

APCO ARV CLEAN WATER AIR RELEASE VALVES



Model 50



Model 55



Model 200A

Instruction **D12013**
February 2017

Instructions

These instructions are for use by personnel who are responsible for the installation, operation and maintenance of DeZURIK valves, actuators or accessories.

Safety Messages

All safety messages in the instructions are identified by a general warning sign and the signal word CAUTION, WARNING or DANGER. These messages indicate procedures to avoid injury or death.

Safety label(s) on the product indicate hazards that can cause injury or death. If a safety label becomes difficult to see or read, or if a label has been removed, please contact DeZURIK for replacement label(s).

⚠WARNING

Personnel involved in the installation or maintenance of valves should be constantly alert to potential emission of pipeline material and take appropriate safety precautions. Always wear suitable protection when dealing with hazardous pipeline materials. Handle valves which have been removed from service with suitable protection for any potential pipeline material in the valve.

Inspection

Your DeZURIK product has been packaged to provide protection during shipment; however, items can be damaged in transport. Carefully inspect the unit for damage upon arrival and file a claim with the carrier if damage is apparent.

Parts

Replaceable wear parts are listed on the assembly drawing. These parts can be stocked to minimize downtime. Order parts from your local DeZURIK sales representative or directly from DeZURIK. When ordering parts please provide the following information:

If the valve has a data plate: please include the 7-digit part number with either 4-digit revision number (example: 9999999R000) or 8-digit serial number (example: S1900001) whichever is applicable. The data plate will be attached to the valve assembly. Also, include the part name, the assembly drawing number, the balloon number and the quantity stated on the assembly drawing.

If there isn't any data plate visible on the valve: please include valve model number, part name, and item number from the assembly drawing. You may contact your local DeZURIK Representative to help you identify your valve.

DeZURIK Service

DeZURIK service personnel are available to maintain and repair all DeZURIK products. DeZURIK also offers customized training programs and consultation services. For more information, contact your local DeZURIK sales representative or visit our website at DeZURIK.com.

Table of Contents

Description - - - - -	4
Handling and Storage - - - - -	4
Installation - - - - -	4
Fusion/Powder Coated Valves - - - - -	4
Maintenance- - - - -	5
<i>Cleaning of Seat Orifice</i> - - - - -	5
<i>Disassembly Procedure</i> - - - - -	5
<i>Assembly Procedure</i> - - - - -	6
Operation - - - - -	6
Drawings - - - - -	7
Troubleshooting - - - - -	15

Description

Air Release Valves have a small venting orifice and are used wherever air is entrained in water under pressure. Their function is to release small pockets of air which gather at the high points of a system after it is filled under pressure.

Handling and Storage

Lifting the valve improperly may damage it. Do not fasten lifting devices to ports in valve. Lift the valve with slings, chains or cables fastened around the valve body, or fastened to bolts or rods through bolt holes in the flanges.

If installation will be delayed, place valve indoors in secure, weather tight storage. If temporary outside storage is unavoidable, make sure a vermin proof rain cover (water shedding tarp, etc.) is secured around/over the valve to keep off rain and mud. Skid and set the assembly on a flat, solid, and well drained surface for protection from ground moisture, runoff and pooled rain water.

Installation

ARV Clean Water Air Release Valves should always be installed in a vertical position at high points of a pipeline. An isolation valve between this unit and the transmission (pipeline) system is recommended.

- Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the pipeline.
- Prepare pipe ends and install valves in accordance with the pipe manufacture's instructions for the joint used.



CAUTION!

Do not deflect the pipe-valve joint. Minimize bending stresses in the valve end connection with pipe loading.

- Tighten the flange bolts or studs in a crisscross pattern and minimum of four stages.
- The ARV-50A valve is supplied standard with a 1" NPT female tap on body. If a 3/4" or 1/2" NPT female connection is desired, a reducer bushing should be used. Included in the box is a 1" NPT male to 3/4" NPT female and 1" NPT male to 1/2" NPT female hex reducer bushing. Install the male 1" NPT thread into the body as shown in Figure 1 using a thread sealant.

Fusion/Powder Coated Valves



CAUTION!

Valves with fusion/powder coated exterior paint require flat washers to be installed under the flange nuts when installing the valve to the pipeline flange to prevent the paint from cracking or chipping.

APCO ARV Clean Water Air Release Valves

Maintenance

Air Release Valves are automatic in operation and require very little or no maintenance. It is recommended that they be checked visually semi-annually for leakage. A malfunction of the valve will be evident by leakage of the media through the small orifice. Should a malfunction occur, the following steps should be taken to repair the valve.

Cleaning of Seat Orifice

See Figures 1 thru 8 for part identification.



WARNING!

Servicing the Air Valve while the pipeline is under pressure can cause personal injury or equipment damage. Relieve pipeline pressure or shut off isolation valve before servicing the Air Valve.

1. Relieve pipeline pressure or shut off isolation valve at inlet to Air Release Valve.



WARNING!

Do not completely remove pipe plug or cover screws while the valve is under pressure.

2. For ARV-55, ARV-65, ARV-200A ARV-200, ARV-205, ARV-206 and ARV 207 loosen pipe plug on body (R1) or cover (R2) to relieve internal pressure. **Do not completely remove pipe plug while the valve is under pressure.**

For ARV-50A Valves: Loosen the cover bolts (R4) to allow internal pressure to escape. Once pressure is completely released, re-tighten cover screws. **Do not completely remove cover screws while the valve is under pressure.**

3. Remove pipe plug. (Except ARV-50A)
4. Connect air or preferably water to orifice outlet and blow down into valve to clean any sediment that may be clogging orifice.
5. Disconnect air or water connection from orifice outlet.
6. Replace and tighten pipe plug. (Except ARV-50A)
7. Open isolation valve on inlet to Air Release Valve. Valve is now back in service. If this procedure has not remedied the problem, proceed with disassembly.

