Combination air valve
Mod. FOX 3F C

The CSA combination, triple function, automatic air valve Mod. FOX 3F C is designed to ensure the proper operation of pipeline networks by releasing air pockets under pressure during working conditions, and admitting/expelling large volumes of air during filling and draining operations, thus preventing vacuum and negative pressure conditions.
The ductile iron cover with threaded outlet for air conveyance allows connection to an external pipe for safe air discharge, helps prevent insect ingress, and is suitable for submerged applications.

Technical features and benefits

- Single chamber full bore body in ductile cast iron, PN 40 bar rated, provided with internal ribs for accurate guiding of the floats.
- Aerodynamic deflector in stainless steel to avoid premature closures of the mobile block during filling operations.
- Drainage valve, produced by CSA, for chamber control and pressure relief during maintenance.
- Mobile block composed of a cylindrical float and upper disk in solid polypropylene, joined together by the CSA air release system in AISI 316 (patent pending). The solid cylindrical floats, obtained by CNC machining, avoid deformations and ensure a great sliding precision inside the body processed ribs and a perfectly vertical thrust.
- Nozzle and gasket holder, part of CSA air release system, entirely made in stainless steel AISI 316 and designed with gasket compression control to prevent aging process and consequent leakage during working conditions.
- Maintenance can be easily performed from the top, without removing the air valve from the pipe.
- Ductile iron cover with threaded outlet for air conveyance, designed to prevent insect ingress and suitable for submerged applications.

Applications

- Main transmission lines.
- Water distribution networks.
- Irrigation systems.
- In general this model is used on changes in slope and at the high points of the pipeline.

Operating principle

Discharge of large volumes of air

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

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, there+ fore its volume increases push+ ing 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 nega+ tive pressure and serious dam+ ages to the pipeline, and to the entire system.

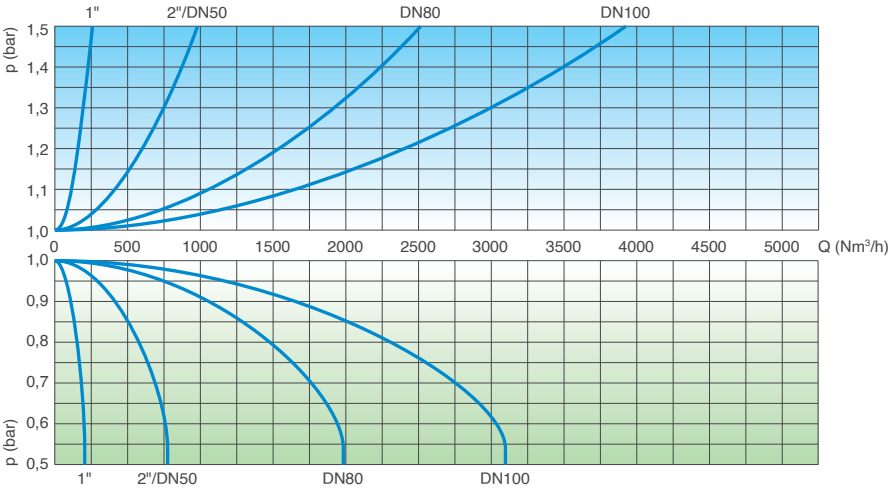
Optional

- **Vacuum breaker version Mod. FOX 2F C**, to allow the entrance and discharge of large volumes of air only. This model is normally recommended in changes in slope ascending, long ascending segments, dry fire systems, and wherever the air release won't be required.

