General information

Air release valves

Water transport systems have to be protected by suitable measures against a buildup of air and negative pressure. Air pockets can lead to reduced flow, fluctuations in pressure, pump additional capacity and hydraulic shocks in line systems.

Even the absence of air causes problems. If, when the line is being emptied or during a pipe break water flows away too quickly, then this leads to negative pressure. The flow of water stops. Air has to be introduced so that the negative pressure is limited and the line system is not damaged.

In sewage pressure pipes, additional gas accumulations are created by digestion processes and by the targeted injection of air to aerate the sewage.

Requirements for ventilation and air release valves in potable water are compiled in the DVGW German Association for Gas and Water data sheet W 334.

Ventilation and air release valves have the following tasks:
- Initial air venting: Venting of large quantities of air, e.g. when filling a water conveying system
- In-service ventilation: Venting of small quantities of air under operating pressure
- Aeration: Supplying large quantities of air, e.g. when emptying a water conveying system

Models of ventilation and air release valves in potable water:

Ord. no.: 987-01, 1” valve

Ord. no.: 987-02, 2” valve

Ord. no.: HaVent®
PN 16: 987-00 | PN 25: 987-03

Model of ventilation and air release valve in “Oxidator type” potable water treatment

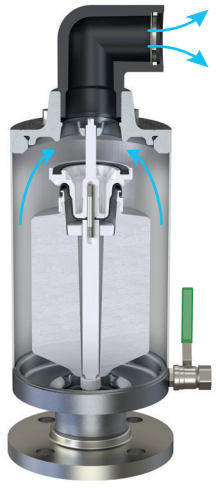
The ventilation and air release valve 986-05 “Oxidator” version was developed for use on filter vessels and oxidators. The air current is moderated via an integrated stainless steel sleeve. Even with large quantities of air, the valve works quietly and reliably.

Air release valves

Combined valves with roll-on membrane technology

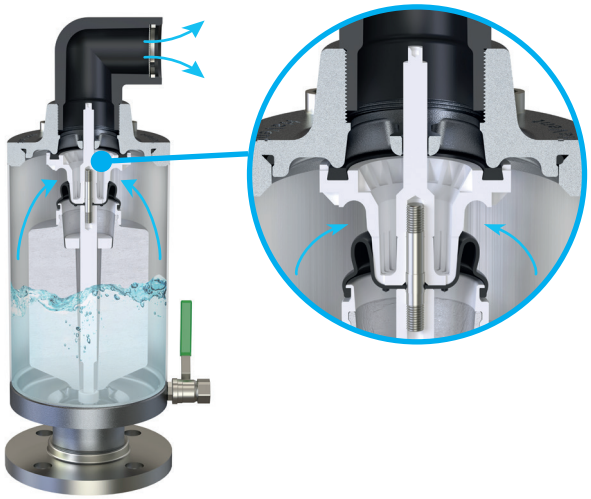
Hawle air release and air intake valves with their unique roll-on membrane technology are combined air release and intake valves. They are ideally suited for venting large volumes of air during filling as well as for in-service ventilation. They are also suitable for ventilating large amounts of air in the case of negative pressure. Valves of this type provide a very high air release capacity even under operating pressure.

Due to the roll-on membrane technology, the size of the opening can be gradually adapted and in proportion to the quantity of air in the pipe. The sealing device with a roll-on membrane has a pressure shock-absorbing property due to the large cross section during operation. Most of the Hawle valves are equipped with this tried-and-tested roll-on membrane technology.



HaVent®: Start-up air release
Valve open

HaVent®: Valve closed
Roll-on membrane closed



HaVent®: In-service ventilation
Roll-on membrane partly open

Examples of models of ventilation and air release valves with diaphragm technology

