

# RIVAMED

*Save Water, Save Life*

# ABOUT US

RIVAMED is a leading medical water treatment solutions provider specializing in hemodialysis and critical healthcare applications, built on advanced engineering expertise and a strong commitment to quality. As a Turkish manufacturer of hemodialysis water treatment systems certified under MDR 2017/745 (EU), RIVAMED designs and manufactures systems in full compliance with EN ISO 23500 series and European Pharmacopoeia (Ph. Eur.) requirements. Where applicable, system designs also align with AAMI standards, ensuring globally accepted water quality, maximum patient safety, and long-term operational reliability.

Our innovative solutions include hemodialysis water treatment, sterilization, neutralization, and disinfection systems, delivering consistently high-purity water for healthcare facilities worldwide.

*Save Water, Save Life*

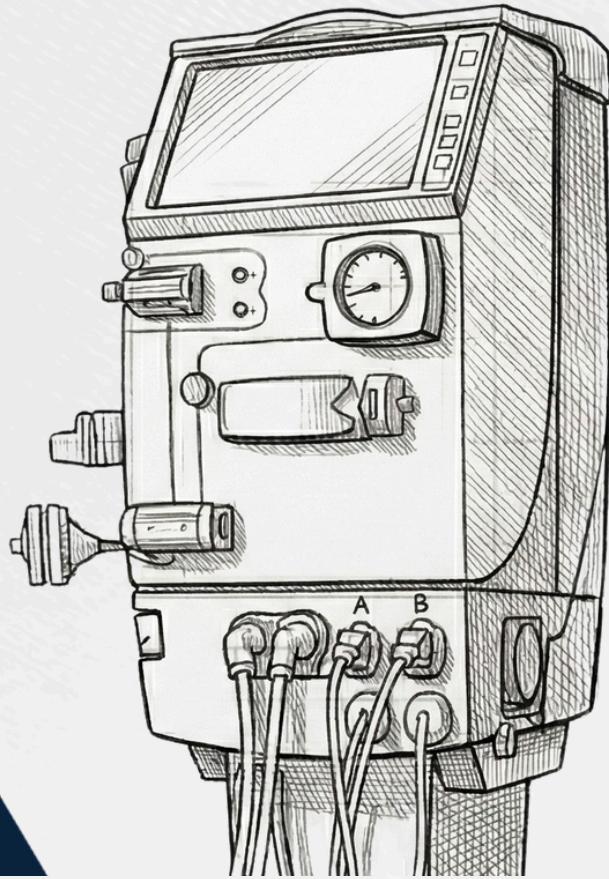
Guided by our vision “Save Water, Save Life,” and supported by a strong global presence in over 60 countries with comprehensive technical service capabilities, RIVAMED continues to set quality benchmarks in medical water technologies through continuous innovation and uncompromising standards.

