



## Combination air valve Mod. GOLIA 3F

The CSA air valve Mod. Golia 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

- Entirely made in high resistant materials suitable for industrial and aggressive environments.
- Mobile block composed of a cylindrical float and upper disk in solid polypropylene, joined together by the CSA air release system (pat. Pending). The solid cylindrical floats avoid deformations and ensure a great sliding precision.
- Nozzle and gasket holder, part of CSA air release system, entirely made in AISI 316/Duplex and designed with gasket compression control to prevent aging process and consequent leakage during working conditions.
- Connection between the stand pipe and the components without any welded parts.
- Maintenance can be easily performed from the top, without removing the air valve from the pipe.
- Mesh and cap in stainless steel.
- High flow design with reduced turbulence thanks to the single chamber design.
- Supplied with flanged or threaded outlets including studs.

### Applications

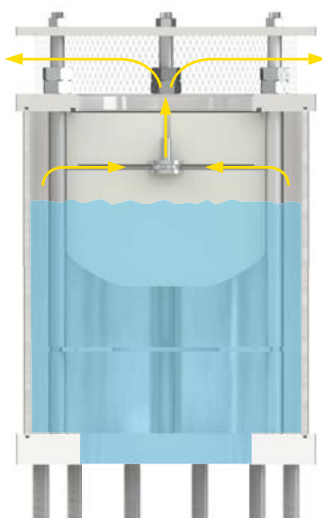
- Seawater main transmission lines.
- Desalination plants.
- Demineralized water.
- Mines.
- Aggressive and corrosive fluid, and more in general whenever ductile cast iron is not accepted by project requirements.

## 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, thanks to an 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



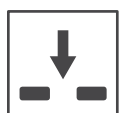
■ **Vacuum breaker version Mod. Golia 2F**, to allow the entrance and discharge of large volumes of air only. This model is normally recommended in changes in slope ascending, long ascending segments, dry fire systems, and wherever the air release won't be required.



■ **Version for submerged applications, SUB series**, available both for Golia 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 to avoid the spray effect, conveying spurts coming from the rapid closure of the air valve.



■ **Version for air discharge only EO series**, available both for Golia 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.

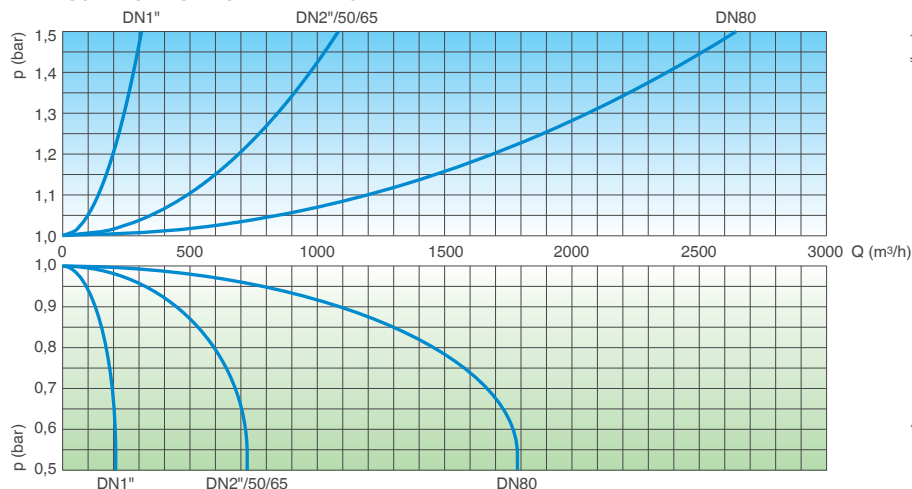


■ **Version for air entrance only IO series**, available for Golia 2F model only. The most important application of IO is to allow the air valve installation in those locations of the system where, for project requirements, air discharge and release must be avoided.

## Technical data

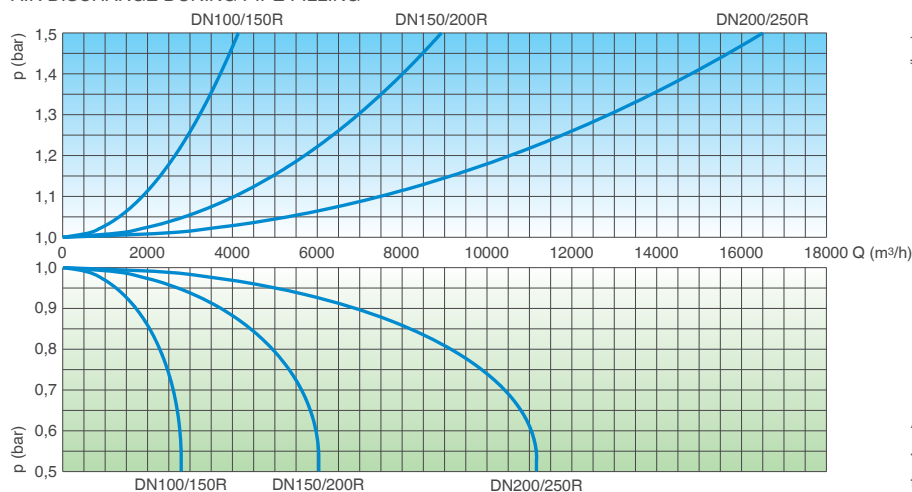
### Air flow performance charts

AIR DISCHARGE DURING PIPE FILLING

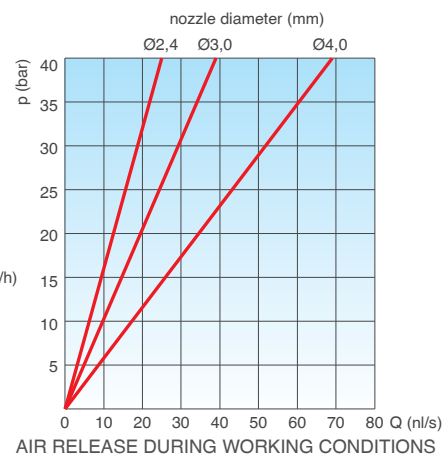
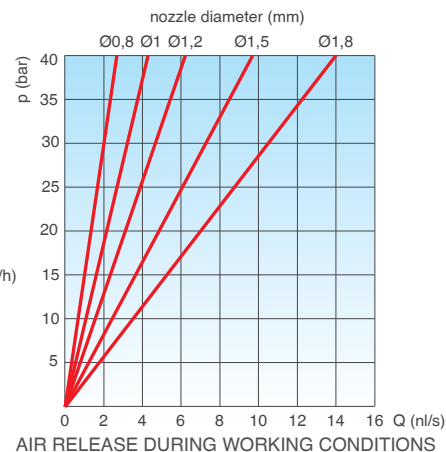


