wasserLab

# PROCESS RO / UV RANGE

from 60 to 150 l/h

OSMOTIZED WATER

# Committed to the environment: efficient solutions that save water and energy

## Compact model with integrated tank

The PROCESS RO range offers a COMPACT equipment, designed to produce and supply Osmosis Water with the following quality:

| | |
|---|---|
| Conductivity at 25ºC | <97 - 99% Ionic rejection of Tap Water |
| TOC[1] | <30 ppb |
| Bacterial count[1] | ≤0.01 cfu/ml |
| Dissolved silica | <0.05 mg/l |
| Production flow rate[2] | 60 - 90 - 120 - 150 l/h |
| Supply flow rate[3] | 2.5 l/min |

1. UV version. These values are typical and may vary depending on the nature and concentration of contaminants in the Tap water.

2. Nominal flow rates +-10% between 10 and 35ºC. Added deviation of -3% per ºC from 10ºC to 5ºC.

3. For higher flow rates an additional external booster set will be required.

## Process water for applications in the following sectors:

- Biotechnological
- Cosmetics
- Chemical
- Food
- Energy
- Other related industries

## Distribution loops and centralized supplies

### Versions

| MODEL | REFERENCE | FLOW RATE PRODUCTION | RECOMMENDED CONSUMPTION |
|---|---|---|---|
| PROCESS RO UV 60 | CRO60UV | 60 l/h | 600 l/day |
| PROCESS RO UV 90 | CRO90UV | 90 l/h | 900 l/day |
| PROCESS RO UV 120 | CRO120UV | 120 l/h | 1200 l/day |
| PROCESS RO UV 150 | CRO150UV | 150 l/h | 1500 l/day |
| PROCESS RO 60 | CRO60 | 60 l/h | 600 l/day |
| PROCESS RO 90 | CRO90 | 90 l/h | 900 l/day |
| PROCESS RO 120 | CRO120 | 120 l/h | 1200 l/day |
| PROCESS RO 150 | CRO150 | 150 l/h | 1500 l/day |

In all models, the equipment includes an **integrated 150 liters tank.**

# Purification process of Osmotized water

The equipment integrates various technologies to optimise the water purification process, through the following stages:

## Pre-treatment

The equipment is designed with a pre-treatment system to guarantee the protection of the osmosis membrane, eliminating particles smaller than 1 micron, which contributes to the reduction of mineral incrustation, organic matter and the elimination of chlorine.

The depth filter has a high filtration capacity, with optimised retention of the colloids present in the water.

The granular bacteriostatic activated carbon acts effectively in the elimination of free chlorine and in the minimisation of bacterial growth.

The anti-limescale agent, based on polyphosphates, protects against incrustations, preventing the precipitation of calcium and magnesium salts inside the equipment, without releasing ions.

## Reverse Osmosis

The high performance reverse osmosis system removes up to 99.95% of the organic matter present in the water and up to 99% of the Total Dissolved Solids (TDS). In addition, the equipment has an automatic flushing system, designed to prolong the life of the equipment.

**Recovery of reject water**

The system recovers between 30% and 40% of the reject water, for improved system conversion and optimised water consumption.

## Bactericidal LED lamp and 0.22 µm final filter (UV version)

To guarantee the microbiological control of purified water, the equipment is equipped with an LED lamp that performs bacteriostatic and germicidal functions. This mercury-free, small-sized lamp emits a wavelength of between 260 and 280 nm, which makes it effective in eliminating micro-organisms without compromising water quality. Its compact design allows for easy replacement, and its operation ensures that the water does not heat up during the sanitisation process, helping to maintain water quality.

To meet even more stringent microbiological requirements (<0.01 cfu/ml), the equipment incorporates a 0.22 µm in-line final filter. This additional filter ensures the retention of possible microorganisms that may be present in the final water, ensuring that the purified water meets high microbiological quality standards.

**Low noise level**

The equipment has been specially designed to reduce operating noise to a minimum (<50 dB).

# Optimal efficiency in energy and water use, ENSURING THE LOWEST POSSIBLE CONSUMPTION

## Anti-leakage system

The equipment includes an anti-leakage system that cuts off the mains water supply in case of water leakage in the hydraulic system of the equipment, avoiding a possible flooding of the laboratory.

