



CSA products for waste water

**Anti-slam combination air valve**

Mod. SCA 2"



## Instructions

These instructions provide installation, operation and maintenance information for CSA Mod. SCA-2” series wastewater 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.

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 , in case of problems, 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](http://www.csasrl.it).

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### Description

The CSA SCA 2” 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 operations, 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 relief for shock conditions and water hammer events, developing 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, lower values available on request.

### Handling and Storage

Lifting the valve improperly may damage it. Lift the valve by hand or 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 present). 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, in presence of wires, control panels, switches, use the threaded connection 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 during working conditions and opening/closing cycles. 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, Unless otherwise specified the threaded connection is according to GAS, different available on request.
- 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 SCA 2” 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 7 for part identification.

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



### **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.**

2. Slowly open the drain port (18) to relieve internal pressure
3. Remove the conveyance elbow (4) without damaging the o-ring (5)
4. Hold the valve tight from the bottom and remove the seat (6), by using the nicks on the surface obtained by machining, paying attention not to damage the o-rings (7-8) and the AS system (19-20-21-26)
5. 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.
6. The AS is never in contact with the liquid, and for that it 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.
7. Inspect the sealing surface of the seat (6) and check whether the gaskets (7-8) are torn or damaged. Clean it and replace them if necessary.
8. Unscrew the screws (17) and nuts (24) and remove the upper body (2) from the lower body (1), paying attention not to damage the o-ring between them (3) and the float (16). Inspect the o-ring (3) for possible damage or excessive compression.



**WARNING!**

**Be aware of possible dirt and solids built up on the bottom of the lower body when doing maintenance**

9. From beneath push up the mobile block acting on the float (16) and inspect the sealing surface of the obturator (9), clean it if necessary
10. Unscrew (only if necessary) the obturator (9) from the air release system (10) keeping the upper gasket holder (15) firmly secured (not holding it by the float)
11. Inspect the nozzle and air release system (10), clean it with compressed air or fresh water



**WARNING!**

**Do not disassemble the air release system prior to consult with CSA and/or CSA authorized dealers**

12. Should you need to replace it please contact CSA for an air release subset
13. Make sure the float (16) welded to the shaft moves freely inside the upper guide (14) without any friction
14. The protection bush and rubber (11 and 12) should never be taken out except for emergencies, should that be the case pull them out from the guiding nut (14) after having remove the air release system (10) from the gasket holder (15)
15. When handling the float and its shaft (16) 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 and aggressive fluid)
16. Inspect all connections of linkage for excessive wear.
17. Clean all surfaces before re-assembly.



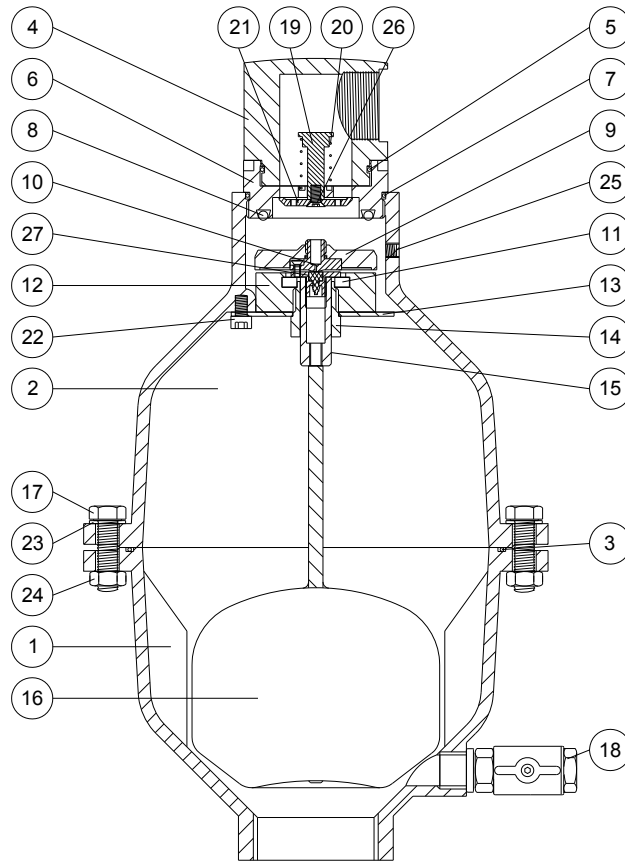
**WARNING!**

**The outlet threaded connection is supplied with 1” GAS/BSP unless otherwise specified.**

**If connected to piping to convey gas and exhaust away from the valve do not exert excessive momentum and torque as doing so would be likely to pluck it out and produce damages. Consult CSA for further assistance.**

