

AUTOMATIC AIR RELEASE VALVE

The trifunctional air release valve are based on the kinetic concept of air removal in main water conduction systems.

The patented construction design is single chamber unlike other conventional models. The same suction cup, depending on the assembly of the internal float block can perform various functions.



Operation

1. AIR CIRCULATION

During the filling of the main tube, the inlet flow of air and water must be released. The moving block* remains at the bottom and the air, passing through the circular guide inside the body, circulates through the main orifice at atmospheric pressure. When water enters the suction cup, the float rises and pushes the upper disc up against the seat of the main orifice, closing it tightly. The same pushing force causes the nozzle orifice (threaded on the upper disc) to close.

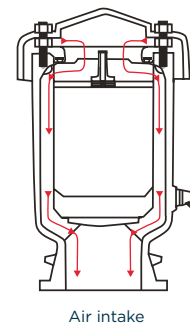
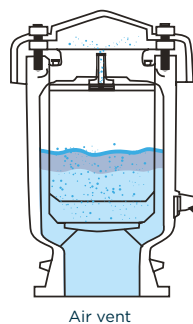
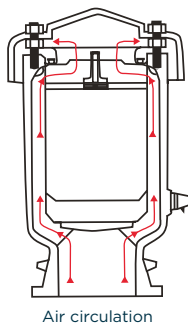
2. AIR BLOW

During operation, a pocket of air accumulates in the upper part of the suction cup. Gradually it is compressed and its pressure becomes equal to that of water and its volume increases, pushing the water down. According to Archimedes' principle, the float cannot be held by the buoyancy of the water and falls, thus freeing the nozzle orifice and helping to release the air pocket. When the air escapes, the water level rises, moving the float upwards and thus closing the nozzle orifice.

3. AIR INLET

When emptying or rupturing the main pipe, it is necessary to let out both air and water to avoid vacuum conditions. The movable block remains at the bottom of the suction cup in the absence of water, allowing air to enter through the main orifice.

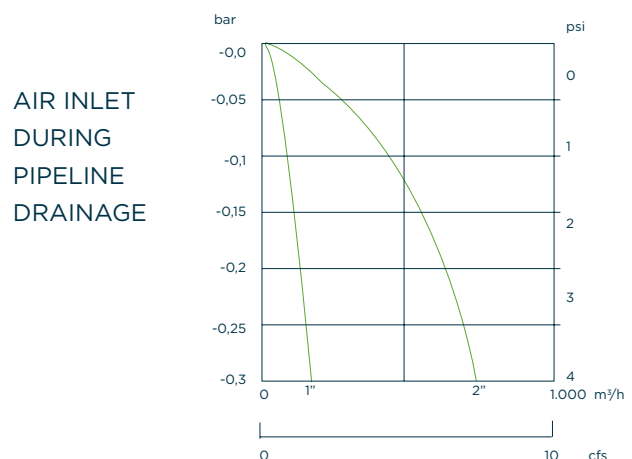
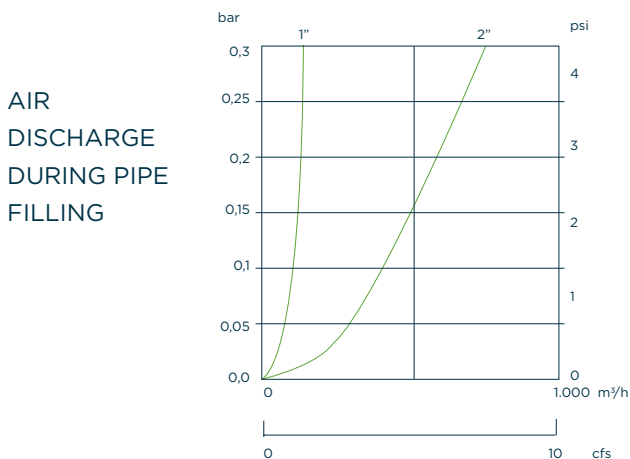
*The mobile block is the assembly formed by the cylindrical polypropylene float, the upper disc and the retaining nozzle (see parts and materials).



Technical specifications

- ✓ - Screwed cover; easy on-site maintenance and spring replacement.
- ✓ - Compact and resistant to corrosion; construction in GGG - 40 ductile cast iron with internal and external EPOXI powder coating, with a single chamber.
- ✓ - Body with solid internal guides; they allow a high precision in the sliding of the float in the sliding of the float and vertical thrust while facilitating air circulation.
- ✓ - Cylindrical float made of compact and finely machined polypropylene; avoids high sliding precision and prevents “venting” and “dynamic closing” phenomena during the air inlet and outlet phases.
- ✓ -PN16.
- ✓ - Versatility of functions; depending on the mounting of the mobile float assembly, the same suction cup can perform up to 4 different functions.
- ✓ - Tap for Purge Valve; control chamber check and liquid drainage.

Hydraulic characteristics



Installation instructions

Before installation, care must be taken to clean the ducts to prevent foreign particles such as stones or construction material from damaging the release valves.