## Additional Osmotized Water Dispensing (Optional)

The equipment allows the installation of an accessory (Ref. W-DIS007) for the additional dispensing of Osmotized Water for general use in the Installations. This secondary outlet optionally offers the fitting of a 0.22 µm Final Filter (Ref. 20650).

## Storage tank for produced water

The Osmostized water produced is stored in a 150 liters atmospheric tank integrated in the equipment, which has a level probe, automatic controls and a safety overflow. It also includes a vent filter to retain $CO_2$, organic matter and particles.

If the storage needs are greater, the equipment can be connected to an external tank (Connection kit Ref. KITDA013 required).

## Dispensing pump

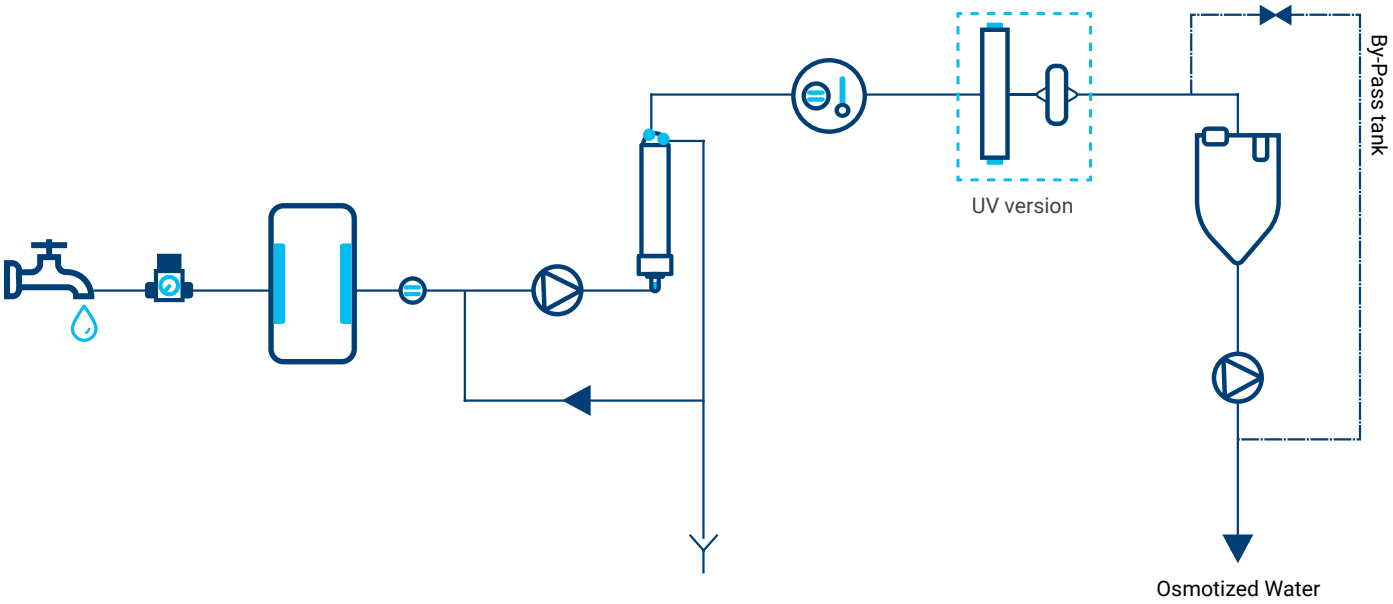
The system includes an impulsion pump with a flow rate of 150 l/h, with automated start and stop manoeuvre. The pressure is controlled by a pressure regulator (0.8 bar).