**60+**  
Countries

**10+**  
Dealerships

**1000+**  
Projects

# ABOUT HEMODIALYSIS

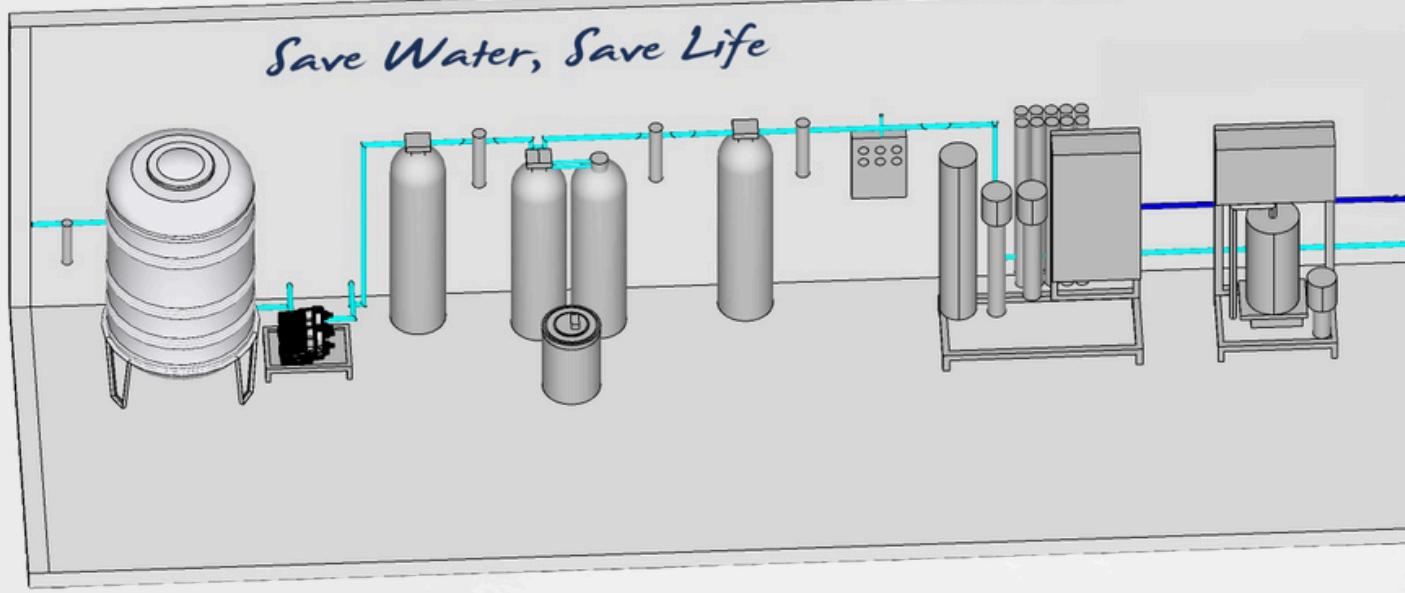


Hemodialysis is a life-sustaining treatment for patients with chronic or acute kidney failure, whose kidneys are no longer able to adequately remove waste products, excess fluids, and toxins from the blood. During treatment, the patient's blood is circulated through a dialyzer, commonly known as an artificial kidney, where waste substances and excess electrolytes are removed through diffusion and ultrafiltration. Cleaned blood is then safely returned to the patient's body.

Most hemodialysis patients undergo treatment approximately three times per week, with each session lasting around four hours. Throughout a single treatment session, 120–150 liters of dialysate are continuously prepared and delivered. Since dialysate is composed of more than 95% water and comes into indirect contact with the patient's bloodstream, water quality is critical to patient safety and treatment success.

RIVAMED hemodialysis water treatment systems are designed to produce pure water that complies with European Pharmacopoeia and international dialysis standards. By combining advanced filtration, reverse osmosis, and disinfection technologies, RIVAMED systems ensure consistent microbiological and chemical water quality. This reliability supports uninterrupted dialysis therapy, protects patients from potential contaminants, and contributes to improved clinical outcomes and overall quality of life.

# TYPICAL HEMODIALYSIS WATER



## PRE-TREATMENT SYSTEM

The pre-treatment system conditions the incoming water and protects the reverse osmosis unit by removing physical, chemical, and organic contaminants.

A **washable pre-filter** removes coarse particles and sediments, allowing repeated use through simple cleaning.

A **sand filter** eliminates suspended solids and turbidity, ensuring stable system operation.

A **tandem water softener** system removes calcium and magnesium hardness to prevent scaling, while providing continuous operation during regeneration cycles.

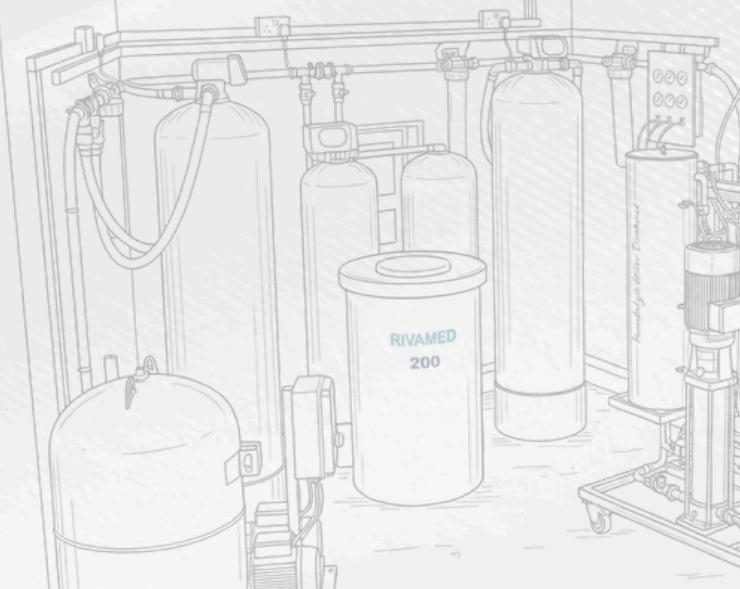
An **activated carbon filter** removes free chlorine, chloramines, organic compounds, taste, and odor, protecting RO membranes from oxidative damage and improving overall water quality.

