

ANTI-SURGE NON SLAM ANTI WATER HAMMER COMBINATION AIR VALVE CSA FOX RFP

Air valve FOX 3F-RFP, is a full bore high quality single chamber double function combination air valve with a built in anti-water hammer non slam surge prevention system. The air valve allows release of air pockets from pressurized pipelines, and admits large volume of air in the event of pipe draining/burst, to prevent vacuum and negative pressure conditions. During outflow the air valves senses the increase in air velocity and differential pressure using, if required by excessive values, the RFP (anti-surge) flat to control the air outflow rate thus avoiding fast approaches of water column with potential sudden closures of the mobile block and the risk of water hammer. Entirely made in ductile cast iron, with air release system and seat in stainless steel, FOX 3F-RFP stands out for its long lasting performances and reliability.



Size : DN1" to DN200
Connection : Female BSP or Flange PN10/16
Min Temperature : +0°C
Max Temperature : +60°C
Max Pressure : 16 Bars
Specifications : Discharge of large volumes of air
Controlled outflow
Air release during working conditions
Entrance of large volumes of air

Matière : Ductile iron body EN GJS-450-10

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SPECIFICATIONS :

- Discharge of large volumes of air
- Controlled outflow
- Air release during working conditions
- Entrance of large volumes of air
- Perfect tightness at low pressure (0.2 bar minimum)
- Single chamber full bore with internal ribs for accurate guiding of the mobile block
- Mobile block composed of the main float and upper disk, joined together by the air release system in AISI 316
- Additional anti surge obturator
- Nozzle and gasket holder entirely made in AISI 316
- Epoxy coating for corrosion protection
- Epoxy painting blue color RAL 5005 with fluidized bed technology

USE :

- For drinkable water and clean water
- Pipelines – Protection against air accumulation in horizontal or low slope lines and road / river crossings.
- In proximity to control valves and water meters – Prevention of biased readings and inaccurate pressure regulation due to air flow through these devices.
- Industrial and residential networks – Protection against air accumulation
- Min and max temperature Ts : + 0°C to + 60°C
- Max pressure Ps : 16 bars
- Min Pressure Ps : 0.2 bar

RANGE :

- Triple function air valves ductile iron body threaded female BSP DN1" and DN2" **Ref.3131006 and 3131009**
- Triple function air valves ductile iron body flanged PN10/16 from DN50 to DN150 **Ref.3131050 to 3131150**
- Triple function air valves ductile iron body flanged PN16 DN200 **Ref.3131200**

REPAIRABILITY (GASKETS KIT) :

