

Wastewater combination air valve with anti-surge mechanism - Mod. SCF 2" RFP

The SCF 2" RFP guarantees the proper operation and safety of pressurized sewage systems allowing the release of air pockets in working conditions and the entrance of large quantities of air, in case of pipe bursting or draining phases. The air discharge velocity is maintained within a safety level by means of a anti-surge mechanism to prevent water hammer.



Technical features and benefits

- Lower body designed with strongly sloped funnel shaped walls to avoid deposit of grease or other material, it contains four ribs to guide the stainless steel float.
- Upper body containing the RFP and the air release mechanism which is protected by a stainless steel deflector against spurts caused by filling.
- Mobile block, including a large AISI 316 stainless steel float, placed on the lower body and connected through a stainless steel rod to the air release mechanism.
- RFP anti-surge automatism composed of two floats in solid polypropylene, where the upper one will be automatically lifted in case of excessive air outflow, reducing the water approach velocity and avoiding potential water hammer events.
- Drainage valve for chamber control and draining.
- Maintenance can be easily performed from the top without removing the air valve from the pipe.
- Evacuation bend suitable for flooded environments with 1" elbow outlet.

Applications

- Sewage main transmission lines.
- Treatment plants.
- Irrigation systems in presence of solids/debris in suspension.
- Whenever the technology of air valves for treated water can't be used, for the risk of clogging and damages to the internal components, and the proper protection of the system has to be provided.

Operating principle



1

1. Discharge of large volumes of air

During the pipe filling it is necessary to discharge air as liquid flows in. The SCF RFP, thanks to a large body and an aerodynamic deflector, will make sure to avoid premature closures of the mobile block during this phase.



2

2. Controlled outflow

If the differential pressure of air across the valve during pipe filling, and the consequent air outflow, rises above a certain value without control, there is the risk of potential water hammer and damages to the system caused by rapid closures of the mobile block. Should that happen the SCF RFP anti-surge float will rise automatically reducing air outflow and slowing down the velocity of the approaching water column.



3

3. Air release during working conditions

During operation the air produced by the pipeline is accumulated in the upper part. Little by little it is compressed and its volume increases, pushing the liquid level downwards and allowing the air release through the nozzle.



4

4. Entrance of large volumes of air

During pipeline draining, or pipe bursts, it is necessary to bring in as much air as the quantity of outflowing liquid to avoid negative pressure and serious damages to the pipeline, and the entire system.