AIR ENTRANCE DURING PIPE DRAINING

AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING



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

### Working conditions

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

### Standard

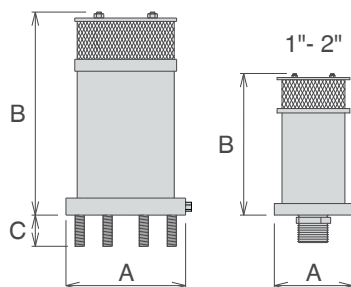
Designed in compliance with EN-1074/4 and AWWA C-512.  
Flanges according to EN 1092/2 or ANSI.  
Gaskets in NBR, EPDM or Viton.  
Changes and variations on the flanges and gaskets on request.

### Weights and dimensions

| CONNECTION<br>inch/mm | A<br>mm | B<br>mm | C<br>mm | Weight<br>Kg |
|-----------------------|---------|---------|---------|--------------|
| Threaded 1"           | 165     | 200     | -       | 6,4          |
| Threaded 2"           | 165     | 255     | -       | 6,4          |
| Flanged 50            | 165     | 255     | 40      | 8,0          |
| Flanged 65            | 185     | 255     | 40      | 8,0          |
| Flanged 80            | 200     | 285     | 50      | 12,0         |
| Flanged 100           | 235     | 335     | 50      | 17,0         |
| Flanged 150R          | 235     | 385     | 50      | 27,0         |
| Flanged 150           | 300     | 445     | 70      | 45,0         |
| Flanged 200R          | 360     | 445     | 70      | 49,0         |
| Flanged 200           | 360     | 515     | 70      | 62,0         |
| Flanged 250R          | 405     | 515     | 70      | 72,0         |

R: reduced bore. Larger sizes available on request.

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

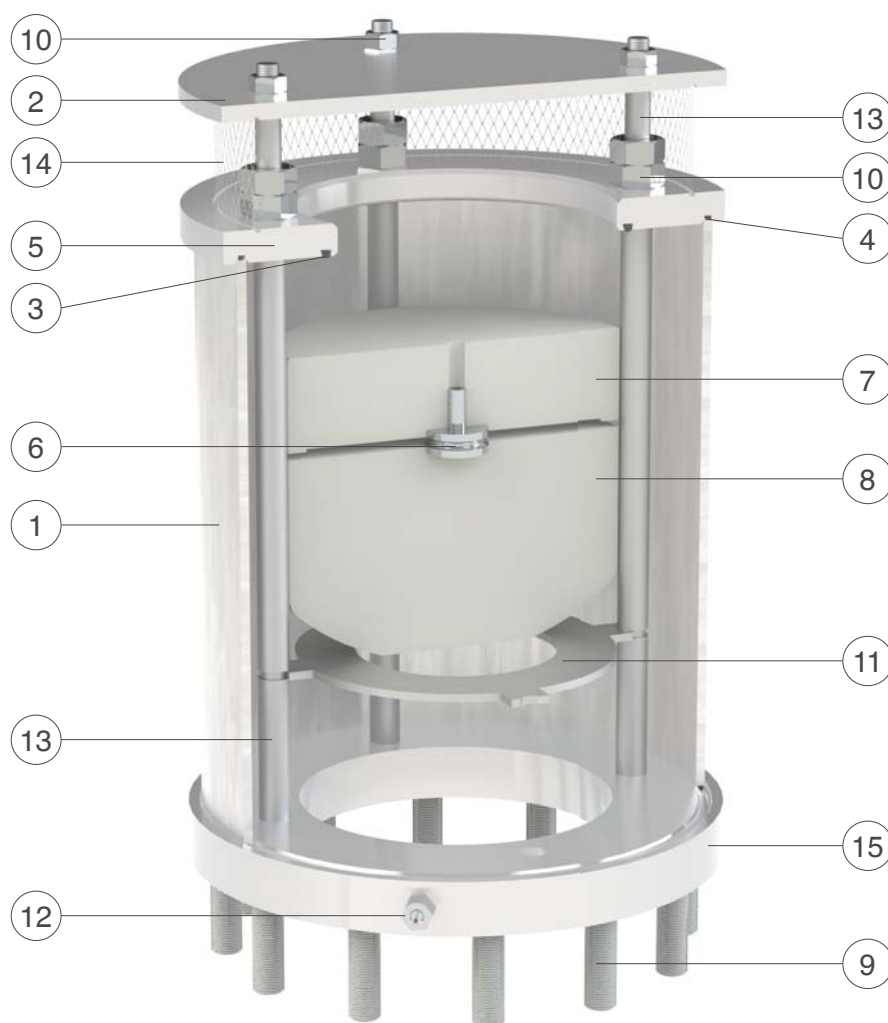


### Nozzle choice

|             | PN<br>10 | PN<br>16 | PN<br>25 | PN<br>40 |
|-------------|----------|----------|----------|----------|
| DN 1"       | 1,2      | 1,2      | 1        | 0,8      |
| DN 2"/50/65 | 1,5      | 1,2      | 1        | 0,8      |
| DN 80       | 1,8      | 1,5      | 1,2      | 1        |
| DN 100/150R | 2,4      | 1,8      | 1,8      | 1,2      |
| DN 150/200R | 4        | 3        | 2,4      | 1,8      |
| DN 200/250R | 4        | 4        | 4        | 3        |

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

## Technical details



| N. | 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  | Upper flat    | polypropylene            |                          |
| 8  | Float         | polypropylene            |                          |
| 9  | Studs         | stainless steel AISI 304 | stainless steel AISI 316 |
| 10 | Bolts         | stainless steel AISI 316 |                          |
| 11 | Deflector     | stainless steel AISI 316 | s.s. Duplex/Super Dupl.  |
| 12 | Drain valve   | stainless steel AISI 316 |                          |
| 13 | Spacers       | stainless steel AISI 316 | s.s. Duplex/Super Dupl.  |
| 14 | Screen        | stainless steel AISI 304 | stainless steel AISI 316 |
| 15 | Flange        | stainless steel AISI 316 | s.s. Duplex/Super Dupl.  |



# Anti water hammer combination air valve

## Mod. GOLIA 3F - AS

The CSA air valve Mod. GOLIA 3F AS will ensure the proper operation of the pipeline network allowing the release of air pockets during working conditions, the entrance of large volumes of air during draining operations and pipeline bursts and the air discharge with controlled speed, to avoid water hammer.



