



# Culligan®



REVERSE OSMOSIS

Aqua-Clear®

**RO<sup>2</sup> MD BIO THERMO**

**DOUBLE PASS REVERSE OSMOSIS WITH THERMAL SANITIZATION**

CE MARKED AS **CLASS IIb** MEDICAL DEVICE ACCORDING TO MEDICAL DEVICE DIRECTIVE 93/42/EEC

## DOUBLE PASS REVERSE OSMOSIS WITH THERMAL SANITIZATION

With over **30 years** specific experience in the treatment of water for dialysis **Culligan** has developed the **RO<sup>2</sup> MD BiO THERMO**.

The innovative sanitizing system of the **RO<sup>2</sup> MD BiO THERMO** uses water heated to 85° C (185° F) to **destroy micro-organisms** that can grow on surfaces within the treatment system and distribution loop. This greatly reduces or eliminates the need for chemical sanitization saving money and also avoiding the handling and disposal of chemicals.

The system uses **reverse osmosis membranes** specifically designed to withstand the **high temperatures** of the sanitization process.

All pipework is welded stainless steel to ensure **long life** and extreme durability.

The **sanitization unit** connects simply through quick connections to the main **RO system** and is available with two configurations: in-line or using an accumulation tank. Sanitization can be scheduled to run each night when the dialysis units are not in use with patients, or on demand.

The **RO<sup>2</sup> MD BiO THERMO system** consists of **two separate reverse osmosis systems operating in series** to produce water of the highest quality and purity.

By operating in series the system effectively treats the water twice.

In the first pass, **90-99%** of the salts and other contaminants in the water are removed, and in the second pass, again an additional **90-99%** of the residual contaminants are removed. Most importantly this provides a guaranteed **barrier to microbial contamination**.

An added advantage to the **Culligan bi-osmosis system** is that in the event of an emergency, the system can operate on a single reverse osmosis system and still produce dialysis quality water.

The **Culligan RO<sup>2</sup> MD BiO THERMO** will automatically move to this single pass configuration in the unlikely event of a problem, so there is no need for manual intervention.

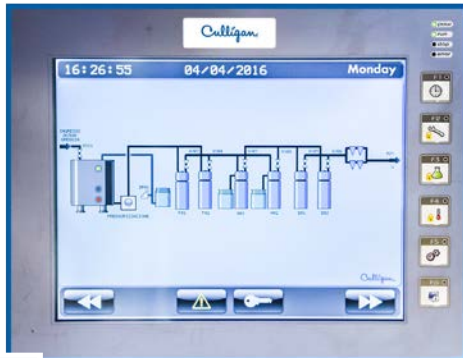
# Aqua-Clear® RO<sup>2</sup> MD BiO THERMO



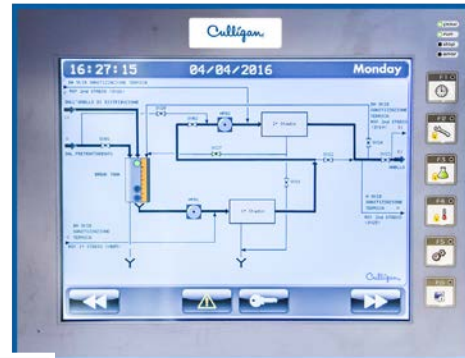
**MEDICAL DEVICE QUALITY SYSTEM CERTIFIED  
ACCORDING TO UNI EN ISO 13485 & 93/42/EEC**

# All of the Aqua-Clear® RO<sup>2</sup> MD BiO THERMO models are PLC controlled

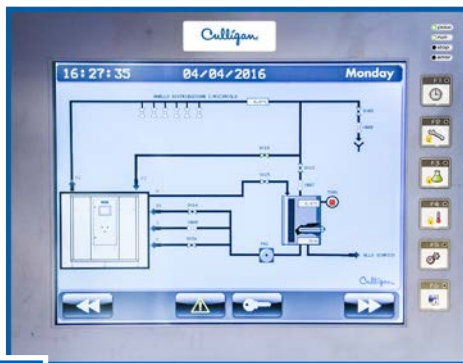
Simple and intuitive “touch screen” interface with advanced controls.