Optional

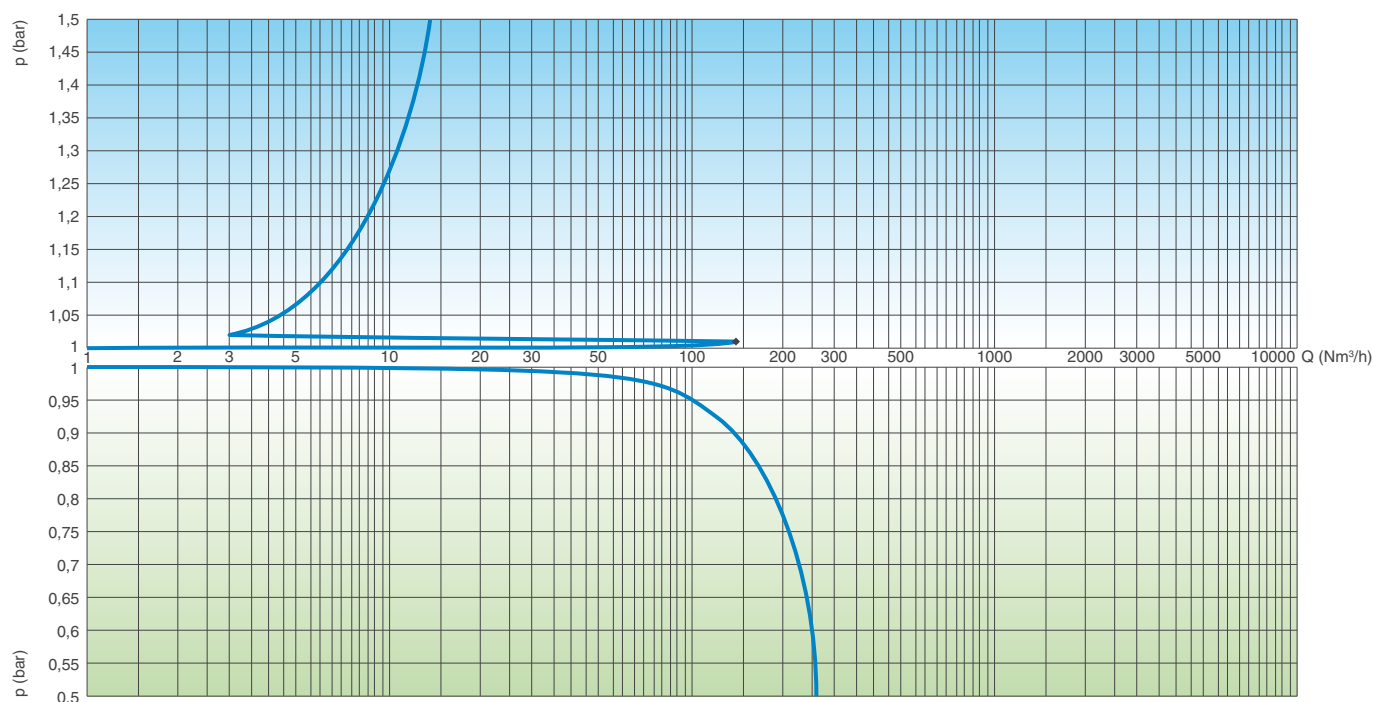


■ **Vacuum breaker version Mod. SCF 2" 2F RFP**, to allow the entrance of large volumes of air only with the controlled air outflow thanks to the RFP technology. This model is normally recommended in changes on slope ascending, long ascending segments, and wherever the air release won't be required.

Technical data

Air flow performance charts

AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING

The air flow charts were created in Kg/s from laboratory tests and numerical analysis, then converted in Nm³/h using a safety factor.

Working conditions

Water and waste water max. 60°C.

Maximum pressure 16 bar.

Minimum pressure 0,2 bar. Lower on request.

Standard

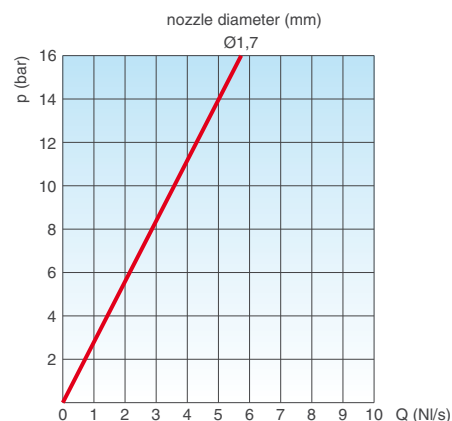
Certified and tested in compliance with EN-1074/4.

Manufactured with 2" inlet; supplied on request with flanges according to EN 1092/2 / ANSI.

Epoxy painting applied through fluidized bed technology blue RAL 5005.

Changes on the flanges and painting details available on request.

AIR RELEASE DURING WORKING CONDITIONS



Nozzle choice

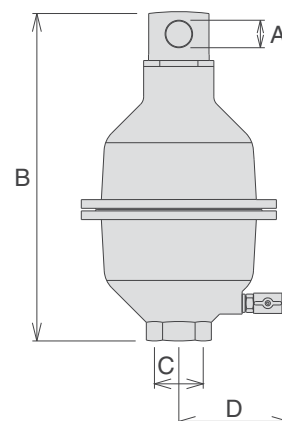
Nozzle diameter in mm according to the size of the air valve and the PN.

