

Combination air valve Mod. FOX 3F

The CSA air valve Mod. FOX 3F will ensure the proper operation of the pipeline network allowing the release of air pockets during working conditions, the evacuation and entrance of large volumes of air during filling and draining operations.



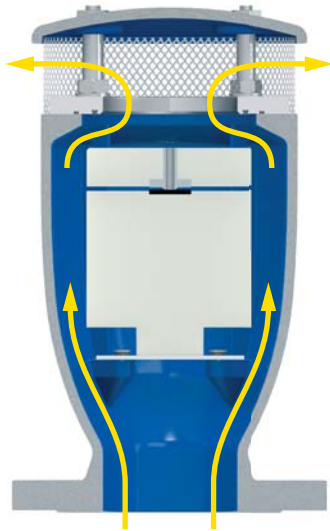
Technical features and benefits

- Single chamber full bore body in ductile cast iron, PN 40 bar rated, provided with internal ribs for consistent and accurate guiding of the mobile block.
- Aerodynamic deflector in stainless steel to avoid premature closures.
- 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 (pat. 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 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.
- Cover in ductile and screen in stainless steel as a standard execution to prevent the entrance of insects, with three more optional outlets (for submerged applications, air inlet only, air outlet only).

Applications

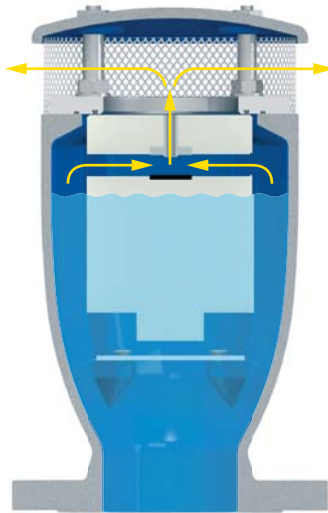
- Main transmission lines.
- Water distribution networks.
- Irrigation systems.
- In general this model is used on changes in slope and at the high points of the pipeline.

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, 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, 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



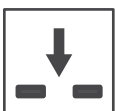
■ **Vacuum breaker version Mod. FOX 2F**, to allow the entrance and discharge of large volumes of air only. This model is normally recommended in changes in slope ascending, long ascending segments, dry fire systems, and wherever the air release won't be required.



■ **Version for submerged applications, SUB series**, available both for FOX 3F and 2F 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 the possibility of conveying spurts coming from the rapid closure of the air valve.



■ **Version for air discharge only EO series**, available both for FOX 3F and 2F 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, such as in pump suction lines or siphons pipelines.

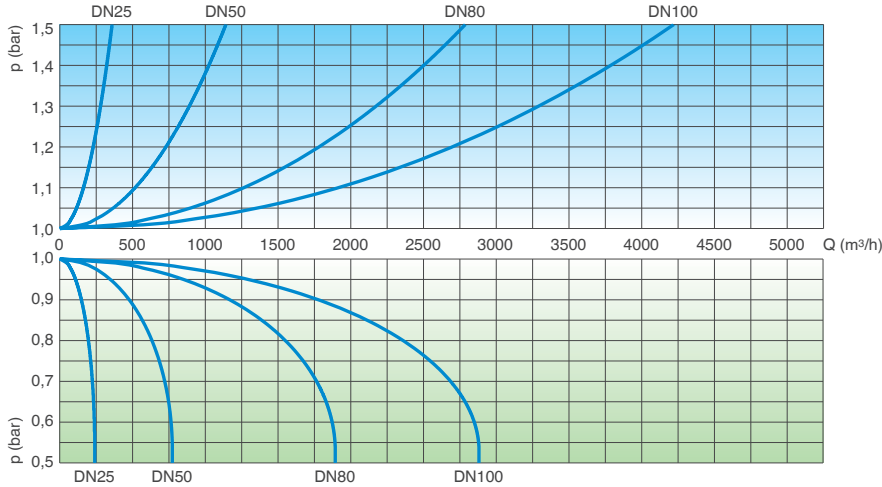


■ **Version for air entrance only IO series**, available for FOX 2F model only. The most important application of IO is to allow the air valve installation in those locations of the system where, for project requirements, air discharge and release must be avoided.

