



# Air Release/Vacuum Breaker

## Water Management

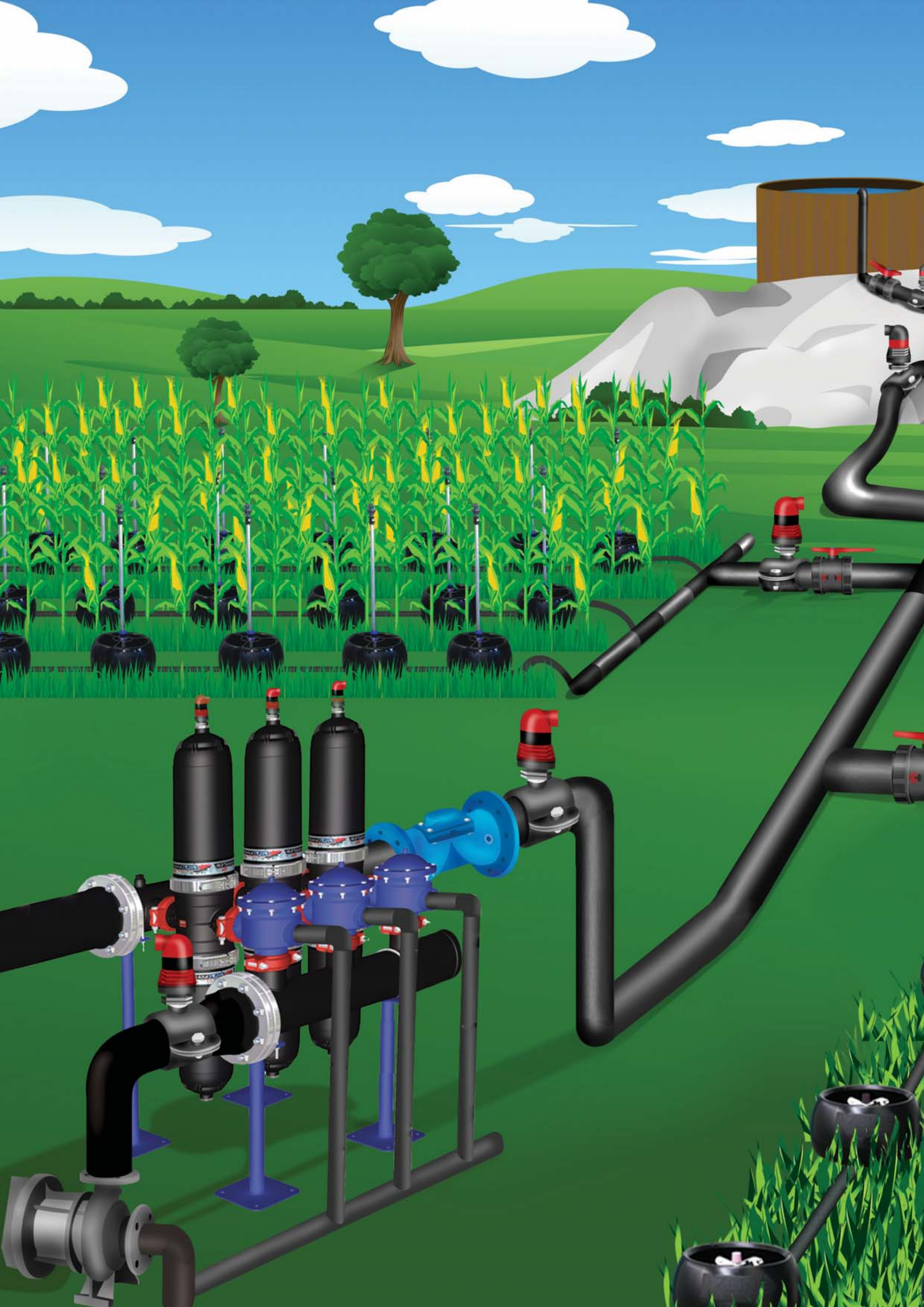


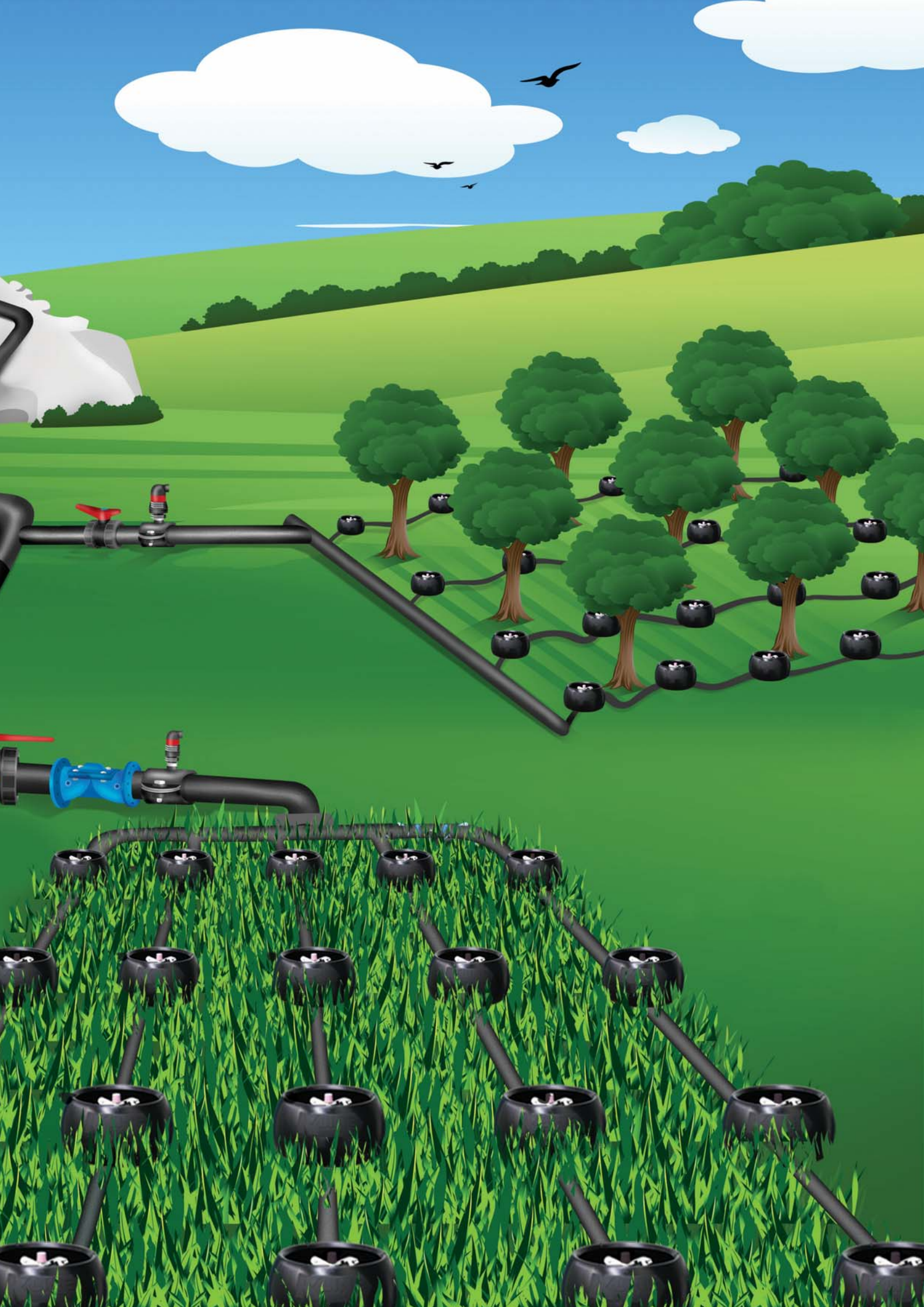
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**RX PLASTICS**





# Air Release Valves – Expulsion Air Systems

## Characteristics

- Air Release Valves X-294 and X-295 (double acting)
- Compact design
- ¾", 1", 1½" and 2" in BSP thread connections
- PN 16 bar

- A single hydraulic seal for all of the functions eg Vacuum Breaker, Air Release, Kinetic (residual) Air release
- Body and lower part manufactured in nylon
- NBR sealing joints
- Expanded Polystyrene float mechanism



X-294



X-295



X-294-2"



X-295-2"

## Dimensions



Dimensions				
A	B	C	R1	R2
103	201.5	26	1 ½"	1"
103	201.5	26	1 ½"	1"



### X-294

#### Air Release Valves

size	thread	RX Code
¾"	BSP	X294.20.ARV
1"	BSP	X294.25.ARV
1 ½"	BSP	X294.40.ARV
2"	BSP	X294.50.ARV