Disassembly Procedure

See Figures 1 thru 8 for part identification.



WARNING!

Servicing the Air Valve while the pipeline is under pressure can cause personal injury or equipment damage. Relieve pipeline pressure or shut off isolation valve before servicing the Air Valve.

APCO ARV Clean Water Air Release Valves

1. Relieve pipeline pressure or shut off isolation valve at inlet to Air Release Valve.

Maintenance *(Continued)*



WARNING!

Do not completely remove pipe plug or cover screws while the valve is under pressure.

2. Loosen cover bolts (R4) to allow internal pressure to escape.
3. Remove cover bolts (R4) and cover (R2). All internals are attached to cover except ARV-55 and 65.
4. **For ARV-55 and 65 valves:** Unscrew side plug (R32) to remove float (R14) and needle (R7). To remove seat (R6), unscrew it from orifice outlet with a flat bar 1/8" t X 1/2" w.
5. If cover gasket (R3) is torn or damaged, it must be replaced. Clean flange surfaces of cover (R2) and body (R1).
6. Inspect sealing surface of needle (R7) and seat (R6) for nicks, wear or sediment coating from chemicals in the media.
7. Clean or replace needle (R7) and seat (R6).
8. Inspect float (A14) to insure that it is not damaged or that it does not have liquid in it.
9. Inspect all connections of linkage for excessive wear.
10. Clean all surfaces before re-assembly.

Assembly Procedure

See Figures 1 thru 8 for part identification.

1. Re-assemble in the opposite order as disassembly procedure.
2. Assemble cover (R2) to body (R1), installing new gasket (R3) if necessary. Tighten cover bolts (R4) opposite each other in rotation.
3. Open isolation valve on inlet to Air Release Valve. Valve is now back in service.

Operation

The Air Release Valve is automatic in operation. They have much smaller orifices than Air/Vacuum Valves. They release small pockets of air that 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 that multiplies the force of the float. This force must be greater than the internal pressure across the orifice in order to open the orifice when a pocket of air needs to be vented.

APCO ARV Clean Water Air Release Valves

Drawings

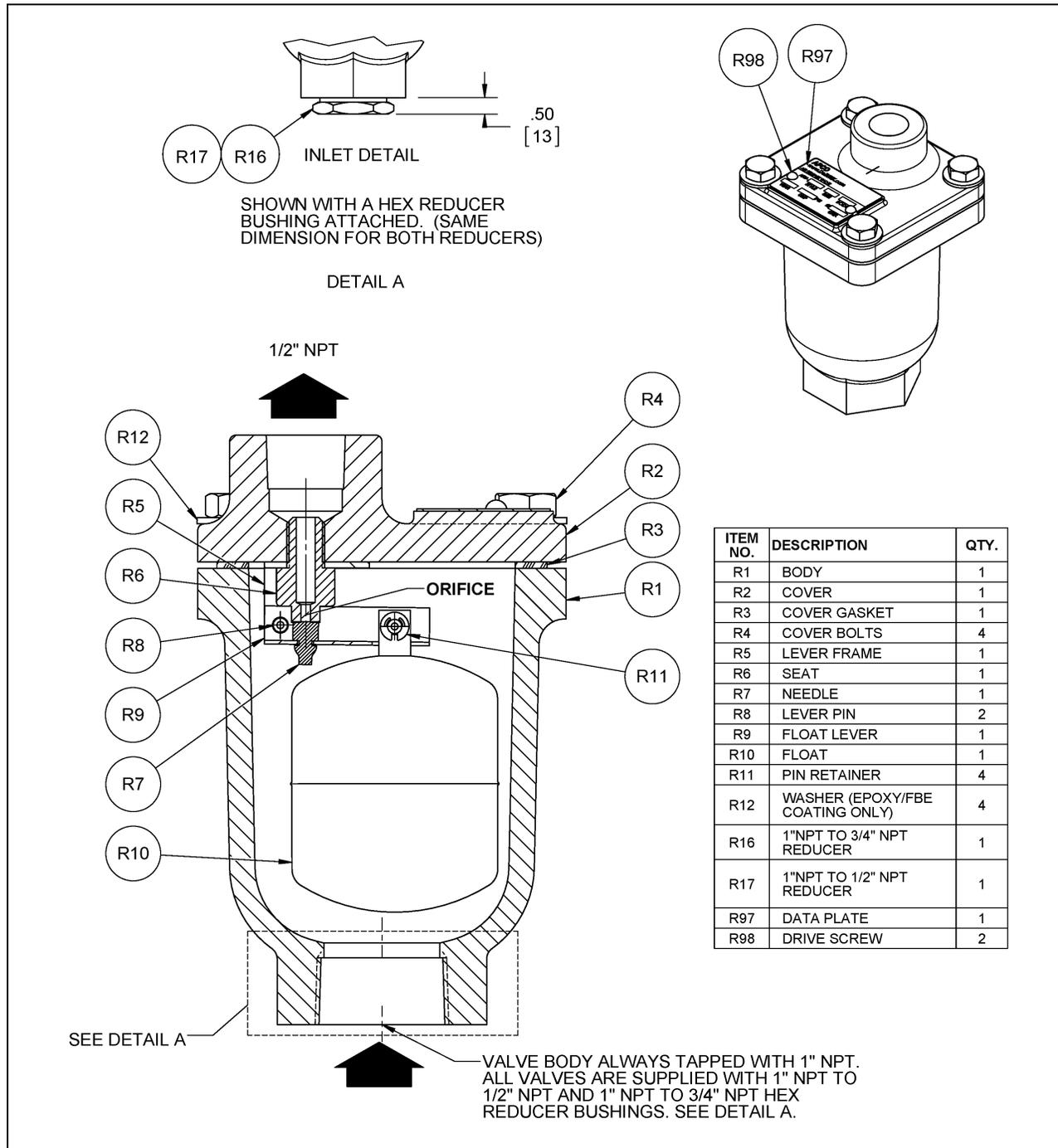


Figure 1: ARV-50A Clean Water Air Release Valve

Drawings (Continued)

