

D-090-P 250 PSI



Underground Air Valve System

Description

The D-090-P Underground Air Valve is designed to save the costs of manholes and provide reliable solutions for special requirements such as:

- Frost protection.
- Savings in installation costs.
- Installation under important crossings, including: roads, pavements, buildings.
- Eliminate the need for confined-space entry - its costs and safety demands.

Operation

The air & vacuum component, with the large orifice, discharges air at high flow rates during the filling of the system and admits air into the system at high flow rates during its drainage and at water column separation.

High velocity air should not blow the float shut. Water will lift the float which seals the valve.

At any time during system operation, should internal pressure of the system fall below atmospheric pressure, air will enter the system.

The smooth discharge of air reduces pressure surges and other destructive phenomena.

The intake of air in response to negative pressure protects the system from destructive vacuum conditions and prevents damage caused by water column separation. Air entry is essential to efficiently drain the system.

The automatic air release component releases entrapped air in pressurized systems.

Without air valves, pockets of accumulated air may cause the following destructive phenomena:

- Obstruction of effective flow and hydraulic conductivity of the system along with a throttling effect similar to a partially closed valve. In extreme cases this will cause complete flow stoppage.
- Accelerate cavitation damages.
- High-pressure surges.
- Accelerate corrosion.
- Danger of a high-energy burst of compressed air.
- Inaccuracies in flow metering.

As the system starts to fill, the valve functions according to the following stages:

1. Entrapped air in the pipeline is discharged by the valve.
2. Liquid enters the valve, lifting the float which pushes the sealing

mechanism to its sealing position.

3. Entrapped air, which accumulates at peaks and along the system, rises to the top of the valve, which in turn displaces the liquid in the valve's body.

4. The float descends, unsealing the rolling seal. The air release orifice opens and the accumulated air is released.

5. Liquid enters the valve and the float rises, pushing the rolling seal back to its sealing position.

When internal pressure falls below atmospheric pressure (negative pressure):

1. The float will immediately drop down, opening the air & vacuum and air release orifices.
2. Air will enter the system.

Main Features

- Working pressure:
 - D-090-P with the DG-10 2 - 150 psi.
 - D-090-P with the D-040 3 - 250 psi.
- Maximum working temperature: 140° F.
- Maximum intermittent temperature: 194° F.
- Materials: the air valve is made of corrosion-resistant materials.
- Integral check valve: shuts automatically when removing the air valve for maintenance purposes.
- Drainage System: A special one-way outlet drains the water from the valve box and prevents water intake.
- Dynamic design allows high velocity air discharge, prevents premature closing.
- A.R.I. patented rolling Seal Mechanism:
 - Dramatically reduces obstruction by debris.
 - The automatic function discharges high air flow rates of up to 94 CFM.
 - Self - cleaning mechanism.
- Low maintenance costs.
- Air valve box made of P.V.C. – according to high-quality standard.
- Lightweight and compact silhouette.

Valve Selection

- Connection: threaded 2", flanged 2", 3", 4" to meet ASA 150 standard or any requested standard.
- Eight different installation lengths: 1½, 2½, 3, 4, 5, 6, 7, 8 Ft.

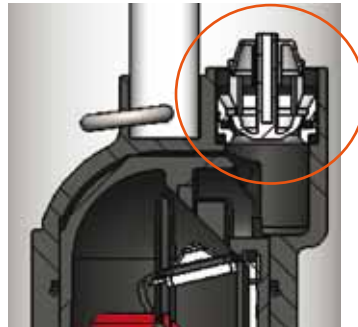
Options

- D-090-P LP: for low pressure
- Internal frost protection.

APPLICATIONS / ACCESSORIES

One-Way Options

- One-way attachment for discharge of air only, not allowing for air intake.
- One-way attachment for intake of air only, not allowing for air discharge.
- Non-Slam discharge-throttling attachment, allows full air intake, throttles air discharge.



Service tap

This stand pipe system is installed for the following purposes:

- Extracting water from the line (sampling, cleaning purposes etc).
- Cleaning of the line itself.
- Releasing large quantities of air from the line manually.



