
11.	Body		Ductile Iron

D-070 3", 4"



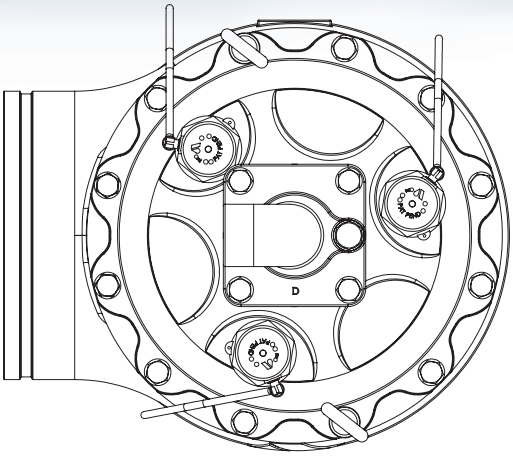
D-070 6", 8"



D-070

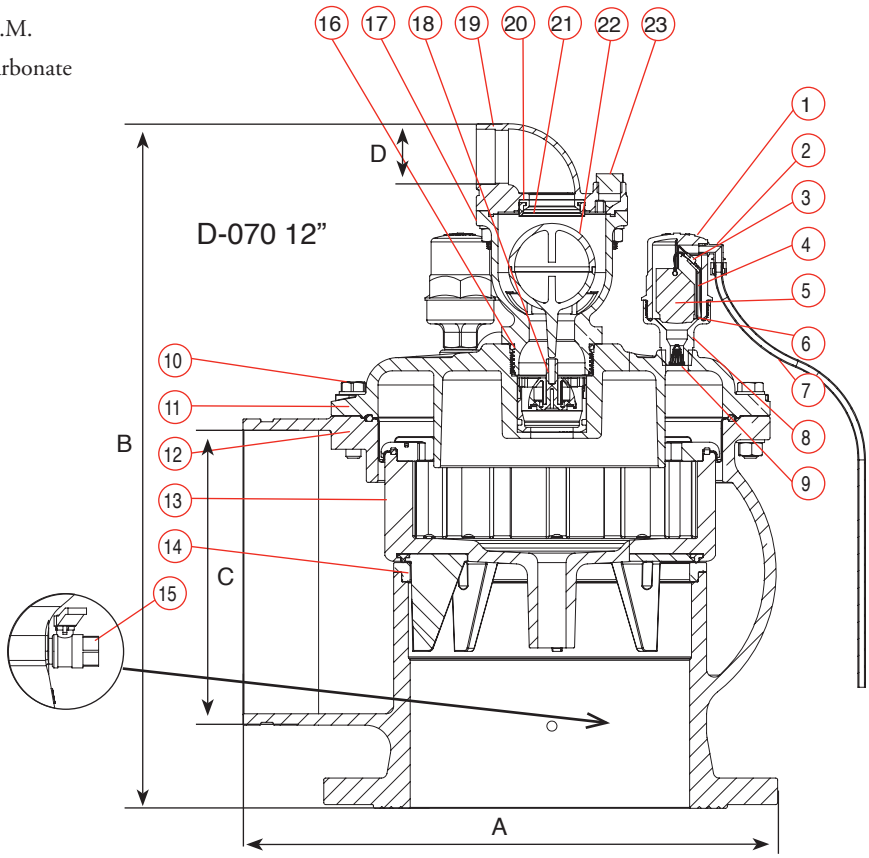
12” PARTS LIST AND SPECIFICATION

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	Brass ASTM B-124
9.	Strainer	Nylon
10.	Bolt, Nut & Washer	Steel Zinc Cobalt Coated
11.	Cover	Ductile Iron ASTM A-536-60-40-18
12.	Body	Ductile Iron ASTM A-536-60-40-18
13.	Rolling Diaphragm Sealing Assy.	Reinforced Nylon + E.D.P.M. Rubber + St.St. SAE 304 + Natural Rubber + Fabric
14.	Orifice Seat	Stainless Steel SAE 316
15.	Ball Valve 1/2”	Brass, Nickel Plated



Pilot Assembly Parts 17-23

16.	O-Ring	BUNA-N
17.	Body	Ductile Iron ASTM A-536-60-40-18
18.	Internal Check Valve	Acetal
19.	Operating Valve Cover	Ductile Iron ASTM A-536-60-40-18
20.	Operating Valve Orifice Seat	Bronze ASTM B-62 B271 WCB
21.	Operating Valve Orifice Seal	E.P.D.M.
22.	Operating Valve Float	Polycarbonate
23.	Operating Valve Plug	Brass



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