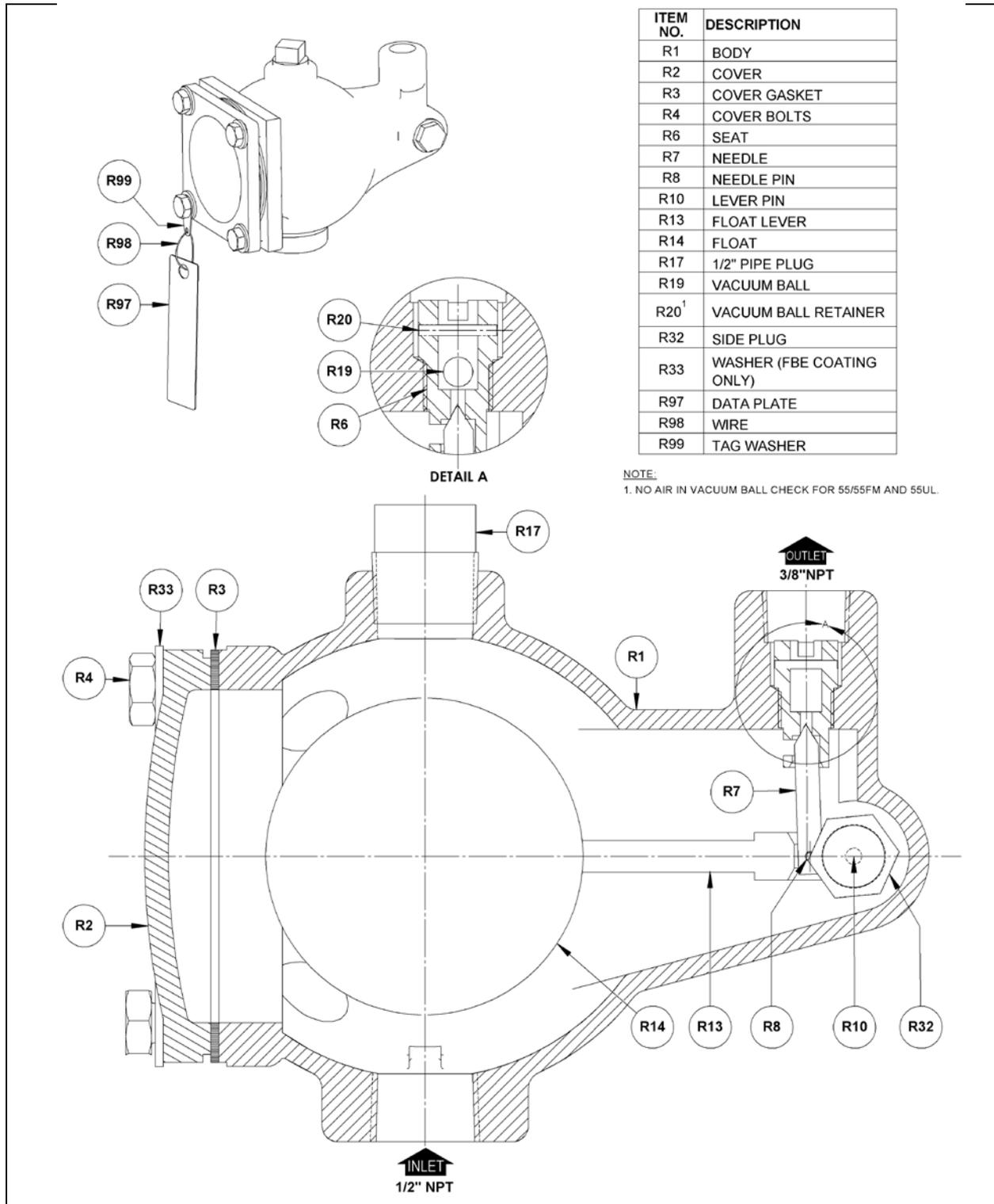


Figure 2: ARV-55 Clean Water Air Release Valve

APCO ARV Clean Water Air Release Valves

Drawings (Continued)

