D-040-C

3/4",1" COMBINATION AIR VALVE "BARAK"

PATENTED

Operation

The D-040-C's Air/vacuum large orifice component, discharges large volumes of air during the filling of the system and admits air into the system at high flowrates, during its drainage and/or at water column separation.

At any time during system operation, should internal pressure fall below atmospheric pressure (negative pressure), air will re-enter the systems though the air valve.

Admitting air in response to negative pressure protects the system from destructive vacuum conditions, prevents damage caused by water column separation.

Air intake is essential to efficiently drain the system. The swift intake and smooth discharge of air impede pressure surges and other destructive phenomena.

The D-040-C Air-release, small orifice component, releases entrapped air at system operation under pressure. Pockets of accumulated air may cause the following destructive phenomena:

- Obstruction to the 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.
- Acceleration of cavitation damages.
- Amplification of pressure surges.
- Acceleration of corrosion processes.
- Inaccuracies in flow metering.
- Destruction of internal parts of water meters, automatic metering valves, and other flow control equipment.
- Danger of physical damage to operators and to equipment,due to high-energy surge of compressed air.

As the system fills up, the D-040-C functions at the following operational stages:

1. Air present in the pipeline is discharged through the air valve, displaced by the incoming water.
2. Water enters the valve, lifting the float that, in turn, moves the Rolling Seal and Seal Plug to their sealing positions.
3. Entrapped air, accumulating at air valve connections along the system, rises to the top of the valve, displacing the water in the valve body.
4. As water level in the valve drops, displaced by air, the float descends enough to peel the Rolling Seal off the small Air-release orifice, and the accumulated air is released to the atmosphere.
5. As released air is replaced by water, water level in the valve rises again, lifting the float that rolls the Rolling Seal back to its sealing position. Since the rolling seal covers the Air-release orifice gradually, the open area of the orifice decreases gradually, causing the airflow velocity to increase. Small dirt particles, which may adhere to the orifice wall, will be spewed out by the accelerating airflow, in a built-in self-cleaning process.

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

6. Both orifices will be immediately unplugged and the float drops away.
7. Large volumes of air enter the system, preventing vacuum condition.

Main Features

- Working pressure range:: 3-250 psi. Testing pressure: 360 psi.
- Maximum working temperature 203° f.
- Light, simple and reliable structure.
- Prevents premature closing:

- The valve discharges air at high velocity.
- The orifice of the Automatic continuous acting valve is larger than in any other air release valve of it's kind, therefore it discharges air at higher flow rates.

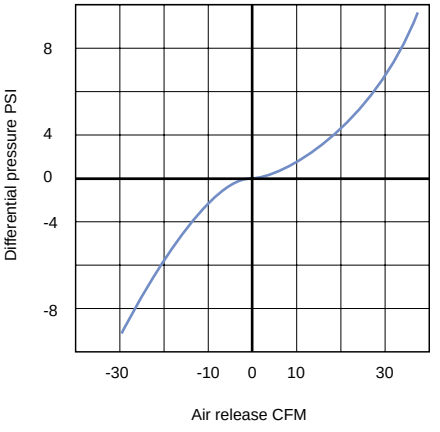
- The size of the Automatic orifice makes its obstruction by debris most unlikely.
- The valve design - Rolling Seal Mechanism: is less sensitive to pressure differentials than a direct float seal. It accomplishes this by having a comparably large orifice for a wide pressure range (up to 250 psi).
- The body is made of high strength plastic, 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.
- A threaded drainage outlet enables removal of excess fluids (3/8")

Valve Selection

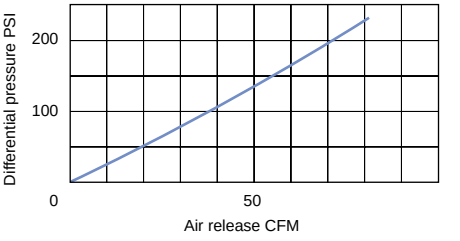
The D-040-C air valve is available:

- With 3/4" 1" male BSPT or 3/4" 1" male NPT connections, as requested.
- With a Vacuum Guarding, Out-only attachment, which only allows air discharge, not allowing air intake.
- With a Vacuum Breaking, In-only attachment, which only allows air intake, not allowing air discharge.
- With a Non-Slam, discharge-throttling attachment, which allows free air intake, but throttles air discharge.

AIR & VACUUM FLOWRATE

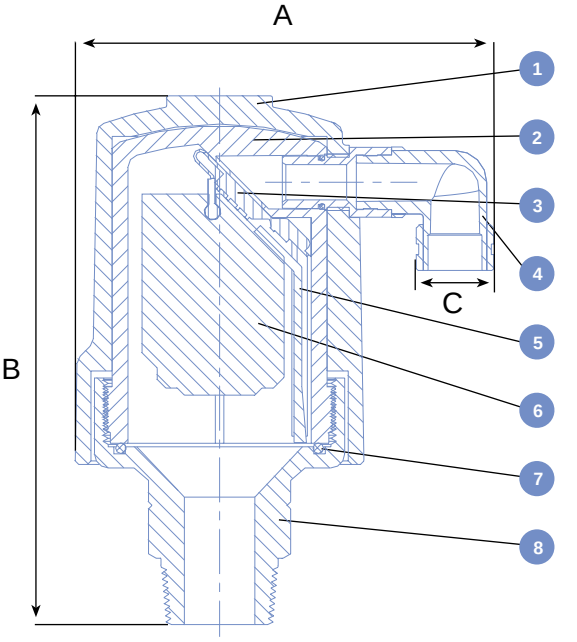


AUTOMATIC AIR RELEASE FLOWRATE



PARTS LIST AND SPECIFICATION

No.	Part	Material
1.	Body	Cast Iron ASTM A48 CL.35B
2.	Sleeve	NSF 61 Certified Reinforced Nylon
3.	Rolling Seal	NSF 61 Certified E.P.D.M. 61
4.	Drainage Elbow	NSF 61 Certified Polypropylene
5.	Clamping Stem	NSF 61 Certified Reinforced Nylon
6.	Float	NSF 61 Certified Foamed Polypropylene
7.	O - Ring	NSF 61 Certified NBR 70
8.	Base	Stainless Steel ASTM A744 CF8M (NSF) / Brass



DIMENSIONS AND WEIGHTS

Nominal Size	Dimensions A	B	C	Weight Lbs.	Orifice Area Sq.in Air & Vacu.	Auto.
3/4" 1"	4.7"	5.9"	3/8"	3.75	0.127	0.0077