



# Water Purification Products and Service Solutions for Healthcare

Water Technologies

**SIEMENS**

# Siemens Water Technologies

## Message from Chuck Gordon

At Siemens Water Technologies, we pride ourselves on taking great care of our customers. And because we realize the healthcare industry is critical not only to the individual, but to the world's well-being, we are committed to providing an integrated systems approach to your water management needs.

Our integrated approach includes technologies and design to help improve the quality of patient care through better diagnosis; accurate analyses; consistent water delivery and quality with more uptime; and improved workflow. We also offer peace of mind that the water you are using meets the strictest standards in the industry. From single product offerings to complete turnkey solutions and services, we are your trusted partner, and together, we can achieve your water management goals.

Backed by over 6,000 employees in nearly 180 locations worldwide, our vast experience and expertise in this market makes us uniquely qualified and positioned to handle all of your water treatment needs. And by partnering with Siemens Water Technologies and our sister companies like Siemens Medical Solutions and Siemens Diagnostics, you will receive exceptional patient care and facility management solutions.

We encourage you to explore the solutions in this brochure and to contact us at any time to discuss your water management needs. We look forward to being your trusted partner for many years to come.



*Chuck Gordon*  
Chief Executive Officer

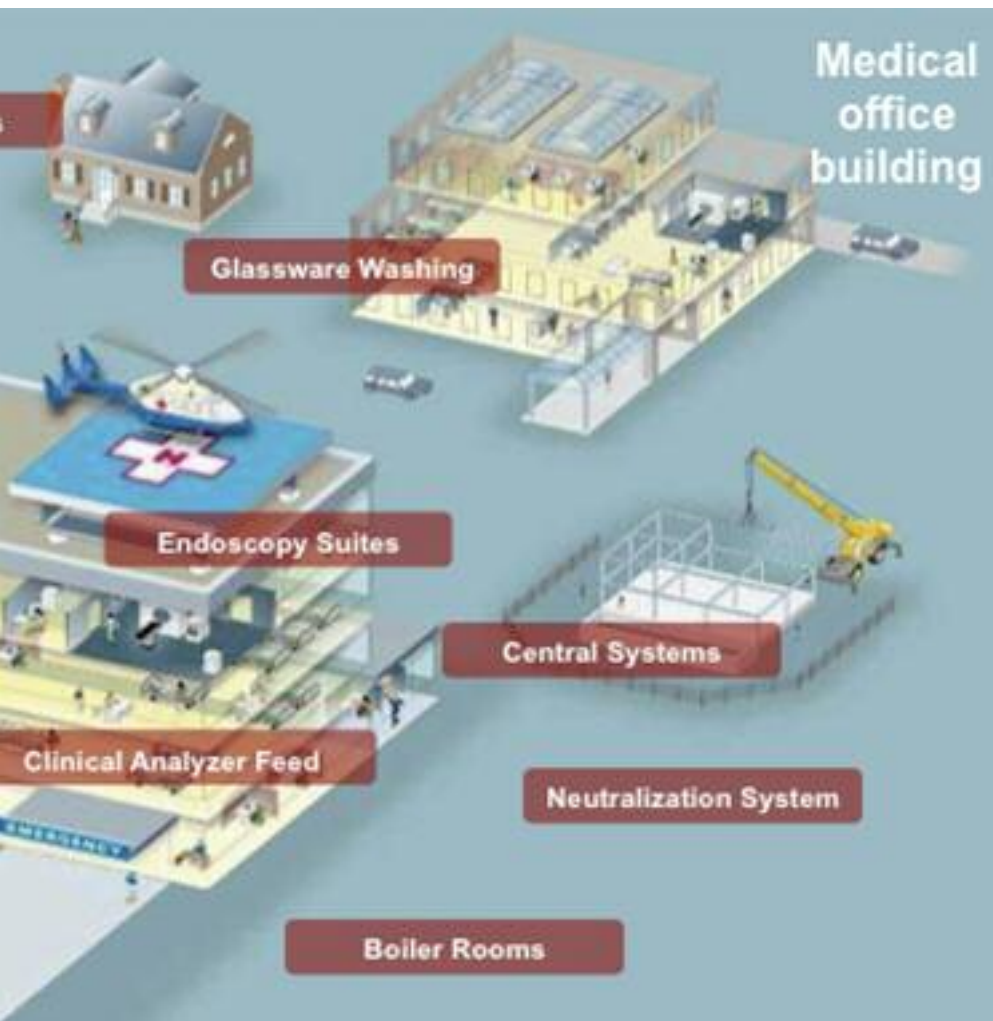


# Meeting All Your Hospital Needs

Siemens works with you to provide the most comprehensive product and service solutions to meet your hospital's high purity water needs. You will benefit from our 40+ years of experience in water purification system design and development and the service solutions we provide to meet many different industry needs. With our 24/7 service and emergency hot line access, we're there when you need us for total peace of mind.