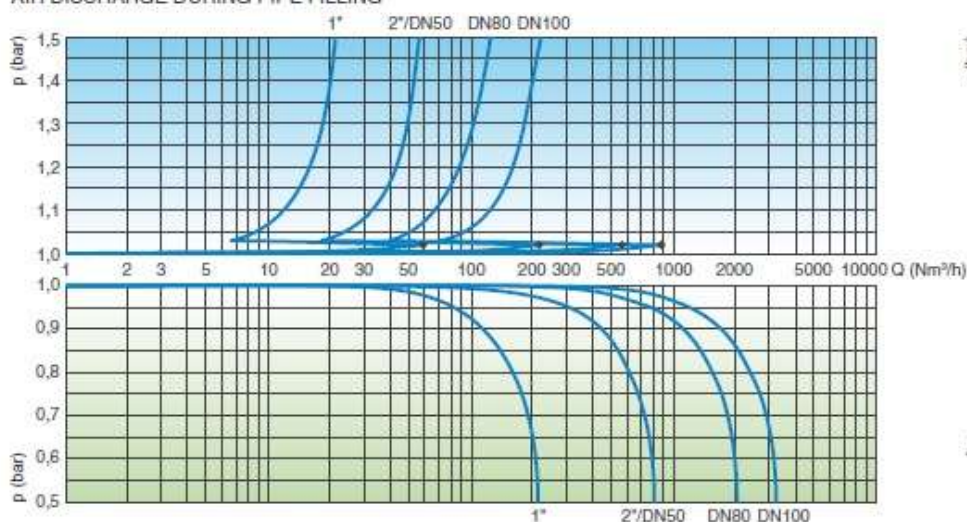


DN	1"	50	80	100
Ref.	9850193	9850194	9850195	9850196

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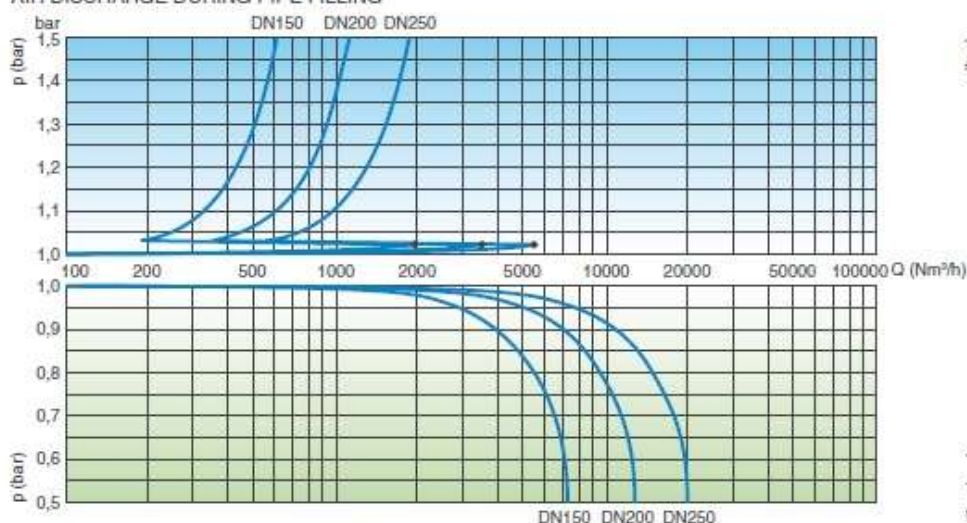
AIR FLOW PERFORMANCE CHARTS :

AIR DISCHARGE DURING PIPE FILLING

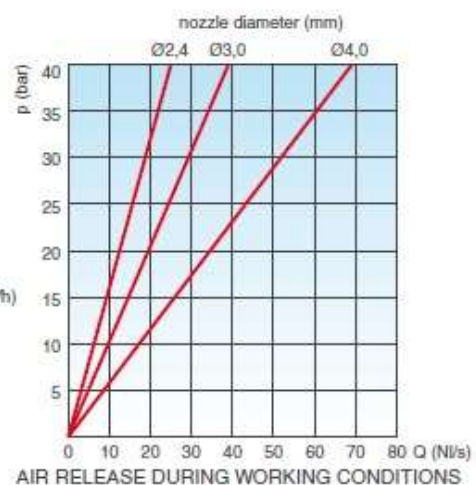
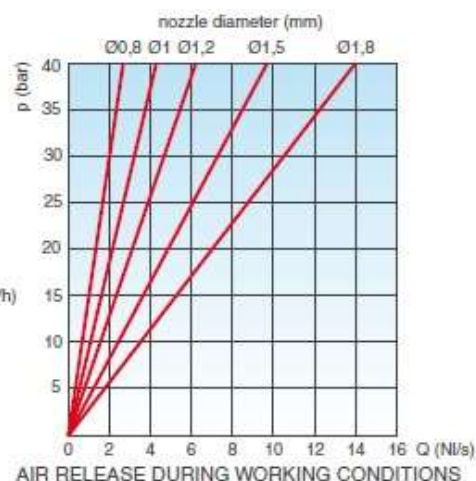


AIR ENTRANCE DURING PIPE DRAINING

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, without the screen, then converted in Nm³/h using a safety factor.

DN	Nozzle Diameter
1"	1.2
2"	1.5
50	1.5
80	1.5
100	2.4
150	3
200	4

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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 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.

