CSA products for waste water

Anti-slam Combination air valve

Mod. SCF-AS

Instructions

These instructions provide installation, operation and maintenance information for CSA Mod. SCF-AS waste water air valve. They are for use by personnel who are responsible for installation, operation and maintenance of CSA Air/Vacuum 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 air 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 waste water 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 SCF-AS combination wastewater air valve is designed to allow the entrance of large volumes of air in case of negative pressure conditions, caused for example by pump failure, burst, draining and the air controlled outflow during filling, second phase of transients or pump start up. During working conditions the air release system will purge our air pockets accumulating inside the valve. This type of air valve should not be considered as a pressure relief for shock conditions and water hammer events, which develop elsewhere in the system, for which other and different CSA models and solutions are available.

The maximum and minimum pressure are stated in the order and according to technical literature. In general we recommend to ensure at least 0,3 bar acting on the air valve drain port 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 fastened to eyebolts if present or 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 anti-slam wastewater combination air valve should always be installed in a vertical position, a maximum of 3° tilt is allowed. An isolation valve between this unit and the transmission (pipeline) system is necessary to allow maintenance and valve's inspection. Where to use:

- High points in pipelines where the hydraulic gradient and flow conditions are such that a negative pressure can possibly occur.
- Change in slope descending and ascending
- Adjacent to any sectioning valve in a pipeline such as a check or gate valve where vacuum can occur upon closure.
- Downstream of pumps to act as a surge prevention system in case of power failure and between the submersible pump and the check valve to avoid negative pressure conditions and minimize pressure fluctuations on the suction line.

  Note to Engineer: If installed inside a pump house, use threaded or flanged connections and pipe back into the well or to outside. This will greatly muffle the high noise level caused by the air being discharged and provide for drainage of any small amount of water or water vapour that may accumulate. Same thing applies in case of possible flood events to the installation chamber to avoid the entrance of liquid back into the main line.
- 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.
- 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 anti-slam combination wastewater air valve SCF-AS 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 main seat and through the nozzle. Should a malfunction occur, the following steps should be taken to repair the valve;

Disassembly Procedure

See Figures 1 on page 6 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.

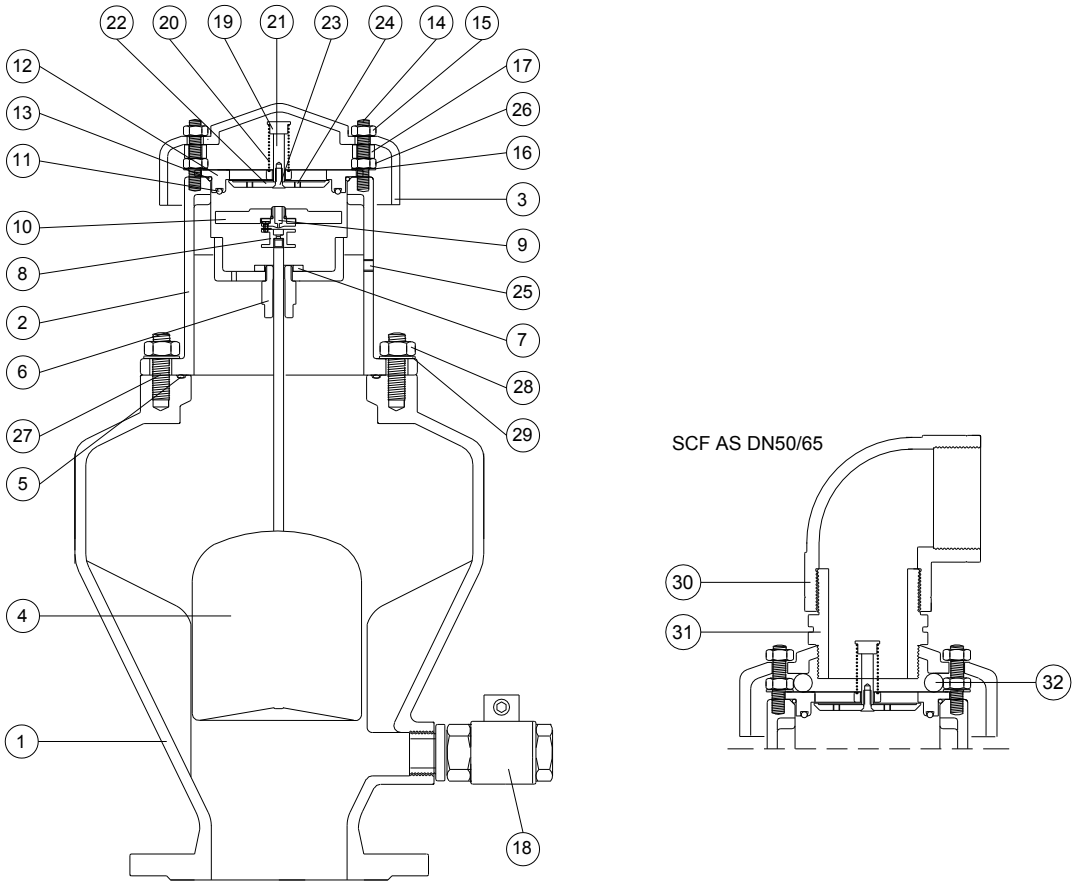
> **WARNING!**
>
> **Do not completely remove pipe plug or cover screws while the valve is under pressure.**