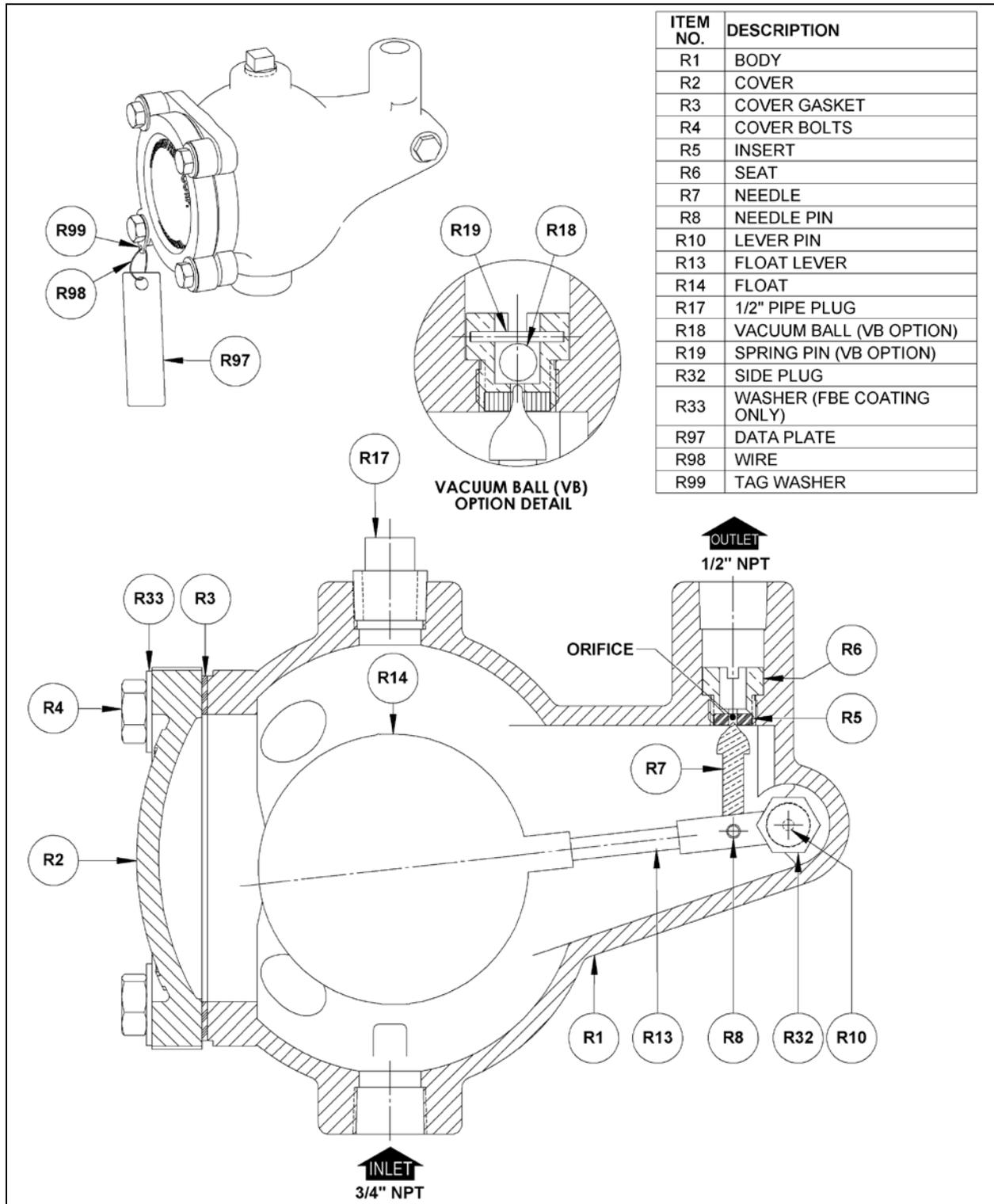


Figure 3: ARV-65 Clean Water Air Release Valve

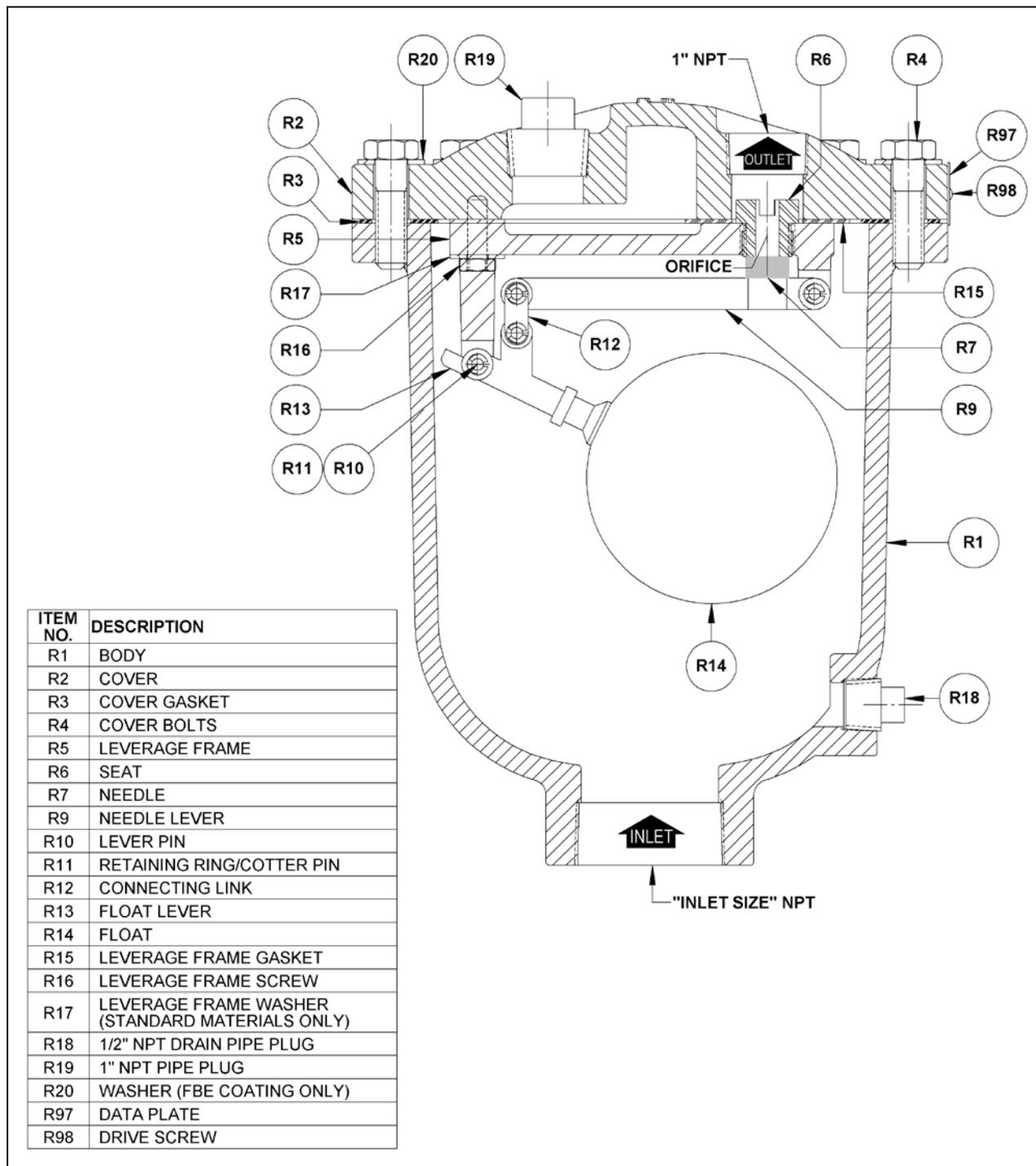


Figure 4: ARV-200 Clean Water Air Release Valve