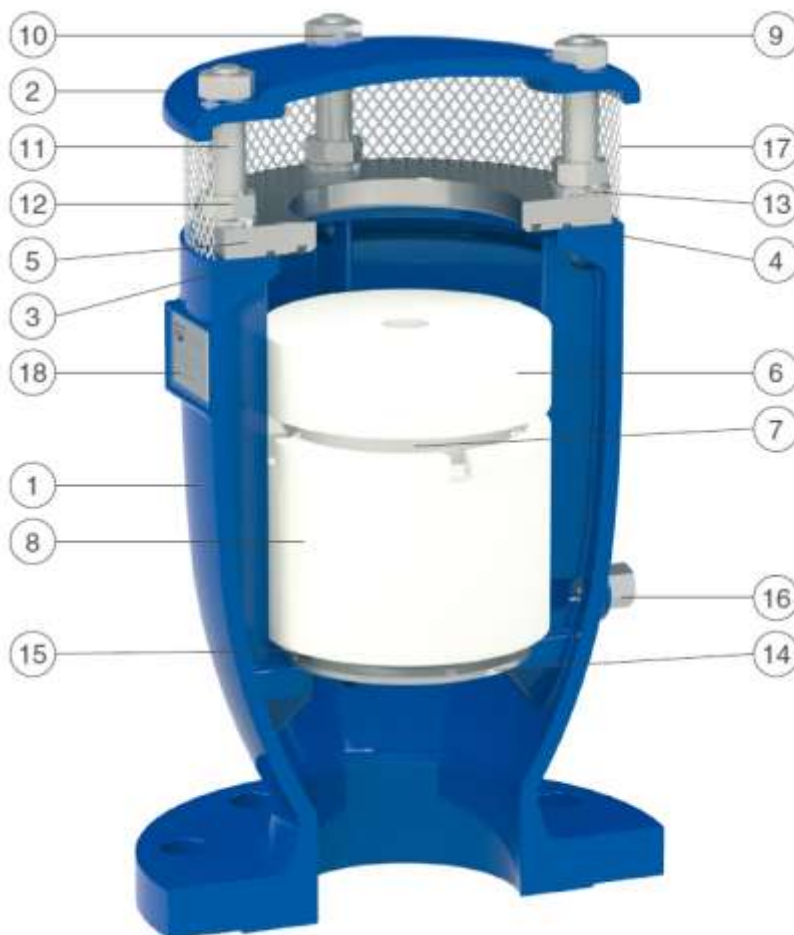


Entrance of large volumes of air

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 to the pipeline, and to the entire system.

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MATERIALS :

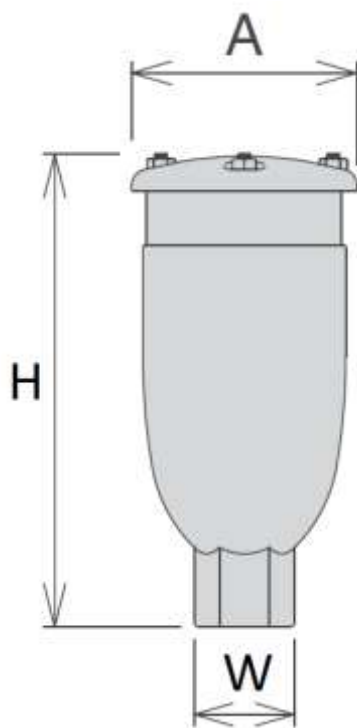


Item	Designation	Materials
1	Body	Ductile iron EN GJS 450-10
2	Bonnet	
3-4	O-ring	
5	Seat	AISI 304
6	RFP flat with O-ring	Polypropylene and NBR
7	Upper flat with nozzle subset	Polypropylene and AISI 316
8	Float	Polypropylene
9	Studs	AISI 304
10	Nut	
11	Spacers	
12	Nuts	
13	Washers	
14	Deflector (not for DN1")	
15	Screws	
16	Drain valve	
17	Screen	
18	Tag	