2. Slowly remove the drain port (18) to relieve internal pressure (for the DN 50/65 the product is supplied with a threaded elbow and fitting, just remove them 30-31 along with the exhaust control gasket 32 end proceed accordingly)
3. Remove the cap nuts (15), cap(3), the seat nuts (16) and extract the seat(12) with the AS system (20-21-22-23-24) on it
4. The AS system is composed of a shaft connected to a flat with adjustable holes, separated by a spring which will try to maintain the latter to the upper position controlling the outflow through the plugs (part of which are threaded). The AS flat will be pulled down only in case of negative pressure allowing the entrance of large volumes of air
5. The AS is never in contact with water system doesn't have to be disassembled or maintained unless emergencies arise and not prior to consult with CSA technical support and/or its local representatives.

6. Inspect the sealing surface of the seat (12) and check whether gaskets (11) and (13) are torn or damaged
7. Remove nuts and washers (28) and (29) and pull up the upper part (2) , inspect the o.ring (5) for possible damage or excessive compression
8. Pushing from beneath the float (4) rise it and inspect the obturator flat (10) for possible dirt and torn out surfaces
9. The air release system is placed between the end of the shaft with the gasket holder (8) and the nozzle subset (9) on the obturator (10). Normally it doesn't have to be maintained and kept as a separate spare parts to be supplied on request. Simply unscrew the obturator (10) keeping the float shaft (4) firmly secured from the hexagonal part (not holding it by the float)
10. Inspect and clean the surface and opening of the air release nozzle (9) and clean it by means of water and/or, compressed air. Be careful not to loose the o-ring between it and the obturator (10) assuring the water tightness
11. When handling the float and its shaft (4) be aware not to bend it or deform, also check the float surface, shape, and make sure not sign of wear, corrosion and buckling are present (possibly due to water hammer events)
12. Be sure to leave the plane gasket (7) between the gasket holder and the upper part in DI
13. Check the proper movement of the float, pushing it up and down through the guide (6) and make sure no sign of friction or obstacles are present
14. The float is also guided by 4 ribs present in the lower body (1)
15. Inspect all connections of linkage for excessive wear.
16. Clean all surfaces before re-assembly.

Drawings

Figure 1: SCF –AS anti-slam wastewater combination air valve



N.	Component	Material
1	Lower body	GJS 500-7/GJS 450-10
2	Upper body	GJS 500-7/GJS 450-10
3	Cap	GJS 500-7/GJS 450-10
4	Float with shaft	AISI 316
5	O-ring	NBR/EPDM/Viton/Silicone
6	Driving sleeve	AISI 303/AISI 316
7	Plane gasket	NBR
8	Gasket holder	AISI 316
9	Nozzle subset	AISI 316
10	Obturator flat	Polypropylene
11	Seat gasket	NBR/EPDM/Viton/Silicone
12	AS seat	AISI 304/AISI 316
13	O-ring	NBR/EPDM/Viton/Silicon
14	Studs	AISI 304/AISI 316
15	Nuts	AISI 304/AISI 316
16	Washers	AISI 304/AISI 316
17	Spacers	AISI 304
18	Ball valve 1"	AISI 316
19	Spring guide nut (DN150-200)	AISI 303/AISI 316
20	Spring	AISI 302
21	As shaft	AISI 303/AISI 316
22	As flat	AISI 304/AISI 316
23	Screw	Brass/AISI 316
24	Plugs	Brass/AISI 316
25	Plug	AISI 304/AISI 316
26	Nuts	AISI 304/AISI 316
27	Studs	AISI 304/AISI 316
28	Nuts	AISI 304/AISI 316
29	Washers	AISI 304/AISI 316
30	Threaded elbow	Polypropylene
31	Fitting	Polypropylene
32	Exhaust air control gasket	NBR
Spare parts: 4-5-7-8-9-10-11-13-32		

Troubleshooting

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	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 (12).	Valve is not vertical	Place the valve in a vertical position
	Possible corrosion through the seat	Check the fluid chemicals parameters and contact CSA
	Dirty seat (12) and/or obturator flat (10)	Clean seat and/or obturator flat
	Worn seat and/or float.	Replace seat and/or float.
	Line pressure is under 0,3 bar	Replace seat with softer seat.
	Float (4) has been damaged and full of water with loss of buoyancy	Inspect and replace the float (4)
	Worn o-ring between seat and body	Inspect and replace o-ring (11)
Valve leaks through the upper or lower body (1 and 2) and/or between them	Possible corrosion through the bodies	Check the fluid chemicals parameters and contact CSA
	Damage to the o-ring (5) between upper and lower body	Inspect and replace the o-ring (5)
	Insufficient torque on the nuts (28) needed to ensure the water tightness between the upper body (1) and lower body(2)	Apply enough torque to avoid the leakage
Valve leaks out of the air release subset (9)	Valve is not vertical	Place the valve in a vertical position
	Possible corrosion through the air release subset	Check the fluid chemicals parameters and contact CSA
	Dirt accumulated on the air release subset (9)	Inspect and clean the air release subset (6), replace if necessary
	Line pressure is extremely low	Check the working pressure acting at the bottom of the air valve and contact CSA for assistance

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.