**Microfiltration** provides fine particle removal at low micron levels and protects downstream units between sand, carbon, and softening stages. It ensures operational safety and prolongs system lifetime.

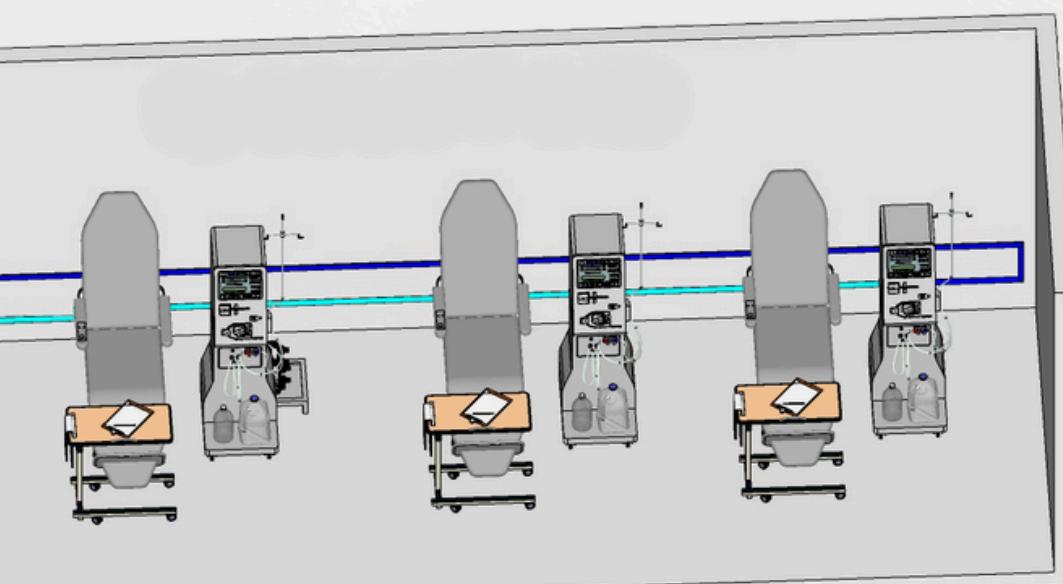
## REVERSE OSMOSIS SYSTEM

The **reverse osmosis system** operates with a high-pressure pump and membrane filtration technology to remove dissolved salts, heavy metals, bacteria, viruses, endotoxins, and other contaminants. By applying pressure, water passes through semi-permeable membranes while impurities are rejected.

The system produces high-purity water compliant with ISO, European Pharmacopoeia, and AAMI standards, ensuring safe and consistent water quality for hemodialysis applications.