APCO ARV Clean Water Air Release Valves

Drawings (Continued)

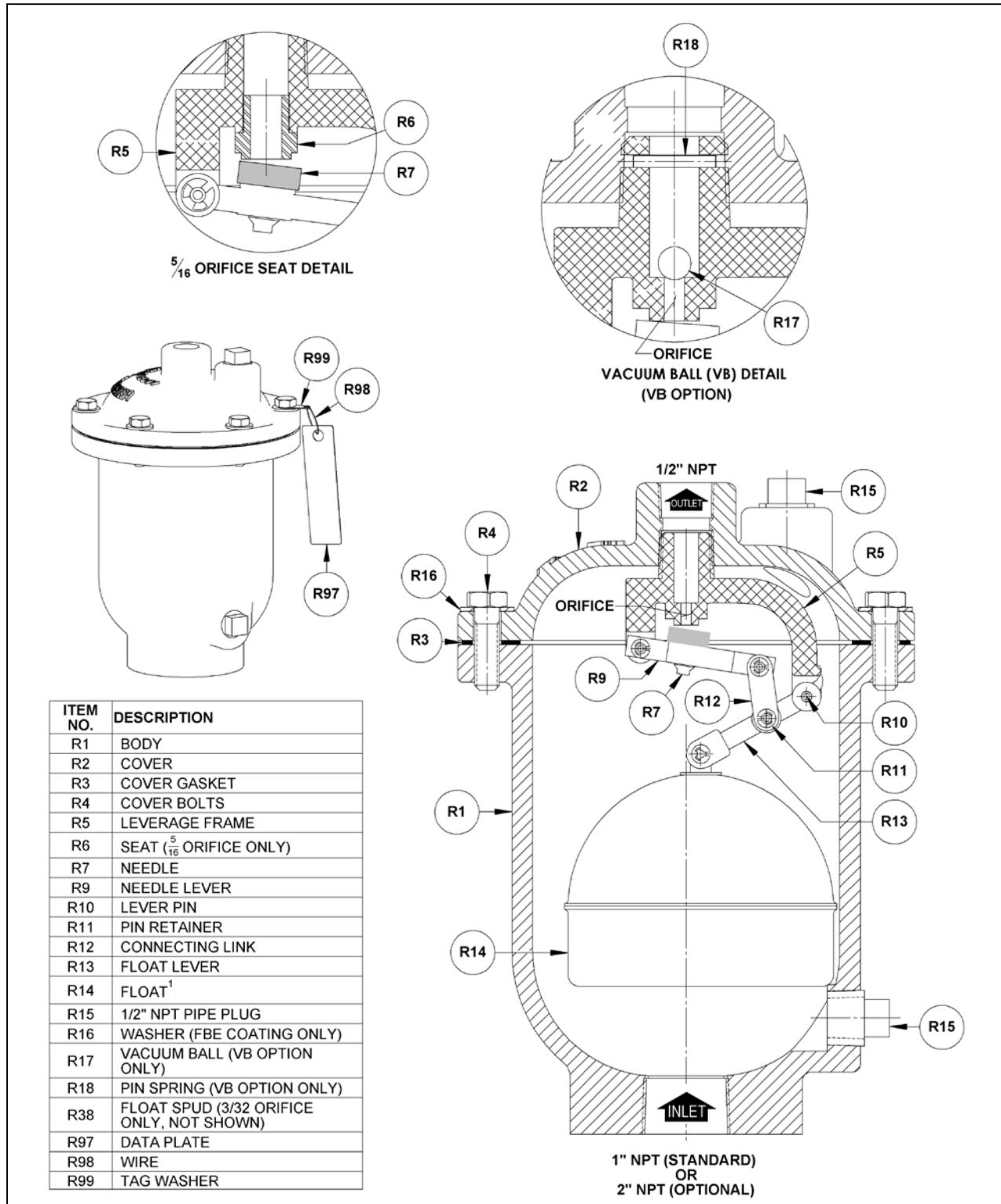


Figure 5: ARV-200A Clean Water Air Release Valve

Drawings (Continued)