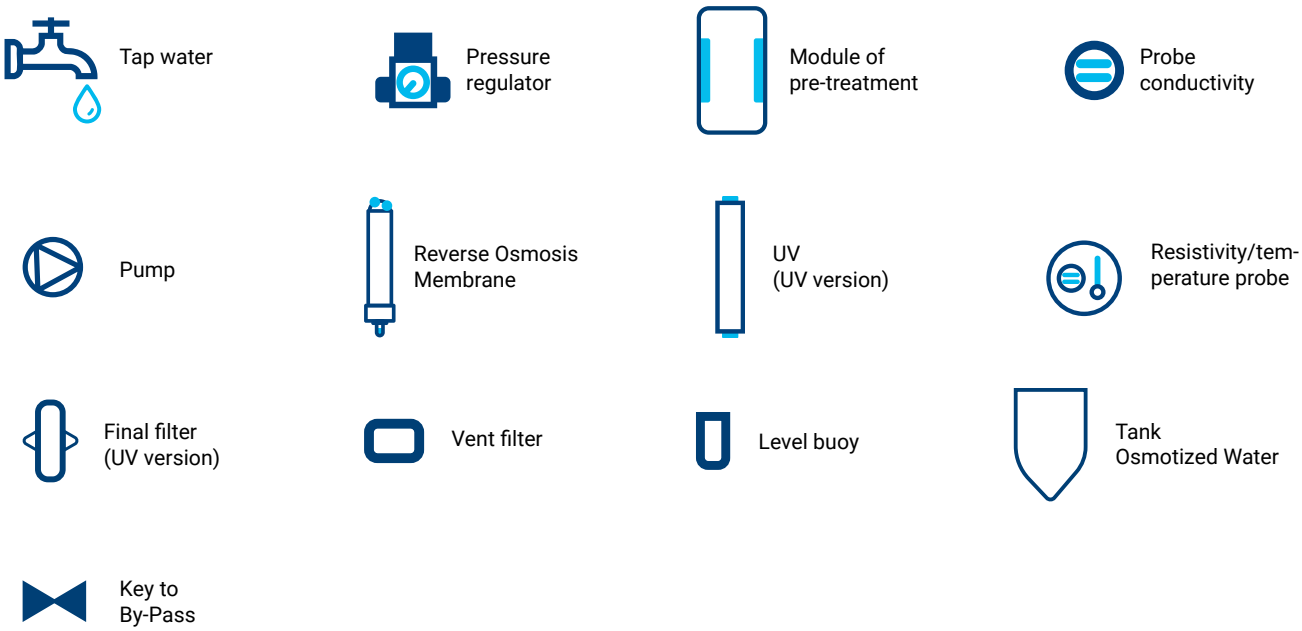
## Connection to distribution loops

If the equipment needs to be connected to a distribution loop, please consult Wasserlab.

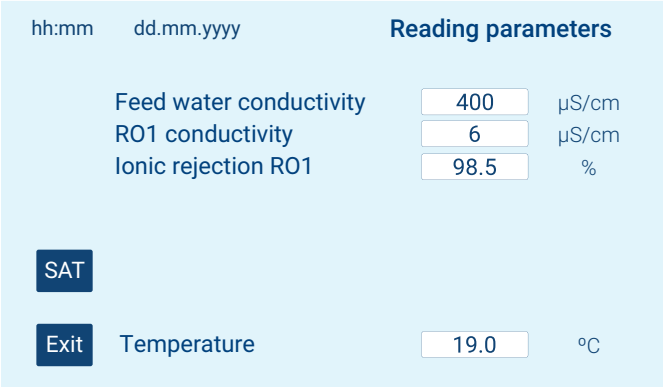
## Hydraulic system diagram

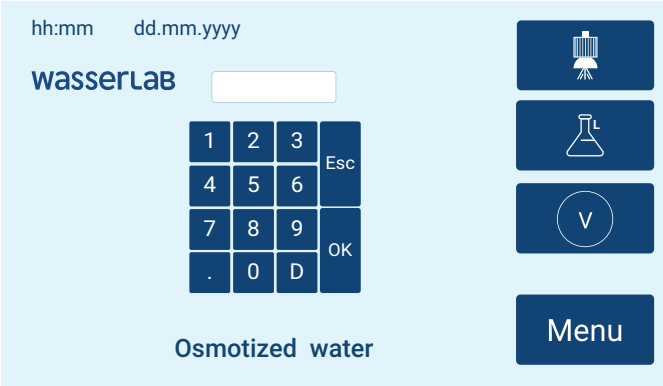
# Process RO / UV range



# Operation and monitoring




## 1. Dispensing

The equipment has been designed to operate fully automatically, guaranteeing constant filling of the tank by means of an automatic stop system.