Ord. no.: 987-00

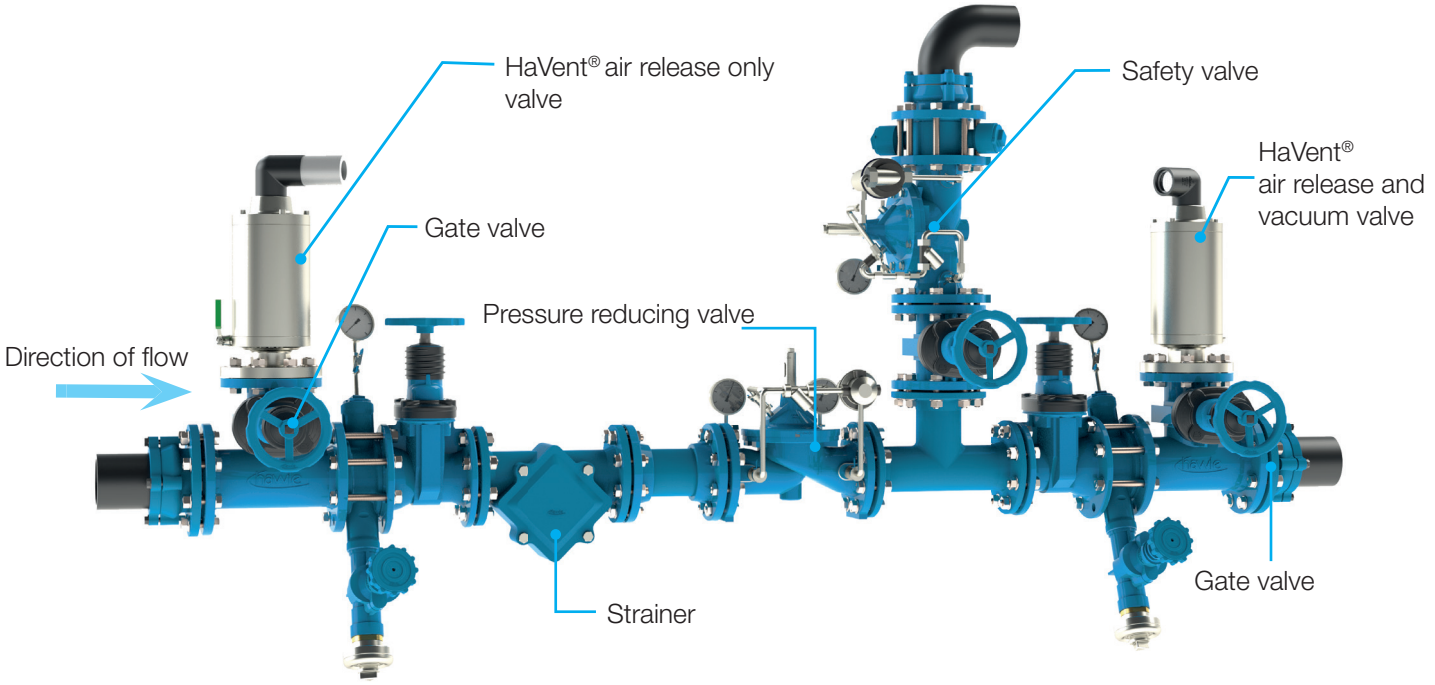
Ord. no.: 986-00

Ord. no.: 988-00

Ord. no.: 989-00

Air Release Valves

Assembly situation of system assembly of ventilation and air release valves (potable water) in the controlled system



Ventilation and air release valves are placed at high points, where there are changes in the inclination of the pipe, in sloping sections, long gently falling or horizontal pipe runs, before and after regulating valves and after pumps.

For detailed planning stipulations for new builds and retrofitting see Hawle Specialist Information for Planners and Operators for ventilation and air release valves under Downloads on our home page www.hawle.de and the current DVGW data sheet W 334.

Installation:
The ventilation and air release valve must be installed on a vertical outlet directly on the pressure pipeline. There should be a shut-off option (gate valve, etc.) before every ARV in order to be able to carry out maintenance jobs.

Pressure test:
ARVs must be taken out of operation before a pressure test of the pipeline. For this purpose the shut-off valve below the valve must be closed.

Maintenance:
ARVs must be maintained at least 1 x per year in accordance with the DVGW German Association for Gas and Water set of rules W 400-3-B1 (A). Depending on the composition of the water it may be necessary to shorten the maintenance interval. Caution: ARVs must be taken out of operation before maintenance. Maintenance must be carried out in the depressurized state.

