Automatic (Air Release) Air Valve

Model A30/A31

Installation, Operation and Maintenance Manual (IOM)

BERMAD™

Table of Contents

General

BERMAD A30/A31 is a high quality automatic air release valve that allows efficient release of air pockets from pressurized pipes. With its advanced design this automatic air release valve provides excellent protection against air accumulation with improved sealing in low pressure conditions.
This document is the Installation, Operation and Maintenance manual (IOM) of this valve; it describes the procedures required for proper usage of the valve.

Safety

Since Air Valves operate in pressurized water systems you are required to carefully read this manual before using the valve. Handle the valve with care and make sure to comply with all the relevant required safety instructions and standards, general and local.

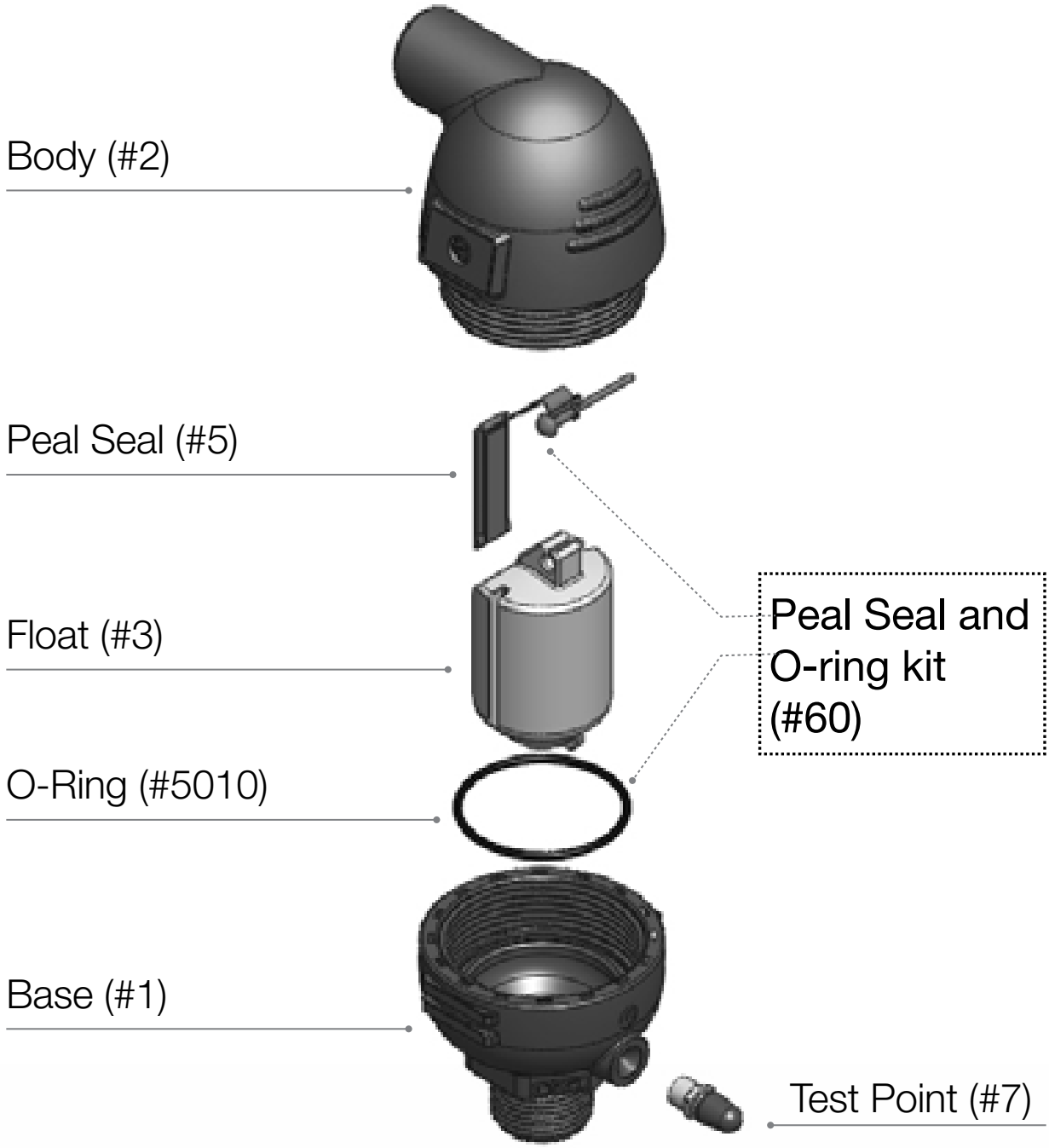
Operational Data

Pressure rating	ISO PN16, ANSI/ASME 150
Operating pressure range	A30: 0.1-16 bar/1.5-230 psi
	A31: 0.02-16 bar/0.3-230 psi
Operating temperature	Water up to 60° C/140° F

