

Operating and Maintenance Instructions for Automatic Air and Vacuum Valve for Potable Water and Wastewater Model 988



1. Intended use:

The H-TEC automatic air and vacuum valve, Model 988, is used for aerating and de-aerating of pressure pipe line systems for a pressure range between 3 – 250 psi (0,3 - 16 bar), as well as in vacuum systems.

The Medium: potable water, domestic wastewater (industrial or domestic wastewater with a high content of acid or alkali, only on consultation).

Please note this product must be maintained at least once per year, and even more frequently in case of wastewater pressure lines with a high degree of contamination or a tendency to saponification. Observe also the applicable standards and general regulations for the prevention of accidents.

Air and vacuum valves contain compressed air. Therefore, isolate the air and vacuum valve from the operating system. Before starting any maintenance work the valve must be depressurized via the ball valve!



2. Product description:

The H-TEC automatic air and vacuum valve is an two-way air valve, both aerating and removing air enclosed in pipelines. The valve operates automatically.

The valve body and the outlet hood are made of stainless steel 316. The rest of the internal parts are exclusively made of non-corrosive materials.

This air release valve has a wide outlet with a patented diaphragm sealing system. It is suitable to move high volume of air in or out of the pipeline. This valve is operating infinitely variable from 3 to 250 psi (0,2 – 16 bar). The unique function for infinite air release/intake, due to the automatic movements of the diaphragm in operation modus, soft sealing and slowing the water column preventing water hammer.

The sealing system is not in contact to the flow medium. The integrated flushing connection is only for maintenance reason. By connecting with a flushing pipeline debris can be flushed out of the body of the valve. In case of comprehensive debris collection within the body of the valve the whole function unit must be removed and cleaned.

The standard version of this valve is equipped with a screen hood. On optional base the valve can be connected to an adequate air vent line instead of the screen hood.

3. Installation:

The air and vacuum valve, Model 988, must be installed on a vertical outlet on top of the pressure pipeline. Installation should be as close to the pipeline as possible to reduce the danger of freezing. Note: The lateral arrangement of air valves may considerably influence the control behaviour of the valve. Moreover, in case of heavy contamination there may be problems in the pipeline area upstream of the air valve. A laterally displaced arrangement of air valves shall be avoided.

In case of large pipeline dimensions care should be taken that the air is actually carried to the air valve. Therefore it is recommended to choose the connection to the pipeline as large as possible and to subsequently provide for reduction to the valve and its nominal width by means of a double flanged taper simultaneously acting as an air dome holding a larger amount of air (example: pipeline 8", outlet at the pipeline 6", double flanged taper reducing to 4", air valve 4")

There should always be a isolation valve below the air and vacuum valve to allow maintenance work. This automatic

valve is intended for installation in shafts. Please, observe the applicable standards and guidelines for this shaft, especially the regulations for the prevention of accidents in case of access to the shaft.

At the air relief outlet of the H-TEC air and vacuum valve a pipe can be connected. Note that the connection of a vent line may possibly influence the control behaviour of the air valve. The same applies to any odour filters that may be installed additionally. In this case it is important to use sufficiently large components to avoid backwater in the valve.

4. Start-up and pressure testing:

During pressure testing of new pipeline systems air valves should be generally put out of service. To this end the shut-off facility below the valve shall be closed. There is always some residual air enclosed even in a properly vented pipeline. If the air valve is placed correctly, this residual air is carried to the valve possibly causing it to blow off during pressure testing. As a consequence the pipeline system is wrongly assumed to be leaking.

Air valves are tested by the manufacturer so that they need not be included in the pressure testing. After completion of pressure testing of the pipeline the isolation valve is opened slowly and the air valve and its flange connections are visually inspected under operating pressure.

Note: to prevent surge (>44 psi, 3 bar) during filling process limit the flow velocity to 10"/sec (0,25 m/s). Before filling the pipeline make shure that the manhole covers can eliminate the venting air.

5. Service – maintenance of automatic air and vacuum valve

The reliability of the H-TEC automatic air and vacuum valve can be considerably increased by checking it for possible contamination at regular intervals. Make sure to isolate the air valve from the pipeline system before starting any maintenance work by closing the shut-off valve and to reduce any overpressure possibly existing in the air valve via the ball valve of the flushing line. Due to its coating the H-TEC automatic air and vacuum valve is well protected against deposits. Nevertheless, depending on the properties of the medium, the operability of the valve should be checked at regular intervals and possible contamination should be removed, especially in case of larger bodies of dirt that cannot be flushed out via the lateral flushing connections.

All work at H-TEC automatic air and vacuum valves should be performed by personnel which either is trained or read this manual!

We recommend the first maintenance to be done after a period of approx. 4 – 8 weeks and to define further maintenance intervals on the basis of the result of this first maintenance. To this end open the valve according to the below description. In the course of maintenance, check also the ball valve and all other components for leakage and contamination.

5.1 Open ring nuts and hexagon bolts



5.2 Lift flange with screen upward.



5.3 Lift complete function unit upward at the grip lugs. Place upright on the ground.



5.4 Unscrew valve spindle top and press metal screw while lifting upper air valve part.



5.5 Clean and/or flush the slots of the air valve part.



- 5.6 Remove diaphragm from the diaphragm bolt and check for debris and mechanical damages. Clean diaphragm from debris with water and towel. In case an exchange of the diaphragm is necessary remove the diaphragm from the diaphragm holder

Assembly of the diaphragm

- 5.7 Pull back diaphragm over diaphragm holder and screw



- 5.8 Check the correct seat of the diaphragm.

- 5.9 Assembly of the diaphragm to the upper air valve part:
Guide the screw through the borehole of the upper air valve part and connect it to the plastic spindle.



- 5.10 The rest of the assembly follows the steps vice versa 5.9 through 5.1 of this manual.

- 5.11 Leakage test!