You can find further information on installation, pressure testing, maintenance and repair in the relevant operating- and maintenance instructions, which are available at www.hawle.de under Downloads.

Air valve sets

Air Valve Sets (AVS)

Ventilation and air release valves are predominantly used in chambers. Chambers are not only expensive to manufacture but also demanding to service. Furthermore chambers require additional safety measures for entering. With ventilation and air release valve sets these safety measures are not necessary, since the chambers can be operated and maintained from the ground surface. Valve, chamber and integrated shut-off valve form one unit.

Installation:
For optimal operation the ventilation and air release valve set should be placed plumb-vertically directly on to the pipeline.

Pressure test:
AVSs must be taken out of operation before pressure testing pipelines.
BEG 992-01, 992-02: taking ARV out of the AVS - integrated shut-off closes automatically.
BEG 993-00, 985-00: close integrated shut-off device via half-turn.

Maintenance:
AVSs must be maintained at least 1 x per year in accordance with the DVGW German Association for Gas and Water set of rules W 400-3-B1 (A). Depending on the composition of the water it may be necessary to shorten the maintenance interval. Caution: AVSs must be taken out of operation before maintenance. Maintenance must be carried out in the depressurized state.

You can find further information on installation, pressure testing, maintenance and repair in the relevant operating- and maintenance instructions, which are available at www.hawle.de under Downloads.

Examples of types of ventilation and air release valve sets:

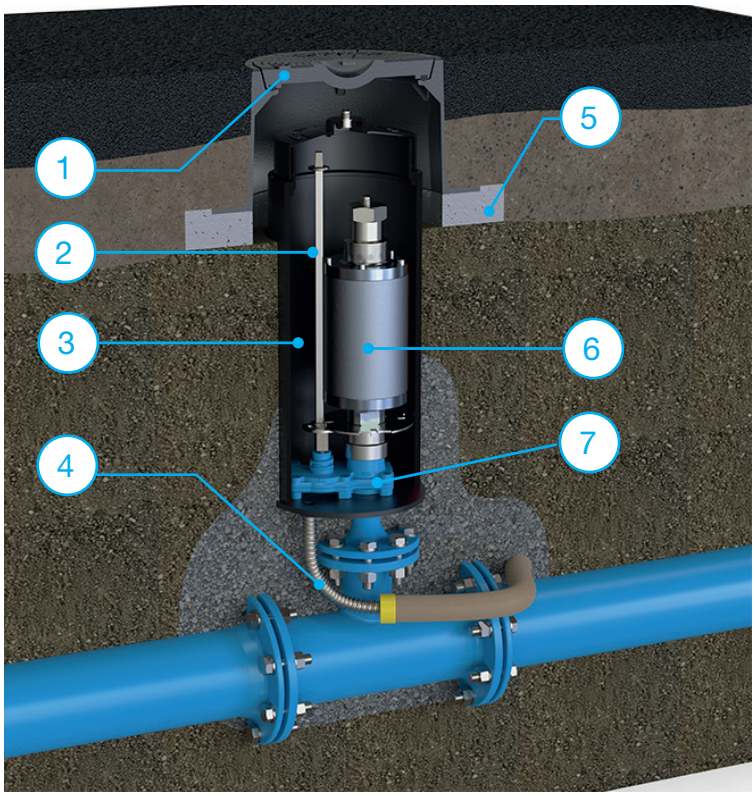
HaVent® PN 16 (PE chamber)
Ord. no.: 993-00
(potable water)

HaVent® PN 25 (stainless steel chamber) Ord. no.: 992-01
(Potable water)

Ord. no.: 985-00 (PE chamber)
(sewage)