### Technical features and benefits

- Entirely made in high resistant materials suitable for industrial and aggressive environments.
- Mobile block composed of a cylindrical float and upper disk in solid polypropylene, joined together by the CSA air release system (pat. Pending). The solid cylindrical floats avoid deformations and ensure a great sliding precision.
- Nozzle and gasket holder, part of CSA air release system, entirely made in AISI 316/Duplex and designed with gasket compression control to prevent aging process and consequent leakage during working conditions.
- Anti water hammer system (also called AS function), never in contact with water, obtained by a spring and shaft in stainless steel, disk with adjustable sonic nozzles for air flow control.
- Mesh and cap in stainless steel.
- High flow design with reduced turbulence thanks to the single chamber design.
- Supplied with flanged or threaded outlets including studs.

### Applications

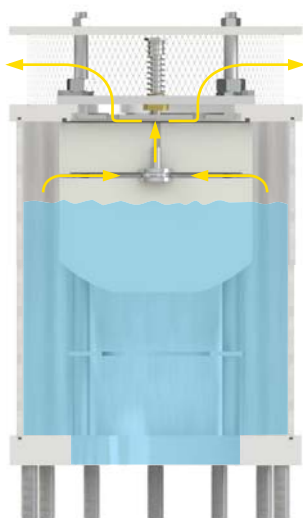
- Seawater main transmission lines.
- Desalination plants.
- Demineralized water.
- Mines.
- Aggressive and corrosive fluid, and more in general whenever ductile cast iron is not accepted by project requirements.

## Operating principle



### Controlled air discharge

During the pipe filling it is necessary to discharge air as water flows in. The Golia 3F AS, thanks to the anti-shock feature, will control the air outflow thus reducing the velocity of the approaching water column. The risk of overpressure will therefore be minimized.



### 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 AS**, 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.



■ **Version for submerged applications, SUB series**, available both for Golia 3F AS and 2F AS 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.



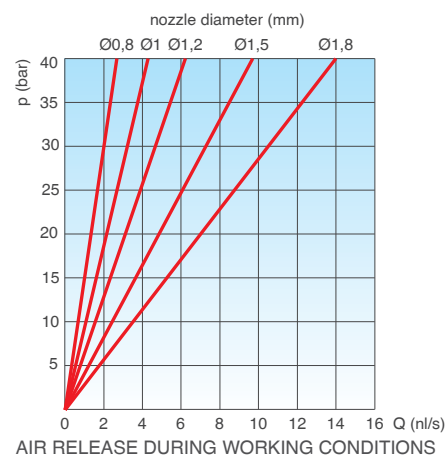
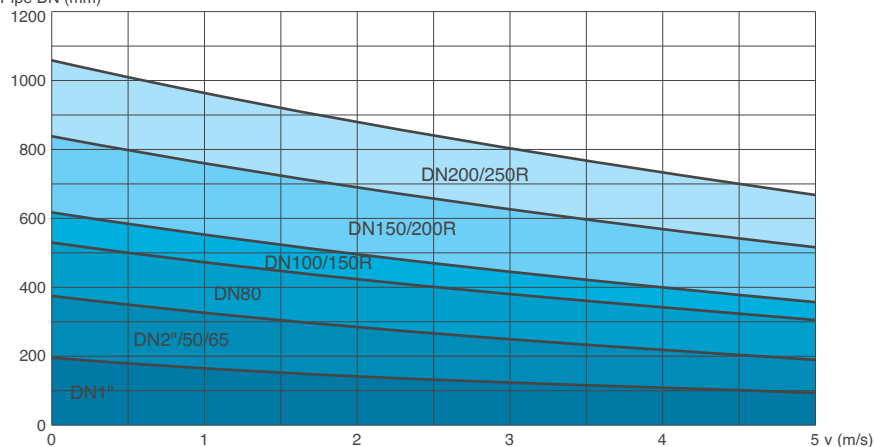
■ The counteracting spring force as well as the sonic nozzles, both responsible of the proper operation of the AS device, can be modified on request according to the project conditions and the transient analysis.

## Technical data

### Air valve selection chart

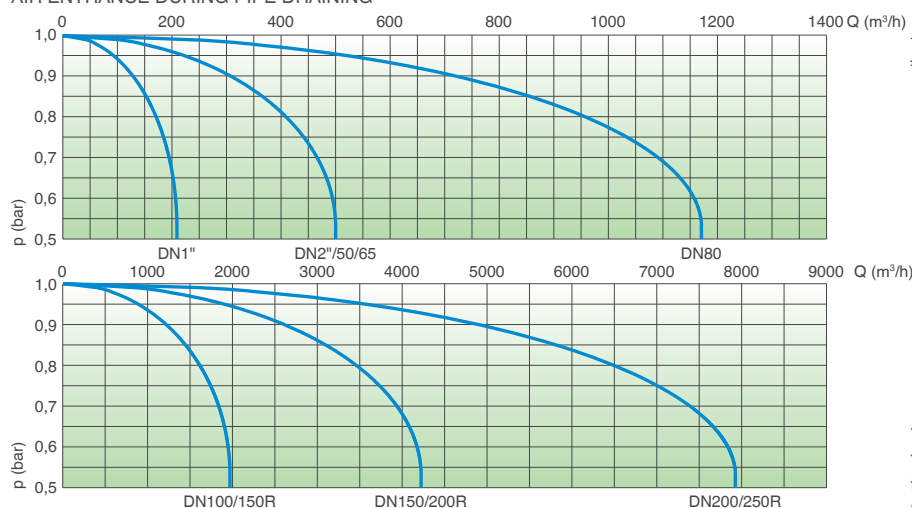
Air valve size as a function of pipeline internal diameter and fluid flow velocity expressed in m/s.

