



CSA products for treated water

**Exit only anti-slam water
Combination air valve**

Mod. FOX 3F-M-RFP-EO

Instructions

These instructions provide installation, operation and maintenance information for CSA Mod. FOX 3F-M-RFP-EO exit only anti surge water combination air valves. They are for use by personnel who are responsible for installation, operation and maintenance of CSA air valves.

Safety Messages

All safety messages in the instructions are flagged with an exclamation symbol and the word Caution, Warning or Danger. These messages indicate procedures that must be followed exactly to avoid equipment damage, personal injury or death. Safety label(s) on the product indicate hazards that can cause equipment damage, personal injury or death.

If a safety sign or symbol becomes difficult to see or read, please contact CSA.



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 CSA FOX 3F-M-RFP-EO combination air Valve has been packaged to provide protection during shipment; however, it 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

Recommended spare parts are listed on the assembly drawing. These parts should be stocked to minimize downtime. Order parts from your local CSA sales representative if available, or directly from CSA. When ordering parts, please include the model, type and numbers located on the data plate placed on the valve. Also include the part name, the assembly drawing number, and the quantity stated on the assembly drawing.

CSA Service

CSA service personnel are available to maintain and repair all CSA products. CSA also offers customized training programs and consultation services.

For more information, contact your local CSA sales representative if available, or directly CSA. Visit our website at www.csasrl.it.

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Description

The CSA FOX 3F-M-RFP-EO anti surge water combination air valve for air discharge only is designed to release air pockets in working conditions and to allow the controlled air discharge, this is extremely important to prevent water hammer events like in case of excessive outflow air due to rapid pipeline filling and transients following pump failures. This type of air valve should not be considered as a protection against negative pressure conditions and as a pressure relief for shock conditions and upsurges which develop elsewhere in the system, for which other and different CSA models and solutions are available.

Thanks to the EO system, acting as a high sensitivity check valve for air, the FOX EO will allow discharge even in presence of low differential pressure values preventing under any circumstances the air intake

The maximum and minimum pressure are stated in the order and according to technical literature. In general we recommend to ensure at least 0,35 bar acting on the air valve to ensure the perfect sealing during working conditions.


Handling and Storage

Lifting the valve improperly may damage it. Lift the valve with slings, chains or cables fastened around the valve body, or eyebolts on the cap if present, 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 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. Do not leave the valve exposed to high humidity and excessive temperature conditions.

Installation

The exit only rapid filling prevention water combination air valve should always be installed in a vertical position. An isolation valve between this unit and the transmission (pipeline) system is



WARNING!

The CSA EO technology is designed to prevent air inflow under any circumstances, in case of pipe burst, pipe draining and any other operation involving discharge of water through the pipe the air valve won't protect against vacuum conditions with the risk of pipe collapse, deformation and substantial damages for the system.

necessary to allow maintenance and valve's inspection. Where to use:

- High points , changes in slopes descending , long descents where high pockets are likely to accumulate
- This model **should not be** placed adjacent to any pumps, quick closing valve in a pipeline such as a check or gate valve where vacuum and column separation can occur upon closure.
- Before installation, remove foreign material such as weld spatter, oil, grease, and dirt from the pipeline.

CSA air valve Mod. FOX 3F-M-RFP-EO

- Prepare pipe ends and install valves in accordance with the pipe manufacture's instructions for the joint used.
- Tighten the flange bolts or studs in a crisscross pattern and minimum of four stages.

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.

Maintenance

The exit only combination air valve is automatic in operation and requires very little maintenance. It should always be installed in a vertical position with a maximum tilt within 3°. A semi-annual visual inspection for leakage is recommended. A malfunction of the air valve can be identified by the seepage of water through the air release nozzle and/or through the main seat. Should a malfunction occur, the following steps should be taken to repair the valve;

Disassembly Procedure

See picture 1 on page 8 for part identification.



WARNING!

Servicing the Air/Vacuum 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/Vacuum Valve.

1. Relieve pipeline pressure or shut off isolation valve before servicing the Air Valve.



WARNING!