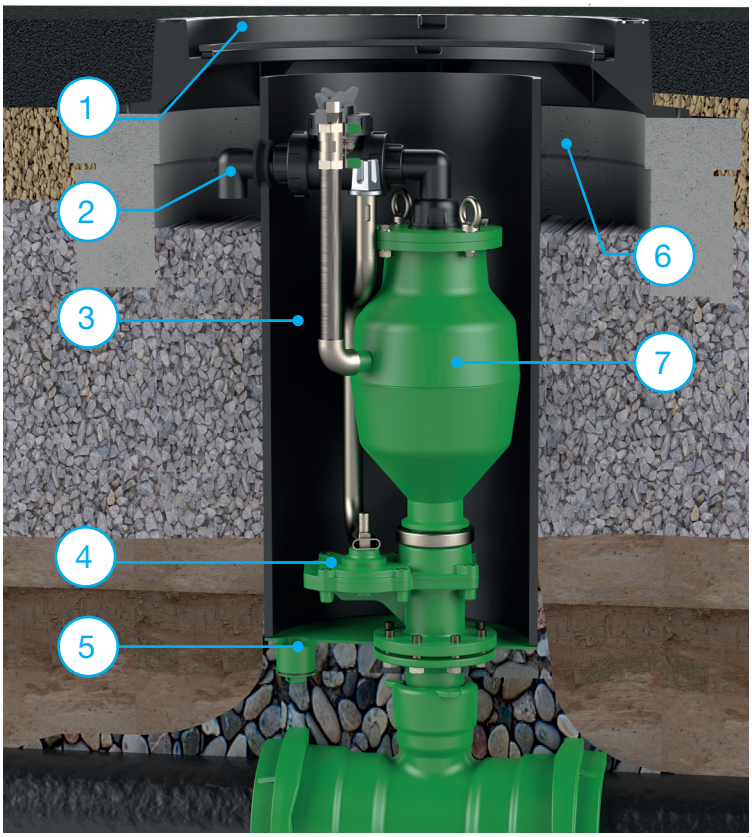
Ventilation and air release valve set

Example of assembly situation underground installation 993-00 (potable water)



Key
1. Surface box
2. Spindle shaft
3. PE chamber
4. Seepage hose
5. Base plate
6. Ventilation and air release valve HaVent®
7. Integrated shut-off unit

Example of assembly situation underground installation 985-00 (sewage)



Key
1. Surface box
2. Outlet elbow
3. PE chamber
4. integrated shut-offunit
5. ZAK® plug
6. Support ring
7. Ventilation and air release valve 986

Assembly situation flood protection

When the air valve set for potable water is installed in areas, where flooding is to be expected, the flood protection mechanism can be used to prevent the return flow of sewage water through the air release valve and downstream into the potable water supply.