Pipe DN (mm)

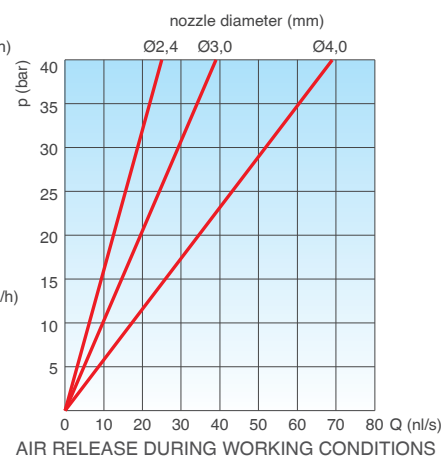


### Air flow performance charts

AIR ENTRANCE DURING PIPE DRAINING



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, then converted using a safety factor.

### Working conditions

Treated water max. 60°C.

Max. pressure 40 bar.

Min. pressure 0,2 bar. Lower pressure on request.

Version for high temperatures on request.

### Standard

Designed in compliance with EN-1074/4 and AWWA C-512.

Flanges according to EN 1092/2 or ANSI.

Gaskets in NBR, EPDM or Viton.

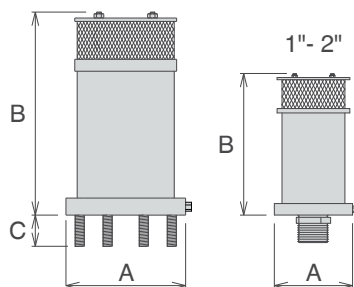
Changes and variations on the flanges and gaskets on request.

### Weights and dimensions

| CONNECTION<br>inch/mm | A<br>mm | B<br>mm | C<br>mm | Weight<br>Kg |
|-----------------------|---------|---------|---------|--------------|
| Threaded 1"           | 165     | 200     | -       | 6,4          |
| Threaded 2"           | 165     | 255     | -       | 6,4          |
| Flanged 50            | 165     | 255     | 40      | 8,0          |
| Flanged 65            | 185     | 255     | 40      | 8,0          |
| Flanged 80            | 200     | 285     | 50      | 12,0         |
| Flanged 100           | 235     | 335     | 50      | 17,0         |
| Flanged 150R          | 235     | 385     | 50      | 27,0         |
| Flanged 150           | 300     | 445     | 70      | 45,0         |
| Flanged 200R          | 360     | 445     | 70      | 49,0         |
| Flanged 200           | 360     | 515     | 70      | 62,0         |
| Flanged 250R          | 405     | 515     | 70      | 72,0         |

R: reduced bore. Larger sizes available on request.

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

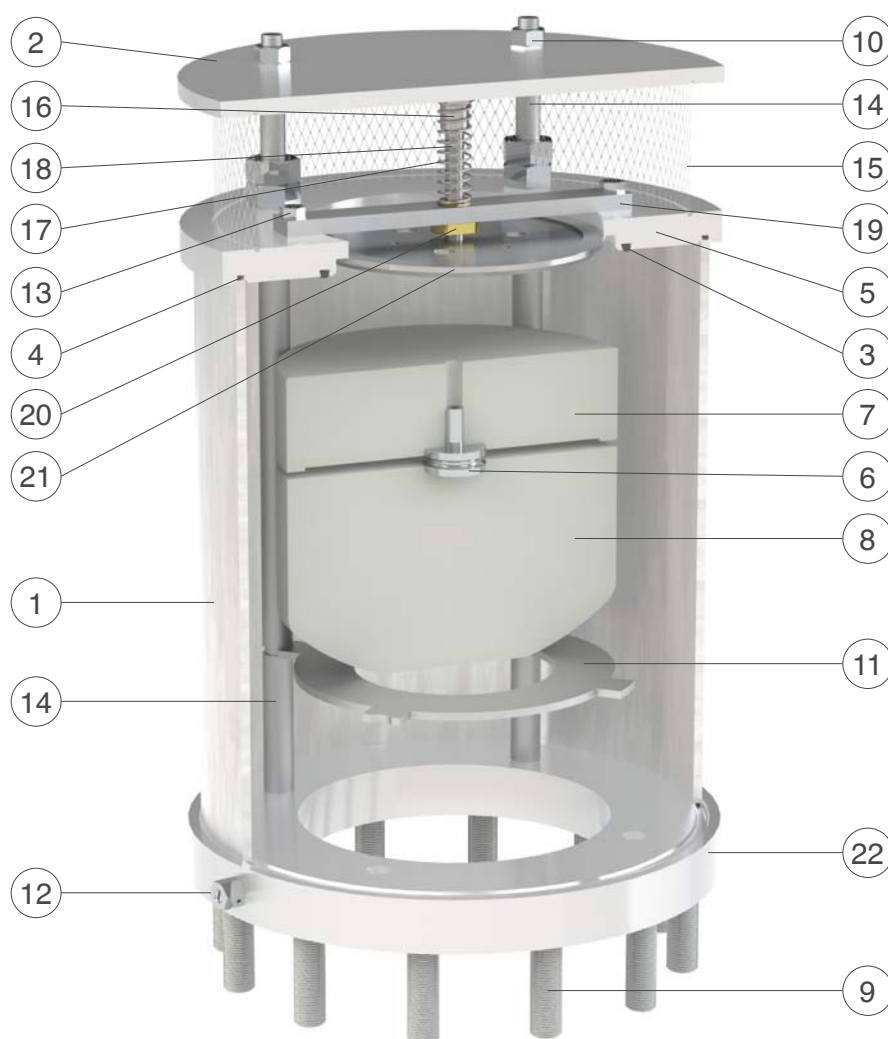


### Nozzle choice

|             | PN<br>10 | PN<br>16 | PN<br>25 | PN<br>40 |
|-------------|----------|----------|----------|----------|
| DN 1"       | 1,2      | 1,2      | 1        | 0,8      |
| DN 2"/50/65 | 1,5      | 1,2      | 1        | 0,8      |
| DN 80       | 1,8      | 1,5      | 1,2      | 1        |
| DN 100/150R | 2,4      | 1,8      | 1,8      | 1,2      |
| DN 150/200R | 4        | 3        | 2,4      | 1,8      |
| DN 200/250R | 4        | 4        | 4        | 3        |

