

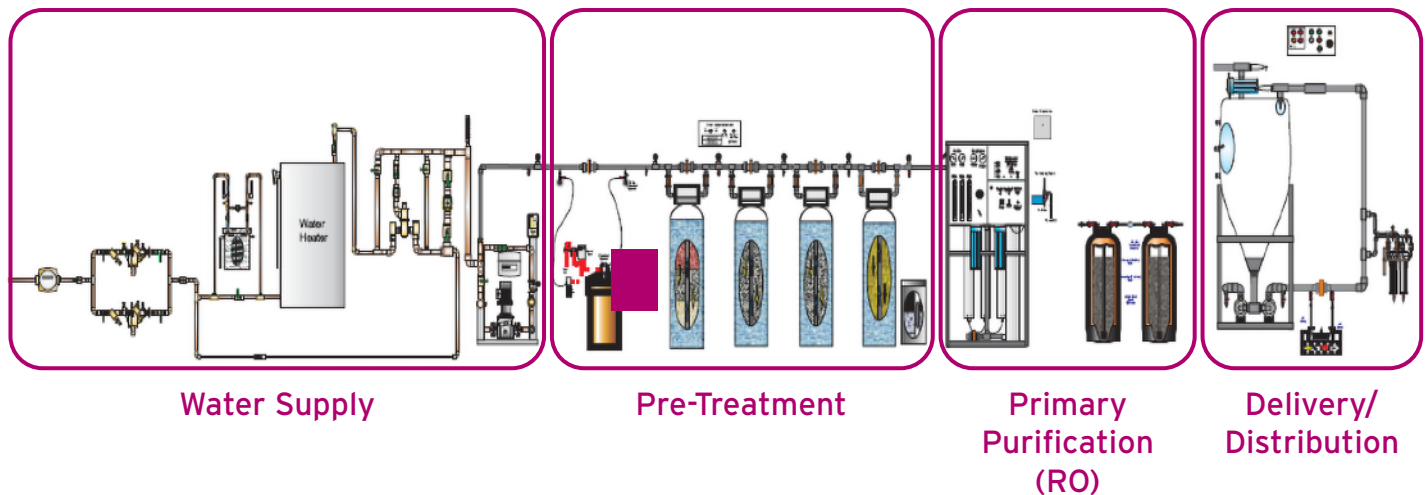
Water System Glossary



**FRESENIUS
MEDICAL CARE**

RENAL TECHNOLOGIES

Water System Glossary



Association for the Advancement of Medical Instrumentation (AAMI): An organization for advancing the development and safe and effective use of medical technology; sets the standards for dialysis grade water

Bacteria: Any class of microscopic single-celled organism reproducing by fission or spores often forming into colonies; the RO membrane removes up to 99% of bacteria

Booster pump: Auxiliary pump installed in the water system to increase or maintain the pressure or flow

Brine tank: Container that holds salt pellets and water to form sodium chloride solution (brine) used for the regeneration of ion exchange systems, such as water softeners

Carbon block: Disposable filtering device consisting of carbon that removes chlorine and chloramines from the feed water

Carbon tank: Backwash-capable filtering device consisting of carbon that removes chlorine and chloramines from the feed water

Carbon tanks (minimum 2): Remove chlorine, chloramines, and organic material from the water

Cartridge filter: Device filtering in the range of 0.1 micron to 100 microns, usually 2 to 4 inches in diameter and 6 to 60 inches in length; usually disposable

Central water system: Complete water system that supplies water to three or more points of use

Chloramine: Molecule from the reaction of chlorine and gases that retains its bactericidal qualities for a longer time than chlorine

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Chlorine: Chemical used by water source agencies for its qualities as a bleaching, oxidizing, or disinfecting agent in water purification; helps to reduce bacteria levels in feed water

Concentrate: In crossflow filtration, the portion of a feed stream that does not flow through the medium but remains on the “waste” side, retaining contaminants that are rejected by the medium to drain; also known as the reject or wastewater stream from the RO machine

Conductivity: Ability of a solution to transmit electricity, measured by a conductivity meter; the inverse of resistivity; also known as total dissolved solids (TDS)