We are a single source provider that can manage your facility's water purification requirements from central systems, to laboratory systems, and clinical analyzer feed systems to endoscopy filtration products and products for cooling towers and boiler feed systems.

Siemens' approach is to determine your individual needs, understand your goals and design and implement the best integrated solution to meet your objectives, within your scope and budget.



Meeting your hospital's water requirements with complete systems and services

- Hemodialysis
- Central Sterilization
- Surgical Rooms
- Laboratories
- Clinical Chemistry
- Pathology
- Research
- Humidification
- Endoscope Reprocessing
- Cooling Towers
- Boiler Feed
- Ice Makers and Water Coolers
- Central Water Systems
- Point-of-use Systems
- Replacement Filters
- Preventative Maintenance Services
- Sanitization Services
- Turnkey Systems
- Water System Validation Service
- 24/7 Service and Technical Support
- Local Support

# Clinical Analyzer Feed Systems



CLSI (Clinical Laboratory Standards Institute) <i>Clinical Laboratory Reagent Water (CLRW)</i>	
CLSI	
Resistivity @ 25°C (megohms-cm)	≥ 10
Conductivity @ 25°C (micromhos/cm)	0.1
Bacterial Growth (cfu/mL)	< 10
Organics	< 500 ppb
Particulate Matter	0.22 µm Filter*
*The specification is a process specification, and not measured by the end-user.	

MEDICA® analyzer feed water systems provide CLSI (Clinical Laboratory Standards Institute) CLRW quality water to feed clinical analyzers. Consistent delivery of high quality water means no interruptions or compromised results. Combined technologies minimize risk of bacterial contamination and ensures ionic purity with low TOC water. Systems can be validated for compliance.

## MEDICA® R/S/D Systems

- Combined purification technologies remove trace organics, bacteria, inorganics, and particulates providing high purity water consistently
- Recirculation of pure water ensures consistent high quality water and maintains a low bacterial specification (R/D models only)
- Icon screen technology provides efficient operation and easy to read water quality setting and monitoring menus
- Flexible flow rate ranges allow easy upgrade for higher water demand situations
- Audio-visual alarms alert users when to change consumables for peace of mind
- Degas system models remove carbon dioxide prior to analyzer

## MEDICA® Pro Systems

- Designed to feed multiple clinical analyzers or a single analyzer up to 4 liters per minute for flexibility and efficiency
- Long life deionization cartridge reduces exchange frequency and running costs
- UV and microfiltration technologies together with recirculation and easy sanitization regime, maintain bacterial contamination to less than 1CFU/ml
- Emergency by-pass loop provides an uninterrupted supply of pure water to the analyzer in an emergency

## MEDICA® R 200 Systems

- Designed to supply high purity water to high volume clinical analyzers and labs with multiple analyzers.
- Space saving design houses all technologies in a single cabinet
- Alert alarms and safety features ensure system is operating effectively and water quality is never compromised
- Integrated by-pass loop ensures a constant water supply in an emergency

# Laboratory Water Purification Products

Siemens' range of ultra pure water systems are designed to provide high purity water for all your hospital laboratory application needs.

## PURELAB® Ultra Water Purification System

Genetic/Bioscience Models

- Worker/Polisher purification design reduces annual running costs by 50%
- Low Bacteria – < 1 cfu/10 ml
- Ultrafiltration and UV oxidation technology reduces endotoxin levels to < 0.001 EU/ml
- System performance monitoring with data download capability
- Optional Biofilter protects against biological contaminants
- Full service packages available for worry free operation



## AXIUS™ Direct E-Plus Water Purifier

- Produces high purity water up to 18 megohm from tap water feed
- Low energy cost
- Sophisticated continuous electrodeionization (CEDI) technology reduces bacterial contamination – <1 cfu/ml
- Endotoxin levels are typically <0.001 EU/ml
- Long lasting electrodeionization module provides cost savings



