D-060 SB PN 16
D-060-C SB PN 16
D-062 SB PN 25

Water Supply

Underground Air Valve System for Potable Water

Description

The D-060 SB is a complete product package that combines the reliable and efficient properties of the A.R.I. D-060 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 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-060 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 Combination Air Valve has the features of both an air release valve and an air & vacuum valve.
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.

Applications

- Municipal and industrial water conveyance systems.

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 will 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 air release component releases entrapped air in pressurized systems.

Without air valves, pockets of accumulated air may cause the following hydraulic disturbances:
- Restriction of effective flow due to a reduction of the flow area. In extreme cases this will cause complete flow stoppage.
- Obstruction of efficient hydraulic transmission due to air flow disturbances.
- Acceleration of cavitation damages.
- Increase in pressure transients and surges.
- Internal corrosion of pipes, fittings and accessories.
- Dangerous high-energy bursts of compressed air.
- Inaccuracies in flow metering.

As the system fills and is pressurized, the combination air valve functions in the following stages:
1. Air in the pipeline is discharged by the air valve.
2. Liquid enters the air and vacuum component, lifting the float to its sealing position.
3. Water enters the air release component of the valve, lifting the float and pushing the rolling seal to its sealing position.
4. Entrapped air, accumulating at peaks and along the system, rises to the top of the air release valve, displacing the liquid in the valve's body.
4. The float drops, unsealing the rolling seal. The air release orifice opens and the accumulated air is released.
5. Liquid replaces the air released from the valve, buoying up the float and pushing the rolling seal back to its sealing position.

When internal pressure falls below atmospheric pressure (negative pressure):
1. The floats will drop down, immediately opening the air & vacuum and air release orifices.
2. Air will enter into the system.

Main Features

D-060 SB Underground Air Valve System for Potable Water:
- The D-060 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 / D-060-C / D-062 Combination Air Valve:
- Working pressure range: D-060: 0.2 -16 bar
D-060-C: 0.2 - 16 bar
D-062: 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 capacity 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.

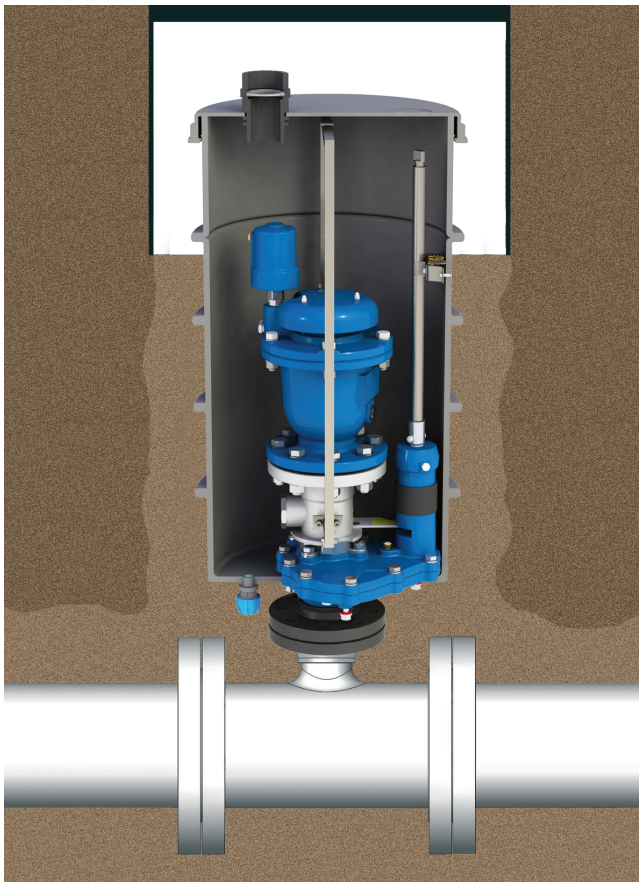
Air Release Component
- Body made of high strength materials.
- All operating parts are made of specially selected corrosion-resistant polymer materials.
- Large size air release orifice:
1. Dramatically reduces the possibility of obstruction by debris.
2. Discharges high air flow rates.
3. One size orifice for a wide pressure range (up to 25 bar), achieved by the 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.
• Unique 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. 800mm tube; complete system length: 875 mm.
2. 1000mm tube; complete system length: 1075 mm.

Note
For best suitability, it is recommended to send the fluid chemical properties along with the valve request.
Upon ordering, please specify: model, size, working pressure, threads standard and type of liquid.