Dimensions				
A	B	C	R1	R2
50,90	119	22	¾"	¼"
50,90	119	22	1"	¼"



### X-295

#### Air Release Valves double acting

size	thread	RX Code
¾"	BSP	X294.20.ARVD
1"	BSP	X294.25.ARVD
1 ½"	BSP	X294.40.ARVD
2"	BSP	X294.50.ARVD

## Air Release Valve size selection

### Air Release Valve selection

Pipeline Diameter (mm)	0-50	50-110	110-160	160-225
Air Release Valve Diameter (inches)	¾"	1"	1 ¼"	2"

## Selection / Installation

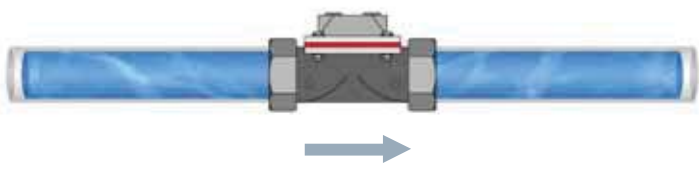
The use of air release valves in hydraulic pipelines is necessary and one of the most important safety elements in all water and irrigation installations. Its main mission is to prevent negative pressures in the network and over pressures generated by the presence of air in the pipelines. Compressed air can also trap energy in pipelines.



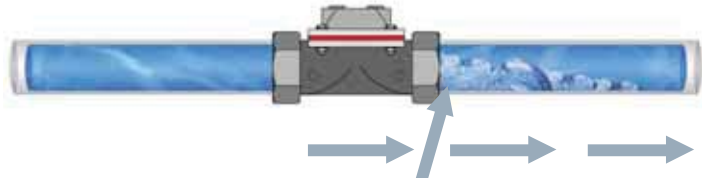
## Air Admission

When a pump stops or a valve suddenly closes it can generate a separation between the water column and the valve, while the still flowing liquid, through the inertia of the water in the pipeline, generates a vacuum area. This vacuum area can cause substantial damage to pipelines not designed for vacuum conditions.

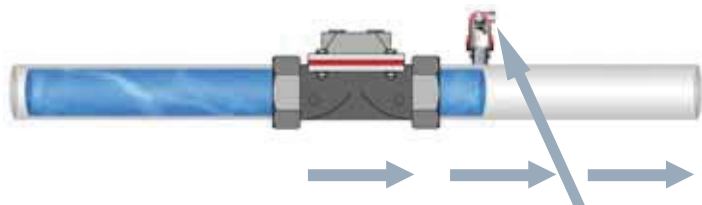
### 1. Opened Valve



### 2. Closure of Valve

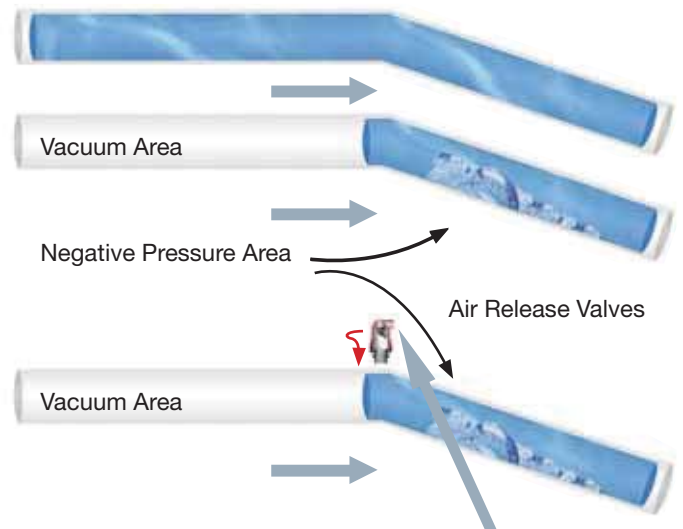


**Negative Pressure Zone** – After closing the valve, the inertia of the column of water creates a negative pressure zone, which will be more important in negative slopes.



**Air Release Valves** – The air release valve, correctly installed, introduces air at atmospheric pressure in the pipe network, eliminating the vacuum.

### 3. Emptying pipe



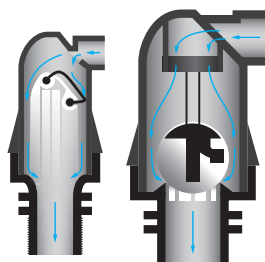
**Air Release Valves** – The air release valve, correctly installed, introduces air at atmospheric pressure in the pipe network, eliminating the vacuum.