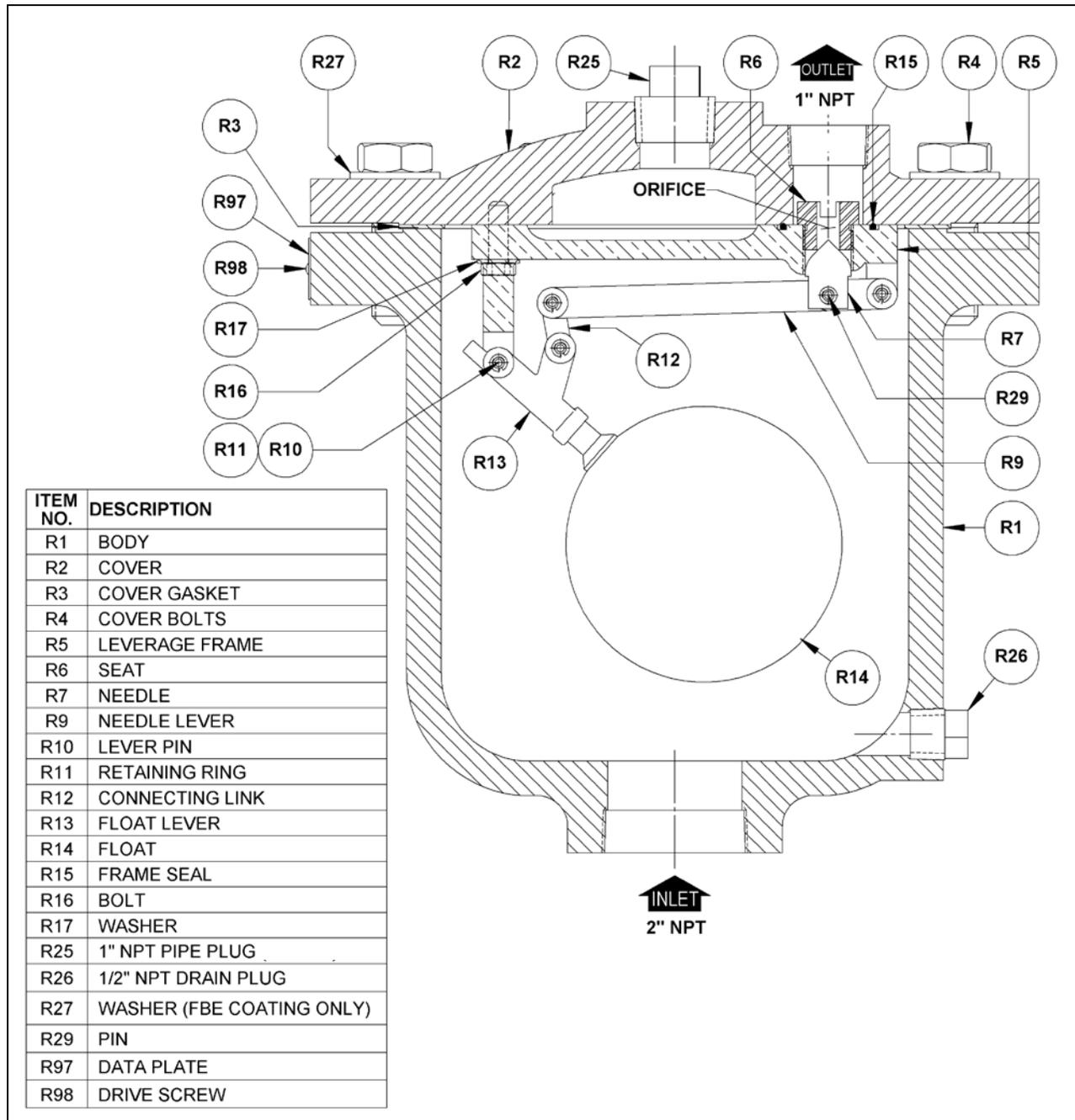


Figure 6: ARV-205 Clean Water Air Release Valve

APCO ARV Clean Water Air Release Valves

Drawings (Continued)

