

D-060 NS SB PN 16

D-060-C NS SB PN 16

D-062 NS SB PN 25



Underground Air Valve System for Potable Water

Description

The D-060NS SB is a complete product package that combines the reliable and efficient properties of the A.R.I. D-060 NS Combination Air Valve with the added feature of a sub-surface valve that can be buried below ground. A specially designed gear box operated horizontal sliding disc valve - situated at the base of the D-060 NS SB assembly - allows for the air valve disconnection and maintenance from ground level.

This gear box operated shut-off valve is equipped with a safety mechanism enabling disconnection and removal of the D-060NS air valve from its subsurface housing, even when the system is under pressure. Since service and maintenance operations of the unit are performed entirely from the surface, there is no need for safety considerations associated with confined space entry.

The D-060 NS series Combination Non Slam Air Valve is a surge-dampening, slam-preventing, 3-stage combination air valve. The air valve provides high capacity vacuum protection and, at the same time, efficient surge suppression.

The air release component is designed to automatically release small pockets of air to the atmosphere as they accumulate along a pipeline or piping system when it is full and operating under pressure.

The air & vacuum component is designed to automatically discharge or admit large volumes of air during the filling or draining of a pipeline or piping system. This valve will open to relieve negative pressures whenever water column separation occurs.

The non slam component is designed to throttle air discharge through the smaller orifice of the non-slam disc to prevent surge.

Applications

- Municipal and industrial water conveyance systems.

Operation

The D-060 NS series Combination Non Slam Air Valve is a surge-dampening, slam-preventing, 3-stage combination air valve. The air valve provides high capacity vacuum protection and, at the same time, efficient surge suppression.

1. At sudden drainage and/or water column separation (sudden pump trips or valve closure, for instance), the air & vacuum orifice admits air at high flow rates, thus preventing vacuum.
2. As the water column and/or pressure wave returns, large volumes of air are discharged at high velocities, raising the non-slam disc, partially closing the air & vacuum orifice and allowing air to exhaust slowly through the smaller orifice of the non-slam disc.

3. This slowly exhausting air pocket dampens the slam of the returning water column, thus suppressing the pressure surge.

4. As the water flow arrives at a much slower rate, dampened by the slower air discharge, it buoys up the main float, gently closing the air & vacuum component of the air valve.

5. The S-050 / S-050-C / S-052 air release component continues releasing air while the pipeline and the air valve are pressurized.

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 as would a partially closed valve. In extreme cases this will cause complete flow stoppage.
- Acceleration of cavitation damages.
- High-pressure surges.
- Acceleration of corrosion.
- Danger of a high-energy burst of compressed air.
- Inaccuracies in flow metering.

Main Features

D-060 NS SB Underground Air Valve System for Potable Water:

- The D-060 NS SB incorporates an integral, flat, gear box operated horizontal sliding disc valve with a 2", 3" full bore passage.
- The shut-off valve is operated from the surface.
- The quick connector between the adaptor and the shut-off valve facilitates detachment during handling.
- The integrated assembly handle eases the process of lifting the air valve assembly out from the valve box.
- Pipe connections: 3" threaded (BSP/NPT) or flanged, in accordance with all standards.
- Safety elements: Disengaging the air valve is safeguarded: unless the shut-off valve is in the "closed" position and the internal pressure is released, it is not possible to extract the air valve.
- All parts are corrosion resistant: Metal parts made of Stainless Steel, Ductile Iron or steel, Composite material parts made of Nylon.
- Drainage system: a special one-way valve that drains the water from the valve box and does not admit water.

D-060 NS / D-060-C NS / D-062 NS Combination Air Valve:

- Working pressure range: D-060 NS: 0.2 - 16 bar
D-060-C NS: 0.2 - 16 bar
D-062 NS: 0.2 - 25 bar
- Testing pressure for the air valve is 1.5 times its working pressure.
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- All main flow cross-sections are equal or greater than the nominal port area.
- Aerodynamic design enables high flow rates of air both at intake and at discharge.
- Reliable operation reduces water hammer incidents.
- Dynamic design allows for high velocity air discharge while preventing premature closure.
- Special orifice seat design: bronze and E.P.D.M. rubber, assures long-term maintenance-free operation.
- Screen protected outlet.
- The upper screen is protected with a protective cover.
- FBE coating, both interior & exterior, according to the standard DIN 30677-2.

