Anti-shock combination air valve for industry
Mod. GOLIA 3F - AS

The CSA anti-shock, non slam, surge dampening combination air valve Mod. GOLIA 3F AS will allow 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 potential damages due to 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, that are joined together by the CSA air release system. 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 surge prevention 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.
- Mining.
- Refineries and petrochemical plants.
Operating principle

**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.

**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.

**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 result of transient analysis.
Technical data

Air valve selection chart

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

Air flow performance charts

AIR RELEASE DURING WORKING CONDITIONS

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.

Standard
Designed in compliance with:
- EN-1074/4
- AS 4956
- AS 4020
- AWWA C-512.

Connections
Threaded: BSP - M
NPT on request.
Flanges: AS 4087 PN 16
AS 4087 PN 35
ANSI on request.

Weights and dimensions

<table>
<thead>
<tr>
<th>CONNECTION inch/mm</th>
<th>A (mm)</th>
<th>B (mm)</th>
<th>C (mm)</th>
<th>Weight Kg</th>
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<tbody>
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<td>200</td>
<td>-</td>
<td>6.4</td>
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<tr>
<td>Threaded 2&quot;</td>
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<td>255</td>
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<td>335</td>
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<td>515</td>
<td>70</td>
<td>62.0</td>
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<tr>
<td>Flanged 200R</td>
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<td>515</td>
<td>70</td>
<td>72.0</td>
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AS system orifices specification
Details of CSA anti-slam system air regulation adjustable orifices, with minimum and maximum outflow section.

<table>
<thead>
<tr>
<th>orifices</th>
<th>A min. (mm²)</th>
<th>A max. (mm²)</th>
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<tr>
<td>1&quot;</td>
<td>03X2-M03X2</td>
<td>14 28</td>
</tr>
<tr>
<td>2&quot;/DN 50/65</td>
<td>03X2-M03X2</td>
<td>25 50</td>
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<tr>
<td>DN 60</td>
<td>03X2-M03X2</td>
<td>56 113</td>
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<tr>
<td>DN 100/150R</td>
<td>07X2-M08X2</td>
<td>77 133</td>
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<tr>
<td>DN 150/200R</td>
<td>010X3-M08X3</td>
<td>235 320</td>
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<tr>
<td>DN 200/250R</td>
<td>014X3-M08X3</td>
<td>461 612</td>
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</tbody>
</table>

R: reduced bore. Larger sizes on request. Approximate values, consult CSA for details.

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Technical details

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

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