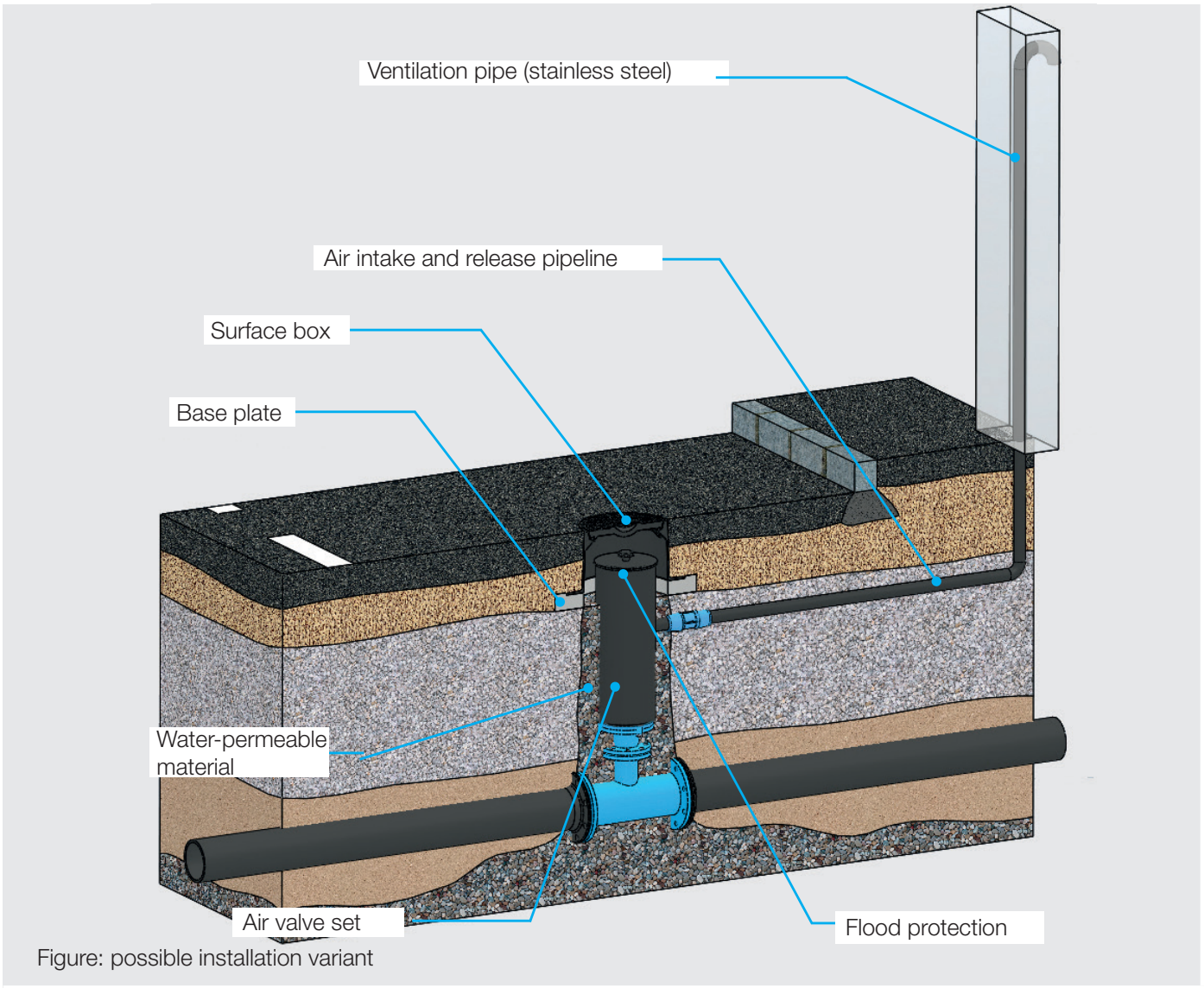
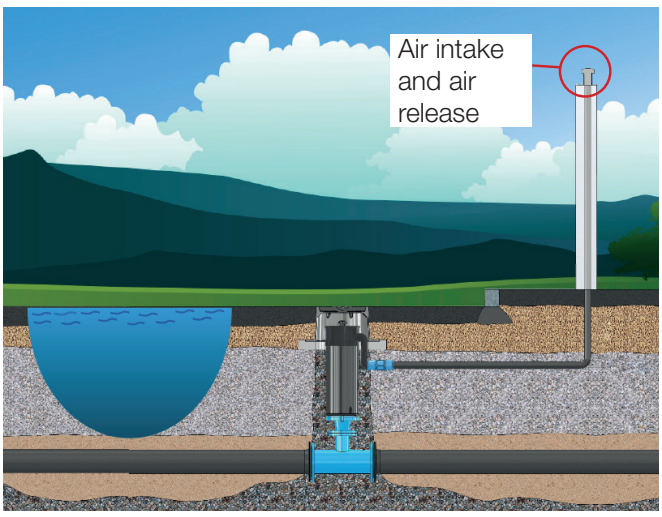
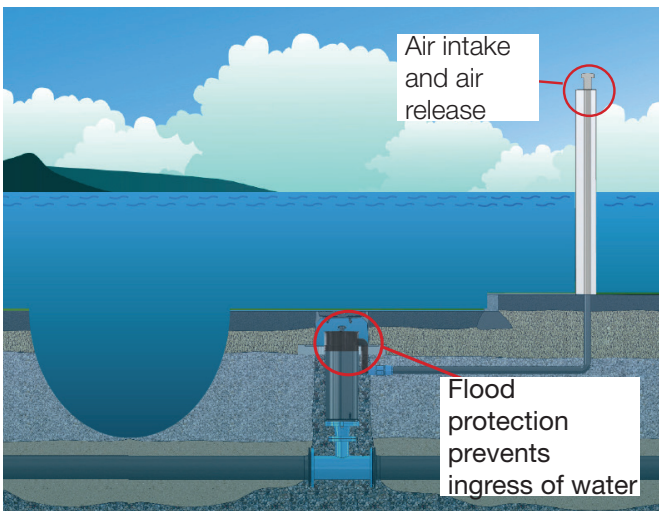