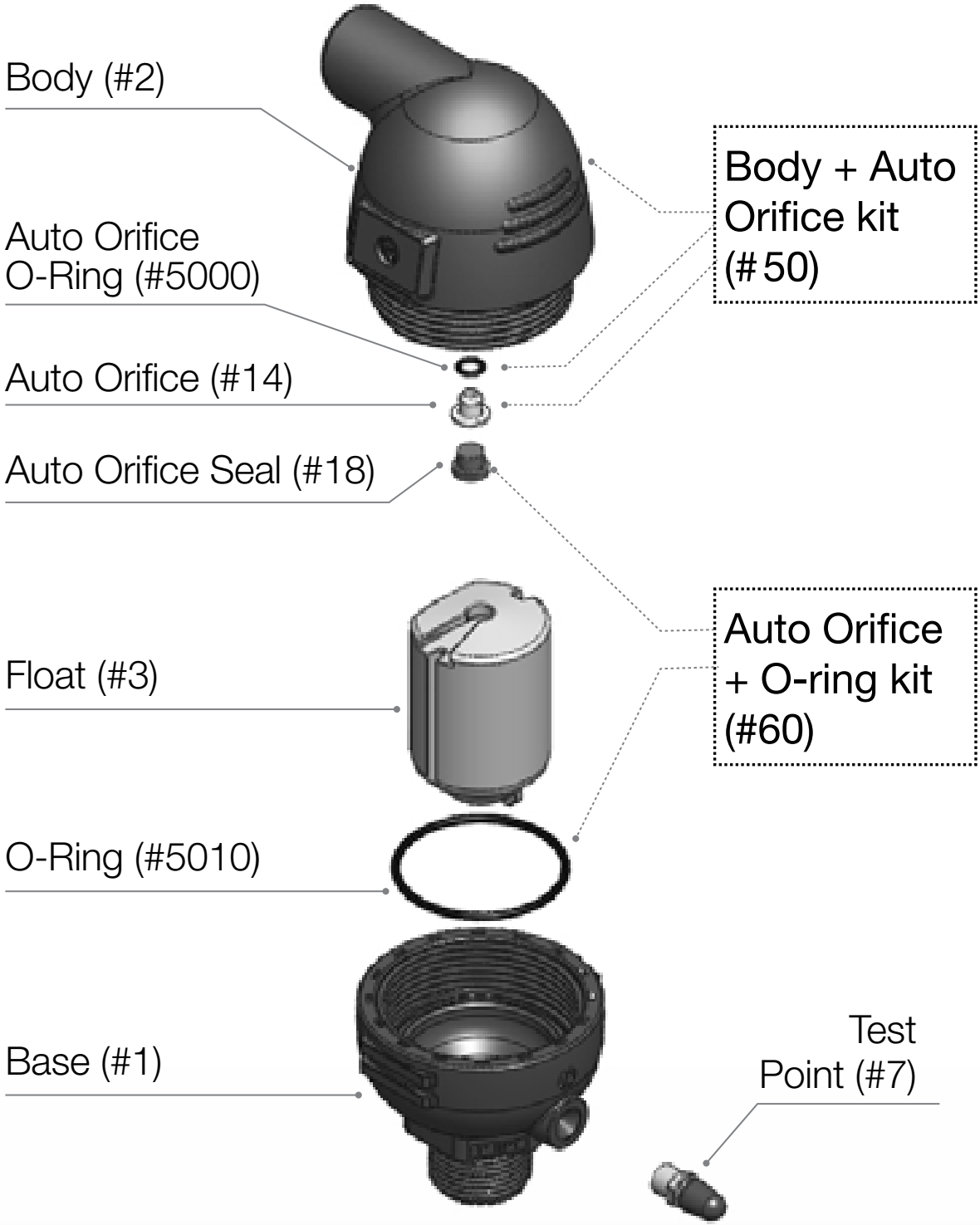
Materials and Connections

Body material	Glass-reinforced Nylon
Inlet diameter	DN20, DN25 (¾", 1")
Connections	Threaded Male BSPT/NPT
Outlet types	Sideways

A30 Parts List



A31 Parts List



Unpacking and post shipment inspection

- Make sure that till the actual installation the valve remains dry and clean in its original package
- Unpack the valve and make sure that all the wrapping materials are removed
- Before installation it is necessary to inspect that no damage to the valve had occurred during shipment; do not install a damaged valve!
- Verify that the valve to be installed meets the design specifications of the specific installation site; take extra care and make sure that the expected system pressure complies with the pressure rating of the valve

Site Preparation

- Air Valves located above ground should be protected from freezing, contamination and vandalism
- If the valve is to be installed in a pit, make sure that the pit has proper drainage and sufficient dimensions for servicing the valve
- Flush the pipeline prior to the Air Valve installation in order to prevent damage to the valve internals due to large debris carried by the water during startup
- The A30/A31 Air Valves are not to be used in systems containing high suspended solids; consider selecting other Bermad Air Valve models for such water typewater type

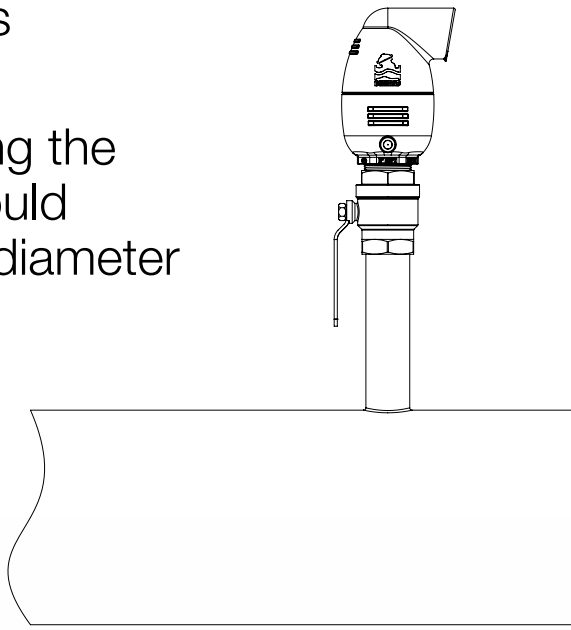
Installation

Typical Applications

- Pipelines – Protection against air accumulation in horizontal or low slope lines and road/river crossings
- In proximity to control valves and water meters – Prevention of biased readings and inaccurate pressure regulation due to air flow through devices
- Industrial and residential networks - Protection against air accumulation

Installation instructions

- Install the Air Valve as close as possible to the pipe, at a high point of its circumference, in vertical position (within 5 degrees of vertical alignment) and with its inlet facing down
- The length of the pipe connecting the Air Valve with the 90° elbow should be at least three times the pipe diameter
- Install a shutoff valve between the Air Valve and the pipeline for allowing easy inspection and maintenance



Start-up and first operation

- Open the shutoff valve and verify that the Air Valve connections are not leaking; if needed follow the troubleshooting instruction section of this document. Please note that at the first time the valve is filled up some water may exit through its outlet port
- Prevent water hammer during startup and pipeline filling; maintain the velocity lower than 0.5m/sec (1.6 feet/sec). Consider using other BERMAD Air Valve models with Surge Protection features in systems where higher velocity is expected

Operation and Maintenance

Principles of Operation

During pressurized operation of a pipeline, air accumulates in the upper part of the Air Valve chamber, causing the float to gravitate downwards. This in turn causes the automatic orifice to open, releasing the accumulated air. Once the air is discharged, the water level and float rise, causing the automatic orifice to close.