PN 10	PN 16
1,7	1,7

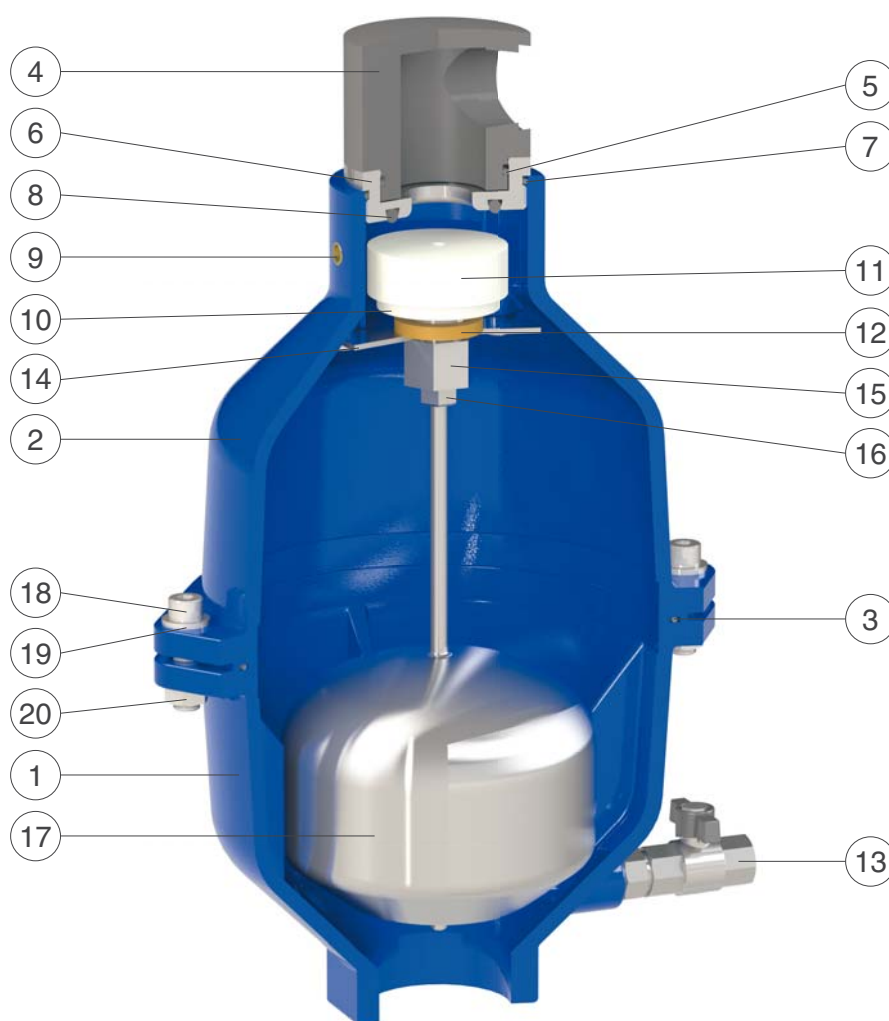
Weights and dimensions

C inch	A inch	B mm	D mm	Main orifice mm²	Nozzle orifice mm²	Weight Kg
2"	1"	380	137	490	2,3	10,5

All values are approximate, consult FCC service for more details.



Technical details



N.	Component	Standard material	Optional
1	Lower body	ductile cast iron GJS 500-7 or GJS 450-10	
2	Upper body	ductile cast iron GJS 500-7 or GJS 450-10	
3	O-ring	NBR	EPDM/Viton/silicone
4	Cap	PVC	
5	O-ring	NBR	EPDM/Viton/silicone
6	Seat	stainless steel AISI 316	
7	O-ring	NBR	EPDM/Viton/silicone
8	Seat gasket	NBR	EPDM/Viton/silicone
9	Plug	brass	stainless steel AISI 316
10	Obturator with nozzle subset	polypropylene and stainless steel AISI 316	
11	Anti-surge flat	polypropylene	
12	Plane gasket	NBR	
13	Drain valve	stainless steel AISI 316	
14	Deflector	stainless steel AISI 316	
15	Guiding nut	stainless steel AISI 316	
16	Gasket holder	stainless steel AISI 316	
17	Float	stainless steel AISI 316	
18	Screws	stainless steel AISI 304	stainless steel AISI 316
19	Washers	stainless steel AISI 304	stainless steel AISI 316
20	Nuts	stainless steel AISI 304	stainless steel AISI 316

The list of materials and components is subject to changes without notice.