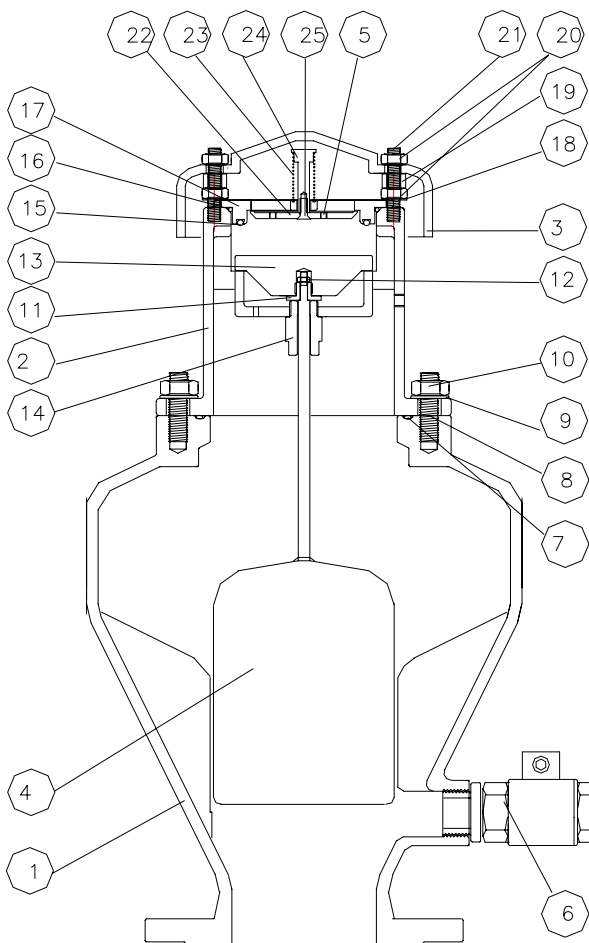


MAINTENANCE, SET UP AND INSTALLATION INSTRUCTIONS ANTI HAMMER AIR VALVE FOR SEWAGE SERIES SCA



POS.	COMPONENT	MATERIAL
1	Lower body	GS 400-12
2	Upper body	GS 400-12
3	Cover	GS 400-12
4	Float	S steel AISI 316
5	Threaded bar	S steel AISI 304
6	Ball valve 1" + lever	OT 58 nickel plated
7	O-Ring body	NBR
8	Studs	S steel A2
9	Washers	S steel A2
10	Nuts	S steel A2
11	Sustaining screw	S steel AISI 316
12	Self locking nut	S steel A2
13	Main orifice obturator	Polypropylene
14	Driving sleeve	S. steel AISI 316
15	O-Ring	NBR
16	O-Ring	NBR
17	Sealing seat	Bronze/OT58
18	Washers	S steel A2
19	Spacers	S steel A2
20	Nuts	S steel A2
21	Studs	S steel
22	Metallic flat	OT 58
23	Spring	S steel
24	Stem	S steel AISI 303
25	TPS screw + washer	S steel
Spare parts list 4-7-11-12-13-14-15-16-17-22-23		

The anti hammer air valve SCA will protect the sewage against transients generated by pump failure, allowing the entrance of large quantities of air during negative pressure phases to control then the discharge thanks to an anti shock device.

In order to achieve such a result we designed an air valve composed of:

- a large lower body, with steep side walls to avoid the deposit of grease and other material, which has 4 ribs obtained by moulding to drive the float in stainless steel
- the upper body where the main orifice sealing seat takes place along with a sleeve in delrin, threaded into the upper receptacle meant to protect the releasing device from jets and spurts
- the internal mobile block composed of the float and the driving rod that are welded together.
- the connecting nut between driving rod and basket holder
- The anti shock device, depicted in the next page, composed of a metallic flat, driven by a rod and sustained during closing by a spring, both in stainless steel and placed inside the main orifice sealing seat in bronze.
- The cover in ductile cast iron

This construction guarantees that the level of liquid inside the air valve will remain where the float is. As a matter of facts the latter, going up, pushes the upper flat to close the main orifice and creating an air pocket, with a pressure equal to water, which prevents the liquid itself from further increase.

Working principle

Pump failure generates, inside the pipe, a negative pressure we have to compensate by means of as much air as the negative pressure pocket itself. In that case the float will drop along with the obturator, vacuum tends to draw downwards the upper flat compressing the spring, which is supposed to keep it closed, freeing the main orifice and allowing the entrance of big quantities of air. Once the negative pressure phase is over, the spring will lift the upper flat closing the main orifice so the air, being discharged through small adjustable holes, will act as a shock absorber for the incoming water column. Once all the air has been evacuated the water, entering the air valve, will push up the mobile block closing it.

Two functions

- Entrance of large quantities of air during negative pressure conditions mainly caused by pump failure
- Controlled air flow rate discharge

Positioning

- right after the check valve downstream the pump
- on high points where negative pressure pockets are expected to grow consequent to column separation

Installation and set up

Before installing the air valve it is necessary make sure that all the pipes of the system are properly cleaned to avoid that rubbles or debris could damage its internal part.

Make sure the pit is large enough and easy to access to carry out inspection procedures, it will be provided with a drain for maintenance. The air valve must be placed in a vertical position on a Te piece and separated by the main pipe by a gate valve.



It is strongly recommended to fit a stretch of pipe between the air valve and the gate valve to help air accumulation.

Maintenance

The air valve design is quite simple and sturdy and for that it doesn't need a particular maintenance, we strongly recommend though to check it regularly at least twice per year. All our air valves are equipped with a drainage cock 1" (6) to relief the pressure during maintenance. Operated by a lever, it will indicate us the perfect functioning of the product allowing the exit of liquid when opened, in case of air coming out there will be some problems that need to be solved. To do so it is mandatory to close the gate valve positioned below, and relief the pressure through the drainage cock. Now proceed operating on the internal components, easy to be replaced from above, as follows:

- Loosen the nuts(20) of the cover, take out the cover(3) and the spacers (19), now loosen the other nuts underneath(20) e pull out the washers (18);
 - Extract the sealing seat (17) and make sure the side o-ring (16) and the one (15) on the main orifice are not worn;
 - Loosen the nuts(10) and pull out the washers (9);
 - Lift carefully the upper body, with the float on it, and check for the o-ring (7) status, it doesn't have to be squeezed or ruined;
 - Extract the upper flat(13) from above and, tightening the bearing nut (11), unscrew it and clean it up;
 - set the main rod tight with a pincer just above the welding point (be careful not to draw on its sliding surface), unscrew the self locking nut (12) and pull out the bearing nut (11)
- Take out the float through the sleeve in delrin;
- Clean the float and its rod carefully, use some sand paper for this one if deemed as necessary;
 - Swipe the internal surface of the sleeve (14) trying to remove dirt and grease that may accumulate, and make sure not to draw on it. If that appears to be rather troublesome use a drill with a 8.5 mm DN bit.
 - Before putting all the components together clean the body carefully removing all the grease and any sediment using water, after that simply discharge it through the ball valve (6).
 - Place the O-ring (7) so then it will fit perfectly into its seat,(to obtain the maximum adherence just sprinkle it with grease and lay it out on the seat).

To reassemble the product just follows the steps backwards , do never grease or oil the surfaces and make sure the rod is sliding inside the sleeve (14) without any impediment

Working conditions

Maximum temperature : 70°C
Maximum pressure : 16 bar
Minimum pressure : 0,5 bar