

LOOP0



Compact System for the Distribution, Sanitization
and Monitoring of PW, HPW and WFI

For You and Planet Blue.



With the compact system LOOPO, BWT Pharma & Biotech offers a solution for the distribution, sanitization and quality monitoring of pure and ultrapure water. The rack-mounted system is a space-managing and reliable alternative to conventional stand-alone units.



The LOOPO series is available in different types with capacities of 3m³/h to 23m³/h (larger capacities available):

LOOPO C

For PW and HPW cold storage and distribution with continuous ozonization of the storage tank

LOOPO H

For WFI hot storage and distribution

LOOPO – A Proven and Reliable Concept

LOOPO design

- Speed-controlled feed pump for water distribution
- STERITRON electrolytic ozone generator with single- and multi-point online ozone measurement (LOOPO C)
- BEWADES UV radiation unit for destroying ozone to below the detection limit (LOOPO C)
- Monitoring of conductivity, flow rate, temperature and pressure (optional online TOC measurement)
- For cooling the pure water during long circulation times, a double tube-sheet bundle heat exchanger can be integrated
- Autonomous, fully automated AQU@VIEW control with a dedicated CPU and validated software components for best operational safety

Features and benefits:

- Construction, design and manufacture in accordance with the GMP guidelines, the recommendations of the 'ISPE Engineering Guide' and FDA guidelines.
- All piping dead-leg free, made from stainless steel SS 316 L with Tri-Clamp connections and with a surface roughness of all product wetted parts of $Ra \leq 0.8 \mu\text{m}$.
- Use of speed-controlled, high-performance pumps for smooth and quiet operation and optimum adaptation to the hydraulic conditions of the distribution system.
- Use of high-quality online measuring equipment for monitoring, including an easy-to-use control system and visualization.
- All LOOPO units are completely premounted, pre-tested and pre-qualified with a Factory Acceptance Test (FAT). This results in short on-site installation, commissioning and qualification times, hence optimised project execution times. The system is already pre-qualified when it arrives at the site.
- The compact design allows easy and fast integration into existing storage and distribution systems.

LOOPO – Ensures Compliant Water Quality up to the Point of Use

Cold storage and sanitization of PW/HPW

With the compact system LOOPO C, the entire storage and distribution system can be sanitized by the addition of ozone to the circulating water. Depending on the duration and frequency of the sanitization and the quality of the generated pure water, an ozone concentration of 20 to 40 ppb is used.

If the system is used together with an OSMOTRON® or OsmoVision treatment unit, a concentration of 20 – 25 ppb is sufficient for system protection. The sanitization intervals and the duration of the sanitization cycles can be selected on the controller to meet the existing requirements.

Hot storage and sanitization of WFI

For WFI systems, hot water sanitization is used instead of ozone treatment. LOOPO H includes a double tube-sheet bundle heat exchanger for hot-water storage and sanitization of the tank and the entire loop at temperatures of 80 to 85°C. With POU coolers, cold withdrawals are possible options where required.

STERITRON for ozonization of cold systems

STERITRON is a compact electrolytic ozone generation system and produces ozone directly from purified water. It provides a high efficient, automatic operated, continuous and cost-effective sanitization and microbiological protection of the storage and distribution system.

A partial flow of pure water is taken from the forward line via a bypass and fed into the return line of the loop. This water passes through the STERITRON ozone-generation cell, where the ozone is electrolytically produced and dissolved in the water. This provides the tank system with complete system protection.

With the help of a BEWADES UV ozone destruct unit the residual ozone is then reduced to below the detection limit before



STERITRON ozone generation integrated into the LOOPO.

entering the loop system. During the night or production pauses, the BEWADES UV unit can be automatically switched off so that the entire loop is sanitized.