Please note

- During initial pipeline filling as well as during the automatic air release some water may exit through the valve outlet.

Inspection

The valve does not require any specific maintenance, however a periodical inspection of the seals is recommended for removing debris and foreign objects.

Troubleshooting

Symptom	Action
Leakage at the inlet connection	Tighten the valve connection, use thread sealant. Check whether any part/seal is damaged.
Leakage at the valve cover	Tighten the valve's cover.
Leakage at the valve's outlet	Flush the valve to remove debris, dissemble and inspect the valve's orifice, float and seal. Remove any foreign objects, check and replace any damaged part.
Valve does not release air	Verify that the operating pressure does not exceed the valve's rated working pressure. Check and remove foreign objects. Check the orifice's area for leaks. Clean the valve's internal parts, replace if necessary. Consult Bermad if the symptom continues.

Disassembling the A30 valve

1. Release the valve's Body (Part #2) by turning it counterclockwise, un-screw and remove it from the valve's Base (Part #1). Make sure that the valve parts, seated within the cover do not fall out of the cover.
2. Inspect the valve basis O-Ring (Part #5010) and if necessary replace it with a new one. Make sure that the new O-Ring is seated correctly in its designated groove in the valve's basis.
3. Pull the float assembly out of the valve's Body.
4. Inspect the float's Peal Seal (Part #5) and the float (Part #3) for wear and tear. If necessary replace the old parts.
5. Replacing the Peal Seal:
   a. Remove the old seal
   b. Wet the new peal seal (Part #5) with clean water
   c. Use the Insertion Assistance Handle and insert the loose end of the peal seal (Part #5) to its designated groove in the valve's Float (Part #3). Make sure that the serrated side of the seal (A) is facing the float flat side (B) as shown in Fig A.

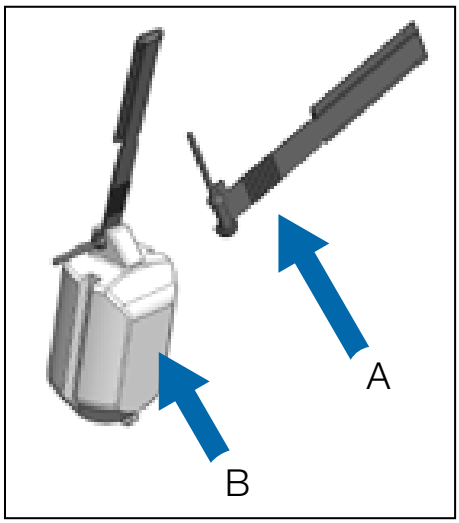


Fig. A

   d. Once the peal seal is correctly seated in place cut the Insertion Assistance Handle and discard it

Reassembling the A30 valve

1. Insert the float with the Peal Seal to its place within the cover. Make sure that the Peal Seal remains straight during the insertion process of the float to the cover. See Fig B.
2. Make sure that the valve's basis O-ring (Part #5010) is fully inserted to its groove within the basis. See Fig C.
3. Reassemble the valve cover to the valve basis by screwing it on the basis thread. Tighten the cover till Bermad's logo is parallel with the wrench plats of the basis. See Fig D.
4. The valve is reassembled, perform a complete start up procedure as described above.

