

Temporary use of point-of-use filters in microbial contaminated drinking water installations

General information

Point-of-Use filters can be used as a temporary measure in cases of microbial contamination of the drinking water installation before and during the reconstruction, measures to restore and maintain drinking water quality in the short term (see DVGW Technical Standard W 556). They serve to protect the consumer. “Point-of-Use” means that there are no further technical components between the filter and the use of drinking water from an outlet. This twin gives advice for the selection, installation and application of point-of-use filters. For use in medical area, more advanced requirements in accordance with the Medical Devices Act and the Commission’s Recommendations on Hospital Hygiene and Infection Prevention (KRINKO) must be observed.

Basic Principles

Point-of-Use filters may only be temporarily used at the outlets in cases of contamination in a drinking water installation, until the system has been refurbished. Compliance with the safety requirements of the Drinking Water Ordinance are not fulfilled with permanent filter use, even if the filters are exchanged regularly. A microbial contaminated drinking water installation must be renovated according to DVGW W 556. If Point-of-Use filters are used at installations contaminated with Legionella, all outlets where aerosols can occur must be fitted with filters. These outlets include, for example, showers, bathtub showers and kitchen fittings. Filter installation at other outlets should depend on the extent of the drinking water installation contamination and the immune status of the users. If so, consult and follow the advice of the Health Authority.

For other microbial contamination of the drinking-water installation (e.g. *Pseudomonas aeruginosa*), the health autho-

riety should be consulted if, and which, outlets should be equipped with filters.

Point-of-Use filters usually have a pore size of 0.2 µm. The filters must have evidence for the adequate retention of bacteria. Currently there is the method according to ASTM F838-05. Moreover, the filter should have proof of successful testing under practical/in-use conditions (e.g. pressure impact strength, temperature ranges).

Technical Requirements for Filters

Point-of-Use filters are supplementary devices the water fitting. As the filters are used to protect human health in cases of contaminated drinking water installations, the following requirements should be met by during delivery and proven by the manufacturer:

- The materials used in filter construction can influence the quality of the drinking water, and therefore membranes and all parts in the fluid pathway must be suitable for contact with drinking water and installation in the drinking water system according to § 17 TrinkwV 2001. Particularly proof of successful certification with DVGW Code of Practice W 270 or DIN EN 16421 and compliance with the relevant material guidelines of the Federal Environmental Agency must be presented.
- The filters must be compatible for temperatures of at least 60 °C and a pressure of at least 5 bar as this is appropriate for use in drinking water installations
- In cases where the drinking water is chemically disinfected according to § 11 TrinkwV 2001 disinfecting agent and concentrations, only Point-of-Use filters compatible with these disinfection procedures should be used.
- Point-of-Use filters should be individually tested by the manufacturer for “fit for purpose” and integrity. Every

filter should be permanently and individually marked with serial number and manufacturer's name to ensure traceability. Furthermore, the filter should be labelled such that the installation and exchange date can be marked.

- The filter manufacturer should have a certified quality management system for production of the filters. If the manufacturer is reprocessing terminal filters, the individual Filter have to be unambiguously identifiable to assert the frequency of use. After reprocessing, the same checks and tests must be performed as for the initial filter production or use.
- Point-of-Use filters have a limited lifetime (use), due to the increasing risk of retrograde bacterial contamination during installation time. If the filter becomes retrograde contaminated during use, the protection of human health may no longer be maintained. The lifetime must be defined by the manufacturer. In determining filter lifetime, the manufacturer must consider minimising the risk of possible retrograde bacterial contamination.
- According to the Product Safety Act (§ 3 ProdSG), a complete and detailed instruction for filter connection and use must be available

Transport and Storage

The filters should be individually packaged in order to exclude any contamination or exposure during transport and storage. Additionally, the individual packaging must ensure clear distinction between new and used filters when at the site of use. The maximum filter shelf life expiration date (before installation) should be on the filter unit packaging

Installation and operation

The manufacturer's instruction for installation and use must be observed. Installation should be completed by instructed and trained personnel only. Due to the limited lifetime, the filter must be permanently marked at the time of installation with the installation and latest exchange date (installation date and lifetime)

If filters are installed at fixed fitting outlets, such as a basin, the free activity space between the highest possible water level in the basin and the outlet of the filter must be at least 20 mm (**Figure 1**).

For all Point-of-Use filters, whether attached to fixed outlets or flexible hoses (showers, bathtubs and sinks), the risk of retrograde contamination from outside (e.g. by water back-splash) must be avoided. Therefore, users and consumers should be informed about the function and handling of the point-of-use filters, for example with pictorial posters.

If flushing of the water installation or system disinfections (according to DVGW Code of Practice W 557) or sampling

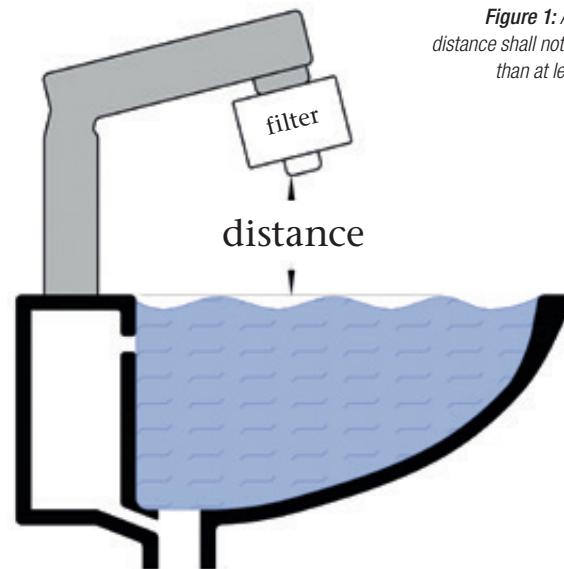


Figure 1: Air gap: the distance shall not be smaller than at least 20 mm

Source: Dr. Gerhardt

is undertaken during point-of-use filter installation, the manufacturer's instructions on reuse/reinstallation of filters must be followed. Preferable and recommended for technical and hygienic reasons, is to replace the filter with a new one. Used Point-of-Use filters should not be installed at other outlets or stored during lifetime.

Filter Exchange

Filter exchange must be carried out according to the manufacturer's instructions and filter lifetime. They usually last for 30 days. Shorter service life may be the result of filter blockage as a result of particulate loading of the Drinking water (e.g. with limescale particles, rust).

Disposal of used filters is as according to the manufacturer's instructions.

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DVGW German Association of Gas and Water e. V.-
 Technical and scientific association
 Josef-Wirmer-Straße 1-3, 53123 Bonn
 Download as pdf at: www.dvgw.de

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