# TREATMENT SYSTEM COMPONENTS



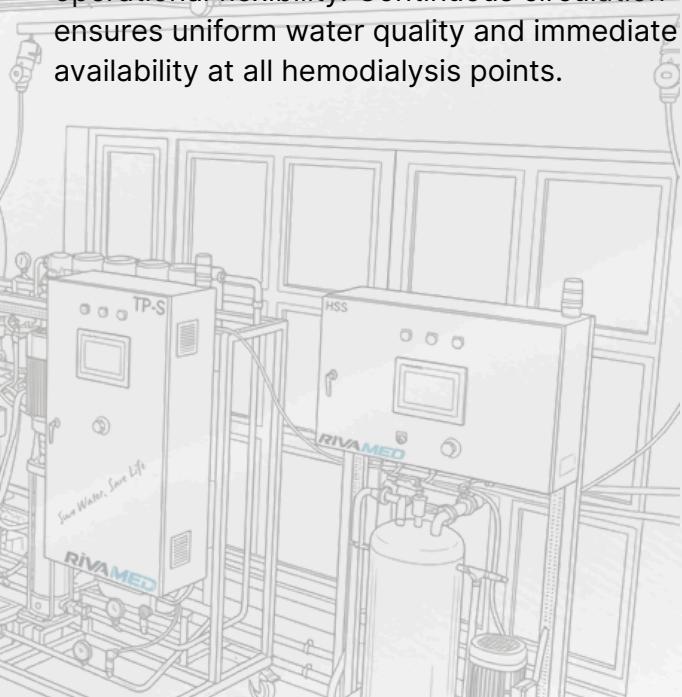
## WATER DISTRIBUTION LOOP

The purified water is distributed through a **PEX-A piping loop** designed for continuous circulation. The smooth internal surface of PEX-A piping minimizes bacterial growth and biofilm formation, maintaining microbiological safety.

The loop is equipped with **quick-connected non-spill valves**, enabling hygienic connections, easy maintenance, and operational flexibility. Continuous circulation ensures uniform water quality and immediate availability at all hemodialysis points.

## RIVAMED WATER SOLUTIONS

RIVAMED offers **reverse osmosis and heat disinfection** comprehensive product portfolio including the RM, TP, RO Mini (H), RO and HSS series, designed to supply hemodialysis centers from small-scale installations to large facilities feeding up to 104 dialysis machines using one system. Each system is engineered for continuous 24/7 operation with hygienic, dead-leg-free design principles and long-term mechanical reliability. System configuration, hydraulic layout, and component selection are custom-engineered based on feed water analysis, required flow rates, redundancy level, and international dialysis standards. Project-specific design approach ensures consistent permeate quality, optimized system performance, operational safety, and full compliance with dialysis water quality requirements.



RIVAMED RM-100  
RIVAMED RO MINI / H

*Up to 2 dialysis machines*

# PORTABLE

## USER-FRIENDLY & SERVICE-READY FEATURES

Password-protected access levels, visual & audible alarms, sampling valves, buffer tank level control, and transport-friendly wheel system.

## COMPACT & HYGIENIC SYSTEM DESIGN

Space-efficient, dead-leg-free construction supports maximum hygiene and easy installation integrated with pre-treatment.

## SMART AUTOMATION & DISINFECTION

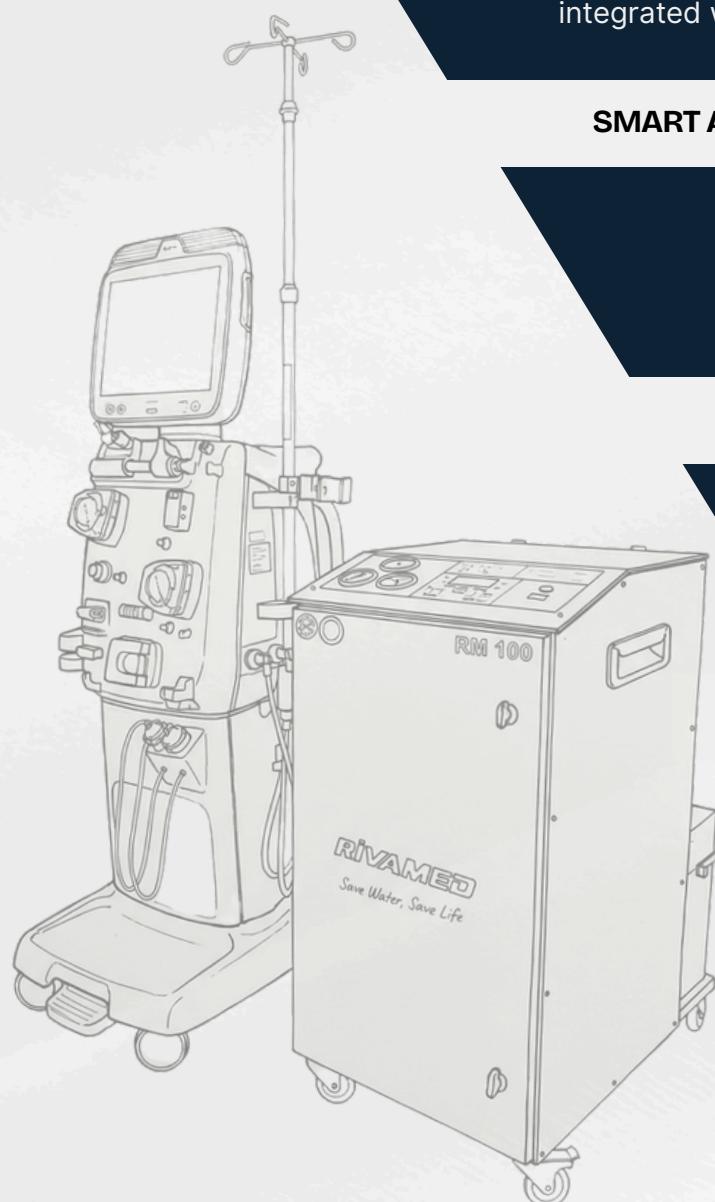
Semi-automated chemical disinfection and safe stand-by mode.