Air Release Component

- Body made of high strength materials.
- All operating parts are made of specially selected corrosion-resistant polymer materials.
- Large size air release orifice:
 1. Dramatically reduces the possibility of obstruction by debris.
 2. Discharges high air flow rates.
 3. One size orifice for a wide pressure range (up to 25 bar), achieved by the A.R.I. patented rolling seal mechanism.

Advantages and Benefits

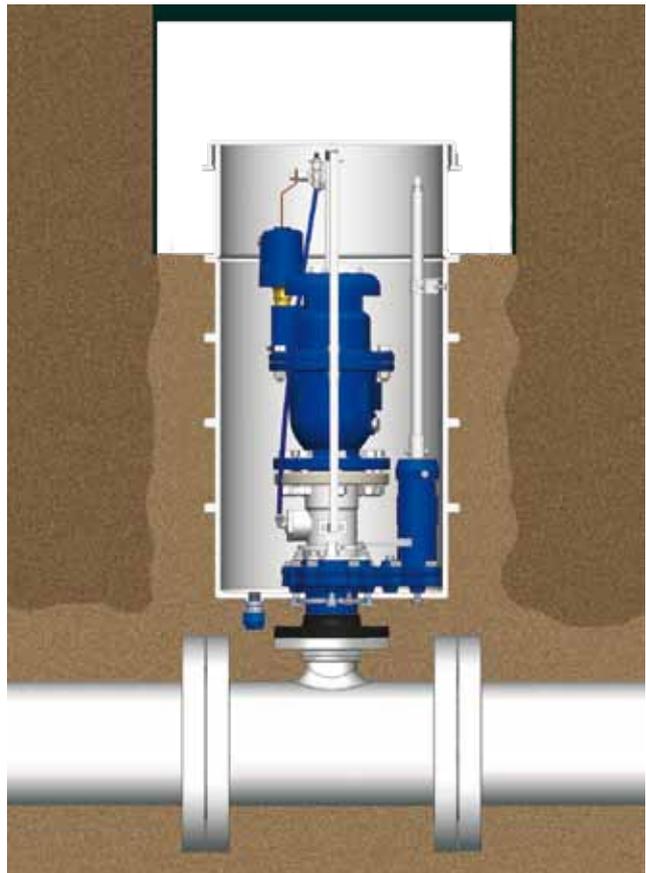
- Relatively lightweight and convenient to install.
- Sub-surface installation.
- Low installation costs:
- No need for expensive, large excavation.
- No need for expensive, human-accessible manholes.
- Low Maintenance costs:
- No need for specialized tools or safety equipment.
- One person for operation and maintenance.
- Clean and environmentally friendly.
- Safe in operation:
- Greatly reduces danger of contact with local fauna – snakes and scorpions, etc!
- Entirely operated and maintained from ground level.
- Reliable and efficient operation:
- Dynamic design allows high velocity air discharge while preventing premature closure.
- A.R.I. patented Rolling Seal mechanism.
- Since the valve is a sub-surface (underground), it is more resistant to frost conditions.

Valve Selection

- Two different installation lengths:
 1. 800 mm tube; complete system length: 875 mm.
 2. 1000 mm tube; complete system length: 1075 mm.

Upon ordering, please specify: model, size, working pressure, threads standard and type of liquid.

