Combination air valve with rapid filling preventer mechanism Mod. GOLIA 3F - RFP

The CSA air valve Mod. FOX GOLIA 3F RFP will ensure the proper operation of the system allowing the air release during working conditions, and the entrance of large volumes of air during draining. In addition to that this model will always control the air outflow within a safety limit, without the risk of water hammer.

Technical features and benefits

- Uncontrolled pipeline filling operations and transient events will inevitably generate the rapid closure of the air valves install along the system, with consequent damages. The CSA air valve GOLIA 3F RFP will automatically adjust the outflow capacity, thus reducing the velocity of the incoming water column minimizing the risk of water hammer.
- The spray effect during closure and the risk of air valve drowning, due to low pressure and possible rapid filling, is avoided.
- Entirely made in high resistant materials suitable for industrial and aggressive environments.
- Mobile block composed of a cylindrical float and obturator, joined together by the CSA air release system (pat. Pending), along with the upper disk all made in solid polypropylene. The solid cylindrical floats, obtained by CNC machining, avoid deformations and ensure a great sliding precision.
- Nozzle and gasket holder, part of CSA air release system, entirely made in AISI 316/Super Duplex and designed with gasket compression control to prevent aging process and consequent leakage during working conditions.

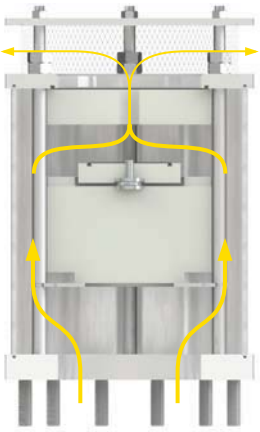
Applications

- Seawater main transmission lines.
- Desalination plants.
- Demineralized water.
- Mines.
- Aggressive and corrosive fluid, and more in general whenever ductile cast iron is not accepted.

Operating principle

Discharge of large volumes of air

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

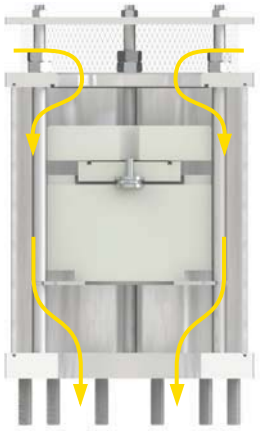


Controlled outflow

If the differential pressure of air, during pipe filling, increases above a certain value without control there is the risk of water hammer and damages to the system. Should that happen the RFP upper float will rise automatically, reducing the outflow and consequently the velocity of the approaching water column.

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.



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.

Optional

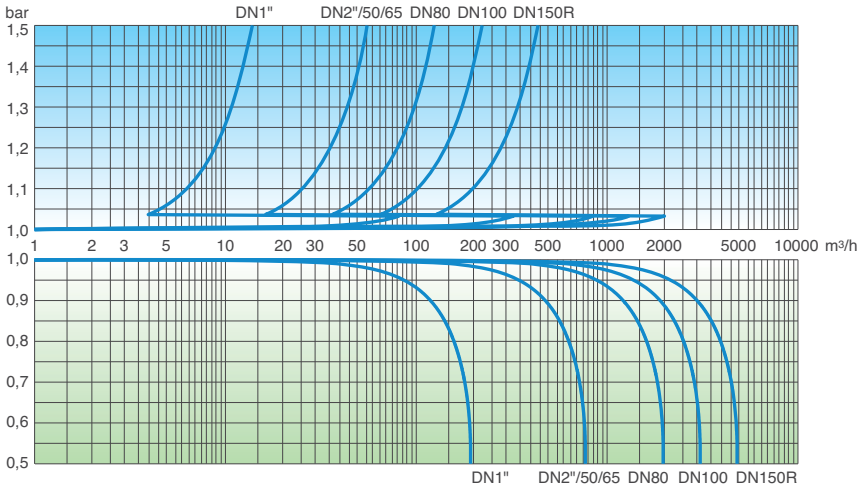
■ **Vacuum breaker version Mod. Golia 2F RFP**, to allow the entrance of large volumes of air and the controlled outflow only. This model is normally recommended in changes in slope ascending, long ascending segments, dry fire systems, and wherever the water hammer effect has to be reduced without the necessity of air release.

■ **Version for submerged applications, SUB series,** available both for Golia 3F RFP and 2F RFP Models, with elbow for air conveyance. The design sprang from the necessity of having an air valve performing also in case of flood, without the risk of contaminated water entering the pipeline. Another benefit of SUB is to avoid the spray effect, conveying spurts coming from the closure away from the air valve.