Advantages of ozone

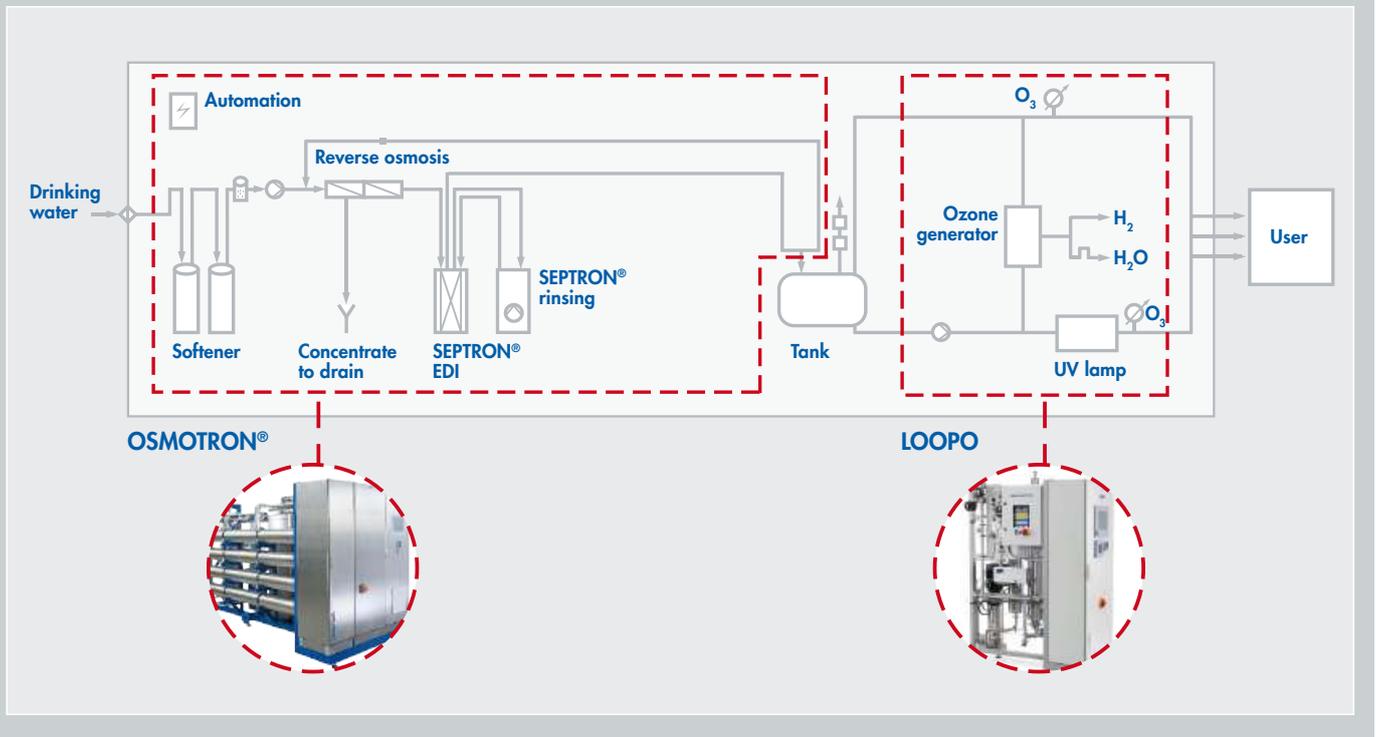
The advantages of the electrolytic generation of ozone are convincing:

- No contamination with ions because the ozone is generated electrolytically directly from the purified water and dissolves in it.
- Effective reduction of germs, TOC and endotoxins at low concentrations of ozone.
- Continuous operation without the need for additional, periodic disinfection with chemicals or steam.
- Simple installation and commissioning; little maintenance required; very low operating costs.

Typical results which can be achieved by using ozone in pharmaceutical LOOPO Systems

	Total germ countl CFU/100ml	Endotoxins EU/ml
After OSMOTRON® PRO	< 1000	< 0.25
Storage tank with ozone	0	< 0.06
Distribution system with daily ozone treatment	< 1	< 0.06

OSMOTRON® PRO / OsmoVision & LOOPO: A Perfect Combination



OSMOTRON® PRO / OsmoVision & LOOPO are a perfect combination

- Safe and easy operation with uniform and validated AQU@VIEW automation
- Visualisation of the LOOPO system on the fully graphic HMI of the OSMOTRON® PRO / OsmoVision
- Use of standardized, uniform parts and components
- Compliant and uniform validation / documentation package
- Simplified acceptance by authorities and straightforward auditing

Contact: