APCO CLEAN WATER
AIR RELEASE VALVES
Air Release Valves

Why and Where to Use

An Air Release Valve has a small venting orifice and is used wherever air is entrained in water under pressure. These pockets of air increase the resistance to the flow of water. In critical installations, air can reduce the capacity of a line down to zero. More common is an increased resistance of 10 to 15%. The increased resistance must be overcome by the pump using more power than necessary to move the required amount of water. Such a loss can continue unnoticed for years creating excessive power consumption costs. This is a major reason why all points where air can collect should be equipped with an APCO Air Release Valve.

How to Operate

These valves have much smaller orifices than the Air/Vacuum Valves. Their function is to release small pockets of air which gather at the high points of a system after it is filled and under pressure. The Air Release Valve has the ability to open against internal pressure because it has a small orifice and a leverage mechanism which multiplies the force of the float. This force must be greater than the internal pressure across the orifice in order to open it when a pocket of air needs to be vented. This explains why, as the internal pressure increases, the orifice decreases in size to facilitate the valve opening.

Simple Lever

#50

.5, .75, 1" (15, 20, 25 mm) Inlet

Physical Dimensions
Height - 5.875" (149 mm)
Width - 3.75" (95 mm)
Weight - 6 lbs (3 kg)

Standard pressures up to 175 psi (1207 kpa) and up to 300 psi (2068 kpa) with special orifice. Specify if operating pressure is below 20 psi (138 kpa).

All APCO Air Release Valves are 100% Hydrostatically factory tested to ANSI/AWWA C512 standards.

APCO Uses Stainless Steel Floats Exclusively

Examine these quality features provided at no extra cost:
1. ASTM quality materials guaranteed throughout
2. Stainless steel floats
3. Conserve pumping power – eliminate restricted high points
4. Create maximum pipeline efficiency

Materials of Construction

Body and Cover - Cast Iron or Ductile Iron
Float - Stainless Steel
Seat - Bronze-Stainless or Buna-N
Needle - Bronze or Stainless Steel
Linkage - Delrin, Bronze or Stainless Steel
Other internal parts – Lever Pins, Retaining Rings, and Screws are Stainless Steel or Bronze.

Note: Great care is taken in the choice of materials to avoid galvanic action. Bronze components meet current lead-free requirements.
**Where to Install**

Typical pipeline and position of necessary APCO air valves

- **APCO Combination Air Valve** at peaks and sharp change in gradient due to possibility of column separation and vacuum
- **APCO Hydraulically Controlled Air/Vacuum Valve** where secondary surges due to rejoining of previously separated water column could occur
- **APCO Air Release Valve** on long horizontal and descending stretch at 1/4 to 1/2 mile intervals
- **APCO Air Release Valve** at peaks and sharp change in gradient near end of line where no significant amount of air is anticipated
- **APCO Air/Vacuum Valve** on pump discharge before check valve (not necessary for pumps with positive suction head)

Note: Installing manways at intervals in larger size pipelines provides an excellent point to install air valves

**Compound Lever**

- **#200A**
  - 1", 2" (25, 50 mm) Inlet
  - **Physical Dimensions**
    - Height - 10" (254 mm)
    - Width - 7" (179 mm)
    - Weight - 20 lbs (9 kg)
    - Inlet - 1" or 2" (25, 51mm) pipe thread
  - **Standard pressures up to 150 psi (1034 kpa) and up to 300 psi (2068 kpa) or higher with special orifice.**
  - Concave float is patented.

- **#200**
  - 2" (50 mm) Inlet
  - **Physical Dimensions**
    - Height - 12.5" (318 mm)
    - Width - 9.5" (241 mm)
    - Weight - 45 lbs (20 kg)
    - Inlet - 2" (51mm) pipe thread
  - **Standard pressures up to 150 psi (1034 kpa) and up to 300 psi (2068 kpa) or higher with special orifice.**

- **#205**
  - 2" (50 mm) Inlet
  - **Physical Dimensions**
    - Height - 13" (330 mm)
    - Width - 12" (305 mm)
    - Weight - 75 lbs (34 kg)
    - Inlet - 2" (51mm) pipe thread
  - Flanged inlet available 150 or 300 lb. class
  - **Standard pressures up to 500 psi (3447 kpa) and up to 1500 psi (10342 kpa) with special orifice.**

- **#207**
  - 6" (150 mm) Inlet
  - **Physical Dimensions**
    - Height - 28" (711 mm)
    - Width - 13.5" (343 mm)
    - Weight - 200 lbs (91 kg)
    - Inlet - 6" (152 mm) 125# flange
  - **Discharge orifice - 1" (25mm) diameter**
  - **HIGH VENTING CAPACITY**
  - **Standard pressures up to 150 psi (1034 kpa) and up to 300 psi (2068 kpa) with special orifice.**

Higher pressure classes available.

For selection and sizing of all the above air valves, see the Venting Capacity Graph for Air Release Valves on the back page of this bulletin or ask for APCO Air Valve Sizing Software.

Manufactured to AWWA C-512

ISO connections available

www.dezurik.com
Selection

How to select and size an air release valve when a specific venting capacity is required:

A. Enter graph with pressure in system and venting capacity required.

B. Read off nearest orifice diameter to intersection of pressure and capacity lines on graph.

C. Enter table below with orifice diameter and select valve which can use this orifice diameter at the pressure involved.

### Venting Capacity Graph for Air Release Valves

**Orifice Sizes**

<table>
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<tr>
<th>Pressure Differential Across Valve in psi</th>
<th>1/4&quot;</th>
<th>5/32&quot;</th>
<th>3/32&quot;</th>
<th>1/8&quot;</th>
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**Venting Capacity in Cubic Feet of Free Air Per Minute**

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<th>Pressure Differential Across Valve in psi</th>
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**Sewage Air Release Valves**

Please see Bulletin 400, “APCO Sewage Air Valves Generation II”

### Table: Maximum orifice sizes which can be used with the following pressures - psi/kpa

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<th>Model</th>
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