



— MODEL — **33A**

High Performance Combination Air Release & Vacuum Valve



Threaded

Flanged

INTRODUCTION

Cla-Val Combination Air Valves have been designed with stainless steel trim to give years of trouble-free service. Combination Air Valves are typically installed at high points of a water piping system. They perform both functions of air release valve and air/vacuum valve in one body.

Combination Air Valves automatically vent pockets of air from high points while the system is pressurized. The valve will also vent and admit large volumes of air while or draining the system or during emergency power failure conditions. Both air release and air/vacuum functions are essential to maintain pipeline efficiency and protection from adverse pressure conditions.

RECEIVING AND STORAGE

Inspect valves for damage upon receipt. Valves should remain boxed and stored in doors until installed to prevent weather related damage

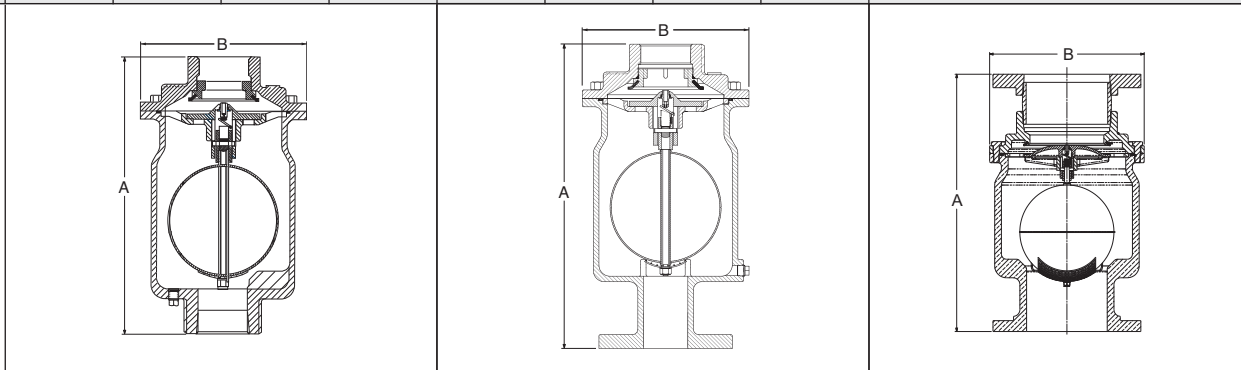
DESCRIPTION OF OPERATION

Combination Air Valves are fully automatic and designed to continuously remove pockets of air from high points in a piping system. They also vent and admit large volumes of air during filling or draining of the pipeline or tank. These are a normally open air valves that function in three ways:

1. During System start-up, the large open orifice exhausts large volumes of air until fluid enters the valve. Then the float rises to shut both the large orifice seat and the small orifice seat. Pressure within the valve will force the float tightly against both the seat orifices.

2. As air accumulates at the high points of the piping system, (where the valve is installed) air displacing the fluid, the float lowers with the fluid and breaks contact with the small orifice seat. Accumulated air in the valve, is then vented through the small orifice. As air is vented, the floats raise again and closes the small orifice. This sequence repeats automatically as air accumulates in the air valve.

| Valve Size | 33A Pressure Class 300 Lb Threaded X Threaded | | | | 33A Pressure Class 150 Lb Threaded X Flanged | | | | 33A Pressure Class 150 Lb Flanged X Flanged |
|--------------------|--|--------|--------|--------|---|--------|--------|--------|--|
| | 1" | 2" | 3" | 4" | 2" | 3" | 4" | 6" | 6" |
| A | 9.10 | 12.44 | 12.75 | 12.75 | 13.88 | 15.56 | 15.75 | 16.38 | 19.14 |
| B | 6.25 | 7.50 | 9.00 | 9.00 | 7.50 | 9.25 | 9.25 | 11.00 | 11.00 |
| C | — | — | — | — | .62 | .75 | .94 | 1.00 | 1.06 |
| Inlet (ANSI) | 1" NPT | 2" NPT | 3" NPT | 4" NPT | 2" | 3" | 4" | 6" | 6" |
| Outlet (NPT) | 1" NPT | 2" NPT | 3" NPT | 4" NPT | 2" NPT | 3" NPT | 4" NPT | 6" NPT | 6" |
| Number of Holes | — | — | — | — | 4 | 4 | 8 | 8 | 8" |
| Diameter of Bolts | — | — | — | — | .63 | .63 | .75 | .75 | .75 |
| Shipping Wt. (Lb.) | 25 | 29 | 38 | 40 | 39 | 48 | 50 | 70 | 75 |



