Water combination air valve underground version Mod. Saturno

The Saturno air valve has been designed to provide the proper solution for underground installations, without the need of any sectioning devices to be installed on the pipe, when for cost savings or simply for practical reasons digging and chambers are not possible. The air valve will ensure the proper operation of the pipeline networks allowing the release of air pockets during working conditions, the evacuation and the entrance of large volumes of air during filling and draining operations.

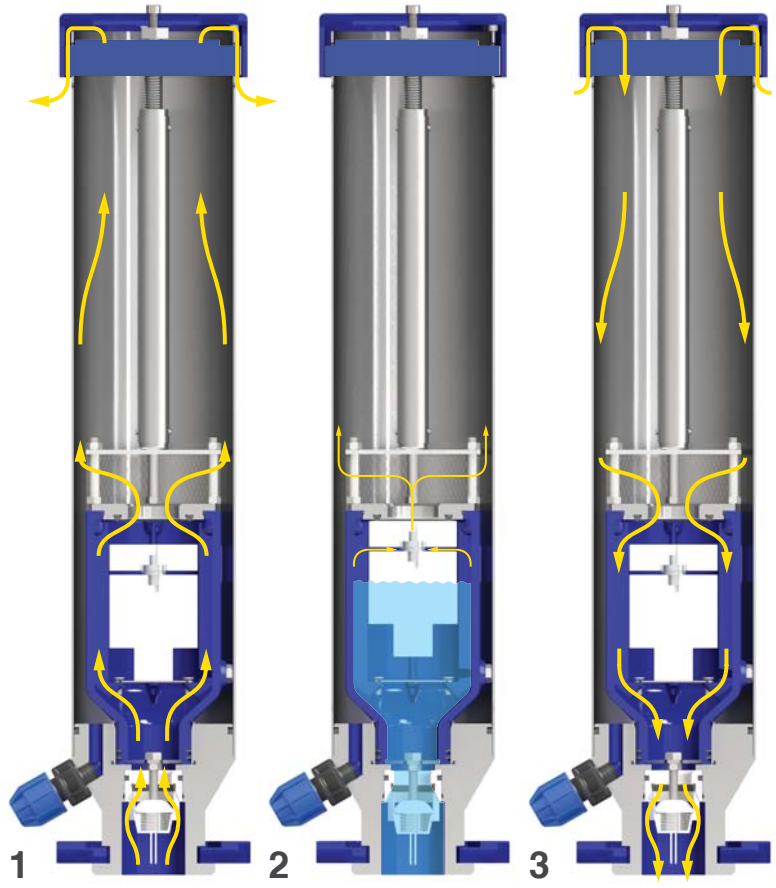
Technical features and benefits

- A new and reliable solution compared to the conventional way of installing air valves, requiring deep excavation to house concrete structures and whatever necessary to create the proper pit like TE piece, sectioning devices, the air valves itself and more. Saturno's innovative concept is based on the possibility of installing it directly on the TE piece before filling up the trench without any sectioning device, therefore dramatically reducing the overall cost. A simple manhole on the ground (DN 300 mm is recommended) is sufficient to carry out proper maintenance.
- Standpipe in stainless steel firmly secured to the basement to protect the air valves inside of it, and to hold the upper guide connected to the maneuvering system.
- Flanged basement to hold the check valve and the exhaust pipe 3/8" to avoid the accumulation of water into the standpipe.
- The combination air valve FOX housed into the flanged basement where its movement is controlled by a shaft, connected to its cover and whose water tightness is ensured by two o-rings.
- The system allows for proper maintenance simply by sectioning the flow rotating the maneuvering screw from the top, and extracting it from above.

Applications

- Water distribution networks.
- Pressurized system with treated water.