Fig. B

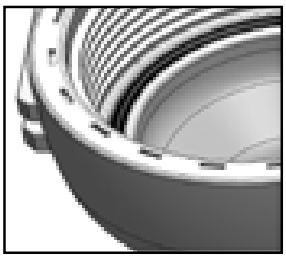


Fig. C

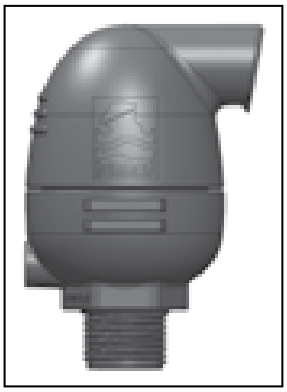


Fig. D

Disassembling the A31 valve

1. Release the valve's Body (Part #2) by turning it counterclockwise, un-screw and remove it from the valve's Base (Part #1). Make sure that the valve parts, seated within the cover do not fall out of the cover.
2. Inspect the valve basis O-Ring (Part #5010) and if necessary replace it with a new one. Make sure that the new O-Ring is seated correctly in its designated groove in the valve's basis.
3. Pull the float assembly out of the valve's cover.
4. Inspect the Auto Orifice (Part #5), the Auto Orifice Seal (Part #18) and the Float (Part #3) for wear and tear. If necessary replace the old parts.
5. Replacing the Auto Orifice Seal:
   a. Use a sharp knife or scissors and carefully cut and remove the Auto Orifice Seal (Part #18) out of the float (Part #3). See Fig D.
   b. Pull the Auto Orifice (Part #14) out of its seat in the far end of the cover.
   c. Inspect the Auto Orifice O-Ring (Part #5000) and replace it if necessary.

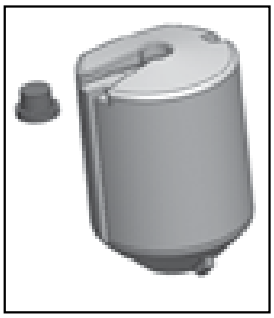


Fig. D

Reassembling the A31 valve

1. Re-insert the Auto Orifice (Part #14) with its O-Ring (Part #5000) to its seat in the valves cover. Use a conduit tool to guide the insert to its place. Take an extra care not to damage the Auto Orifice Hole area during the insertion process. Make sure that the insert is properly seated and snapped-in locked to its place. See Fig E.
2. Make sure that the valve's basis O-Ring (Part #5010) is fully inserted to its groove within the basis. See Fig F.
3. Insert the float assembly to its place within the valve cover. Make sure that the float is inserted along its conduit grooves and in the correct orientation. See Fig G.
4. Reassemble the valve cover to the valve basis by screwing it on the basis thread. Tighten the cover till Bermad's logo is parallel with the wrench plats of the basis. See Fig H.
5. The valve is reassembled, perform a compete start up procedure as described above.

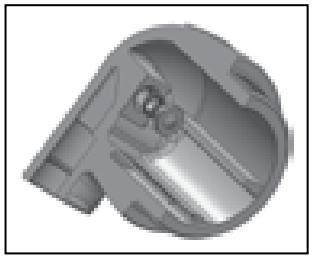


Fig. E

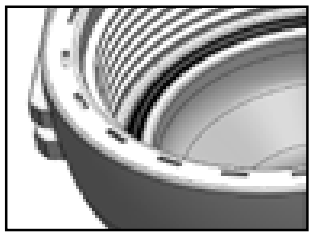


Fig. F

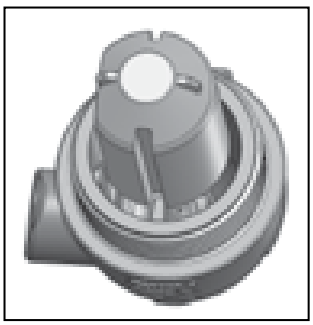


Fig. G

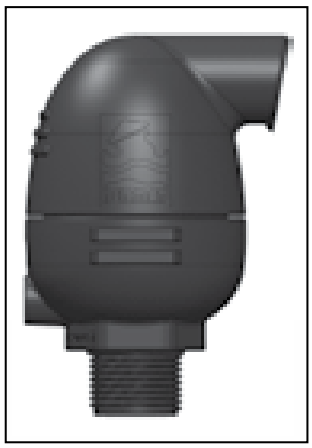


Fig. H

PIAXE12-A30

info@bermad.com
www.bermad.com

BERMAD™