■ **Version for air discharge only EO series**, available both for Golia 3F RFP and 2F RFP models. The most important application of EO is to allow the air valve installation in those locations of the system where HGL may drop below the pipe profile, and to any other node where for project requirements air entrance must be avoided.

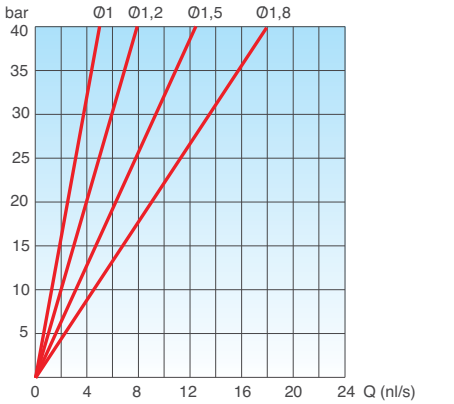
Air flow performance charts

AIR DISCHARGE DURING PIPE FILLING



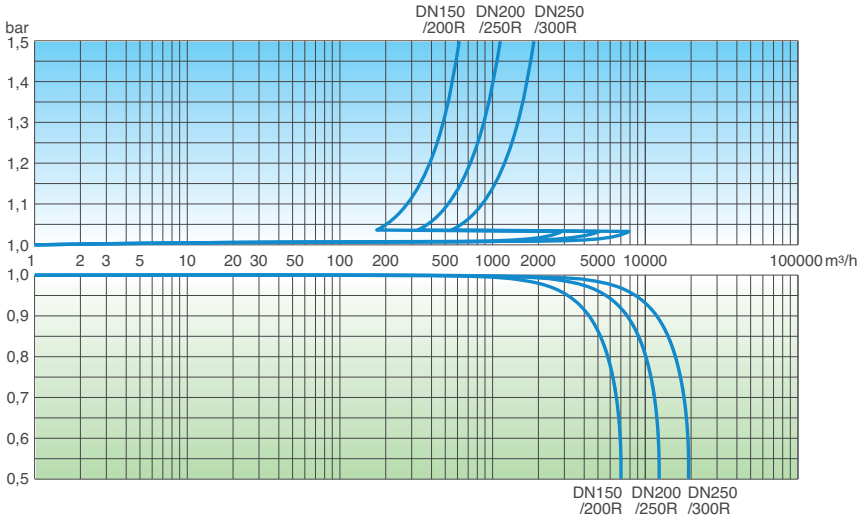
AIR ENTRANCE DURING PIPE DRAINING

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

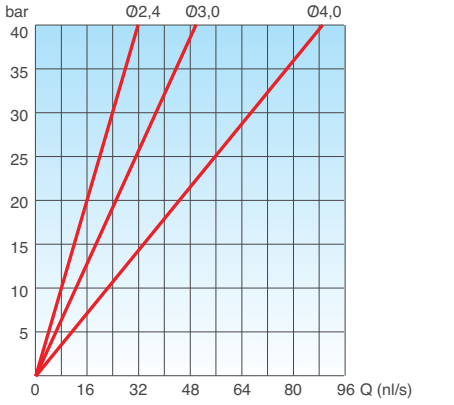


AIR RELEASE DURING WORKING CONDITIONS

AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING



AIR RELEASE DURING WORKING CONDITIONS

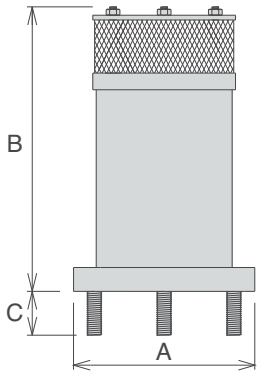
Working conditions

Treated water max. 70°C;
Max. pressure 40 bar;
Min. pressure 0,2 bar;
PN16 version to 0,19 bar and solutions for high temperatures on request.