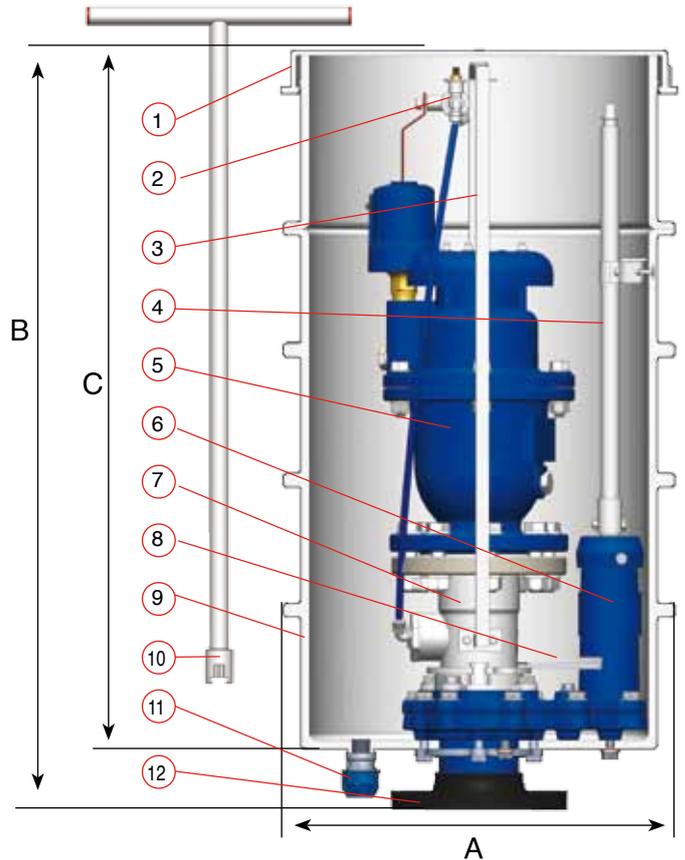
Sample Installation Scheme



Important Information: Prior to site preparation and installation, please refer to the D-060 NS SB Installation and Maintenance Manual for all the relevant instructions and information. The manual can be obtained by contacting the A.R.I. marketing dept., from your local A.R.I. distributor or downloading the file from our website.

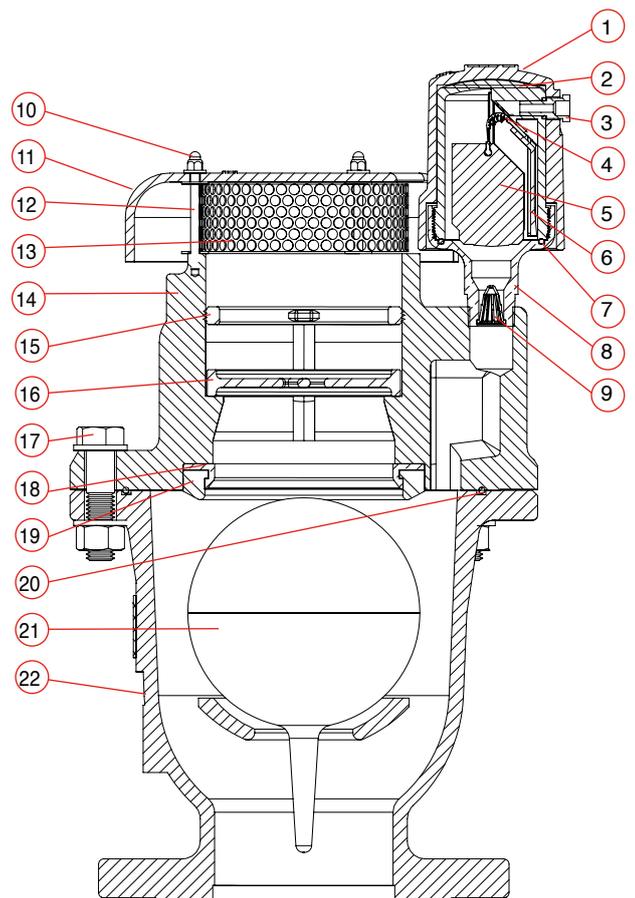
UNDERGROUND AIR VALVE SYSTEM PARTS LIST AND SPECIFICATION

No	Part	Material
1.	Valve Box Cover	Polyethylene
2.	Pressure Relief Cock	Stainless Steel SAE 316
3.	Lifting Assembly	Stainless Steel SAE 304
4.	Operating Rod	Stainless Steel SAE 304
5.	Air Valve	see below
6.	Sliding Disc Valve w / Gear Box	DI+STST+E.P.D.M.
7.	Adaptor - Quick Connector	Stainless Steel SAE 316
8.	Safety Handle	Stainless Steel SAE 316
9.	Valve Box	Polyethylene
10.	"T" Key	Stainless Steel SAE 304
11.	Drainage One Way Valve Connection	Polypropylene + Acetal
12.	Flange 3"	Reinforced Nylon



