

Anti shock air valve for high-rise buildings and pumping stations

DNS-1"-TF-AS-BSP-KARS-SOB

The DNS air valve DNS-1"-TF-AS-BSP-KARS-SOB will ensure the proper operation of the system 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 prevent water hammer.



We can refer to hydraulic transients meaning a temporary flow and pressure condition occurring in a hydraulic system between an initial steady-state condition and a final steady-state condition. If changes occur rapidly following the operation of a flow-control device (like a valve closure or pump start), the compressibility of the liquid and the elasticity of the pipeline cause a transient pressure wave propagating along the system. The variation can be either positive leading to excessive pressure and consequently damages, bursts or negative, causing pipe collapse and deformation.

In case of risers in general and for high-rise buildings in particular air valves need to be installed for the removal of air pockets, and water hammer for such applications is normally related to their fast closure in case of rapid filling and pump start up.

The anti-shock DNS air valve DNS-1"-TF-AS-BSP-KARS-SOB is a special version of the existing air valves range, which has been designed to ensure the proper operation of the system in any circumstance avoiding the sudden impact between the water surface and the float with consequent slow closing. This model will also ensure the entrance of large volumes of air during pipe filling/draining and the air release during working conditions.

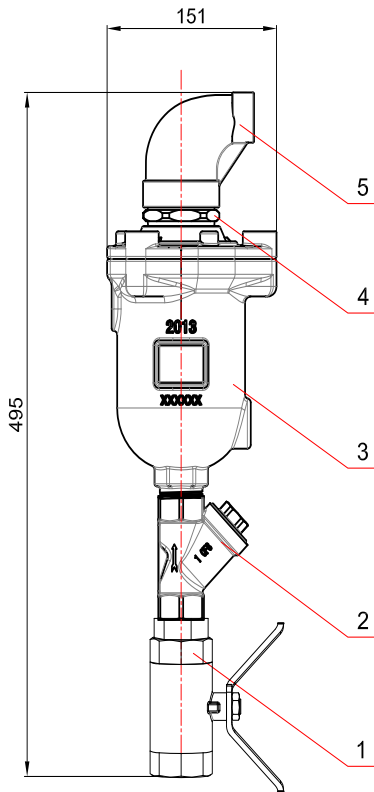
Technical features and benefits

- Body in ductile cast iron, PN 40 bar rated, provided with internal ribs for consistent and accurate guiding of the mobile block.
- Drainage valve produced by DNS, 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 DNS air release system in AISI 316 (pat. Pending).
- Nozzle and gasket holder, part of DNS air release system, entirely made in AISI 316 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.
- Threaded outlet elbow to avoid spray effect, conveying spurts coming from the closure away from the valve. This feature will also allow the proper operation in case of flood, without the risk of contaminated water entering the pipeline.
- The air valve is fitted with a Y strainer to prevent debris, solids from reaching the upper part where the air release system and seat is located causing possible malfunctioning.

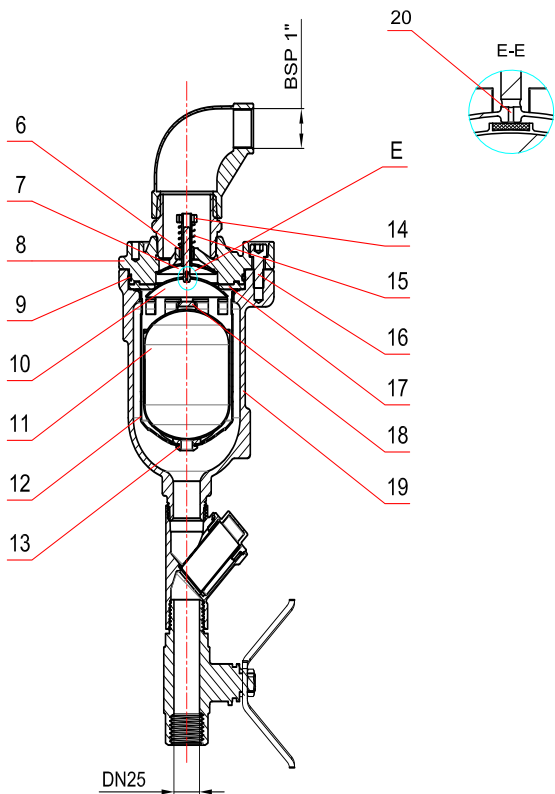
Applications

- Pipeline risers.
- High-rise buildings.
- Irrigation and treated water pumping stations.

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Technical Data			Technical Data		
Rating	1.6MPa		Rating	1.0MPa	
Test	Body	2.4MPa	Test	Body	1.5MPa
	Seat	1.76MPa		Seat	1.1MPa
Temp.	≤80°C		Temp.	≤80°C	
Media	Clean Water		Media	Clean Water	



No.	Part Name	Material	Standard
1	Ball Valve	Stainless Steel	AISI 304
2	Y-Shaped Filter	Stainless Steel	AISI 304
3	Air Release Valve	Standard Parts	Standard Parts
4	Screw Joint	Stainless Steel	AISI 304
5	Threaded Elbow	Stainless Steel	AISI 304
6	Bush	Brass	CZ122
7	Anti Shock Device	Stainless Steel	AISI 304
8	Bonnet	Ductile Iron	GJS 500-7
9	O-Ring	Rubber	NBR
10	Sealing Arc	Stainless Steel	AISI 304
11	Float	Stainless Steel	AISI 304
12	Guide Barrel	Stainless Steel	AISI 304
13	Buffer	Rubber	EPDM
14	Nut	Stainless Steel	AISI 304
15	Spring	Stainless Steel	AISI 304
16	In Hex Bolt	Carbon Steel	Commercial
17	Seat	Rubber	EPDM
18	Nozzle Seat	Rubber	EPDM
19	Body	Ductile Iron	GJS 500-7
20	Plug-Option	Stainless Steel	AISI 304