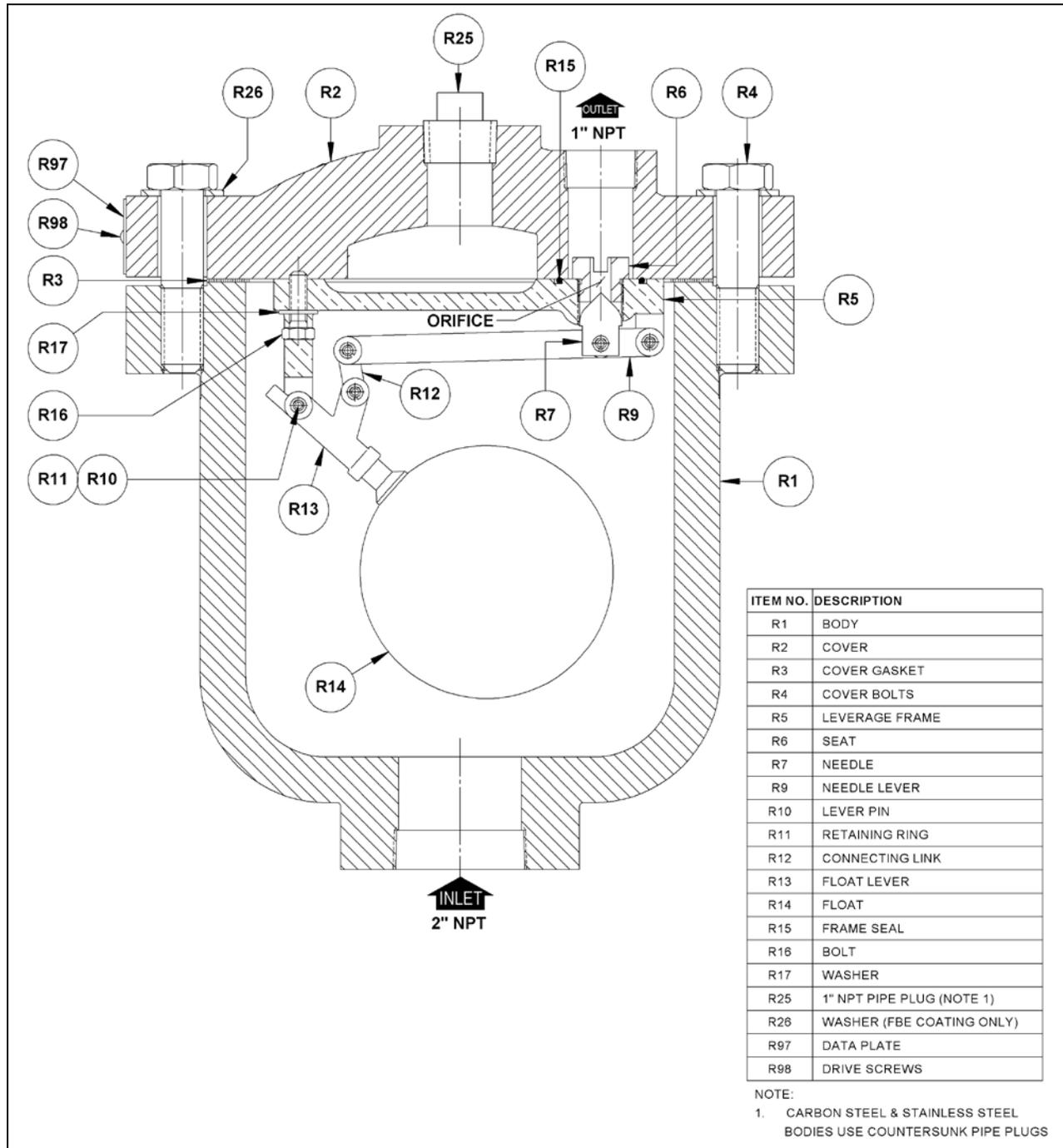


Figure 7: ARV-206 Clean Water Air Release Valve

Drawings (Continued)

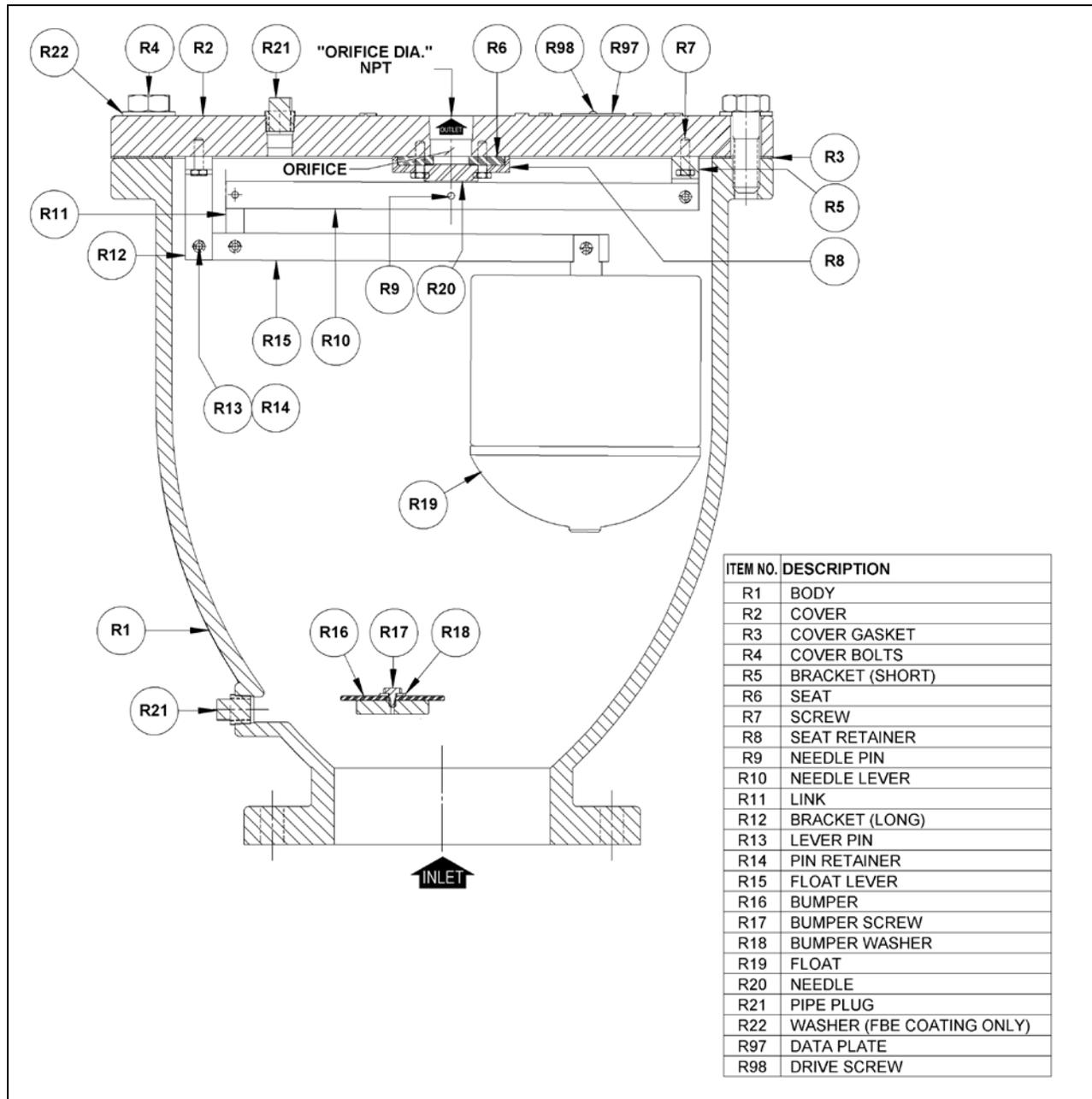


Figure 8: ARV-207 Clean Water Air Release Valve

APCO ARV Clean Water Air Release Valves

Troubleshooting

Condition	Possible Cause	Corrective Action
Valve leaks at flange joint.	Loose flange bolting.	Tighten flange bolting.
	Blown flange gasket.	Replace flange gasket.
	Damaged flange face/s or improper flange connections.	Repair flange, replace valve body or adjust flange connections.
Valve leaks out of outlet port.	Dirty needle.	Clean needle.
	Worn needle.	Replace needle.
	Float has liquid in it.	Replace float.
	Dirty seat and/or float.	Clean seat and/or float.
	Worn seat and/or float.	Replace seat and/or float.

