

Water treatment in eye clinics



Why water treatment?

The requirements for the hygiene of medical devices and the associated patient safety have been steadily gaining in importance for years. For the reprocessing of high demands are placed on the water used for the reprocessing of instruments. Proper reprocessing (sterilization) is an essential aspect of ensuring patient safety. Special attention should be paid to the necessary and required reprocessing steps, which are primarily determined by:

- the quality of drinking water available on site
 - the quantities to be supplied and
 - the equipment technology to be used
- used.

Nationwide there are different types of operating sites for ophthalmological (ophthalmic surgery) procedures. Here it is possible to distinguish between the following object types can be distinguished:

- Outpatient
- Facilities integrated in clinics without sterilization (with external sterilization)
- Facilities integrated into clinics with sterilization

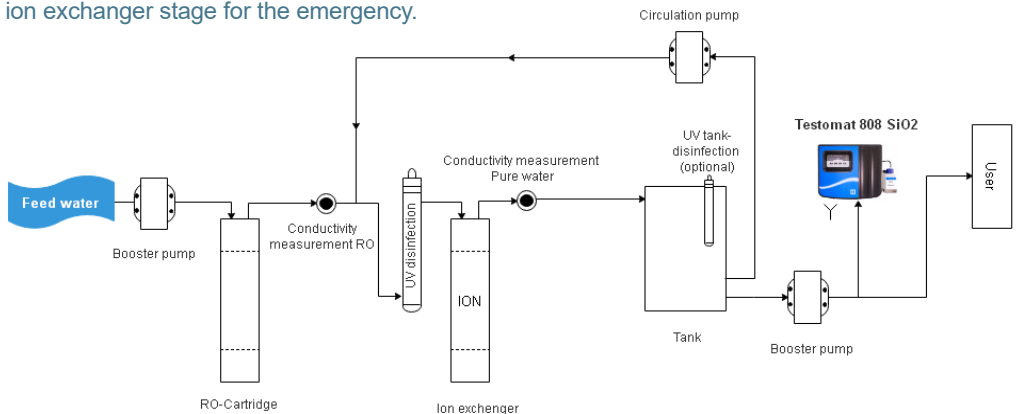


Based on this, the required concept for the process water treatment is also derived.

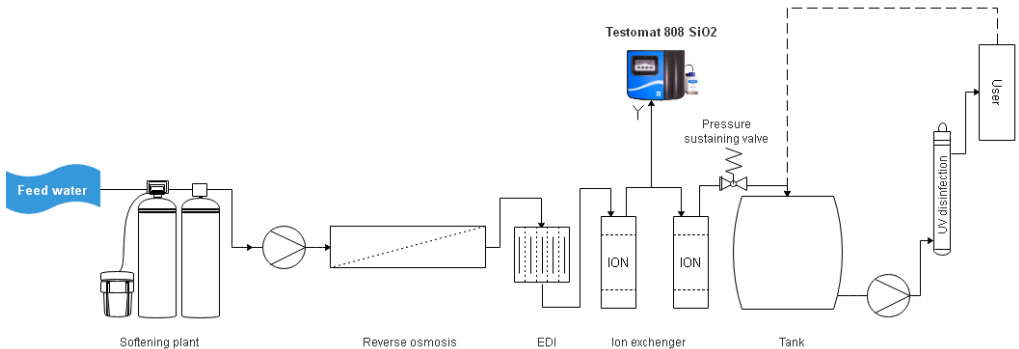
Process water treatment in outpatient clinics

For **outpatient clinics**, which usually require small quantities of „purest“ water, the use of a **membrane process - ion exchange concept** is recommended.

The demineralized water, which is monitored in terms of its quality via **conductivity**, is then fed into a storage tank. Due to the very small quantities required and the associated „long service life“ of the water storage tank for the equipment technology, we recommend **permanent circulation incl. UV irradiation** (disinfection) both in the return and additionally in the tank. The conductivity measurement downstream of the membrane stage serves to monitoring of the media quality. Silicates dissolved **in the water, if not removed, result in surface deposits** on the instruments. The concentration varies greatly from region to region. Silicates are not detected by a conductivity measurement. The application on the instruments leads to permanent damage and thus to a reduction in the service life and an increase in the patient risk. The ion exchanger stage ensures that the silicates are reliably removed before they are removed. This is ensured by monitoring the SiO₂ load. The limit value to be monitored limit value to be monitored should always follow the specifications of the **AKI** (Working Group for Instrument Reprocessing) and be **max. < 0.4 mg/l for the feed water**. To ensure uninterrupted operation the redundancy concept can be supplemented by an additional ion exchanger stage for the emergency.



Compared to outpatient eye centers, the demand is significantly higher for an ophthalmology facility integrated into the hospital and requires additional processing steps. The process used in the outpatient clinics cannot be followed technologically, to produce the required quantity of water in the necessary quality. The design essentially follows the same principles. Primarily, these concepts differ in the use of additional water treatment processes such as softening, EDI and the spatial arrangement of the ion exchangers. The subject of silicates should urgently include a **multistage monitoring concept** that sustainably ensures compliance with the already named limit values.



The implementation of a large number of projects in various areas of sterile processing and the associated consulting against the background of the instrument cycle qualify the experts of Heyl-Neomeris to create holistic concepts. From process analysis to commissioning of the system, we are your general contact partner.

An exemplary case study on the subject of water treatment for outpatient eye clinics can be found under:

<https://www.heylnemeris.shop/en/blog/first-project-in-an-eye-clinic-in-the-hanover-area-installation-of-a-new-ultrapure-water-treatment-plant>

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<https://neomeris.de/seminare-klinik-sterilgutaufbereitung.html>

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