In addition, its design ensures simple and user-friendly operation, facilitating its use in laboratory environments. It has a 4.3-inch touch screen that allows control and customization of the purified water dispensing in different ways, adapting to the user's different requirements. The system automatically delivers Osmotized Water to the point of supply.

## 2. Monitoring

This comprehensive monitoring system allows detailed tracking of key aspects of the process, ensuring that the equipment operates within ideal parameters and guaranteeing the quality of the water produced.

The system performs conductivity measurements (at 25ºC) at several key points, such as the equipment's feed water and the permeate water from the reverse osmosis module.

It also monitors the water temperature (ºC), the percentage performance of the reverse osmosis module and controls various operating parameters, such as the working hours of the system components and the liters produced during the purification process.

In addition, the equipment allows the display of relevant information, such as production in liters per hour, osmosis membrane rejection (liters/hour) and osmosis membrane rejection recovery (liters/hour).

## 3. Customization and Security

The system offers customization options, allowing to adjust the type of dispensing and conductivity settings according to the user's needs. In addition, to ensure security and access control, the equipment has a custom password that allows the user to access specific menus and functions, ensuring that only authorised persons can make adjustments or modifications to the system.

## 4. Automatisms

The system is equipped with a microprocessor that manages the automatic start and stop of the equipment, depending on the volume of water accumulated in the tank.

In addition, the system is equipped with various automated systems that guarantee optimum performance and prolong the useful life of the equipment, These include automatic shutdown in the event of a water cut-off to prevent operation without supply, cleaning of the osmosis membrane by flushing to maintain the efficiency of the filtration process, and cleaning of the osmosis membrane with osmosis water to prolong its useful life and ensure maximum performance.

It also includes a distribution pump protection system when the water level in the tank is at a minimum. These automatisms allow for efficient and low maintenance operation, ensuring the constant quality of the purified water.

## 5. Data Output

The equipment is designed to allow the extraction of operating data to an external memory (USB). The report generated includes detailed records on the quality and quantity of water dispensed, as well as maintenance notifications and changes made to consumables, providing a useful tool for monitoring and controlling system performance.

## 6. Mobile phone notification (optional)

The system can send alarm notifications directly to mobile phones, allowing real-time alerts on various problems or irregularities in the operation of the equipment.

# Preventive maintenance, sanitization and calibration

## Ease of system maintenance and control

The system has been carefully designed for ease of maintenance, allowing the user to perform tasks easily and efficiently. The replacement of consumables is carried out quickly, thanks to a quick connect system with anti-drip technology incorporated in the cartridges.

The equipment design is **modular,** which allows for easy repair in the event of a breakdown, as the affected module can be easily removed for repair or replacement.

The modules include:

- Electronic Module.
- Hydraulic Module.
- Electrical Module.
- Pumps.

The lifetime of the consumable components depends on several factors, such as the quality of the Tap Water, including its degree of turbidity, hardness and conductivity, as well as the amount of water dispensed over time.

The integrated software is configured to perform scheduled self-checks, which ensures constant and effective monitoring of the system's operation. This control ensures continuous monitoring of the equipment components and the values related to the quality of the water produced.

In addition, the system issues warnings to notify the user of situations that require attention, such as the need to change consumable components, water supply outages or possible failures in the measuring probes. This allows early intervention in the event of any incident, minimising downtime and ensuring continuous equipment performance. The equipment warns of the following possible anomalies, such as:

- Lack of Tap Water supply.
- Malfunction of the measuring probes.
- LED warning of by-pass activation.
- LED warning of pump failure.

## System Sanitization

The system is designed to facilitate the sanitization of the equipment through a semi-automatic process, which ensures a thorough and effective cleaning of all its components. During sanitization, the equipment performs a series of automated steps that include the circulation of disinfectant solutions through critical parts of the system, such as membranes and filters. User intervention is limited to initiating and monitoring the process, following clear instructions provided by the system. This sanitization process is designed to remove microorganisms, bacteria and other contaminants that may have accumulated in the equipment, ensuring that the system continues to operate at maximum efficiency and that the water produced always maintains the highest quality standards. The function also helps to extend the life of the equipment by preventing the build-up of impurities that can affect its performance.