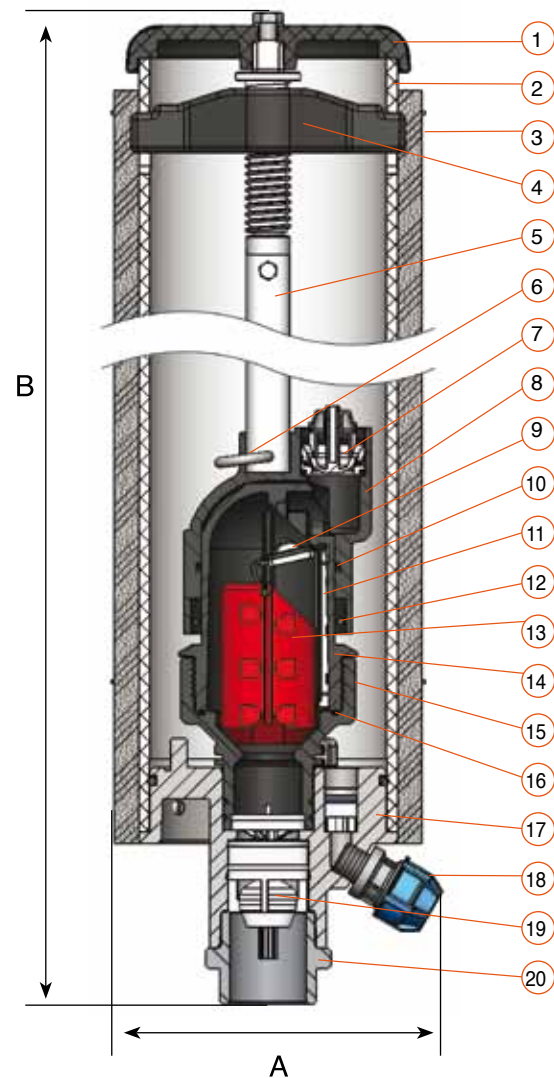
DIMENSIONS AND WEIGHT

Model Ft.	Dimensions Inch		Weight Lbs.	
	A	B	Aluminium B.	Ductile Iron B.
1 ½	7.7	19.68	12.8	15.4
2 ½	7.7	29.72	16.0	18.7
3	7.7	41.53	19.6	21.6
4	7.7	53.34	21.8	24.7
5	7.7	61.22	24.5	27.1
6	7.7	72.04	27.3	30.0
7	7.7	84.05	30.2	32.8
8	7.7	96.06	33	35.9

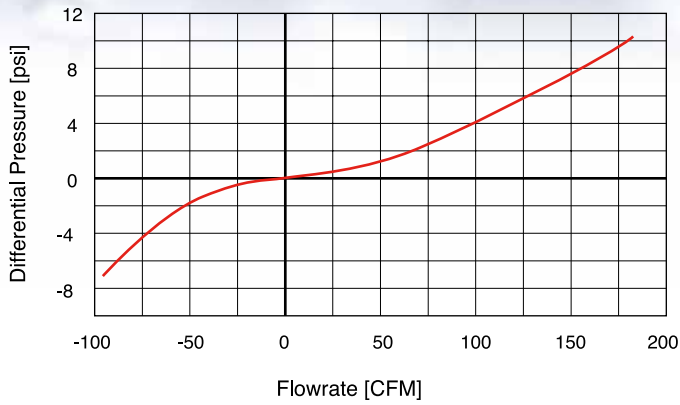
PARTS LIST AND SPECIFICATION

No. Part	Material
1. Cover	Polypropylene
2. Air Valve Box	P.V.C.
3. Insulation Cover	Aluminum Coated Foamed PE
4. Bridge Assembly	Reinforced Nylon
5. Tightening Rod	Stainless Steel SAE 304
6. Lock Pin	Stainless Steel SAE 304
7. Check Valve (D-090-P V)*	Acetal + NBR + ST.ST.
8. D-040 Cover	Reinforced Nylon
9. Rolling Seal Assembly	ST.ST. + R.N. + E.P.D.M.
10. O-Ring (D-090-P V)*	BUNA-N
11. Clamping Stem	Reinforced Nylon
12. Lock Pin	Stainless Steel SAE 304
13. Float	Foamed Polypropylene
14. D-040 Body	Reinforced Nylon
15. D-040 Base	Reinforced Nylon
16. O-Ring	BUNA-N
17. Base	Ductile Iron / Aluminum
18. Drainage Connector	PE
19. Check valve	Acetal + NBR + ST.ST.
20. Adaptor	Stainless Steel SAE 316

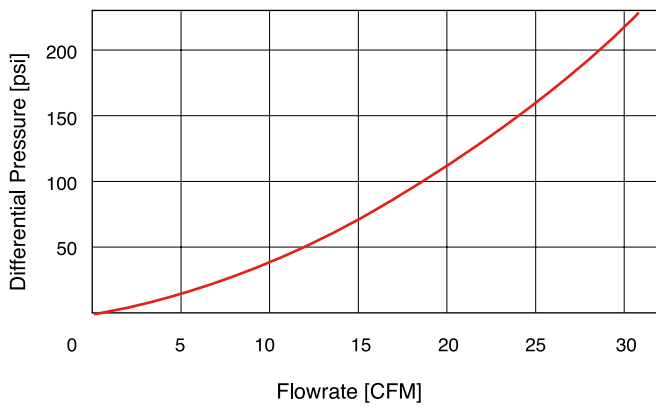
* Option -upon request



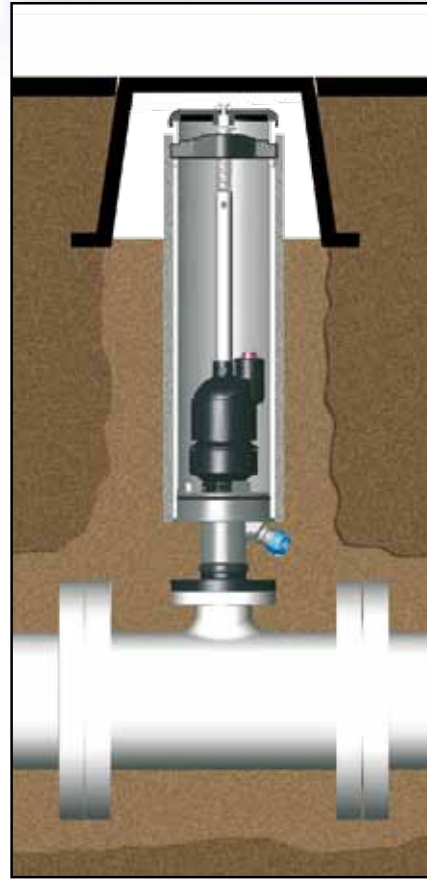
AIR & VACUUM FLOWRATE



AIR RELEASE FLOWRATE



Sample Installation Scheme



Important Information: Prior to site preparation and installation, please refer to the D-090-P Installation and Maintenance Manual for all the relevant instructions and information. The manual can be obtained by contacting the A.R.I. marketing dept. or downloading the file from our website.