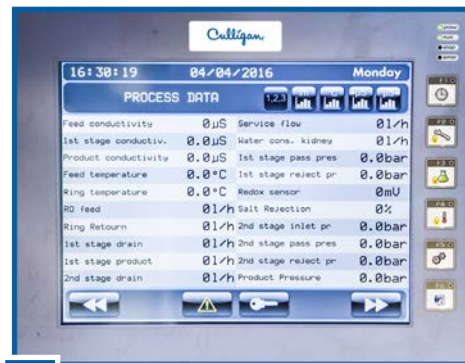
**1** Pre-treatment Display



**2** RO<sup>2</sup> MD BiO THERMO Display



**3** Sanitization System Display



**4** Records Display

## Dynamic views

- Inlet to Reverse Osmosis conductivity
- Conductivity of water produced by 1st stage RO
- Conductivity of water produced by 2nd stage RO
- Flow rate of RO water produced by 1st stage RO
- Flow rate of RO water produced by 2nd stage RO
- Flow rate of reject water produced by 1st stage RO
- Flow rate of reject water produced by 2nd stage RO
- Flow rate of water returning from dialysis loop
- Flow rate and consumption rate of artificial kidneys
- RO 1st stage operating pressure
- RO 2nd stage operating pressure
- Inlet to Reverse Osmosis temperature
- Distribution loop temperature
- REDOX meter reading

## Graphic views

- Graphical trending of conductivity
- Graphical trending of system flow rates
- Graphical trending of system temperature
- Historical archives of operating data
- Immediate display of error messages

## Other Advanced Features

Sanitization settings can be adjusted to control **timing, frequency** and other **parameters** to allow disinfection to occur when patients are not using the dialysis systems. The **advanced PLC control** is capable of also controlling any **Culligan filters** and **softeners** necessary for pre-treatment.

Culligan is committed to environmental sustainability and has designed the new RO<sup>2</sup> system to be as energy- and water-efficient as possible. By offering a modular design with a range of flow rates and by recycling and retreating as much water as possible, the new **RO<sup>2</sup> MD BiO THERMO** water treatment system can help reduce utility costs and meet environmental commitments.



# AVAILABLE MODELS FOR Aqua-Clear® RO<sup>2</sup> MD BiO THERMO

| Models                          | Flow<br>l/h* (GPM) | Installed Power<br>kW | Dimensions<br>width. x depth. x height<br>mm (INCHES) |
|---------------------------------|--------------------|-----------------------|---|
| RO <sup>2</sup> MD BiO 1 THERMO | 730 (3.2)          | 2x3                   | 1800x800x1900<br>(70.86 x 31.5 x 74.8)                |
| RO <sup>2</sup> MD BiO 2 THERMO | 1450 (6.4)         | 2x5,5                 | 1800x800x1900<br>(70.86 x 31.5 x 74.8)                |
| RO <sup>2</sup> MD BiO 3 THERMO | 2600 (11.4)        | 2x5,5                 | 1800x800x1900<br>(70.86 x 31.5 x 74.8)                |
| RO <sup>2</sup> MD BiO 4 THERMO | 3200 (14.1)        | 2x7,5                 | 1800x800x1900<br>(70.86 x 31.5 x 74.8)                |

\* Note : Flow rates shown relate to new membranes operating on properly pretreated feed water of 800 mg/l TDS, 20 °C (68°F)

## Features / Benefits

- ✓ **Heat disinfection controls bacteria** and other microbiological contamination within the **RO unit** and the **delivery loop**.
- ✓ **Heat disinfection also lowers the labor costs** and disposal issues related to disinfecting with chemicals.
- ✓ **Sanitization timing, fully configurable**, can be set to suit your operation.
- ✓ 2 x RO systems in series are used for **highest possible removal efficiencies**.
- ✓ **Ensures patient safety** - fully automated failsafe control will allow single pass RO to operate in an emergency.
- ✓ **2 models** available for **heat disinfection** systems.
- ✓ **Touch screen control** for easy use including full schematic layouts.
- ✓ **Advanced PLC control** with automatic fail-safe operation and long term trending and data storage.
- ✓ **All piping and components** are in AISI316 stainless steel.
- ✓ Units are **Medical device Class IIB** under notified body No. CE0476

**RO<sup>2</sup>** ▶ **Double Pass RO** treatment for the highest quality and safest water for dialysis.

**MD** ▶ CE marked as **Class IIB** Medical Devices according to **Medical Device Directive 93/42/EEC** DEVICE DIRECTIVE 93/42/EEC

**BiO** ▶ **Bi-Osmosis** for the highest quality water Built with **Biocompatible materials**.

**THERMO** ▶ **Hot sanitization to** Disinfection of system via heat sanitization Pipework & components **Stainless Steel AISI 316**.

**1-2-3-4** ▶ **4 Models** with capacities from 730 to 3200 l/h (from 3.2 to 14.1 GPM) always in 2-pass Bi-osmosis.



Contact your local Culligan representative for more details

Culligan reserves the right to change any technical or design specifications for the models shown in this brochure.

**Place your commercial and industrial water treatment needs in the hands of a global leader.**

For over 80 years, Culligan has made better water. Our global network, comprised of 900+ dealers and international licensees in over 90 countries, is dedicated to addressing your water-related problems. As a worldwide leader in water treatment, our sales representatives and service technicians are familiar with the local water conditions in your area. Being global and local position us to deliver customized solutions to commercial and industrial water issues that affect your business and your bottom line.