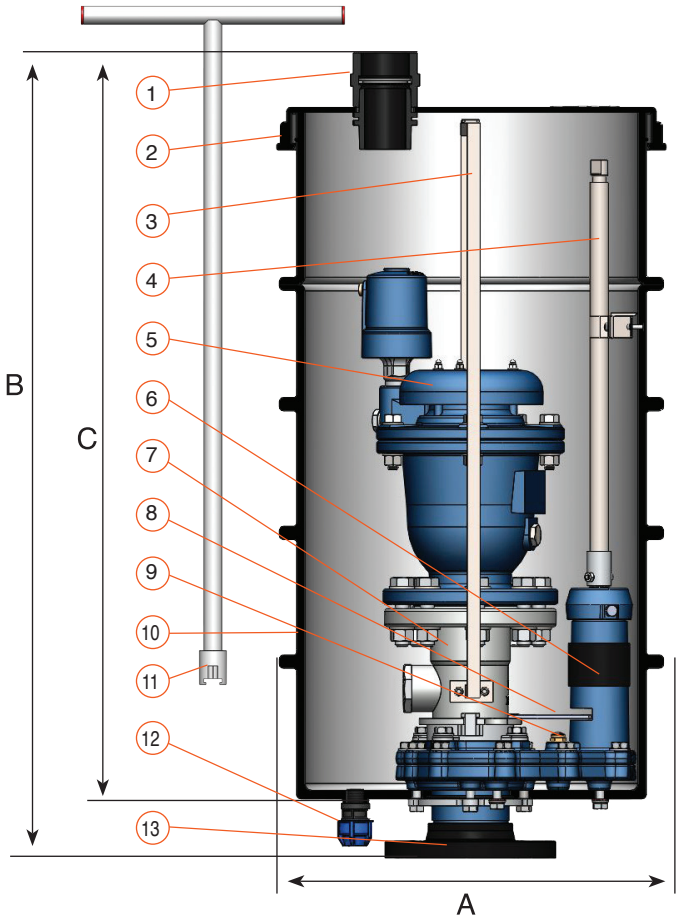
Sample Installation Scheme



Important Information: Prior to site preparation and installation, please refer to the D-060 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.

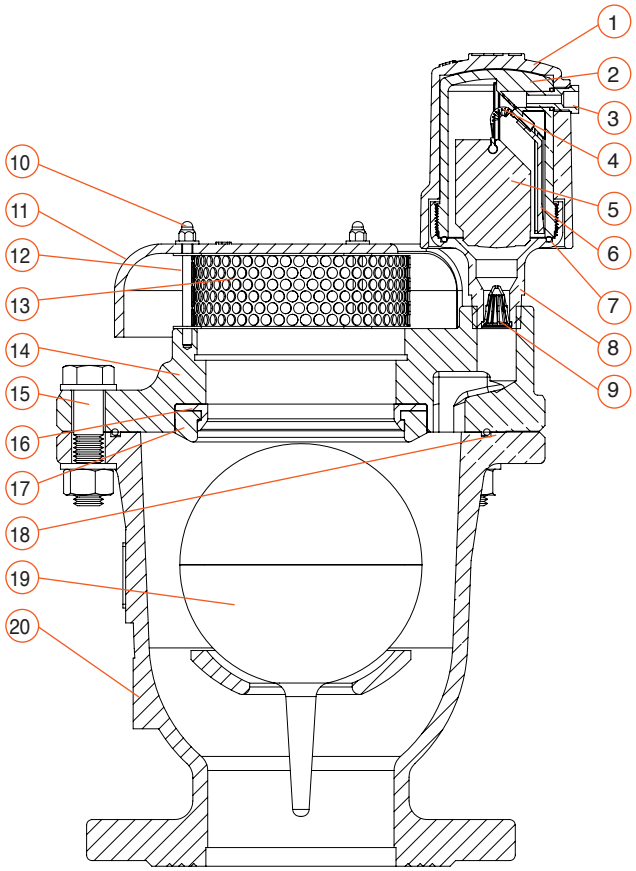
UNDERGROUND AIR VALVE SYSTEM
PARTS LIST AND SPECIFICATION