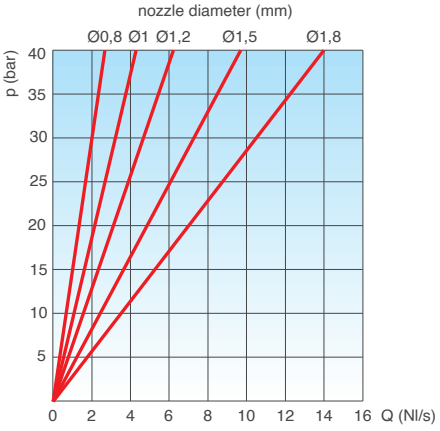
Technical data

Air flow performance charts

AIR DISCHARGE DURING PIPE FILLING

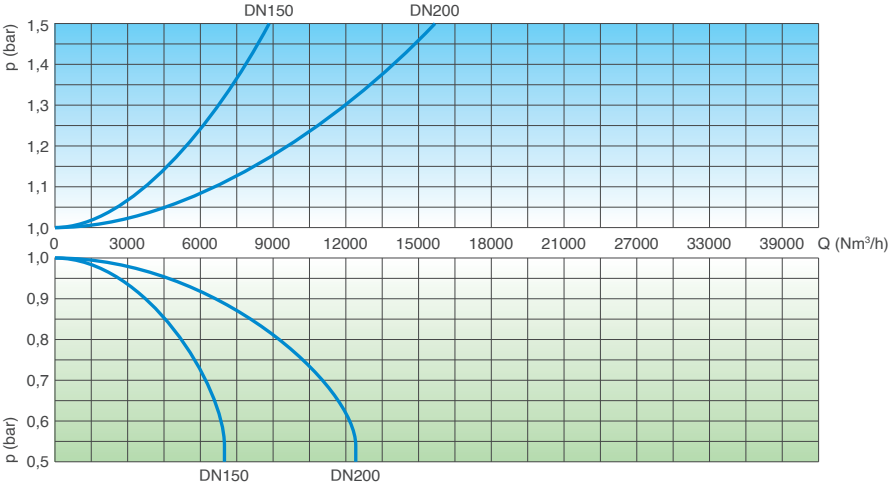


AIR ENTRANCE DURING PIPE DRAINING

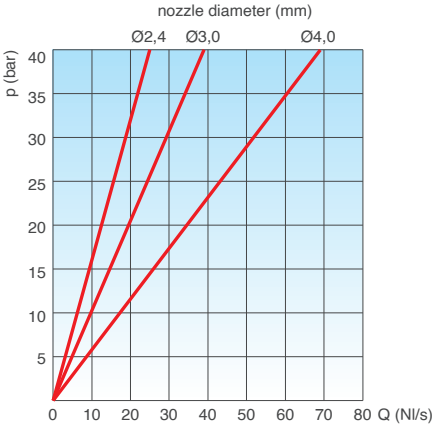


AIR RELEASE DURING WORKING CONDITIONS

AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING



AIR RELEASE DURING WORKING CONDITIONS

The air flow charts were created in Kg/s from laboratory tests and numerical analysis, without the screen, then converted in Nm³/h using a safety factor.

Working conditions

Treated water max. 60°C.
Max. pressure 40 bar.
Min. pressure 0,2 bar. Lower on request.

Standard

Designed in compliance with EN-1074/4 and AWWA C-512. Flanges accord+ing to EN 1092/2 or ANSI 150. Epoxy painting applied through fluidized bed technology blue RAL 5005. Changes on the flanges and painting on request.

Nozzle choice

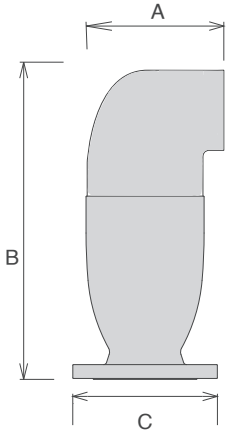
Nozzle diameter in mm according to the size of the air valve and the PN.