Dead free space: Tubing or areas that do not collect stagnant water; helps improve microbiologics

Deionization (DI): Process utilizing specifically manufactured ion exchange resins that remove ionized salts from water; also used as a backup when RO systems malfunction; does not remove bacteria

Direct feed water system: Complete water system comprised of different components that produces AAMI quality water that does not utilize a water storage tank; water that is not consumed on the treatment floor returns back through the RO

Emergency operation mode: Option that can operate Stage 1 or Stage 2 independently if a malfunction occurs to one of the stages

Empty bed contact time (EBCT): Amount of time a molecule of water takes to travel through a treatment tank and exit; calculation used for the adequate removal of chlorine in carbon tanks; minimum of 10 minutes EBCT is often used but this is subject to clinic policy

Endotoxin: Heat-resistant pyrogen, specifically a lipopolysaccharide, found in the walls of some viable and nonviable bacteria

Feed water input L/h: Amount of input solution to any part of a treatment/purification system, including the raw supply prior to any equipment

Fluid fly loop: Tubing set that flows permeate water from the main ring to the point of use and returns unused permeate water back to the main ring; helps reduce dead space and improve microbiologics

Hardness: Concentration of minerals such as calcium and magnesium salts in water that produces scale buildup

HF: This component heat disinfects the main ring; can be set for auto or manual operation

Indirect feed water system: Complete water system comprised of different components that produces AAMI quality water that uses a water tank; water from the RO machine is pumped directly to a water storage tank that utilizes a separate pump to supply the distribution loop with water

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Membrane: Highly engineered polymer film containing controlled distribution of pores; membranes serve as a barrier permitting the passage of materials only up to a certain size, shape, or character; most often precipitated hardness compounds (calcium and magnesium carbonates)

Multi-media tank: Different sized materials, ranging from sand to gravel, are layered in the tank and trap particles as the water flows down the tank

Percent rejection: Percentage of solutes in the feed water that is prevented from crossing the membrane into the permeate

Permeate: Portion of the feed stream that passes through a membrane, leaving behind a more concentrated stream; the product or finished water used for dialysis; also known as product water

PEX ring material: Polyethylene-based material with very smooth internal tubing walls that inhibits bacterial growth when installed properly

Portable water system: Complete water system that supplies water to one or two dialysis machines and can be moved from one location to another

Pre-filter: Device located prior to the next component, usually disposable, filtering in the range of 0.1 micron to 100 microns; usually 2 to 4 inches in diameter and 6 to 60 inches in length

Pre-treatment: Pre-filtration to remove contaminants, especially chlorine

Reverse osmosis (RO): Technology that removes a large majority of contaminants from water by pushing pressurized water through a semipermeable membrane; the separation of one component of a solution from another component by flowing the feed stream under pressure across a semipermeable membrane. An RO water treatment system removes up to 99% of all contaminants from water; contaminants include but are not limited to pharmaceuticals, dissolved salts (ions), organic particles, and bacteria. RO removes ionized salts, colloids, and organics down to the 150 molecular weight, separating them into the concentrate stream and creating a purified stream of water.

Scaling: Buildup of precipitated salts on such surfaces as RO membranes, pipes, and tanks

Semipermeable: Membrane that allows a solvent such as water to pass through while rejecting certain dissolved solids and contaminants to waste (drain)

Service data: Information saved from the RO machine, which includes all operating modes and error messages, that helps to identify problems and assists in troubleshooting

Silt density index (SDI): Test that measures the level of suspended solids (fine silt) in feed water for an RO system; aids in calculating the amount of prefiltration needed

Standby heat program: Heat disinfection can be programmed for auto heat disinfection

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Ultrafiltration (UF): Separation of one component of a solution from another by means of pressure and flow exerted on a semipermeable membrane

Water softener tank: Reduces water hardness by ionic exchange; not required in every clinic

Water storage tank: Found in indirect water systems; usually a cone-shape-bottomed tank where RO product water is stored, which feeds the distribution loop; capacity is usually 250-500 gallons

Water yield (recovery rate): A water-saving program; can be set up to 75% for cost efficiency

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