If the pipe network suffers a breakdown, the water flow drained could be greater than the air admitted into the network that's why a protection element such as an Air Release Valve correctly dimensioned should be installed.

## Internal Operation

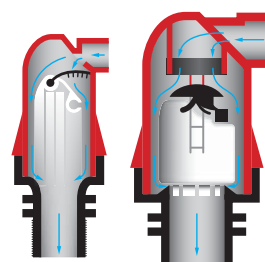
**Air Admission** – Under negative pressures (pipe vacuum) the Air Release Valve opens to allow the air to go inside the pipe. This system avoids possible damages in pipes and accessories.

Air Release Valves



1.A  
X-294

Air Release Valves double acting



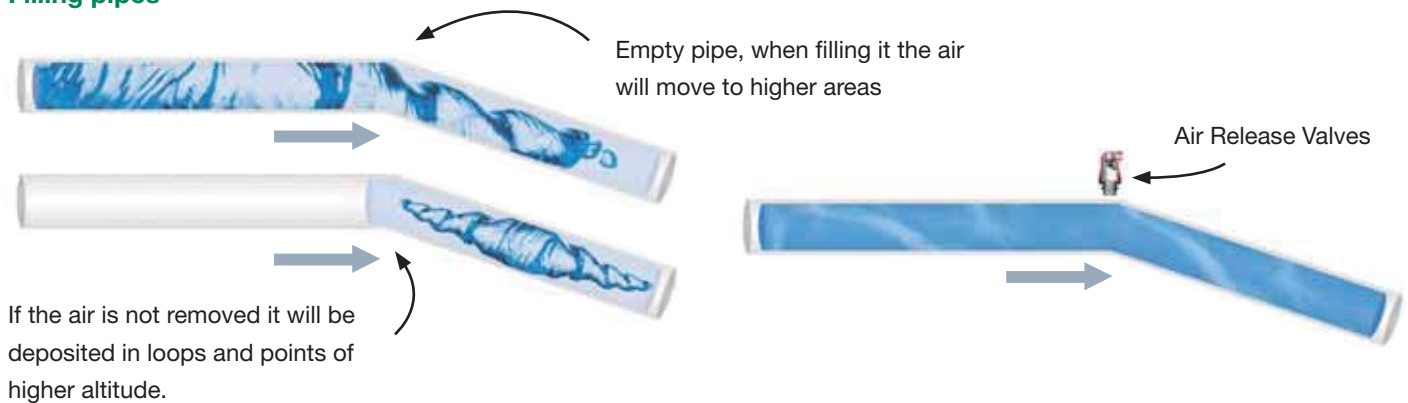
1.B  
X-295



## Air Expulsion

When pipes are filling, air expulsion should be equal to admission of water. If the air in the pipe system installation is not removed, the air can concentrate in the highest points, reducing the hydraulic capacity of the pipeline, and causing pressure losses to escalate beyond that designed for the pipeline.

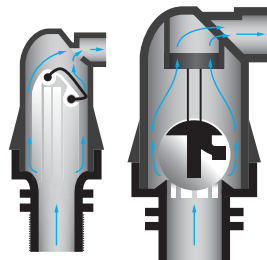
### Filling pipes



## Internal Operation

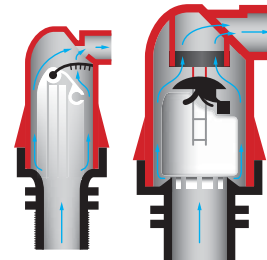
**Air Expulsion** – When the pipe is being filled the Air Release Valve remains open expelling all the surplus air outside the installation. When the pipe is full of water the Air Release Valve closes tightly.

Air Release Valves



2.A  
X-294

Air Release Valves double acting



2.B  
X-295

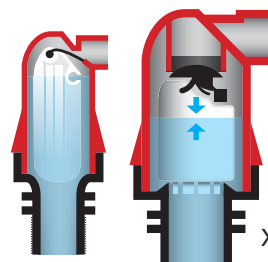
## Air Expulsion (residual)

Close to, pumping equipment, filtration equipment or fire hydrants, air bubbles can enter the pipe network, this residual air must be eliminated by installing double acting Air Release Valves.

## Internal Operation

**Expulsion (residual air)**  
– (Only model X-295). The Air Release Valve purges constantly the residual air generated in the installation, by expelling it even when it is under pressure.