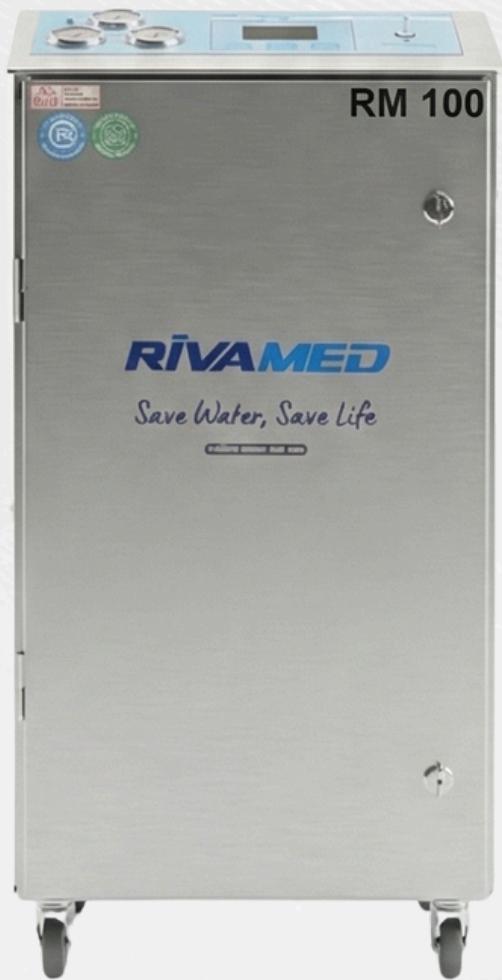
## INTELLIGENT CONTROL SYSTEM

Control panel with self-test, auto-restart, firmware upgrade, and operation history logging.

## ADVANCED RO PERFORMANCE

High-rejection polyamide membranes with precise pressure control via permeate pressure-sustaining valve.





● Heat Disinfection



**RIVAMED RM SERIES**  
*Up to 60 dialysis machines*

# CENTRAL

The system is designed to deliver high chemical and microbiological purity while ensuring reliable and safe water quality for hemodialysis treatment. Two units of the RIVAMED RM Series can be operated together to enable redundant and double-pass configurations, further enhancing treatment safety and operational continuity. Water Saving Technology is implemented through permeate recirculation and concentrate recovery, significantly improving overall system efficiency and reducing water consumption. High-rejection polyamide and energy-saving RO membranes are integrated together with a permeate pressure-sustaining valve to provide precise pressure control and stable operation.

Smart automation features include semi-automated chemical disinfection, programmable on/off functionality, and interval safe stand-by features. The system continuously monitors conductivity, pressure, temperature, as well as permeate and concentrate flow, supported by comprehensive safety parameters such as permeate conductivity control, overtemperature protection, dry-run prevention, and motor protection.

Operation and supervision are managed via a microprocessor-based control panel equipped with a 3.8" TFT LCD screen, offering built-in self-testing at power-up, firmware upgrade capability, and automatic restart after power interruptions. The robust construction features PVC-U and AISI 316 stainless steel piping and frame, complemented by password-protected controls, visual and audible alarms, permeate tank control options, and brake-adjustable wheels for safe and easy transportation.



# CENTRAL

RIVAMED TP SERIES  
Up to 104 dialysis machines

RIVAMED TP Series Hemodialysis Water Treatment Systems are designed with a dual-stage (twin-pass) reverse osmosis configuration to ensure the highest level of chemical and microbiological water purity, even when operating with lower-grade or challenging feed water conditions. The TP Series can feed up to 104 hemodialysis machines, making it a robust and reliable solution for large-scale dialysis centers and hospitals requiring uninterrupted, high-capacity performance.