Figure: possible installation variant



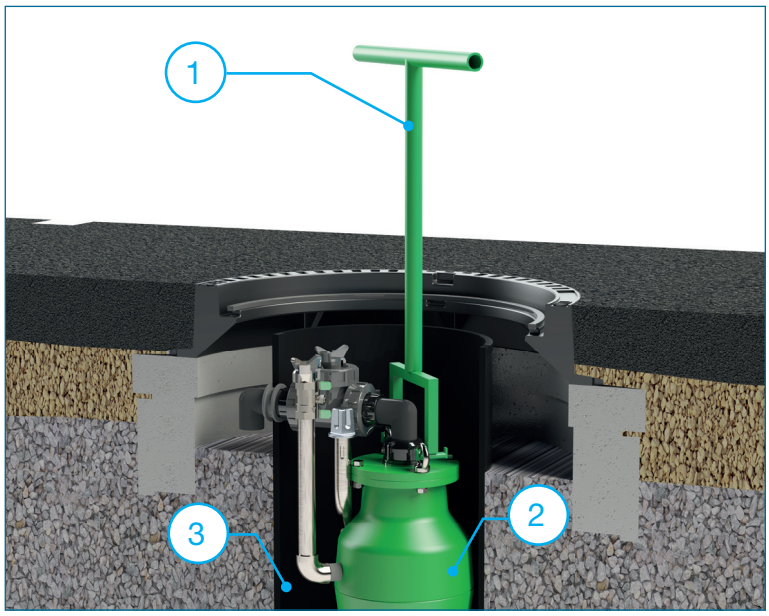
Normal installation site



Installation site flooded

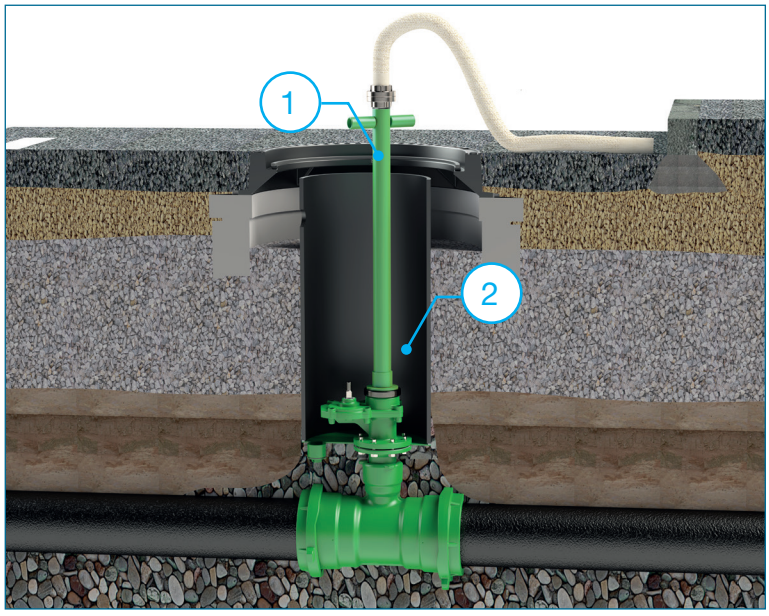
Accessories for air valve sets - sewage water

The accessories for ventilation and air release valve set for sewage ord. no. 985-00 simplifies maintenance on air release valves. The maintenance intervals for the valves are dependent upon the composition of the sewage and local conditions.



Valve lift-out device (ord. no. 985-08)

The valve lift-out device ord. no. 985-08 (no. 1) is used as an aid to removing the ventilation and air release valve (no. 2) from the chamber of the air release valve set ord. no. 985-00 (no. 3).



Flushing device (ord. no. 985-03)

The flushing device ord. no. 985-03 (no. 1) for the ventilation and air release valve set (ord. no. 985-00) allows a simple flush of the sewage pressure pipe after the valve has been removed from the PE chamber (no. 2).

Upper outlet: External thread 2”
Lower connection: Bayonet spigot for form-locked connection to the bayonet socket.