## LaboStar™ Range of High Purity Water Systems

- Compact water system with minimal footprint
- Up to 18 megohm water quality on demand
- Easy to read display monitors water quality and system performance
- Pretreatment, RO, deionization and 7 liter reservoir all in one unit for complete purification of potable water (LaboStar™ Direct system only)



## CENTRA® Laboratory Purification and Distribution Systems

- Combines purification, storage and distribution in a single cabinet
- Designed for flow rates of up to 200 liters per hour (recirculation flow up to 10gpm)
- Process monitoring ensures system performance and alerts users for consumable change-out
- Compact design for maximum space utilization
- Water leak detection prevents lab flooding
- Easy connection to building maintenance systems (BMS)



## Service Deionization Systems (SDI)

- Economical, high purity, portable deionization tanks designed to produce up to 18 megohm water from potable water
- Customer configuration to meet laboratories water purity requirements
- GMP regenerated ion exchange resins assures ionic purity
- Manufactured in a batch controlled environment to ensure consistent quality
- Designed with high capacity laboratory applications in mind



# Hemodialysis Products



Siemens can provide a complete solution to meet the water requirements for Hemodialysis patient care. Our 510K released water system designs adhere to the strictest standards, meeting AAMI (Association for the Advancement of Medical Instrumentation and CSA (Canadian Standards Association) guidelines. Experienced professionals will design and efficiently maintain your dialysis water treatment system.

## **Med-RO® Series Reverse Osmosis Medical System**

- Specifically designed for Hemodialysis water treatment applications.
- Small foot print requires minimal space
- Water systems manufactured at a QSR/ISO 13485 compliant registered facility
- Full fit RO modules reduce bacterial contamination and result in less risk of biofilm buildup.
- Convenient sample ports allow for proper maintenance and troubleshooting
- Clean-in-place connections minimizes disinfection downtime and overall cleaning time
- Reject recycle feature maximizes water recover and minimizes waste

## **Bicarbonate Mixing and Dispensing System**

- Robust, corrosion-resistant components ensure longevity and reliability of the unit
- Available in 50 and 100 gallon duplex tank systems
- Programmable logic control system meets exacting automatic operational requirements
- Pre-assembled configuration reduces installation time and costs
- Provides consistent bicarbonate mixing and dispensing

## **Acid Distribution systems**

- System comprised of virgin polypropylene tank and magnetic drive pump for easy distribution
- Pressurized distribution provides consistent delivery
- Steady distribution and recirculation reduces risk of air locking

## **SDI**

- Provides an on-site back up system
- Emergency back-up system to the RO
- Delivers high quality water to dialysis units meeting AAMI standards
- QSR resin for Dialysis usage comes from FDA registered regeneration facilities

# Endoscope Reprocessing



Water is a key element to endoscope reprocessing. Siemens offers a range of prefiltration, microfiltration and ultrafiltration products as well as reverse osmosis systems to reduce the risk of patient infection. Our products are designed to remove bacteria, particulates, dissolved solids and other contaminants that compromise endoscope reprocessing and rinsing. Siemens products help control costs of frequent replacing of expensive filters inside of your reprocessing equipment.

## Filtration Products

- Prefiltration, high-efficiency media removes particulates, colloids, silt, dirt and gross contaminants
- Microfiltration products' absolute filtration rating minimizes bacterial contamination
- Ultrafiltration filters provide the ultimate barrier to bacteria and pyrogenic substances.
- Filtration extends the life of high cost endoscope filters
- Reduced operational cost with less frequent exchanges

## Reverse Osmosis Systems

- RO systems offer flexibility and reliability
- Microprocessor controlled for easy programming and monitoring
- Reject recycle feature minimizes waste and maximizes water utilization
- Designed to meet the needs of endoscopy washing and rinsing



*Reverse osmosis system*

# Facilities and Central Sterilization



## Water for Central Sterilization

Our Reverse Osmosis and Deionizer water purification systems provide high purity water for the washing, rinsing and decontamination of surgical instruments and glassware used in the hospital. The small footprint design maximizes floor space while offering a complete treatment system for central services.

- Extends the life of equipment and instruments
- Spot free rinsing
- Reduces pitting and cracking on surgical instruments
- Removal of bacteria, particulates and organics that can compromise decontamination of instruments and glassware
- Lower maintenance costs increased savings to the hospital



## Water for Water Coolers and Ice Machines

Pretreatment filters offered by Siemens are designed to further remove impurities from your potable water source for bubbler drinking water and for ice machines. Removing unwanted contaminants provides healthy, clean-water for safe drinking and use in ice-making machines.