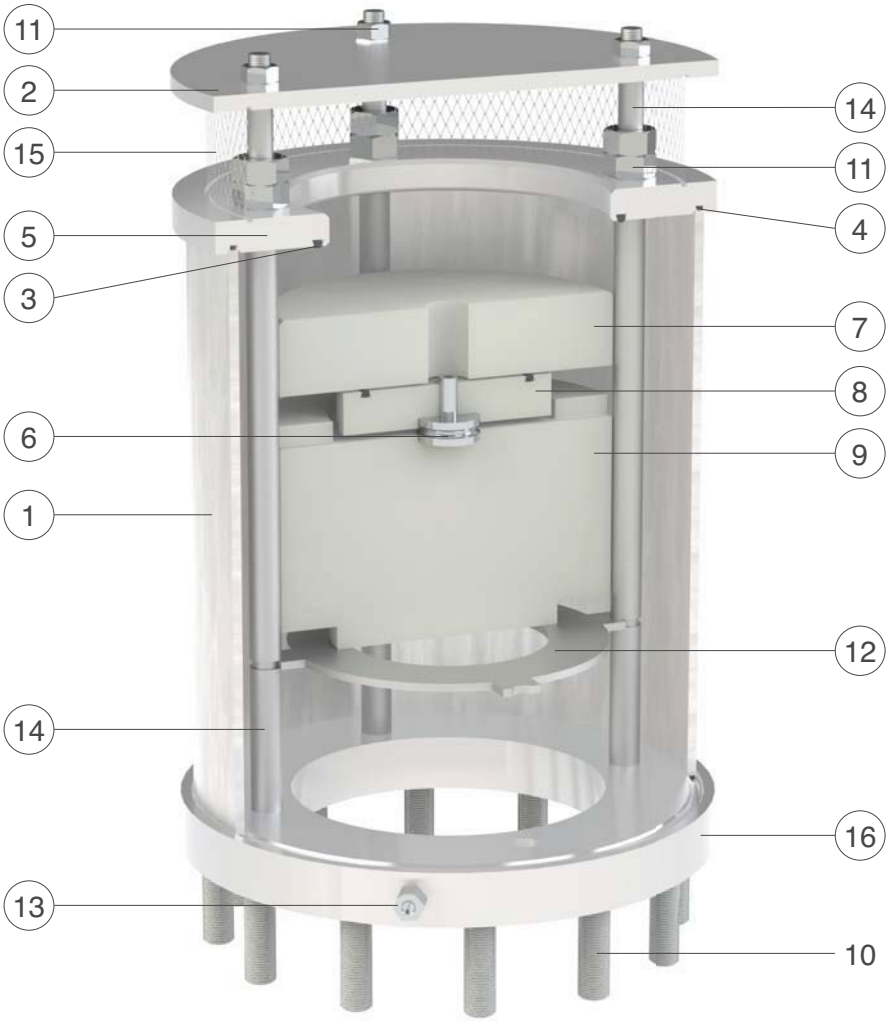
Standard

Designed in compliance with EN1074.
Flanges according to AS4087 PN16/35 and ANSI.
Gaskets in NBR / EPDM / Viton.
Changes and variations on the flanges and gaskets are available on request.

CONNECTION inch/mm	A mm	B mm	C mm	Weight Kg
Threaded 1"	165	240	=	6,4
Threaded 2"	165	240	=	6,4
Flanged 50	165	240	40	8,0
Flanged 65	185	240	40	8,0
Flanged 80	200	265	50	12,0
Flanged 100	235	334	50	17,0
Flanged 150R	235	235	50	27,0
Flanged 150	300	440	70	45,0
Flanged 200R	360	440	70	49,0
Flanged 200	360	515	70	62,0
Flanged 250R	405	515	70	72,0
Flanged 250	405	630	85	125,0
Flanged 300R	460	635	90	135,0



Technical details



	Component	Standard material	Optional
1	Body	stainless steel AISI 316	s.s. Duplex/Super Dupl.
2	Cap	stainless steel AISI 304	stainless steel AISI 316
3	O-ring	NBR	EPDM/Viton/silicone
4	O-ring	NBR	EPDM/Viton/silicone
5	Seat	stainless steel AISI 316	s.s. Duplex/Super Dupl.
6	Nozzle Subset	stainless steel AISI 316	stainless steel Duplex
7	RFP flat	polypropylene	
8	Upper flat	polypropylene	
9	Float	polypropylene	
10	Studs	stainless steel AISI 304	stainless steel AISI 316
11	Bolts	stainless steel AISI 316	
12	Diffuser	stainless steel AISI 316	s.s. Duplex/Super Dupl.
13	Drain valve	stainless steel AISI 316	
14	Spacers	stainless steel AISI 316	s.s. Duplex/Super Dupl.
15	Filter	stainless steel AISI 304	stainless steel AISI 316
16	Flange	stainless steel AISI 316	s.s. Duplex/Super Dupl.

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