Technical data

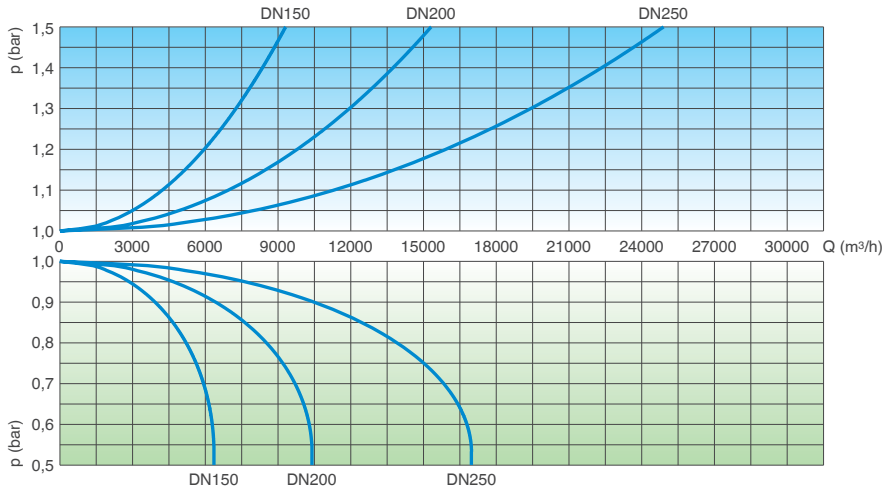
Air flow performance charts

AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING

AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING

Working conditions

Pressure ratings:

- PN 16: 0.09 - 16 bar
- PN 35: 0.15 - 35 bar
- PN 40: 0.15 - 40 bar.

Temperature max. 60°C.

Coating FBE - RAL 5005.

Standard

Designed in compliance with:

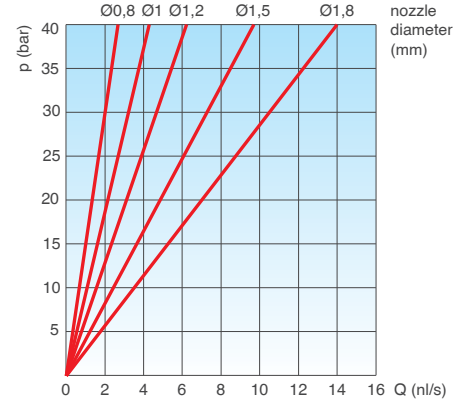
- EN-1074/4
- AS 4956
- AS 4020
- AWWA C-512.

Weights and dimensions

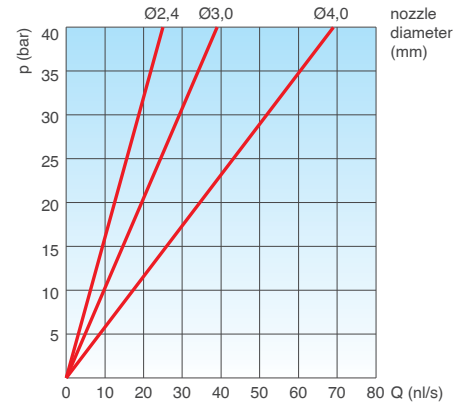
| CONNECTION inch/mm | A mm | B mm | C mm | | D mm | Weight Kg |
|-----------------------|---------|---------|---------|-----|---------|--------------|
| Threaded 1" | 117 | 240 | - | - | CH 45 | 4,0 |
| Threaded 2" | 141 | 295 | - | - | CH 70 | 7,5 |
| Flanged 50 | 141 | 305 | 165 | - | - | 9,5 |
| Flanged 80 | 172 | 315 | 210 | 205 | - | 13,8 |
| Flanged 100 | 206 | 370 | 235 | 220 | - | 21,7 |
| Flanged 150 | 285 | 515 | 305 | 285 | - | 44,5 |
| Flanged 200 | 380 | 625 | 375 | 340 | - | 85,0 |
| Flanged 250 | 440 | 785 | 450 | - | - | 134,0 |