D-060 NS / D-060-C NS / D-062 NS PARTS LIST AND SPECIFICATION

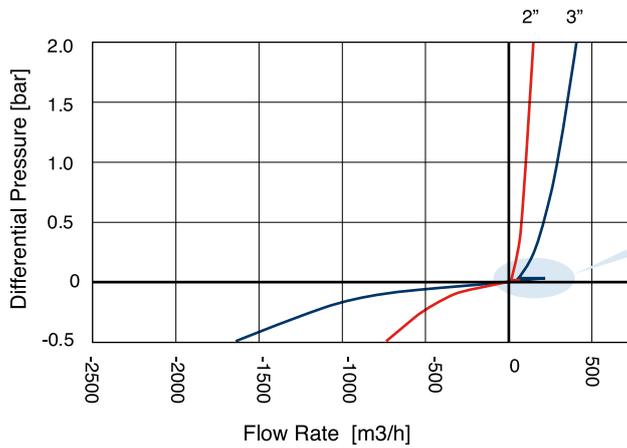
No. Part	Material
1. Shell	D-060-C Cast Iron ASTM A-48 CL35B D-060-C / D-062 Ductil iron ASTM A-536-60-40-18
2. Body	Reinforced Nylon
3. Discharge Outlet	D-060 Reinforced Nylon D-060-C / D-062 Brass ASTM B-124
4. Rolling Seal	Rubber E.P.D.M.
5. Float	Foamed Polypropylene
6. Clamping Stem	Reinforced Nylon
7. O-Ring	BUNA-N
8. Base	Brass ASTM B124
9. Strainer	Nylon
10. Domed Nut & Washer	Stainless Steel SAE 304
11. Screen Cover	Ductil iron / Cast Iron
12. Threaded Rod	Stainless Steel SAE 304
13. Screen	Stainless Steel SAE 304
14. Cover	Ductil iron ASTM A-536 60-40-18
15. Ring	Stainless Steel SAE 316
16. Flap	Stainless Steel SAE 316
17. Bolt, Nut & Washer	Steel, Zinc Cobalt Coated
18. Orifice Seat	Bronze
19. Orifice Seal	E.P.D.M.
20. O-Ring	BUNA-N
21. Float	Polycarbonate / Stainless Steel
22. Body	Ductil iron ASTM A-536 60-40-18



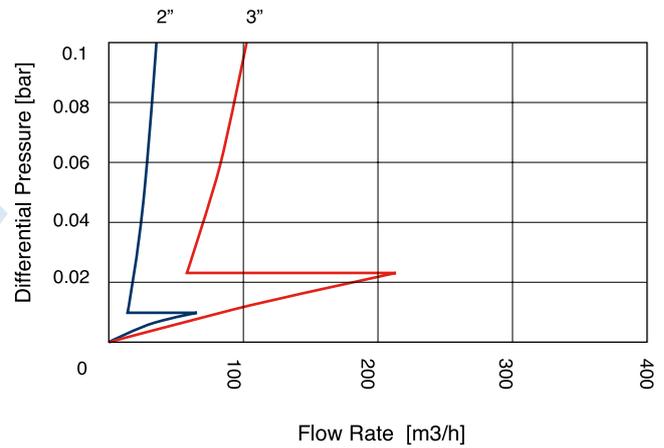
DIMENSIONS AND WEIGHTS

Model	Dimensions mm			Weight Kg.		Orifice Area mm ²	
	A	B	C	2"	3"	A / V	Auto.
L800 D-060 NS	448	875	806	49.5	59.5	5030	12
L800 D-060-C NS / D-062 NS	448	875	806	50.5	60.5	5030	12
L1000 D-060 NS	448	1075	1006	52.5	62.5	5030	12
L1000 D-060-C NS / D-062 NS	448	1075	1006	53.5	63.5	5030	12

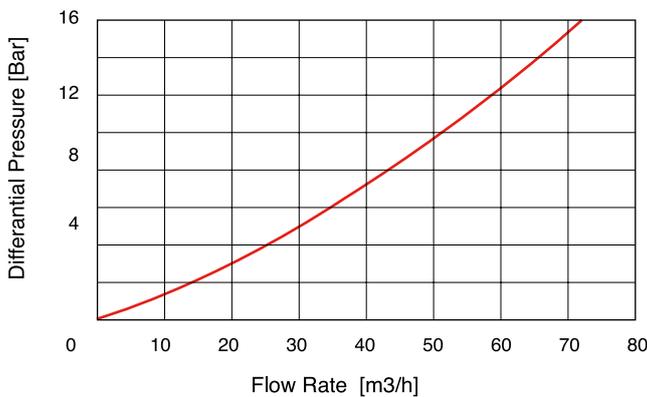
AIR & VACUUM FLOW RATE



AIR DISCHARGE SWITCHING REGION



D-060 NS / D-060-C NS AUTOMATIC AIR RELEASE FLOW RATE



D-062 NS AUTOMATIC AIR RELEASE FLOW RATE