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

## Technical details



| N. | 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  | Upper flat                     | polypropylene             |                          |
| 8  | Float                          | polypropylene             |                          |
| 9  | Studs                          | stainless steel AISI 304  | stainless steel AISI 316 |
| 10 | Nuts                           | stainless steel AISI 316  |                          |
| 11 | Deflector                      | stainless steel AISI 316  | s.s. Duplex/Super Dupl.  |
| 12 | Drainage valve                 | stainless steel AISI 316  |                          |
| 13 | Screws (from DN 150R)          | stainless steel AISI 316  |                          |
| 14 | Spacers                        | stainless steel AISI 316  | s.s. Duplex/Super Dupl.  |
| 15 | Screen                         | stainless steel AISI 304  | stainless steel AISI 316 |
| 16 | Spring guide nut (from DN 100) | stainless steel AISI 303  | stainless steel AISI 316 |
| 17 | Spring                         | stainless steel AISI 302  |                          |
| 18 | AS shaft                       | stainless steel AISI 303  | stainless steel AISI 316 |
| 19 | Spring support (from DN 150R)  | stainless steel AISI 304  | stainless steel AISI 316 |
| 20 | Guiding nut (from DN 150R)     | Delrin (polyoxymethylene) |                          |
| 21 | AS flat                        | stainless steel AISI 316  |                          |
| 22 | Flange                         | stainless steel AISI 316  | s.s. Duplex/Super Dupl.  |

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



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

The CSA air valve Mod. 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 downing, compared to standard combination air valves, are reduced.
- 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/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



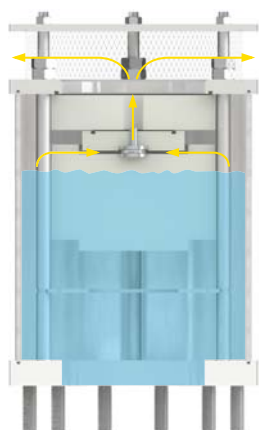
### Discharge of large volumes of air

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 at 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.

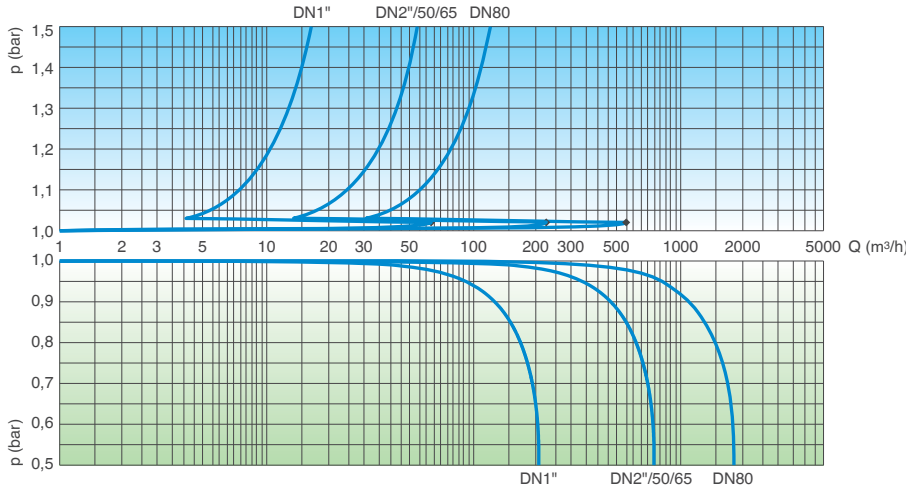


■ **Version for air discharge only EO series**, available both for Golia 3F RFP and 2F RFP models. The most important application of EO is to allow the air valve installation in those locations of the system where HGL may drop below the pipe profile, and to any other node where for project requirements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

## Technical data

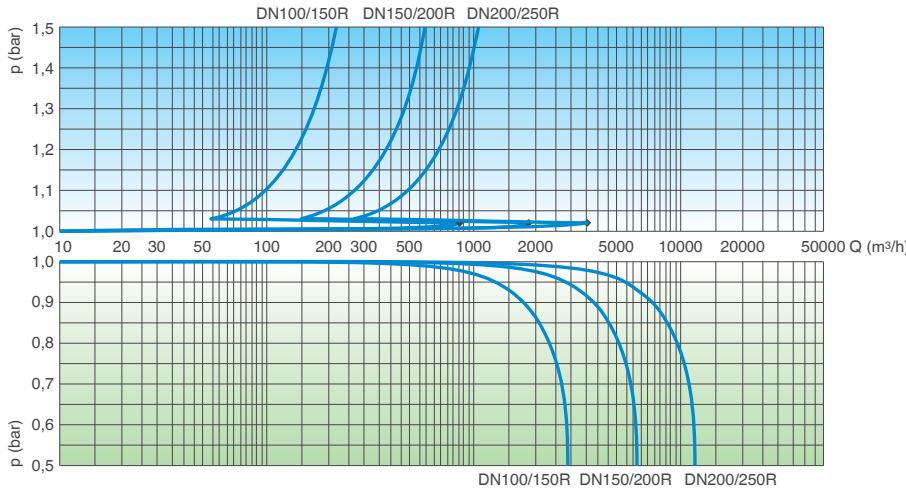
### Air flow performance charts

AIR DISCHARGE DURING PIPE FILLING

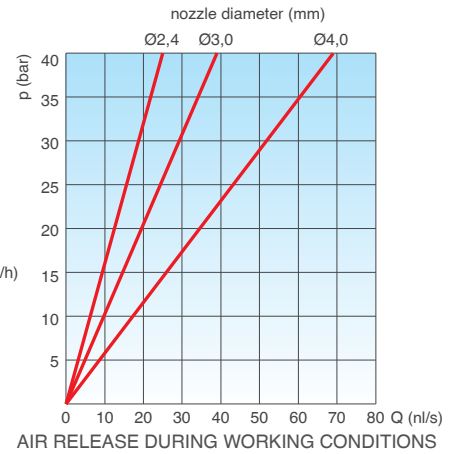
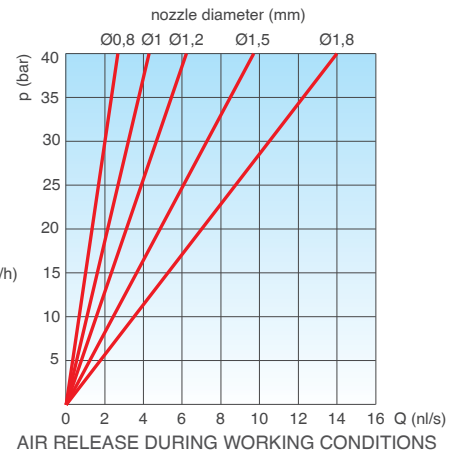