Operating principle



1. Discharge of large volumes of air

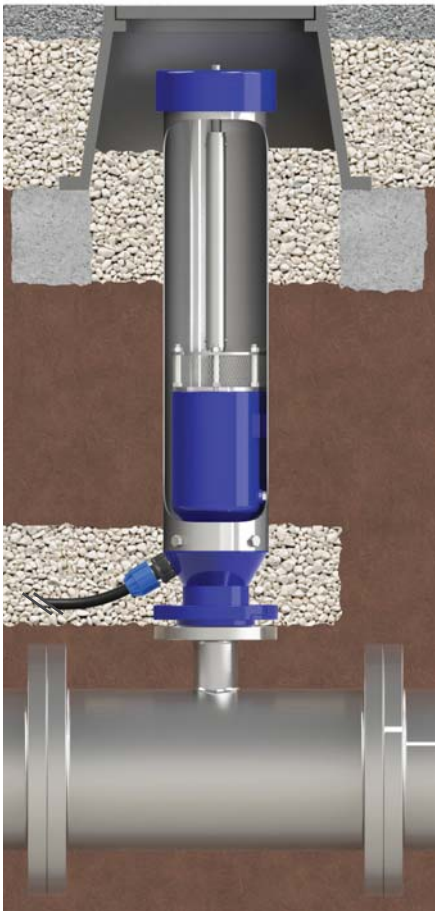
During the pipe filling it is necessary to discharge air as water flows in. The FOX 3F, thanks to an aerodynamic full port body and deflector, will make sure to avoid premature closures of the mobile bloc k during this phase.

2. Air release during working conditions

During operation the air produced by the pipeline is accumulated in the upper part of the air valve. Little by little it is compressed and the pressure arrives to water pressure, therefore its volume increases pushing the water level downwards allowing the air release through the nozzle.

3. 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 water to avoid negative pressure and serious damages of the pipeline, and to the entire system.

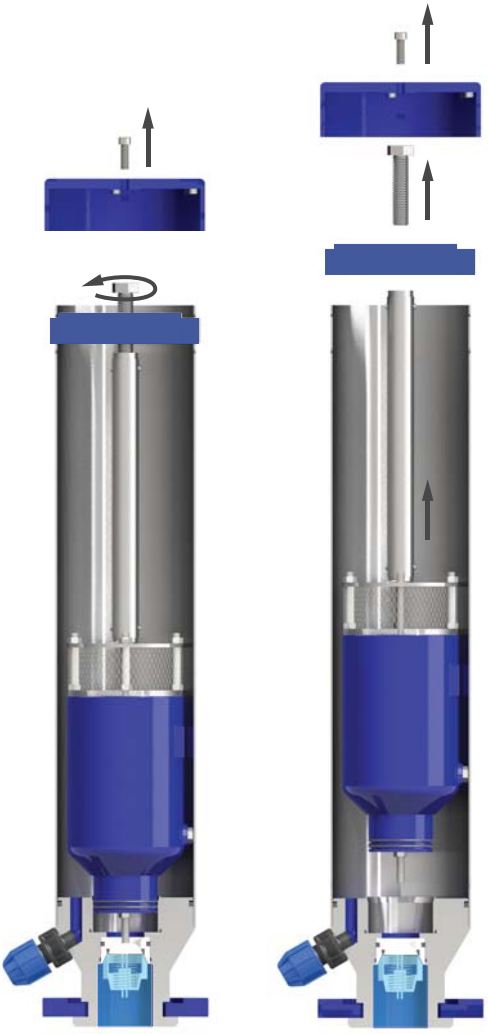


Installation

The installation of Saturno simply requires a derivation from the main pipe, a manhole on top to allow for maintenance operations. The picture depicts the proper installation where the drain port plays a fundamental role, allowing for the water discharge from the main pipe. Normally supplied with 3/8" connection it should be positioned within a layer of small stones to facilitate the draining.

