



CSA products for waste water

Combination air valve

Mod. SCF

Instructions

These instructions provide installation, operation and maintenance information for CSA Mod. SCF 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 us.



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. 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.

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Description

The CSA SCF 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 discharge of large volumes during filling. 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 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 water combination air valve should always be installed in a vertical position, a maximum of 4° 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.
- This air valve is not to be installed near pump, where different models part of CSA range namely anti-hammer air valves has to be used.

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 combination wastewater air valve SCF is automatic in operation and requires very little maintenance. It should always be installed in a vertical position with a maximum tilt within 4°.

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



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.



WARNING!

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

See Figures 1 on page 6 for part identification.

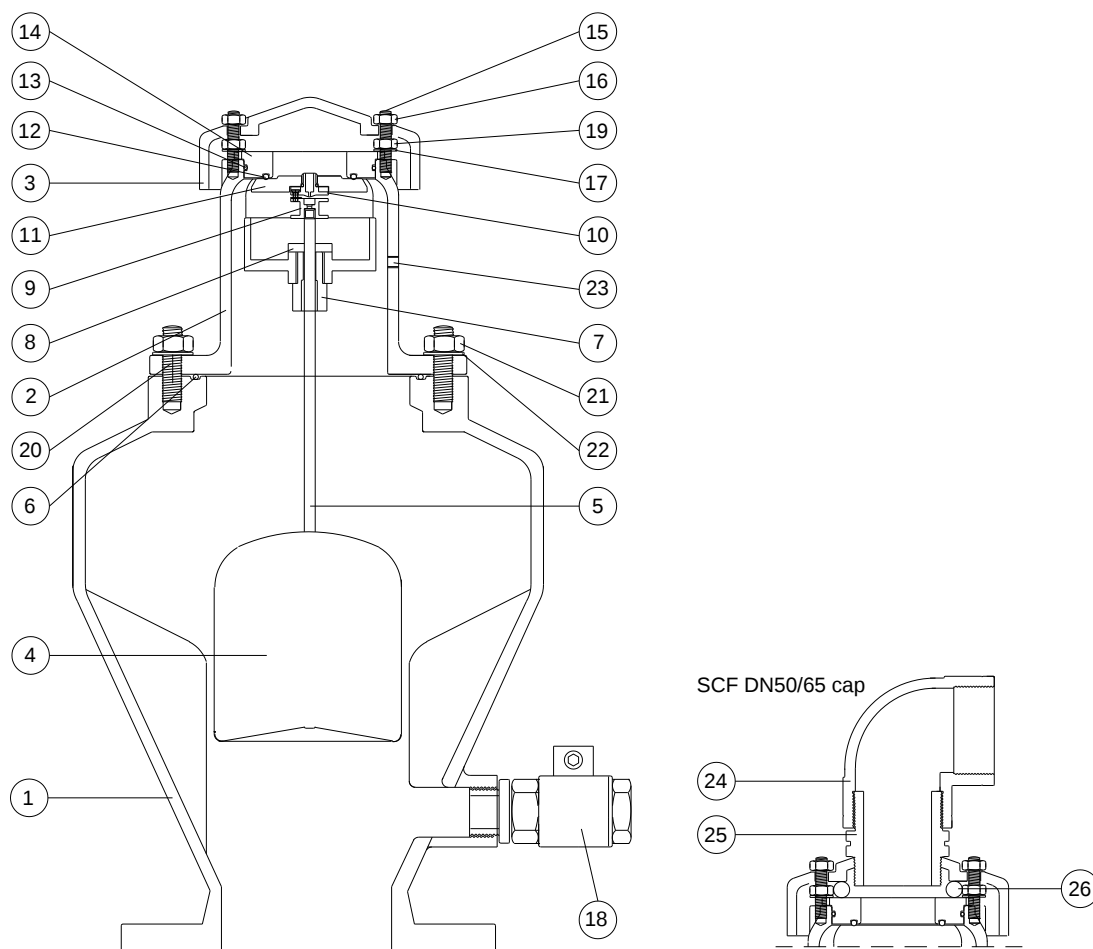
1. Relieve pipeline pressure or shut off isolation valve before servicing the Air Valve.
2. Slowly remove the drain port (18) to relieve internal pressure
3. Remove nuts (16), cap (3), nuts and washers (19 and 17) and extract the seat (14)
4. Inspect the sealing surface of the seat and check whether gaskets (12) and (13) are torn or damaged
5. Remove nuts and washers (21 and 22) and pull up the upper part (2)
6. Pushing from beneath the float (4) rise it and inspect the obturator flat (11) for possible dirt and torn out surfaces
7. The air release system (9 and 10) is placed between the end of the shaft and the obturator. Normally it doesn't have to be maintained and kept as a separate spare parts. Simply unscrew the obturator (11) keeping the float shaft (5) firmly secured from the hexagonal part (not holding it by the float)

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8. Inspect and clean the surface and opening of the air release nozzle (10) and clean it by means of water or, compressed air. Be careful not to loose the o-ring between it and the obturator (11) assuring the water tightness
9. When handling the float and its shaft (4 and 5) 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)
10. Be sure to leave the plane gasket between the gasket holder and the upper part in DI
11. Check the proper movement of the float, pushing it up and down through the guide (7) and make sure no sign of friction or obstacles are present
12. The float is also guided by 4 ribs present in the lower body (1)
13. Inspect all connections of linkage for excessive wear.
14. Clean all surfaces before re-assembly.

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Drawing



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	AISI 316
5	Float shaft	AISI 316
6	O-ring	NBR/EPDM/Viton/Silicone
7	Driving sleeve	AISI 303/AISI 316
8	Plane gasket	NBR
9	Gasket holder	AISI 316
10	Nozzle subset	AISI 316
11	Obturator flat	Polypropylene
12	Seat gasket	NBR/EPDM/Viton/Silicone
13	O-ring	NBR/EPDM/Viton/Silicone
14	Seat	AISI 304 (303 for DN50/65)/AISI 316
15	Studs	AISI 304/AISI 316
16	Nuts	AISI 304/AISI 316
17	Washers	AISI 304/AISI 316
18	Ball valve 1"	AISI 316
19	Nuts	AISI 304/AISI 316
20	Studs	AISI 304/AISI 316
21	Nuts	AISI 304/AISI 316
22	Washers	AISI 304/AISI 316
23	Plug	Brass/AISI 316
24	Threaded elbow	Polypropylene
25	Fitting	Polypropylene
26	Exhaust air control gasket	NBR
Spare parts: 4/5-6-9-10-12-13-26		

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 (14).	Valve is not vertical	Place the valve in a vertical position
	Possible corrosion through the body and seat	Check the fluid chemicals parameters and contact us
	Dirty seat and/or upper float	Clean seat and/or float.
	Worn seat and/or float.	Replace seat and/or float.
	Line pressure is under 0,3 bar	Replace seat with softer seat.
	Worn o-ring between seat and body	Inspect and replace o-ring
Valve leaks out of the air release subset (9 and 10)	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 us
	Dirt accumulated on the air release subset (9 and 10)	Inspect and clean the air release subset, replace if necessary
	Line pressure is under 0,3	Replace seat with softer seat.



We reserve 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.

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