SPECIFICATIONS

MODEL 33A - 1",2",3",4" and 6" SIZES Single Body Combination Air Vacuum Air Release Valve

Pressure Ratings

500 psi Ductile Iron
Body and Cover

500 psi Stainless Steel
Body and Cover

600 psi Cast Steel
Body and Cover

Materials

Body and Cover:
Ductile Iron

ASTM A536 65-45-12

Body and Cover

Stainless Steel T303

Body and Cover

Cast Steel ASTM A 216 WCB

Note:

Readily available for seawater service and other
corrosive fluids applications Made of:

Monel - Bronze's - Stainless Steel

Standard Internals

Float: Stainless Steel T304

Balance internals parts Stainless Steel and Delrin

Seals Nitrile Rubber or Viton (extra cost)

Temperature Range

Water to 180° F

Optional:

1. Fusion epoxy lined and coated at extra cost
2. For Well Service Install Throttling Device on the Outlet

PROBLEMS / SOLUTIONS

1. Leakage at Inlet Connection:

Tighten valve threaded connection. If leaks persist, remove
valve and seals threads with pipe sealant or tape.

2. Leakage at Cover/Body joint:

Tighten bolts per Table 2, replace gasket.

3. Small or Large Orifice Leakage:

Flush valve to remove debris. Disassemble and inspect both
seat, orifices and float for wear or damage. Replace as needed
with a float kit or seat kit

4. Small Orifice not Releasing Air Under Pressure:

Check that operating pressure does not exceed Working
Pressure on nameplate. Perform inspection step 3 and
disassemble valve if problem persists.

DISASSEMBLY

The valve can be disassembled without removing it from the
pipeline, or it may be removed from the line. All work on the
valve should be performed by a skilled mechanic. Special tools
are NOT required.

CAUTION: Drain the valve and de-pressurized before removing
the cover or pressure may causing injury.

1. Close inlet shut-off valve. Slowly open drain valve or remove
drain plug. Remove the covers bolts slowly.
2. Pry cover loose and lift off valve body.
3. Remove entire seat & float assemblies inspect for damage or
wear
4. Clean and inspect parts. Note: Shake float & if water inside
float replace it and worn parts as necessary.

NOTE: Float Kit & Seat Kit includes cover gasket

REASSEMBLY

1. All parts must be cleaned and gaskets surfaces cleaned
with a stiff wire brush in the direction of the serration or
machine marks. Worn parts, gaskets and seal should be
replaced during reassembly.
2. Apply Loctite or similar Compound to threaded Connections
3. Stand valve body vertically. Insert entire delrin frame, seat &
float assembly into register. Move float up/down to insure
concentricity and no binding.
4. Lay new cover gasket on clean surface and apply a gasket
compound such as Permatex #80065 to both surfaces.
Assemble gasket and cover over bolt holes in body.
5. Insert lubricated bolts and tighten to the torques listed in
Table 2.
6. Place valve back in service. Refer to the installation
instruction. Slowly open inlet isolation valve.

TABLE 2. VALVE COVER BOLT TORQUES

| <u>BOLT SIZE</u> | <u>TORQUE (FT. LBS.)</u> |
|------------------|--------------------------|
| 1/4"-20 | 6 |
| 5/16"-18 | 11 |
| 3/8"-24 | 19 |
| 7/16"-32 | 30 |

PARTS AND SERVICE

Parts and service are available from your local representative
or the factory. Make note of the valve Model No. and Working
Pressure located on the valve nameplate.