They must be mounted vertically and on a tee with an inlet to the suction cup of at least half the DN of the main pipe.

The installation of a gate valve between the tee and the suction cup is recommended for sectioning the line during maintenance operations.

In case of installation in underground manholes, ventilation pipes of a DN equal to or larger than the suction cup should be installed.

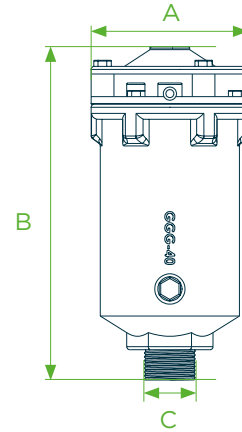
A drainage area must be provided in the pit at the bottom of the main pipe in order to prevent flooding.

The suction cup should never be installed above the main line to prevent back drafting due to the vacuum filling the main line without an accumulation point to be pushed out when the pump starts. It is recommended that the suction cup be placed as high as possible in relation to the main line.

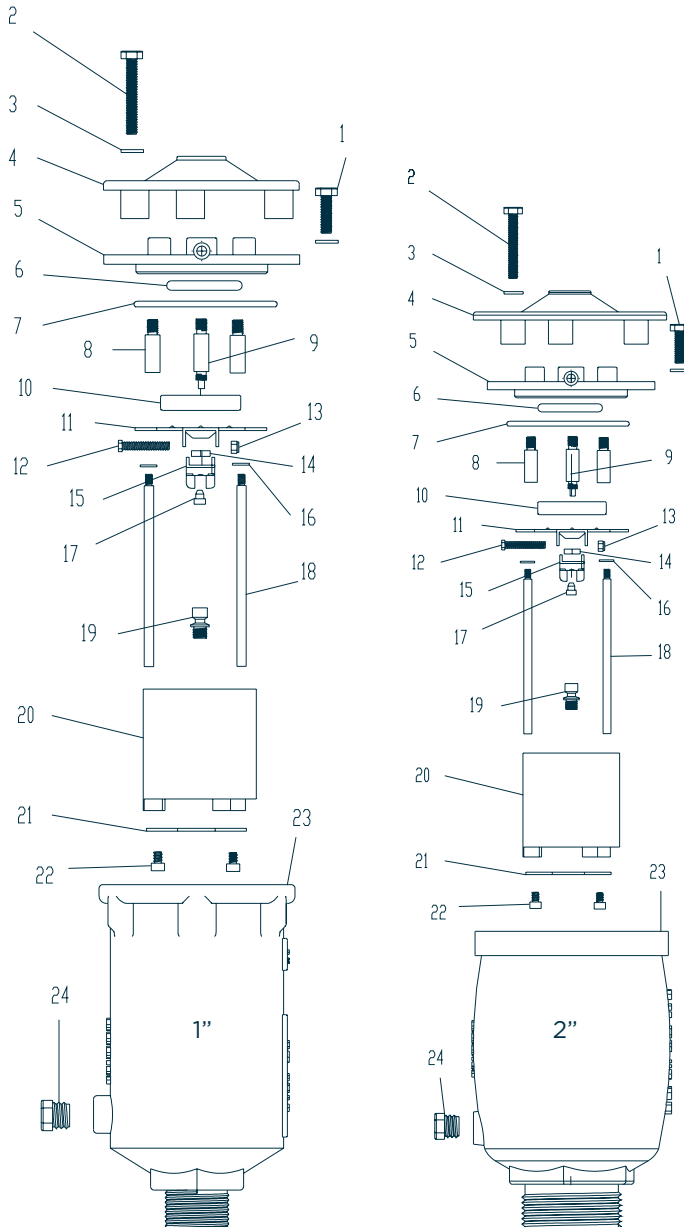
Dimensions



DN		A	B	C	PESO	CONEXIONS
mm	in	mm			kg	
25	1"	113	205	CH45	3,7	Thread
50	2"	142	260	CH45	6,4	Thread



Disassembly



Nº	DESCRIPTION	MATERIAL
1	Exagonal bolt	Stainless steel
2	Hexagonal bolt	Stainless steel
3	Washer	Stainless steel
4	Suction cup cover	Cast iron GGG-40
5	Lower cover	Bronze
6	O-ring	Nitrile
7	O-ring	Nitrile
8	Spacer shaft	Stainless steel
9	Spacer shaft puga	Stainless steel
10	Sealing washer	Polypropylene
11	Upper guide	Stainless steel ac.
12	Hexagonal bolt	Stainless steel ac.
13	Lock nut	Stainless steel ac.
14	Nut	Stainless steel ac.
15	Float lever	Stainless steel ac.
16	Washer	Stainless steel
17	Dancer	NBR
18	Float guide	Stainless steel ac.
19	Float lever shaft	Stainless steel
20	Float	Polypropylene
21	Lower guide	Stainless steel
22	Allen screw	Stainless steel
23	Suction cup body	Cast iron GGG-40
24	Hexagonal plug	Brass