Limited Warranty

DeZURIK, Inc. ("Seller") manufactured products, auxiliaries and parts thereof that we manufacture for a period of twenty-four (24) months from date of shipment from Seller's factory, are warranted to the original purchaser only against defective workmanship and material, but only if properly stored, installed, operated, and serviced in accordance with Seller's recommendations and instructions.

For items proven to be defective within the warranty period, your exclusive remedy under this limited warranty is repair or replacement of the defective item, at Seller's option, FCA Incoterms 2020 Seller's facility with removal, transportation, and installation at your cost.

Products or parts manufactured by others but furnished by Seller are not covered by this limited warranty. Seller may provide repair or replacement for other's products or parts only to the extent provided in and honored by the original manufacturer's warranty to Seller, in each case subject to the limitations contained in the original manufacturer's warranty.

No claim for transportation, labor, or special or consequential damages or any other loss, cost or damage is being provided in this limited warranty. You shall be solely responsible for determining suitability for use and in no event shall Seller be liable in this respect.

This limited warranty does not warrant that any Seller product or part is resistant to corrosion, erosion, abrasion or other sources of failure, nor does Seller warrant a minimum length of service.

Your failure to give written notice to us of any alleged defect under this warranty within twenty (20) days of its discovery, or attempts by someone other than Seller or its authorized representatives to remedy the alleged defects therein, or failure to return product or parts for repair or replacement as herein provided, or failure to store, install, or operate said products and parts according to the recommendations and instructions furnished by Seller shall be a waiver by you of all rights under this limited warranty.

This limited warranty is voided by any misuse, modification, abuse or alteration of Seller's product or part, accident, fire, flood or other Act of God, or your failure to pay entire contract price when due.

The foregoing limited warranty shall be null and void if, after shipment from our factory, the item is modified in any way or a component of another manufacturer, such as but not limited to; an actuator is attached to the item by anyone other than a Seller factory authorized service personnel.

All orders accepted shall be deemed accepted subject to this limited warranty, which shall be exclusive of any other or previous warranty, and this shall be the only effective guarantee or warranty binding on Seller, despite anything to the contrary contained in the purchase order or represented by any agent or employee of Seller in writing or otherwise, notwithstanding, including but not limited to implied warranties.

THE FOREGOING REPAIR AND REPLACEMENT LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, OBLIGATIONS AND LIABILITIES, INCLUDING, BUT NOT LIMITED TO, ALL WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR OF MERCHANTABILITY OR OTHERWISE, EXPRESSED OR IMPLIED IN FACT OR BY LAW, AND STATE SELLER'S ENTIRE AND EXCLUSIVE LIABILITY AND YOUR EXCLUSIVE REMEDY FOR ANY CLAIM IN CONNECTION WITH THE SALE AND FURNISHING OF SERVICES, GOODS OR PARTS, THEIR DESIGN, SUITABILITY FOR USE, INSTALLATION OR OPERATIONS. NEITHER ANY PERFORMANCE OR OTHER CONDUCT, NOR ANY ORAL OR WRITTEN INFORMATION, STATEMENT, OR ADVICE PREPARED BY SELLER OR ANY OF OUR EMPLOYEES OR AGENTS WILL CREATE A WARRANTY, OR IN ANY WAY INCREASE THE SCOPE OR DURATION OF THE LIMITED WARRANTY.

Disclaimer

Metric fasteners should not be used with ASME Class 150/300 bolt holes and flange bolt patterns. If you use metric fasteners with ASME Class 150/300 bolt holes and flange bolt patterns, it may lead to product failure, injury, and loss of life. DeZURIK Inc. disclaims all liability associated with the use of metric fasteners with ASME Class 150/300 bolt holes and flange patterns, including but not limited to personal injury, loss of life, loss of product, production time, equipment, property damage, lost profits, consequential damages of any kind and environment damage and/or cleanup. Use of metric fasteners with ASME Class 150/300 bolt holes and flange bolt patterns is a misuse that voids all warranties and contractual assurances. If you use metric fasteners with ASME Class 150/300 bolt holes and flange bolt patterns, you do so at your sole risk and any liability associated with such use shall not be the responsibility of DeZURIK, Inc. In addition to the foregoing, DeZURIK's Manufacturer's Conditions apply.

Limitation of Liability

IN NO EVENT SHALL SELLER BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, PUNITIVE, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO; DAMAGE TO OR LOSS OF OTHER PROPERTY OR EQUIPMENT, BUSINESS INTERRUPTION, COST OF SUBSTITUTE PRODUCTS, LOSS OF TIME, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, LOSS OF USE, OR DIMINUTION IN VALUE) WHATSOEVER, AND SELLER'S LIABILITY, UNDER NO CIRCUMSTANCES, WILL EXCEED THE CONTRACT PRICE FOR THE GOODS AND/OR SERVICES FOR WHICH LIABILITY IS CLAIMED. ANY ACTION FOR BREACH OF CONTRACT BY YOU, OTHER THAN RIGHTS RESPECTING OUR LIMITED WARRANTY DESCRIBED ABOVE, MUST BE COMMENCED WITHIN 12 MONTHS AFTER THE DATE OF SALE.

Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web site: www.dezurik.com E-Mail: info@dezurik.com



250 Riverside Ave. N., Sartell, MN 56377 • Phone: 320-259-2000 • Fax: 320-259-2227

DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation.

Design features, materials of construction and dimensional data, as described in this manual, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.