## Drawings

Figure 1: SCA 2” wastewater anti-hammer 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                                  | O-ring              | NBR/EPDM/Viton/Silicone |
| 4                                  | Cap                 | PVC                     |
| 5                                  | O-ring              | NBR/EPDM/Viton/Silicone |
| 6                                  | Seat                | AISI 316                |
| 7                                  | O-ring              | NBR/EPDM/Viton/Silicone |
| 8                                  | Seat gasket         | NBR/EPDM/Viton/Silicone |
| 9                                  | Obturator           | Polypropylene           |
| 10                                 | Nozzle subset       | AISI 316                |
| 11                                 | Plane gasket        | NBR                     |
| 12                                 | Lower gasket holder | Polypropylene           |
| 13                                 | Diffuser            | AISI 316                |
| 14                                 | Guiding nut         | AISI 316                |
| 15                                 | Upper gasket holder | AISI 316                |
| 16                                 | Float               | AISI 316                |
| 17                                 | Screws              | AISI 304/AISI 316       |
| 18                                 | Drain valve         | AISI 316                |
| 19                                 | As shaft            | AISI 316                |
| 20                                 | Spring              | AISI 302                |
| 21                                 | AS flat             | AISI 316                |
| 22                                 | Screws              | AISI 304/AISI 316       |
| 23                                 | Washers             | AISI 304/AISI 316       |
| 24                                 | Nuts                | AISI 304/AISI 316       |
| 25                                 | Plug                | Brass/AISI 316          |
| 26                                 | Screw               | AISI 304/AISI 316       |
| 27                                 | Gasket holder       | AISI 316                |
| Spare parts: 3-5-7-8-9-10-11-15-16 |                     |                         |

## Troubleshooting

| Condition                                      | Possible Cause   | Corrective Action  |
|--|--|--|
| Valve leaks at inlet threaded connection.      | Wrong threaded connection / standard   | Tighten flange bolting.  |
|  | Not enough torque, absence of thread locking solutions                                     | Make sure to have the SCS-2” inlet connection properly threaded on the corresponding pipeline outlet. Fluid thread locking systems and/or other solutions to guarantee the perfect sealing have to be used |
|  | Miss-alignment or damage to field piping and supports..                                    | Adjust miss-alignment or repair piping or supports.  |
|  | Damaged threaded surface/s.  | Inspect the surface. Use thread lockers or leakage proof solutions, replace it if necessary  |
| Valve leaks out of the main sealing seat (6).  | Valve is not vertical  | Place the valve in a vertical position   |
|  | Possible corrosion through the upper body (2)  | Check the fluid chemicals parameters and contact CSA   |
|  | Dirt accumulated on the seat o-ring (8) and on the obturator (9)                           | Clean seat and obturator’s upper surface (9)   |
|  | Corrosion through the float (16) with entrance of fluid and loss of buoyancy               | Replace the mobile block and check the chemical properties of the fluid, contact CSA   |
|  | Line pressure is under the minimum working pressure (0,3) bar or lower if specified by CSA | Check the available working pressure and replace seat with softer gaskets  |
|  | Worn o-ring (7) between seat and body  | Inspect and replace o-ring   |
| Valve leaks out of the air release subset (11) | Valve is not vertical  | Place the valve in a vertical position   |
|  | Possible corrosion through the air release subset (10)                                     | Check the fluid chemicals parameters and contact CSA   |
|  | Dirt accumulated on the air release subset (10)  | Inspect and clean the air release subset (10), replace if necessary  |
|  | Line pressure is under the minimum working pressure (0,3) bar or lower if specified by CSA | Check the available working pressure and replace seat with softer gaskets  |



### 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](http://www.csasrl.it) E-Mail : [info@csasrl.it](mailto:info@csasrl.it)



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