	PN 10	PN 16	PN 25	PN 40
DN 50	1,8	1,5	1,2	1
DN 80	1,8	1,5	1,2	1
DN 100	3	2,4	1,8	1,2
DN 150	4	3	2,4	1,8
DN 200	4	4	4	3

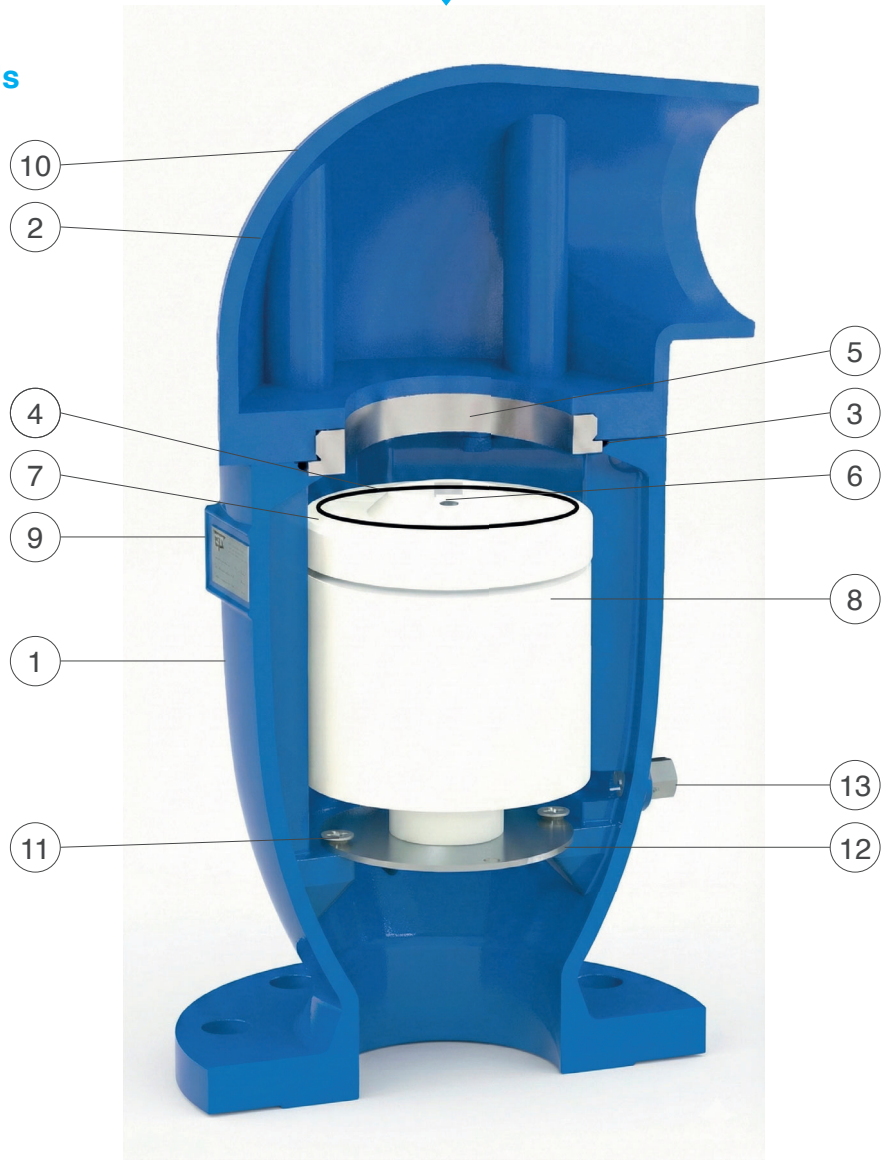
Weights and dimensions

CONNECTION inch/mm	A mm	B mm	C mm		Weight Kg
Flanged 50	172	375	165	-	11,5
Flanged 80	212	384	210	205	17
Flanged 100	250	455	235	220	26
Flanged 150	336	665	305	285	49
Flanged 200	394	800	375	340	92,0

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



Technical details



N.	Component	Standard material	Optional
1	Body	ductile cast iron GJS 450-10	
2	Cap	ductile cast iron GJS 450-10	
3	O-ring	NBR	EPDM/Viton/silicone
4	O-ring	NBR	EPDM/Viton/silicone
5	Threaded flange	stainless steel AISI 304	stainless steel AISI 316
6	Nozzle Subset	stainless steel AISI 316	
7	Upper flat	polypropylene	
8	Float	polypropylene	
9	Tag	stainless steel AISI 304	
10	Screws	stainless steel AISI 304	stainless steel AISI 316
11	Screws	stainless steel AISI 304	stainless steel AISI 316
12	Deflector	stainless steel AISI 304	stainless steel AISI 316
13	Drain valve	stainless steel AISI 304	stainless steel AISI 316

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