Air Release Valves double acting

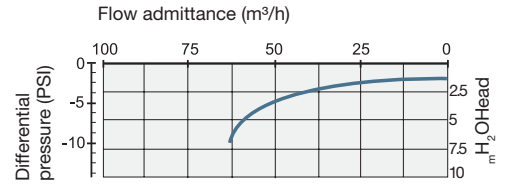
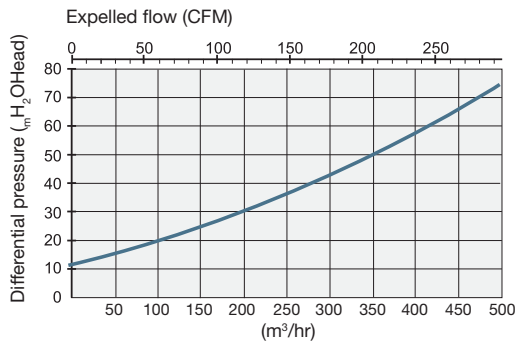


3.A  
X-295

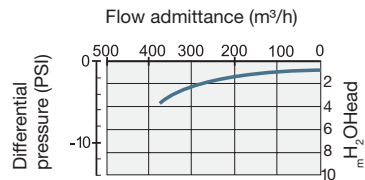
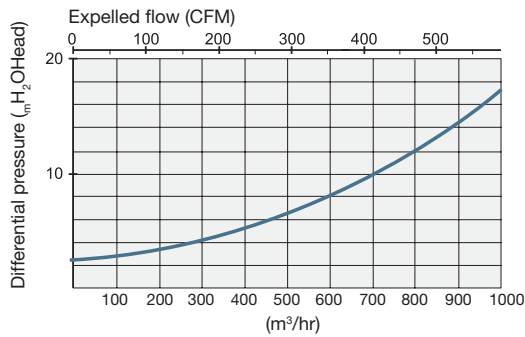


# Performance

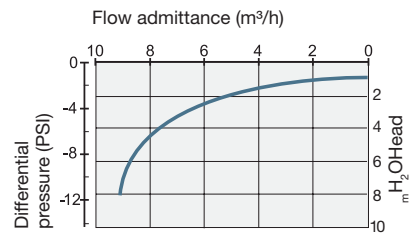
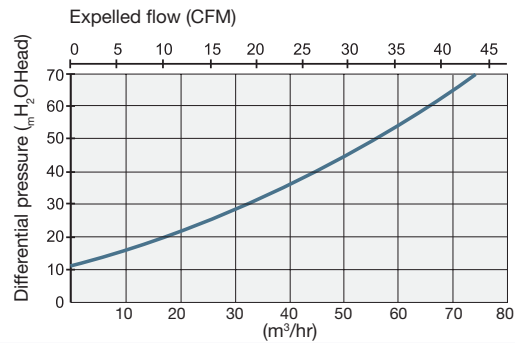
## X-294 (3/4" - 1")



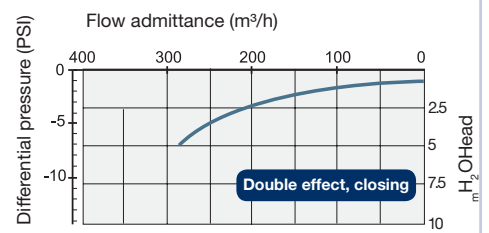
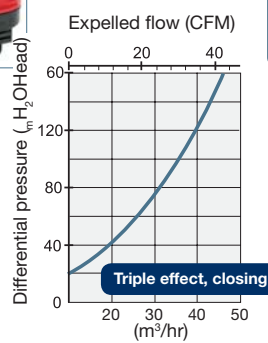
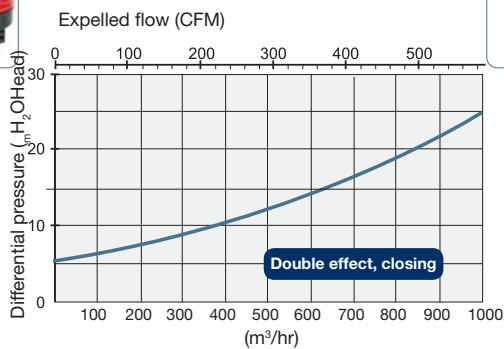
## X-294 (1 1/2" - 2")



## X-295 (3/4" - 1") Double acting



## X-295 (1 1/2" - 2") Double acting





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26 APRIL 2013



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