Engineered in full compliance with international dialysis standards and regulations, the TP Series prioritizes operational safety through its two fully independent RO stages. In the event that one stage becomes inactive, the operator can active the second stage alone easily from the control panel guaranteeing continuous treatment. During redundant operation, the system can increase total permeate capacity up to more than two times to meet peak demand without compromising water quality.

The TP Series is fully compatible with RIVAMED Heat Disinfection Systems, enabling effective thermal disinfection of ring mains, supply systems, and dialysis machines. A user-friendly, multicolor touchscreen interface simplifies system configuration, real-time monitoring, remote connectivity, and software updates.

**HDF Capable Ultrapure Water**

**Up to 85% Water Recovery & Electricity Saving**

**Smart PLC-Based Automation**

**Comprehensive Safety & Protection**

**Hygienic & Robust Design**



# CENTRAL

RIVAMED RO SERIES  
Up to 104 dialysis machines

## HIGH CAPACITY

Feeds up to 104 dialysis machines with continuous high performance.

## ENHANCED PURITY

Guarantees superior chemical and microbiological purity standards.

## ECO-EFFICIENCY

Water & electricity saving technology with demand-based pump control.

## RO MEMBRANES

Equipped with High-rejection polyamide RO membranes.

## DISINFECTION SYSTEM

Semi-automated chemical disinfection.

## SMART CONTROL

PLC controlled system featuring a touchscreen interface.

## CONTINUOUS MONITORING

Real-time tracking of conductivity, pressure, temperature & flow.

## SAFETY PROTECTIONS

Comprehensive alarms for overpressure, temperature, and dry-run.



# HEAT DISINFECTION

RIVAMED HSS SERIES

RIVAMED HSS Series is an online thermal disinfection system designed for effective disinfection of dialysis loop systems, dialysis machines, and connection hoses, ensuring high microbiological safety and hygienic operation. The series is available with an optional 500-liter integrated storage tank, enabling the simultaneous thermal disinfection of multiple dialysis machines.

Featuring an in-line reinforced heating system, the HSS Series provides fast and energy-efficient thermal disinfection. Fully compatible with RIVAMED reverse osmosis systems, it allows concurrent disinfection of hemodialysis machines and distribution loops, supporting continuous operation while reducing overall operating costs.

Manufactured with AISI 316L stainless steel, equipped with a PLC-controlled touchscreen interface, and supported by comprehensive safety and monitoring functions, the RIVAMED HSS Series delivers a reliable, hygienic, and flexible thermal disinfection solution for modern dialysis centers.