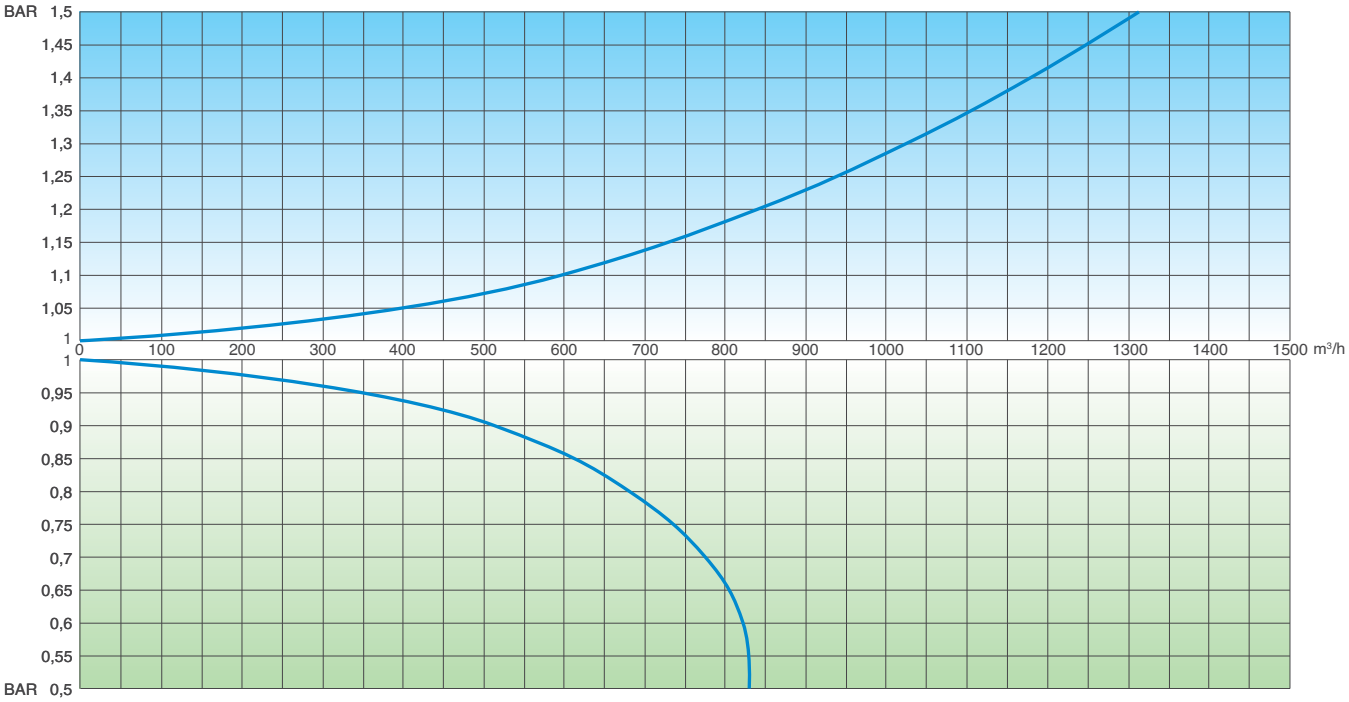
Air valve removal

The design of the underground air valve Saturno allows for a maintenance and replacement without removing the air valve from the pipe, simply acting on the cap and maneuvering key from above as shown on the picture on the right. All the components will be pulled out from the top without the need of digging and further operations.



Air flow performance charts

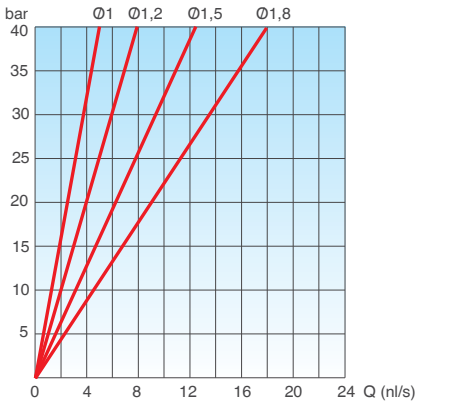
AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING

Working conditions

Treated water 60° C max..
Maximum pressure 16 bar.
Minimum pressure 0,3 bar.