CRO90UV
OSM
IN
Pump
By-pass
Low level
Rec
Drain

Pump
By-pass
Low level
V1
OSM
V2.1
V3.0
V2.0

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# Additional system functionalities

## Design and Installation of Distribution Loops

We design and install distribution loops, interconnected systems that guarantee an efficient distribution of purified water between different points, adapted to the specific needs of each project.

## IQOQ Qualifiable Equipment for the Pharmaceutical Sector

The equipment is designed to be qualified in the processes of **IQOQ (Installation and Operational Qualification)** required in the pharmaceutical sector. It complies with industry specific regulatory standards, ensuring its suitability for use in regulated environments, where traceability, quality and process validation are critical to ensure compliance with current regulations.

## Declaration of Product Use: WEEE Directive

In accordance with European Union legislation, this product will be considered **Waste Electrical and Electronic Equipment (WEEE)** once it reaches the end of its useful life.

For detailed information on the recycling and proper disposal of this product, please contact our website.

## Quality Assurance to Facilitate GLP and cGMP Compliance

The system has been designed and manufactured to facilitate its integration into regulated working environments such as GLP (Good Laboratory Practices) and cGMP (current Good Manufacturing Practices). Some of its outstanding features include:

- Manufactured under the standards **ISO 9001:2015 and ISO 14001,** ensuring that the product meets the highest standards of quality and environmental management.
- **CE marking:** The equipment has passed rigorous safety and electromagnetic compatibility tests (emission and immunity), carried out by an external accredited centre, which certifies its compliance with European safety and performance standards.
- **Calibration certificate:** The equipment is delivered factory calibrated, guaranteeing its accuracy from the first moment of use. It also allows the adjustment and recalibration of the conductivity meter by means of a certified standard, traceable to the national standards of the Deutscher Kalibrierdienst (DKD) of Germany, ensuring the reliability and accuracy of the measurements over time.

## Installation Requirements

**Electrical:**

- **Alternating current socket** 110 - 230 V / 50 - 60 Hz.
- **Earth connection.**
- **Power socket**: must be a maximum of 1.5 meters from the equipment.

**Tap Water:**

- **Source:** Tap water or pre-treated water.
- **Flow rate:** >10 l/min
- **Tap water connection:** ½" male gas
- **Maximum distance** from the equipment to the tap water inlet 3 meters
- **Nearby drain** (maximum 3 meters)
- **Pressure:** 2 - 6 bar
- **Conductivity:** <2.000 µS/cm
- **pH:** 4 - 10
- **Hardness[1]:** <300 ppm $CaCO_3$
- **Turbidity:** <1 NTU
- **TOC:** <50 ppb
- **$CO_2$:** <30 ppm
- **Silica:** <30 ppm
- **Free chlorine:** <1.5 ppm
- **SDI:** <7
- **Temperature:** 5 - 35ºC

1. If the hardness value exceeds 300 ppm $CaCO_3$, it will be necessary to install a water softener, which Wasserlab can supply together with the equipment. Please contact us.

**Drainage:**

The equipment requires a drainage point (drain) for the evacuation of the reject water. This point must be located at a maximum distance of 3 Meters and must have a minimum evacuation capacity of more than 10 liters per minute.

## Specifications:

**Dimensions:** 62 x 60 x 166 cm (W x D x H).

**Net weight:** 165 kg.

**Operating weight:** 315 kg.

**Noise level:** <50 dB.

**Communication port:** USB.

**Language Software:** English, Spanish, French, Portuguese and Italian.

**Consumption and power:**

| | CRO60 / UV - CRO90 / UV | CRO120 / UV- CRO150 / UV |
|---|---|---|
| **Consumption** | 3.0 A (230 VAC) | 4.3 A (230 VAC) |
| | 5.8 A (120 VAC) | 8.3 A (120 VAC) |
| | 6.3 A (110 VAC) | 9.0 A (110 VAC) |
| **Power** | 690 VA | 990 VA |

Wasserlab®

We are manufacturers of **water purification equipment** with an extensive track record in the installation of solutions in **multiple sectors.**

We offer **personalised advice** in the selection of equipment and we provide **comprehensive technical support** to ensure optimal operation.

Pol. Ind. Comarca II Calle E, Nº 3. 31191 Barbatáin - Navarra (Spain)
T. +34 948 186 141 - info@wasserlab.com
**www.wasserlab.com**