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

2. Slowly remove the drain port (16) to relieve internal pressure.
3. The exit only system is composed of a special cap (2) with driving nut (20), flat (24), spring (22).
4. The driving nut is threaded into the cap.
5. Remove cap nuts (20) and cap (2) with the spring (22).
6. Check the spring making sure there are not any signs of bending, corrosion and excessive compression.
7. Pull out the EO system (shaft and flat) holding it by the shaft (21) and inspect the o-ring (25) for possible damage or deformation.
8. The EO shaft is acting as a guide for the spring.

9. Pull out the filter (17) and spacers (11).
10. Do not remove the EO flat screw (23).
11. Remove nuts (12) and washers (13) and take out the seat (5).



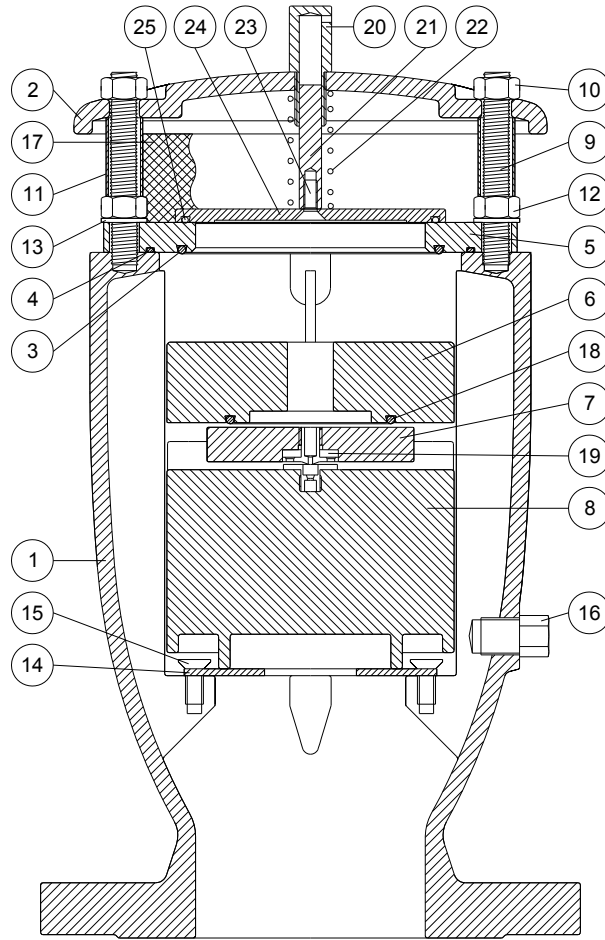
WARNING!

While handling the filter exert care, sharp edges can cause injuries to personal and equipment

12. Inspect the seat's lower surface checking whether the gaskets (3) and (4) are torn or damaged.
13. Pull out the RFP flat (6).
14. Inspect the upper surface for possible debris and accumulation of dirt and the lower surface checking whether the gasket (18) is torn or damaged.
15. Extract the mobile block composed of the upper flat (7) and lower float (8) joined together by the nozzle subset (19).
16. Inspect the nozzle subset or air release system (19), clean it with some water and replace it if needed.
17. Do not try to pull apart the nozzle subset (19) without the support of CSA personnel.
18. Inspect all connections of linkage for excessive wear.
19. Clean all surfaces before re-assembly.
20. Check to see if foreign matter or dirt is preventing float (8) from seating properly on the deflector (14).
21. Clean as necessary.

Drawings

Figure 1: FOX 3F-M-RFP-EO



N.	Component	Material
1	Body	GJS 450-10
2	Cap	GJS 450-10
3	O-ring	NBR/EPDM/Viton/Silicone
4	O-ring	NBR/EPDM/Viton/Silicone
5	Seat	AISI 304/AISI 316
6	RFP flat	Polypropylene
7	Upper flat	Polypropylene
8	Float	Polypropylene
9	Studs	AISI 304/AISI 316
10	Nuts	AISI 304/AISI 316
11	Spacers	AISI 304/AISI 316
12	Nuts	AISI 304/AISI 316
13	Washers	AISI 304/AISI 316
14	Deflector	AISI 304/AISI 316
15	Screws	AISI 304/AISI 316
16	Drain valve	AISI 303/AISI 316
17	Screen	AISI 304
18	O-ring	NBR/EPDM/Viton/Silicone
19	Nozzle subset	AISI 316
20	EO driving nut	AISI 304/AISI 316
21	EO shaft	AISI 304/AISI 316
22	EO spring	AISI 302
23	EO screw	AISI 304/AISI 316
24	EO flat	AISI 304/AISI 316
25	EO O-ring	NBR/EPDM/Viton/Silicone