- Removal of dirt, silt, taste and odors
- Chlorine removal with carbon filtration
- Clean water for drinking or ice making



## Water for Cooling Towers

Siemens provides high removal capacity filters, softeners, and bacterial removal microfiltration products for use in cooling tower applications. Our reverse osmosis systems are designed to provide prepurified water with 90-99% removal of bacteria, particulates, dissolved inorganics, organic material, and contaminants larger than 200-300 molecular weight.

- Increased cooling tower operational efficiency and reduction in energy costs
- Reduces the risk of Legionella in cooling towers
- Cleaner boiler tubes and better heat transfer
- Reduces water hardness to prevent scaling



## Water for Boiler Feed Systems

Siemens complete range of pretreatment filters, softeners and reverse osmosis systems are designed to prevent common scaling, foaming and corrosive effects in boiler feed applications.

- Increased heat transfer and efficiency of the boiler
- Softened water reduces the risk of scaling
- RO removal of organic matter and impurities reducing foaming and deposits that can clog piping and cause corrosion
- Clarification filters remove sediment and turbidity that can cause sludge carryover
- Cost savings from reduced chemical treatment

# Surgical Suites



## Humidification

Proper humidification is essential for controlling the environmental condition in surgical suites. Humidifiers can clog and run inefficiently when the water feeding to the humidifier contains impurities. Our high efficiency filtration media and reverse osmosis technologies are designed to remove bacteria, particulates, and other water impurities that can compromise the humidification process. Siemens provides equipment, design recommendations and product servicing to ensure the equipment is running at peak performance.

- Reduces impurities from hospital main water supply
- Removes bacteria, colloids, dust, dirt, particulates
- Reduces the risk of surgical instrument damage due to humidity contamination

## Washing Stations and Bathing Stalls

Siemens also offers point-of-use filters designed to reduce microbiological impurities from water used in healthcare facilities. The multimedia filter layers protect against nosocomial infections. Nosogard™ filters are designed to be used for hand washing, on shower equipment and rinsing of disinfected instruments before contact with patients.

- Available in 7, 14, 30 day disposable and 30 to 60 day with daily autoclaves
- Guards against nosocomial infections
- Used on hand wash stations, baths/showers, and for medical equipment rinsing
- Shielded dispense to limit contamination
- Sterile packed for added protection
- Quick connect for easy change out

# Services



Siemens Water Technologies offers a compliment of services to manage your hospital's water treatment suite of products. Customized plans allow you to decide the level and frequency of service that best suits your needs. And our team of service experts provide peace of mind that your water will be the quality you require every time you need it.

- Service support available 24/7
- Emergency hot line provides access to immediate service
- Customer tailored Preventative Maintenance and service contracts
- Installation and start-up
- Consumable change-out
- Sanitization and bio-testing
- 80+ local service branches in North America
- Analytical water testing services
- Validation and calibration services

# Reference Tables – ASTM and CAP

American Society for Testing and Materials Standard Specifications for Reagent Water				
ASTM Type	I	II	III	IV
Conductivity @ 25°C (megohms-cm)	0.056	1.0	0.25	5.0
Resistivity @ 25°C (micromhos/cm)	18	1.0	4.0	0.2
Total Silica (µg/L)	3	3	500	–
Total Organic Carbon (µg/L)	50	50	200	–
Chlorides (µg/L)	1	5	10	50
Sodium (µg/L)	1	5	10	50
pH*	–	–	–	5.0–8.0
	Type A	Type B	Type C	
Max Heterotrophic Bacteria Count	10/1000 mL	10/100 mL	100/10 mL	
Endotoxin, EU/mL	0.03	0.25	N/A	

\*The measurement of pH in Type I, II, and III reagent water has been eliminated because these grades of water do not contain constituents in sufficient quantity to alter pH.

College of American Pathologists CAP			
	I	II	III
Resistivity @ 25°C (megohms-cm)	10	1	0.1
Conductivity @ 25°C (micromhos/cm)	0.10	1	10
Total Silica (mg/l)	50	100	1,000
pH	–	–	5.0–8.0
Bacterial Growth (cfu/ml)	10*	1,000	NS
Particulate	0.22 mm Filter**	NS	NS
Organics	Activated Carbon**	NS	NS

\*Type 1 water is preferably bacteria free  
 \*\* Specifications are process specifications, not measured by end user

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