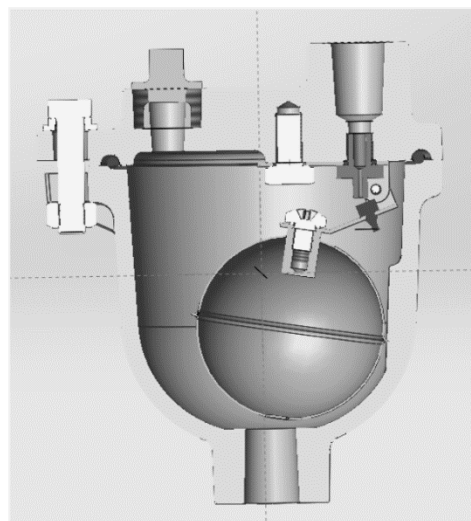
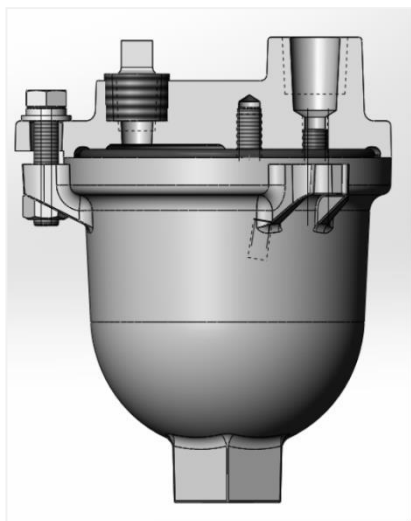


**AIR RELEASE VALVE
(NSARV)**

**INSTALLATION, OPERATION AND
MAINTENANCE MANUAL**

Ver.2021-1



I. WORKING PRINCIPLE

Air release valves are used in fluid piping systems to remove trapped air. During water transportation, air is continuously released from the water, forming air pockets that can hinder efficient flow. As air escapes within the system, it rises along the pipeline and eventually accumulates at the highest point. At this stage, the air release valve operates based on the floating ball lever principle. For optimal efficiency, the automatic air release valve is typically installed at the highest point in the system, where air accumulation is most significant.

1. When air enters the chamber of the air release valve, it gathers in the upper section, causing air pressure to rise. Once the air pressure exceeds the system pressure, the trapped air forces the water level inside the valve to drop. As the water level decreases, the floating ball lowers, opening the release port and allowing air to escape. As the air is discharged, the water level rises again, lifting the floating ball until the release port is sealed.
2. Similarly, when negative pressure occurs in the system, the water level inside the valve drops, and the release port opens. Since the external atmospheric pressure is higher than the system pressure, air enters through the release port, preventing potential damage caused by negative pressure.

II. APPLICATION SCOPE AND POSITION

Air release valves are used in building automation systems, independent heating systems, central heat-supply systems, heating boilers, central air conditioning, floor heating, solar heating, and other piping systems that require air removal.

These valves are essential in such systems because the circulating medium—typically water—naturally contains dissolved air. As the water temperature increases, its ability to retain dissolved air decreases. During circulation, this air gradually separates from the water, accumulating into bubbles or even forming air pockets. Additionally, as fresh water is continuously introduced into the system, more air is released, leading to the formation of air pockets that can obstruct water flow. To prevent these issues and ensure efficient operation, air release valves are necessary.

III. INSTALLATION

1. Air release valves must be installed vertically to ensure proper alignment of the floating ball, preventing any interference with the release function.
2. Air release valves should be installed at the highest point of the system to maximize air release efficiency.
3. It is recommended to install isolation valves alongside automatic air release valves. This ensures that the system remains sealed, preventing water from escaping when the air release valve is removed for maintenance.

IV. USAGE, MAINTENANCE, AND IMPORTANT CONSIDERATIONS

1. Spare parts include O-rings made of VITON or EPDM, with an outer diameter of 87.5 mm and a wire diameter of 5.3 mm.
2. The operating temperature range is -10°C to 120°C.
3. When reinstalling the product after disassembly, tighten the bolts gradually and evenly. Avoid fully tightening one bolt before the others.
4. The valves are designed for use under a working pressure of 200 PSI.