AIR ENTRANCE DURING PIPE DRAINING

AIR DISCHARGE DURING PIPE FILLING



AIR ENTRANCE DURING PIPE DRAINING



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

### Working conditions

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

### Standard

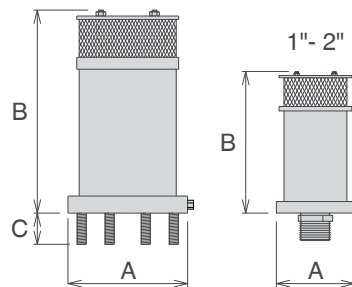
Designed in compliance with EN-1074/4 and AWWA C-512.  
Flanges according to EN 1092/2 or ANSI.  
Gaskets in NBR, EPDM or Viton.  
Changes and variations on the flanges and gaskets on request.

### Weights and dimensions

| CONNECTION<br>inch/mm | A<br>mm | B<br>mm | C<br>mm | Weight<br>Kg |
|-----------------------|---------|---------|---------|--------------|
| Threaded 1"           | 165     | 200     | -       | 6,4          |
| Threaded 2"           | 165     | 255     | -       | 6,4          |
| Flanged 50            | 165     | 255     | 40      | 8,0          |
| Flanged 65            | 185     | 255     | 40      | 8,0          |
| Flanged 80            | 200     | 285     | 50      | 12,0         |
| Flanged 100           | 235     | 335     | 50      | 17,0         |
| Flanged 150R          | 235     | 385     | 50      | 27,0         |
| Flanged 150           | 300     | 445     | 70      | 45,0         |
| Flanged 200R          | 360     | 445     | 70      | 49,0         |
| Flanged 200           | 360     | 515     | 70      | 62,0         |
| Flanged 250R          | 405     | 515     | 70      | 72,0         |

R: reduced bore. Larger sizes available on request.

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

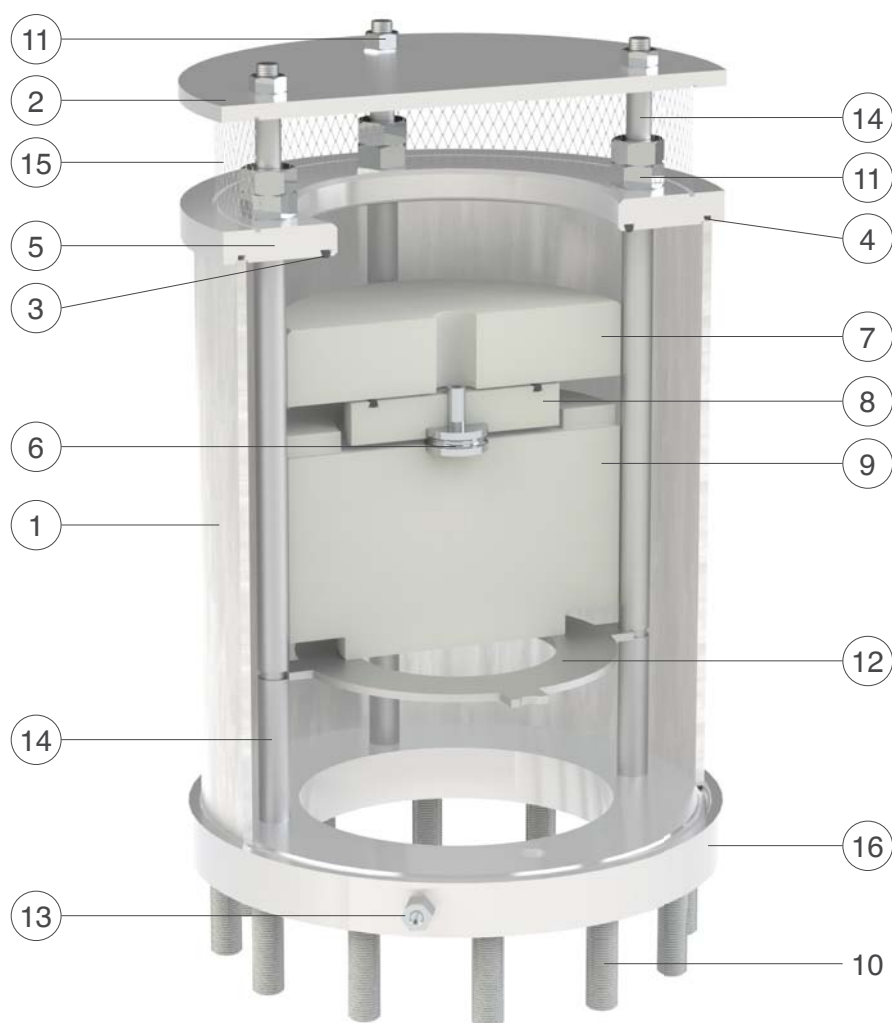


### Nozzle choice

|             | PN<br>10 | PN<br>16 | PN<br>25 | PN<br>40 |
|-------------|----------|----------|----------|----------|
| DN 1"       | 1,5      | 1,2      | 1        | 0,8      |
| DN 2"/50/65 | 1,8      | 1,5      | 1,2      | 1        |
| DN 80       | 1,8      | 1,5      | 1,2      | 1        |
| DN 100/150R | 3        | 2,4      | 1,8      | 1,2      |
| DN 150/200R | 4        | 3        | 2,4      | 1,8      |
| DN 200/250R | 4        | 4        | 4        | 3        |