**In-line Reinforced Heater for Fast and Energy-efficient Operation**

**Simultaneous Heat Disinfection of Loop Systems**

**PLC Control with Touchscreen and Safety Self-test**

**Integrated Thermal Disinfection in Dialysis Machines**

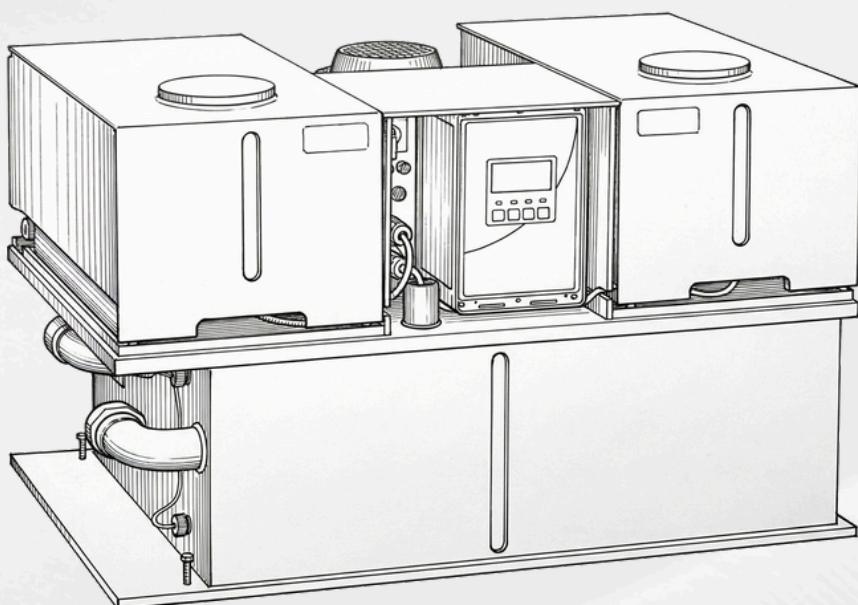
*Save Water, Save Life*

Beyond supplying high-quality treated water, RIVAMED also focuses on the safe treatment of wastewater generated after hemodialysis procedures. Through advanced neutralization and disinfection solutions, dialysis effluents are treated in an environmentally responsible manner, supporting water conservation and sustainable healthcare infrastructure. We believe that every drop of water matters—and must be protected.

Neutralization and disinfection systems are essential for meeting environmental health and safety standards, preventing the spread of diseases, and ensuring hygienic conditions for discharge water in healthcare facilities. RIVAMED delivers integrated solutions that protect both human health and the environment through advanced medical wastewater treatment technologies.

Neutralization is the process of balancing the pH of acidic or alkaline wastewater to a safe and controlled level. RIVAMED neutralization systems operate through precise dosing and controlled mixing of acids, bases, and disinfectants, and supported by ozone-based processes. These systems effectively render hazardous chemical effluents harmless, enabling safe discharge or further treatment in compliance with environmental regulations.

Disinfection systems are designed to eliminate or inactivate harmful microorganisms present in water and on surfaces. Utilizing proven technologies such as ultraviolet (UV), ozone, and chemical dosing, RIVAMED systems ensure high hygiene standards in hospitals, clinics, laboratories, food processing facilities, and water treatment plants. These solutions significantly reduce infection risks while safeguarding patient and staff safety.



# NEURALIZATION & DISINFECTION SYSTEMS

RIVAMED Sterilization Water Treatment Systems are designed to produce consistently high-purity and sterile water for critical medical applications, including dental units, central sterile services departments (CSSD), pathology, hematology, microbiology, biochemistry laboratories, and advanced diagnostic and sterilization equipment. These systems play a vital role in ensuring the effectiveness of sterilization processes, infection control, overall patient safety, and protection of medical device & equipment in healthcare facilities.

By integrating a multi-stage treatment process—comprising pre-filtration, activated carbon filtration, ion exchange softening, reverse osmosis (RO), ultraviolet (UV) disinfection, and final polishing filtration—RIVAMED systems effectively remove scale forming elements and compounds, suspended solids, organic contaminants, chlorine, dissolved salts, microorganisms, and endotoxins. This comprehensive treatment approach guarantees water quality that meets the strict requirements of medical and laboratory sterilization standards.

All RIVAMED sterilization water treatment systems are supplied as turnkey solutions, covering engineering, manufacturing, installation, commissioning, and technical support. With a strong focus on safety, efficiency, and sustainability, RIVAMED supports healthcare institutions in achieving the highest levels of sterilization performance and operational reliability.



# STERILIZATION (CSSD) WATER TREATMENT SYSTEMS

# TECHNICAL SERVICE & AFTER SALES SUPPORT

RIVAMED provides comprehensive technical service and after-sales support for medical and hemodialysis water treatment systems, where reliability and continuity are critical for patient safety. With our deep expertise in hemodialysis water treatment technologies, we deliver high-quality maintenance, repair, and emergency intervention services to ensure uninterrupted system performance.

With more than two decades of experience, our professional technical service team operates 24/7, offering rapid response and immediate on-site support in case of malfunctions or emergencies. We understand that hemodialysis and medical water systems are life-supporting infrastructures; therefore, fast and effective intervention is essential to maintain treatment continuity and protect human health.

To deliver the fastest and most reliable service, RIVAMED maintains a strong international technical service network through authorized dealers and direct interventions. In parallel with the global expansion of dialysis services, our technical support operates across Europe, the Middle East, and Africa, ensuring continuous and professional assistance wherever RIVAMED systems are installed. Through trusted regional partners and experienced service teams, RIVAMED provides consistent, high-quality technical support worldwide, aligned with the same rigorous service standards across all regions.

Ensuring the reliability of your system is our responsibility.

## Riva Mühendislik Ltd.

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