



D-040 LP PN 6



Combination Air Valve for Low Pressure

What is a low pressure air valve?

The low pressure air valve sealing mechanism is built with a very soft and sensitive seal. On one hand, it enables the full and effective discharge of air and, on the other hand, the air valve will close and seal tightly when water fills the valve, even if the water pressure is particularly low. Most other air valves are built so that it takes a higher minimum sealing pressure to effectively seal the valve. The A.R.I. air valve requires a minimum water pressure of just 0.2 bar to effectively seal. Low pressure air valves are designed to prevent water leaks through the discharge orifice of the air valve.

Description

The D-040 LP series 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

The D-040 LP is designed for installation on:

1. Outlets from storage ponds and reservoirs.
2. Topographic high points where water pressures are lower than 2 meters.
3. Points on a pipeline of variable pressures, where pressures can drop below 2 meters.
4. Topographical points on a pipeline that are close to the hydraulic grade line pressure.
5. The top of water tanks

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 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 air valve, which in turn displaces the liquid in the air valve body.
4. The float drops down, unsealing the rolling seal, opening the orifice and releasing the accumulated air.
5. Liquid enters the air release valve, the float rises pushing the rolling seal to its sealing position.

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

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

Main Features

- Working pressure range: 0.05 - 6 bar.
- Testing pressure: 10 bar.
- Maximum working temperature: 60° C.
- Maximum intermittent temperature: 90° C.
- Reliable operation reduces water hammer incidents.
- Dynamic design allows for high capacity air discharge while preventing premature closure.
- Lightweight, small dimensions, simple and reliable structure.
- The discharge outlet enables the connection of a vent/drain pipe.

- The large size of the automatic air release orifice relative to the air valve body:
 - Discharges air at high flow rates.
 - Lessens the danger of its obstruction by debris.
 - Enables the usage of the rolling seal mechanism, making it less sensitive to pressure differentials than a direct float seal.
- The body is made of high-strength composite materials and all operating parts are made of specially selected, corrosion-resistant materials.
- Due to its light weight, the valve may be installed on plastic piping systems, as well as other lightweight piping systems.

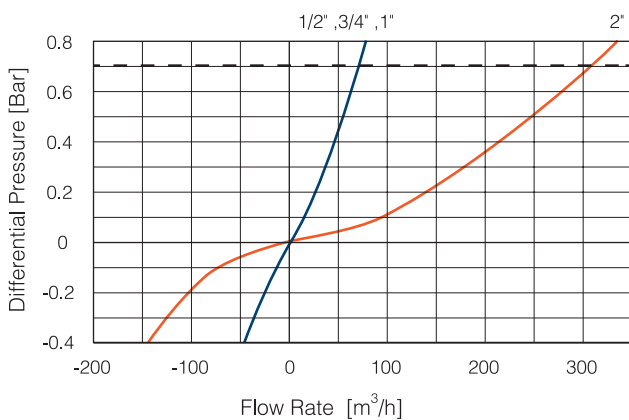
Valve Selection

- Diameter: 2"
- The air valve is available with:
- NPT or BSPT threaded male connections,
 - Optional ball valve tap; BSPT or NPT male connection.

Note

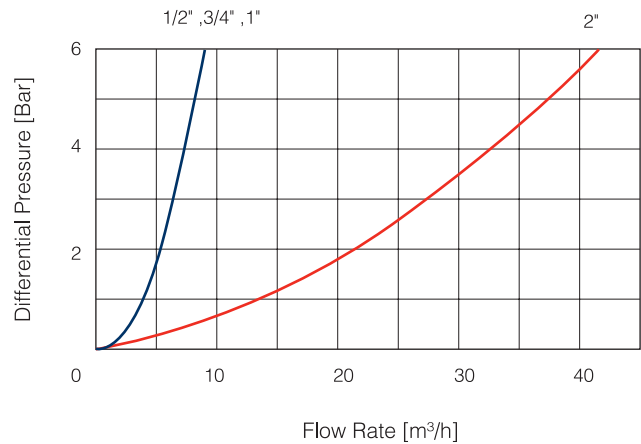
For best suitability, it is recommended to send the fluid chemical properties along with the valve request.
 Upon ordering, please specify: model, size, working pressure, threads standard and type of liquid.

AIR AND VACUUM FLOW RATE



- - - - Max. recommended design air discharge

AUTOMATIC AIR RELEASE FLOW RATE



DIMENSIONS AND WEIGHTS

Nominal Size	Dimensions mm		Connection C	Weight Kg.	Orifice Area mm ²	
	A	B			Auto.	A / V
1/2" 3/4" 1"	100	143	3/8" BSP Female	0.33	7.8	100
2"	183	215	1 1/2" BSP Female	1.1	12	804

PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Body	Polypropylene / Reinforced Nylon
2.	Discharge Outlet	Polypropylene
3.	1/2" 3/4" 1" Rolling Seal 2" Rolling Seal Assembly:	Silicone
3a.	Screws	Stainless Steel
3b.	Plug Cover	Reinforced Nylon / Polypropylene
3c.	Rolling Seal	Silicone
3d.	Plug	Reinforced Nylon / Polypropylene
4.	Clamping Stem	Reinforced Nylon / Polypropylene
5.	Float	Foamed Polypropylene
6.	O-Ring	BUNA-N
7.	Base	Polypropylene / Reinforced Nylon

Optional

Ball valve Brass, Nickel plated