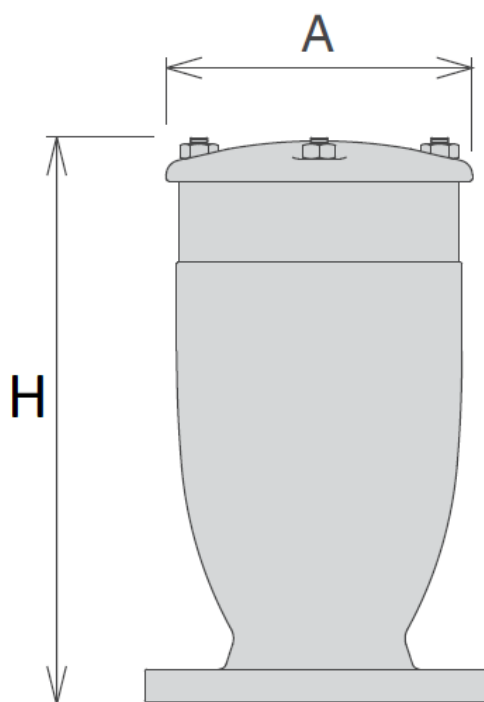
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SIZE (in mm) :

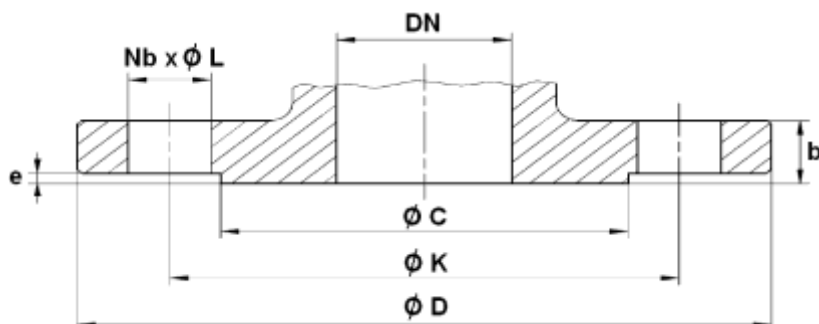
THREADED FEMALE TYPES



FLANGES TYPES



DN	1"	2"	50	80	100	150	200
Ø A	117	141	141	172	206	285	380
H	240	295	305	315	370	515	625
W (on flat)	45	70	-	-	-	-	-
Weight (in Kg)	4	7.5	9.5	13.8	21.7	44.5	85
Ref.	3131006	3131009	3131050	3131080	3131100	3131150	3131200

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FLANGES SIZE (in mm) :


PN	PN10/16				PN16
DN	50	80	100	150	200
Ø C	99	132	156	211	266
Ø D	165	200	220	285	340
Ø K	125	160	180	240	295
Nb x Ø L	4 x 19	8 x 19	8 x 19	8 x 23	12 x 23
b	19	19	19	19	20
e	3				

STANDARDS :

- Manufacturer certified ISO 9001 : 2015
- Design and tests according to EN 1074-4
- DIRECTIVE 2014/68/EU : Products excluded from directive (Article 1, § 2.b)
- Flange according to EN 1092-2 PN10/16
- French water agreement **A.C.S. N° 21 ACC LY 571**
- English water agreement **WRAS**
- Threaded female BSP cylindrical according to ISO 7-1 Rp

ADVICE : Our opinion and our advice are not guaranteed and SFERACO shall not be liable for the consequences of damages. The customer must check the right choice of the products with the real service conditions.

ANTI-SURGE NON SLAM ANTI WATER HAMMER COMBINATION AIR VALVE CSA FOX RFP**INSTALLATION INSTRUCTIONS****GENERAL GUIDELINES :**

- Ensure that the valves to be used are appropriate for the conditions of the installation (type of fluid, pressure and temperature).
- Be sure to have enough valves to be able to isolate the sections of piping as well as the appropriate equipment for maintenance and repair.
- Ensure that the valves to be installed are of correct strength to be able to support the capacity of their usage.

INSTALLATION INSTRUCTIONS :**Automatic air valves have to be installed :**

- At the top of the pumps for admission and evacuation
- At the high points of the installation
- Before and after the pressure reducer
- For each pipe DN changing
- About every 500 meters, along linear pipes
- Underpass
- Before flowmeters
- Filtration installation
- At each broken slope