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

AIR RELEASE DURING WORKING CONDITIONS



AIR RELEASE DURING WORKING CONDITIONS



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

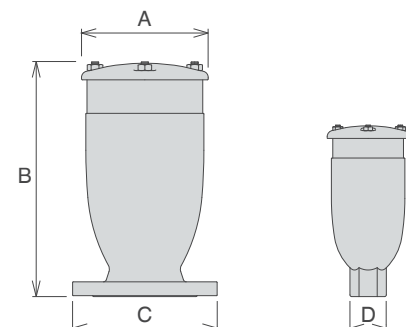
Connections

Threaded: ■ BSP - F

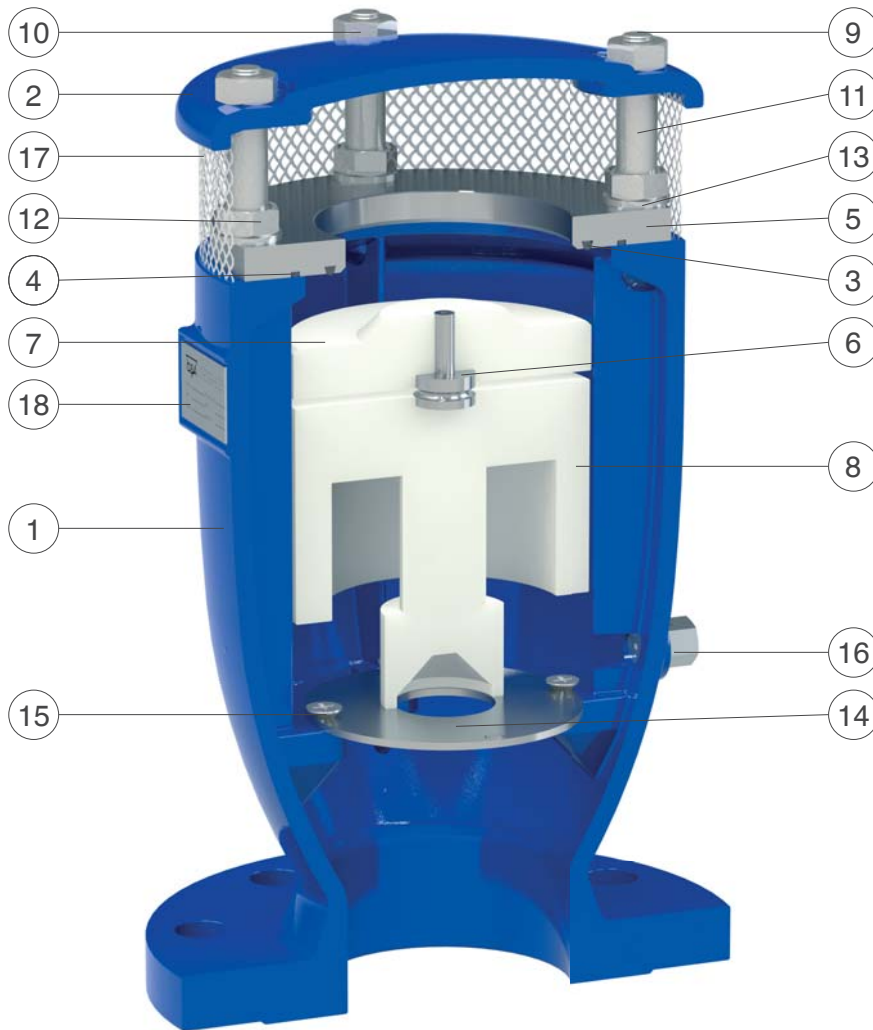
- NPT on request.

Flanges: ■ AS 4087 PN 16

- AS 4087 PN 35
- ANSI on request.



Technical details



SUB version kit in plastic, or stainless steel on request.

| N. | Component | Standard material | Optional |
|----|---------------|---|--------------------------|
| 1 | Body | ductile cast iron GJS 500-7 or GJS 450-10 | |
| 2 | Cap | ductile cast iron GJS 500-7 or GJS 450-10 | |
| 3 | O-ring | NBR | EPDM/Viton/silicone |
| 4 | O-ring | NBR | EPDM/Viton/silicone |
| 5 | Seat | stainless steel AISI 316 | |
| 6 | Nozzle Subset | stainless steel AISI 316 | |
| 7 | Upper flat | polypropylene | |
| 8 | Float | polypropylene | |
| 9 | Studs | stainless steel AISI 304 | stainless steel AISI 316 |
| 10 | Nuts | stainless steel AISI 304 | stainless steel AISI 316 |
| 11 | Spacers | stainless steel AISI 304 | stainless steel AISI 316 |
| 12 | Nuts | stainless steel AISI 304 | stainless steel AISI 316 |
| 13 | Washers | stainless steel AISI 304 | stainless steel AISI 316 |
| 14 | Deflector | stainless steel AISI 316 | |
| 15 | Screws | stainless steel AISI 316 | |
| 16 | Drain valve | stainless steel AISI 316 | |
| 17 | Screen | stainless steel AISI 304 | |
| 18 | Tag | stainless steel AISI 304 | |