

1. Intended use and product description:

The Hawle air release valve Order No. 987 are suitable for potable water up to a max. operating pressure of 16 bar. Please note the operating ranges of the valves.

The Hawle air release valve is designed for installation in chambers or systems. A shut-off valve should be provided below the valve for maintenance purposes. The air release valve must be located on the pipeline at the high point or in accordance with the recommendations of DVGW Worksheet W334. For large pipe dimensions, a vent dome should be provided (note also point 2 assembly).

Types of construction:

- Air release valve for operating range 1 - 16 bar (standard version)
- Air release valve for operating range 0.1 - 6 bar (special version)
- Female thread 1", valve body made of POM, protective cover made of PE
- Female thread 2", valve body made of POM, protective cover made of PE
- Flange DN 50, valve body made of POM, protective cover made of PE
- Flange DN 80, valve body made of POM, protective cover made of PE

2. Assembly:

Caution: The pipeline must be flushed before installation, as dirt, drilling chips or other foreign bodies can impair the valve function if they are flushed into the valve.

The valve should always be mounted on a vertical outlet of the pressure pipeline. Assembly should be as close as possible to the pipeline to reduce the risk of freezing. A laterally displaced connection to the pressure line should be avoided. We strongly recommend that a shut off mechanism (gate valve or auxiliary shut-off device) be provided below air release valve for maintenance purposes and possible pressure tests of the pipeline.

In addition, a drain valve should be provided below the valve to relieve pressure for maintenance, installation, removal and functional tests (see note in DVGW worksheet W334 under section 10.2). Hawlinger with drain function, for example, can be used for the air release valve threaded connection. For valves with flange connection, flange intermediate rings with horizontal thread connection and e.g. ball valve can be used as shut off mechanism.

With large pipeline dimensions, please note that the air must be directed to the valve. Otherwise air parts would be dragged laterally to the valve. In accordance with the recommendation of DVGW Worksheet W334, a vent dome must be provided for this purpose. It is advisable to make the connection to the pipeline as large as possible and, if necessary, to connect it to the vertical flanged outlet of the pipeline using a reducing piece which also acts as a vent dome. (Example: pipe dimension DN 300 with vertical flanged outlet DN 200, followed by FFR DN 200/80 and valve dimension with flange DN 80 and bottom auxiliary shut-off device or gate valve DN 80.)

The valve assembly must be carried out in a depressurised condition. For this purpose the pipeline must be relieved of pressure. For pressurised pipelines, the shut off mechanism below the valve must be closed before installation.

Depending on the type of connection, the 1" or 2" threaded connection must be properly sealed by means of a double nipple or conventionally as a flange connection with flat gasket. Suitable double nipples include, for example, the corrosion-free external thread double nipples made of plastic (POM), Order No. 664 032 0000 (male thread 1") and Order No. 6640630000 (male thread 2") from the Hawle product range.

During each venting stroke, small amounts of splashing water can be blown off via the valve when under pressure. This is a normal process. Therefore, an outlet possibility (pump sump or similar) must be provided in the valve chamber. If exhaust air pipelines are laid from the valve, care should be taken that no water can run back from the pipeline into the valve. (e.g. arch guide downwards with water outlet opening at the lowest point). The exhaust air pipelines should also not show any backflow due to cross-section reduction.

3. Commissioning and Pressure Testing:

Observe the instructions for pipeline flushing under point 2 before commissioning.

The maximum filling speed results from the specifications of DVGW worksheet W 334 Pkt. 9.2 ($v_{max} = 0.25 \text{ m/s}$).

Before filling the pipeline, open the shut off mechanism below the valve. The valve vents automatically and closes automatically as soon as the water pressure presses the float ball upwards against the sealing seat.

Leaks can usually only be caused by impurities that have been flushed in or valves with incorrect pressure ratings (e.g. pressure rating 1-16 bar, at very low pipeline pressures less than 1 bar). If dirt is the cause of a leak, please proceed as described in chapter 4. Maintenance.

The air release valves are designed for a maximum operating pressure of 16 bar, i.e. a test pressure of up to 24 bar is permissible (tightness test of the housing). The function of the valve is factory tested at 16 bar.

During the pressure test of the pipeline, air release valves must be taken out of operation, otherwise a venting process may occur during the pressure test. This would result in a drop in pressure. Please do not forget to put the valve back into operation after the pressure test and to carry out a visual inspection at operating pressure!