Spare parts: 3-4-6-7-8-18-19-25

Troubleshooting (ref picture 1 on page 8)

Condition	Possible Cause	Corrective Action
Valve leaks at flange joint.	Loose flange bolting.	Tighten flange bolting.
	Blown flange gasket.	Replace flange gasket.
	Miss-alignment or damage to field piping and supports.	Adjust miss-alignment or repair piping or supports.
	Damaged flange face/s or improper flange connections.	Repair flange, replace valve body or adjust flange connections.
Valve leaks out of the main sealing seat (5).	Valve is not vertical.	Place the valve in a vertical position with a max tolerance of 3°.
	Possible corrosion through the body and seat.	Check the fluid chemicals parameters and contact CSA.
	Dirt accumulated on the seat O-ring (3) and/or the RFP flat (6).	Clean seat (5), O-ring (3) and flat (6).
	Worn seat or float.	Replace seat or float.
	Line pressure is under 0,3 bar.	Replace seat with softer sealing O-rings and contact CSA for further assistance.
	Worn O-ring between seat and body (4).	Inspect and replace O-ring (4).
Valve leaks out of the air release subset (19).	Valve is not vertical.	Place the valve in a vertical position with a max tolerance of 3°.
	Possible corrosion through the nozzle and air release sealing system.	Check the fluid chemicals parameters and contact CSA.
	Dirt accumulated on the air release subset (19).	Inspect and clean the air release subset (19), replace if necessary.
	Line pressure is extremely low.	Contact CSA for further assistance.

Note to the engineer:

Further leakage through the body (1) may only happen in case of acids and corrosive fluid or environment to which FOX would be improperly exposed.

Leakage through the drain valve (16) may only happen in case of acids and corrosive fluid or environment to which FOX would be improperly exposed and unauthorized tampering.

The EO system doesn't have any effect on the water tightness.

Guarantee

Products, auxiliaries and parts thereof of CSA srl manufacture are warranted to the original purchaser for a period of twelve (12) months from date of shipment from factory, against defective workmanship and material, but only if properly installed, operated and serviced in accordance with CSA srl recommendations. Repair or replacement, at our option, for items of CSA srl manufacture will be made free of charge, (FOB) our facility with removal, transportation and installation at your cost, if proved to be defective within such time, and this is your sole remedy with respect to such products. No claim for transportation, labor or special or consequential damages or any other loss, cost or damage shall be allowed. You shall be solely responsible for determining suitability for use and in no event shall CSA srl. be liable in this respect. CSA srl does not guarantee resistance to corrosion, erosion, abrasion or other sources of failure, nor does CSA srl guarantee 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 CSA srl. 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 install and operate said products and parts according to instructions furnished by CSA srl or misuse, modification, abuse or alteration of such product, accident, fire, flood or other Act of God, or failure to pay entire contract price when due shall be a waiver by you of all rights under this warranty.

The foregoing guarantee 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 CSA srl. factory Service personnel. All orders accepted shall be deemed accepted subject to CSA srl warranty terms and conditions.

Limitation of liability

LIMITATION OF LIABILITY: IN NO EVENT SHALL CSA srl BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES WHATSOEVER, AND CSA srl LIABILITY, UNDER NO CIRCUMSTANCES, WILL EXCEED THE CONTRACT PRICE FOR THE GOODS AND/OR SERVICES FOR WHICH LIABILITY IS CLAIMED. ANY ACTION BY YOU FOR BREACH OF CONTRACT MUST BE COMMENCED WITHIN 12 MONTHS AFTER THE DATE OF SALE.

Sales and Service

For information about our service, approvals, certifications:

Web site: www.csasrl.it E-Mail : info@csasrl.it



CSA srl 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.