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

## Technical details



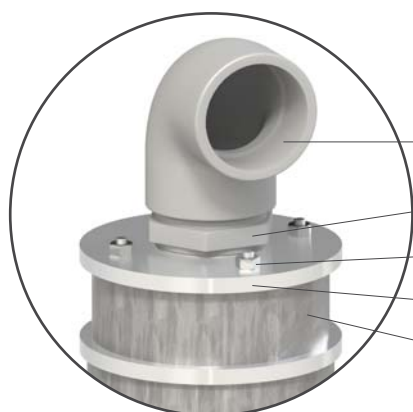
|    | Component     | Standard material        | Optional                 |
|----|---------------|--------------------------|--------------------------|
| 1  | Body          | stainless steel AISI 316 | s.s. Duplex/Super Dupl.  |
| 2  | Cap           | stainless steel AISI 304 | stainless steel AISI 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 | Deflector     | 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 | Screen        | stainless steel AISI 304 | stainless steel AISI 316 |
| 16 | Flange        | stainless steel AISI 316 | s.s. Duplex/Super Dupl.  |



# Combination air valve - Mod. Golia 3F

## Version for submerged applications - SUB series

**Version for submerged applications, SUB series** available for all CSA Golia models except for EO version, with threaded 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.



### Plastic elbow for DN 1"-150R

Threaded elbow in PVC (PP for DN 1"-65)

Fitting in PVC (PP for DN 1"-65)

Nuts in stainless steel

SUB flat in stainless steel

SUB extension in stainless steel



### Elbow in stainless steel for DN 200 and 250R (available on request for other DN)

SUB flat and elbow in stainless steel

Nuts in stainless steel

SUB extension in stainless steel

## Technical data

### Working conditions

Treated water max. 60°C.

Max. pressure 40 bar.

Min. pressure 0,2 bar. Lower pressure on request.

Version for high temperatures on request.

### Standard

Designed in compliance with EN-1074/4 and AWWA C-512.

Flanges according to EN 1092/2 or ANSI.

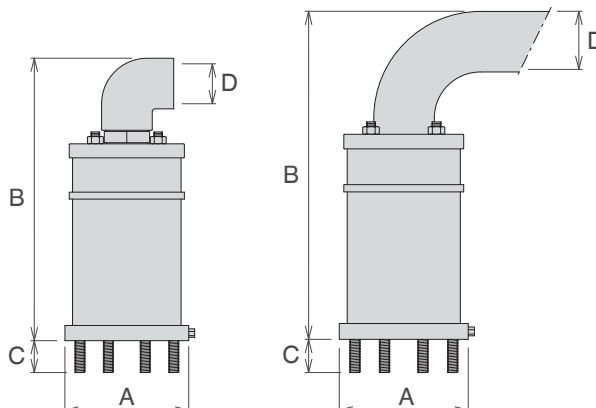
Gaskets in NBR, EPDM or Viton.

Changes and variations on the flanges and gaskets on request.

## Weights and dimensions

| CONNECTION<br>inch/mm | A<br>mm | B<br>mm | C<br>mm | D<br>inch | Weight<br>Kg |
|-----------------------|---------|---------|---------|-----------|--------------|
| Threaded 1"           | 165     | 285     | -       | 1"        | 7,0          |
| Threaded 2"           | 165     | 380     | -       | 2"        | 7,7          |
| Flanged 50            | 165     | 380     | 40      | 2"        | 9,3          |
| Flanged 65            | 185     | 380     | 40      | 2"        | 9,3          |
| Flanged 80            | 200     | 435     | 50      | 2" 1/2    | 13,4         |
| Flanged 100           | 235     | 510     | 50      | 3"        | 19,7         |
| Flanged 150R          | 235     | 560     | 50      | 3"        | 29,7         |
| Flanged 150           | 300     | 650     | 70      | 4"        | 51,4         |
| Flanged 200R          | 360     | 650     | 70      | 4"        | 55,4         |
| Flanged 200           | 360     | 830     | 70      | 6"        | 78,3         |
| Flanged 250R          | 405     | 830     | 70      | 6"        | 88,3         |

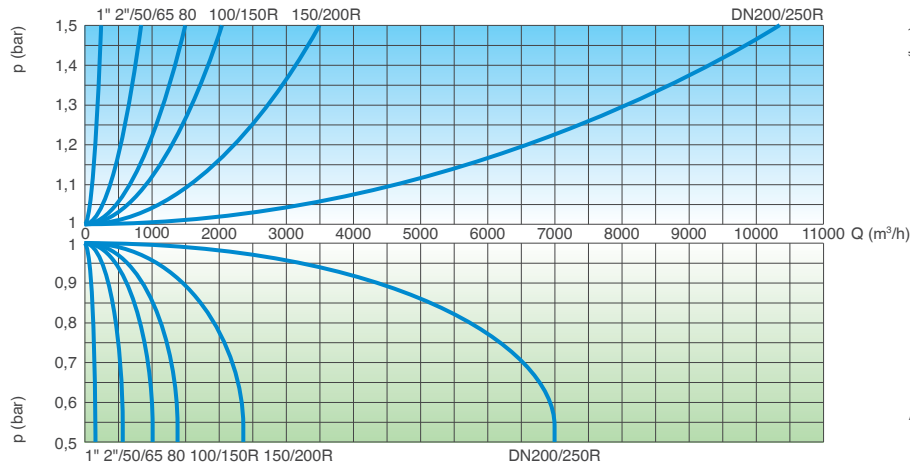
All values are approximate, consult CSA service for more details.