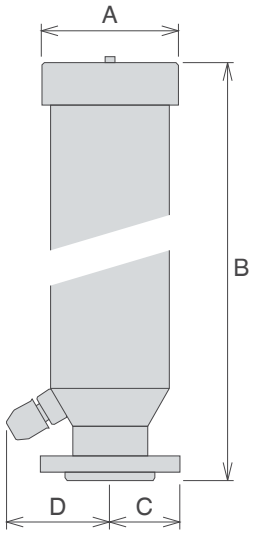


AIR RELEASE DURING WORKING CONDITIONS

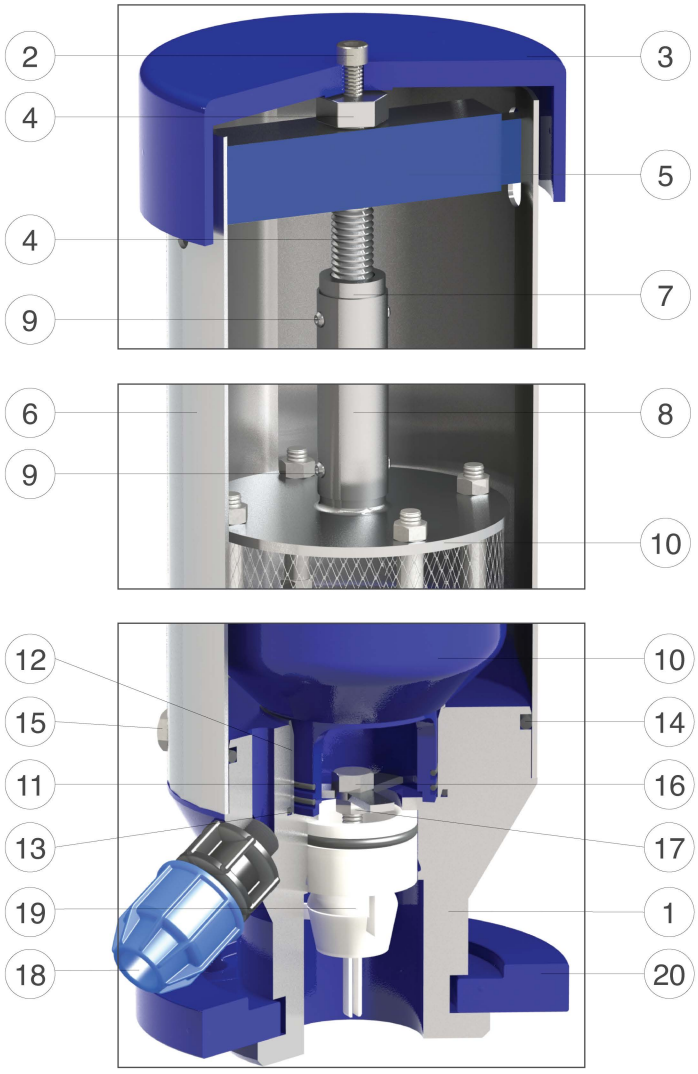
Standard

Designed in compliance with EN-1074/4 and AWWA C-512.
Flanges according to EN 1092/2, ANSI.
Epoxy painting applied through fluidized bed technology blue RAL 5005.
Changes and variations on the flanges and painting details available on request.

DN mm	A mm	B mm	C mm	D mm	Weight Kg
50	160	750	82,5	122,5	20,5
	160	1000	82,5	122,5	23,2
	160	1250	82,5	122,5	25,3
	160	1500	82,5	122,5	28,6
80	160	750	100	122,5	22,0
	160	1000	100	122,5	24,7
	160	1250	100	122,5	26,8
	160	1500	100	122,5	30,1



Technical details



N.	Component	Material	Standard
1	Body	painted iron	Fe 37
2	Screw	stainless steel	A2
3	Cap	aluminium	
4	Driving screw	stainless steel	A2
5	Guiding plate	painted iron	Fe 37
6	Stand pipe	stainless steel	A4
7	Screw housing	stainless steel	A2
8	Maneuvering pipe	stainless steel	A2
9	Plug	stainless steel	A2
10	FOX DN2” for Saturno	ductile cast iron, s.s., PP, etc.	
11	O-ring	NBR	
12	Threaded sleeve	stainless steel	AISI 304/316
13	O-ring	NBR	
14	O-ring	NBR	
15	Screws	stainless steel	A2
16	Opening screw	stainless steel	A4
17	Blocking nut	stainless steel	A4
18	Drainage	polyethylene	
19	Control valve	delrin (polyoxymethylene)	
20	Adjustable flange	ductile cast iron	GJS 500-7