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



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

No.	Part	Material
1.	Shell	Ductile Iron
2.	Body	Reinforced Nylon + Polypropylene
3.	Air Release Outlet D-060	Reinforced Nylon
	D-060-C / D-062	Brass
4.	Rolling Seal	EPDM
5.	Float	Foamed Polypropylene
6.	Clamping Stem	Reinforced Nylon
7.	O-Ring	BUNA-N
8.	Base	Brass
9.	Strainer	Nylon
10.	Domed Nut & Washer	Stainless Steel 304
11.	Screen Cover	Ductile Iron
12.	Threaded Rod	Stainless Steel 304
13.	Screen	Stainless Steel 304
14.	Cover	Ductile Iron
15.	Bolt, Nut & Washer	Steel, Zinc Cobalt Coated
16.	Orifice Seat	Bronze
17.	Orifice Seal	EPDM
18.	O-Ring	BUNA-N
19.	Float	Polycarbonate / Stainless Steel
20.	Body	Ductile Iron



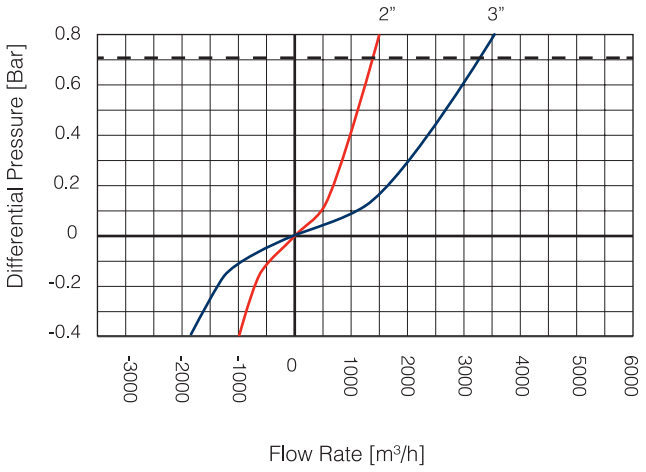
D-060-SB

A.R.I.

DIMENSIONS AND WEIGHTS

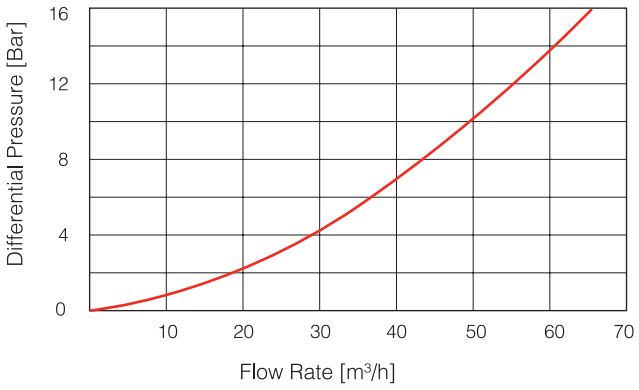
Model	Dimensions mm			Weight Kg.		Orifice Area mm²	
	A	B	C	2"	3"	A / V	Auto.
L800 D-060	448	935	866	51.1	59.6	5030	12
L800 D-060-C / D-062	448	935	866	52.1	60.6	5030	12
L1000 D-060	448	1135	1066	54.5	63.0	5030	12
L1000 D-060-C / D-062	448	1135	1066	55.5	64.0	5030	12

AIR & VACUUM FLOW RATE

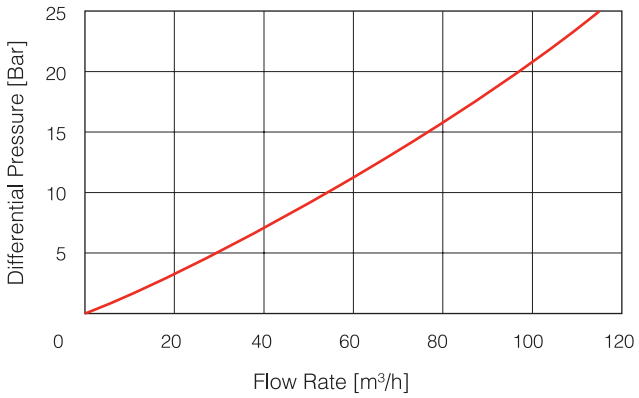


— — — Max. recommended design air discharge

PN 16 AUTOMATIC AIR RELEASE FLOW RATE



PN 25 AUTOMATIC AIR RELEASE FLOW RATE



A.R.I. FLOW CONTROL ACCESSORIES Ltd. www.arivalves.com ari@ari.co.il Tel: 972-4-6761988