Decommissioning is carried out by closing the shut-off valve below the valve. Air release valves are end fittings at geodetic high points.

The outlet on the outlet side must be directly connected to the atmosphere as a hydraulic separation from the piping system. Any downstream pipe parts, e.g. for the discharge of splashing water, must be large enough to ensure the atmospheric connection. If water can collect and/or counterpressure build up in these pipeline parts, the function of the air release valve is no longer guaranteed and the effect of the float is then rendered inoperative. Leaks and flooding are the negative consequences.

Measures before pressure tests:

CAUTION: Valves not shut down by shut-off may falsify pressure test records. As soon as air is removed from the pipeline system via the valve and the sealing seat opens slightly, a pressure drop occurs. This could be interpreted in the measurement protocol as a leak in the line system or on valve and fittings.

To avoid incorrect measurements, the valve must be shut down by closing the shut-off valve before starting the pressure test!

After the pressure test, slowly reopen the shut-off valve below the valve, the valve is then ready for operation!

4. Maintenance:

Foreign bodies flushed into the valve body (e.g. PE chips from drilling, wood, polystyrene ...) as well as sedimentary deposition in water qualities containing iron, manganese or suspended solids can impair the perfect sealing function. To avoid malfunctions, maintenance should therefore be carried out at least once a year in accordance with DVGW W 392. Depending on the water composition, it may be necessary to shorten the maintenance intervals.

Procedure:

1. First, slowly close the shut-off valve below the valve.
2. **CAUTION:** It cannot be ruled out that compressed residual air may be present in the valve. Therefore, carefully relieve the pressure through the drain valve located below the valve before carrying out any further work on the valve (see also note in DVGW Merkblatt W334)
2. Remove any aeration/exhaust air piping from the valve.
3. If access to the valve body is unfavourable, the valve should be completely disassembled for cleaning purposes. For this purpose, the flange or threaded connection must be loosened. With good accessibility, the valve can also be cleaned when installed on the pipeline.

Further working steps for valve size 1" female thread (single acting ventilation function)

4. The black protective cover must be removed by loosening the upper circlip with a pair of pliers (Seeger ring pliers, sprinkler pliers) (Figure 1).
5. Loosen the top screw plug from the white plastic housing (Figures 2, 3). Further dismantling of the one-piece body is not possible.
6. Any impurities above the sealing seat in the valve body must be removed.



7. If the rubber sealing seat vulcanised into the sealing screw (screwed to the float ball in the valve body) is damaged or worn out, the sealing screw must also be loosened with tweezers and replaced with a new replacement sealing seat.
To do this, press the float ball down with pliers and loosen the sealing screw by turning it counterclockwise.
Caution: Due to different hard sealing seats, specify the pressure rating of the valve 0.1-6 bar or 0.8-16 bar when ordering spare parts.



8. Then reassemble the valve in reverse order.
9. Close draining valve again
10. Slowly reopen the shut-off valve.
If the valve does not seal reliably under water pressure, repeat steps 1 - 10.

Further working steps for valve 2" female thread, DN 50, DN 80 (two-stage aeration/ventilation function)

4. The black protective cover must be removed by loosening the hexagonal bolt on top (Figure 1).
5. Loosen the Allen screws on the body and remove the upper part of the body (Figure 2)
6. Remove inner parts (float ball and tripod with integrated fine ventilation insert). Remove any foreign bodies and clean housing halves and internal parts as well as sealing areas.
7. Check sealing screw with vulcanised sealing seat in float ball. If the sealing seat is already heavily worn, order spare parts and replace the sealing screw. Please specify pressure rating 0.1-6 bar or 1-16 bar for sealing screw order (different sealing inserts).
8. Reassemble the valve in reverse order
9. Close drain instrument
10. Slowly reopen the shut-off valve
If the valve does not seal reliably, repeat steps 1 - 10.



5. Accessories / Special function

The air release valve can be equipped with a non-return valve at the upper body outlet (Female thread 1 1/4") can be equipped for pure aeration or ventilation function depending on the installation direction.

This is usually done according to factory specifications, but the non-return valve can also be retrofitted by the customer himself.

Please contact Hawle Application Technology (see below) for details and additional prices.

Should you have questions or need further information, please contact:

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