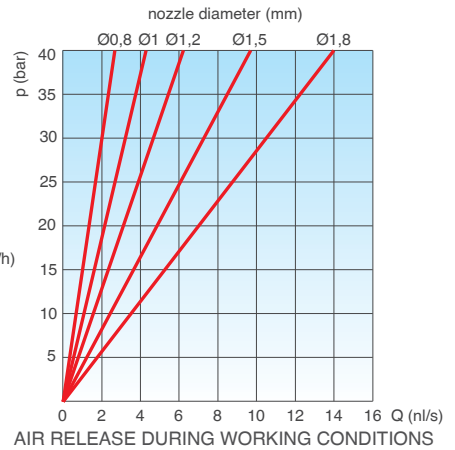
## Technical data

### Golia SUB - Air flow performance charts

AIR DISCHARGE DURING PIPE FILLING

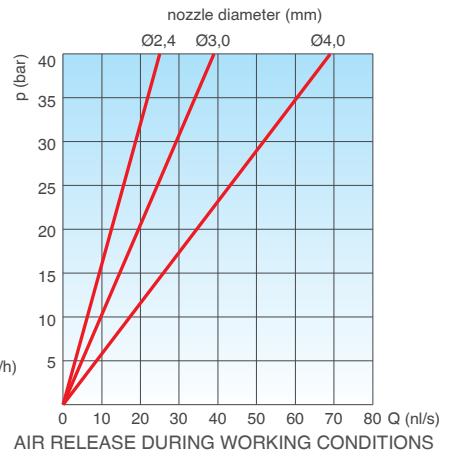
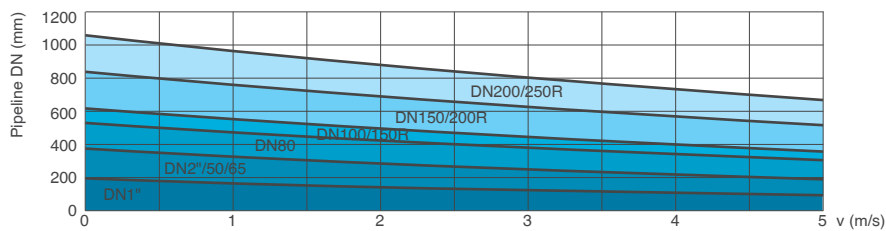


AIR ENTRANCE DURING PIPE DRAINING

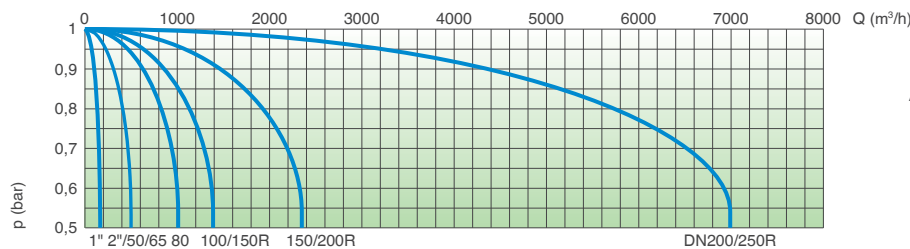


### Golia AS SUB - Air valve choice chart

Air valve size as a function of pipeline internal diameter and fluid flow velocity expressed in m/s.



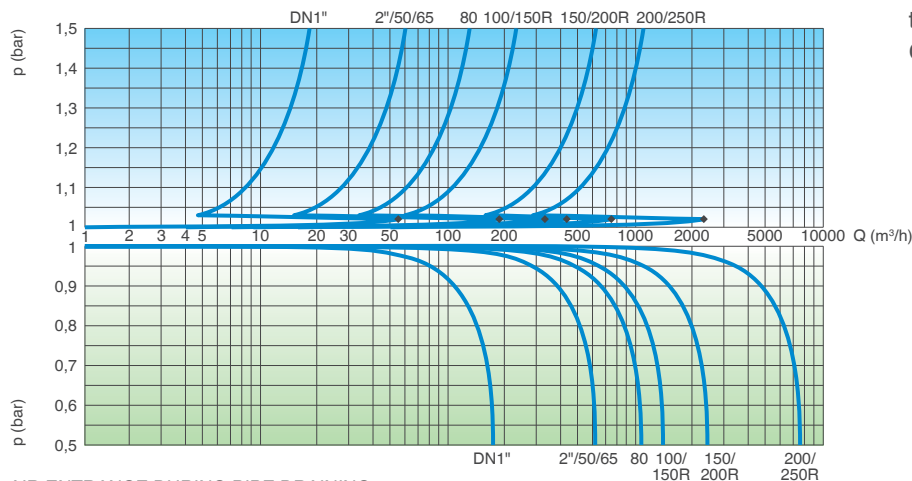
### Golia AS SUB - Air flow performance charts



AIR ENTRANCE DURING PIPE DRAINING

### Golia RFP SUB - 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.

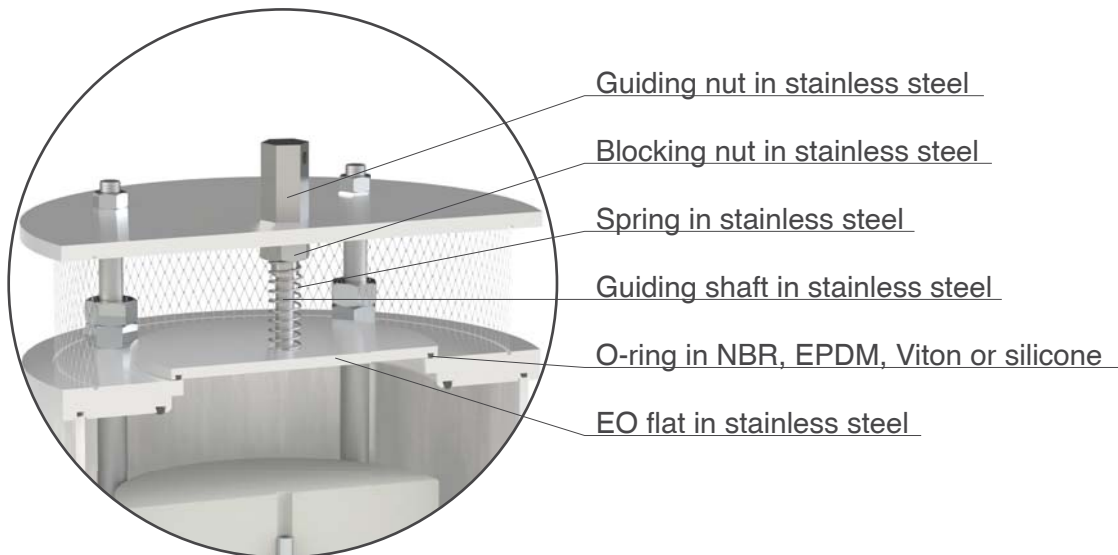
### Nozzle choice

For the nozzle choice make reference to the available technical data sheets of the Golia models.



## Version for air discharge only Golia - EO series

**Version for air discharge only EO series**, available both for Golia 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 whenever for project requirements air entrance must be avoided.



## Version for air entrance only Golia - IO series

**Version for air entrance only IO series**, available for Golia 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.

