

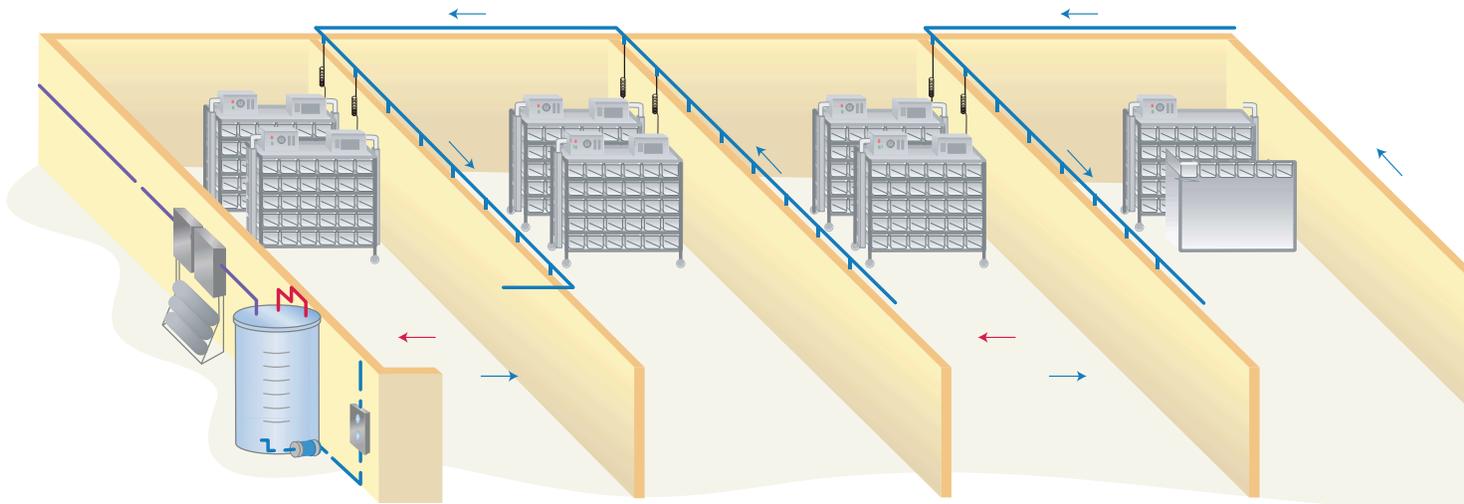
Recirculating Systems

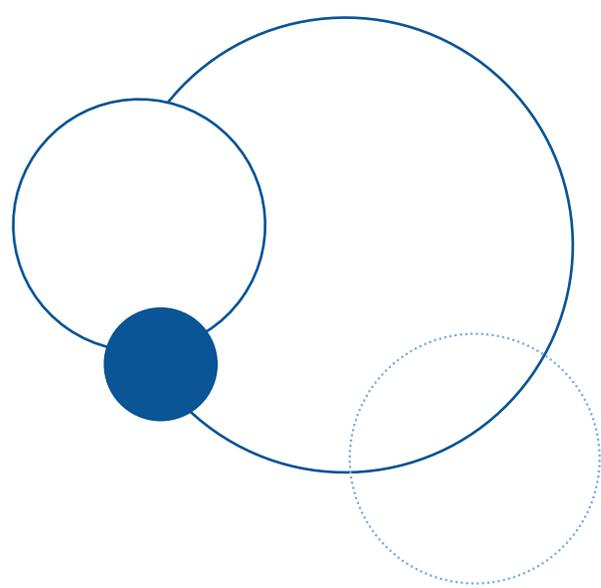
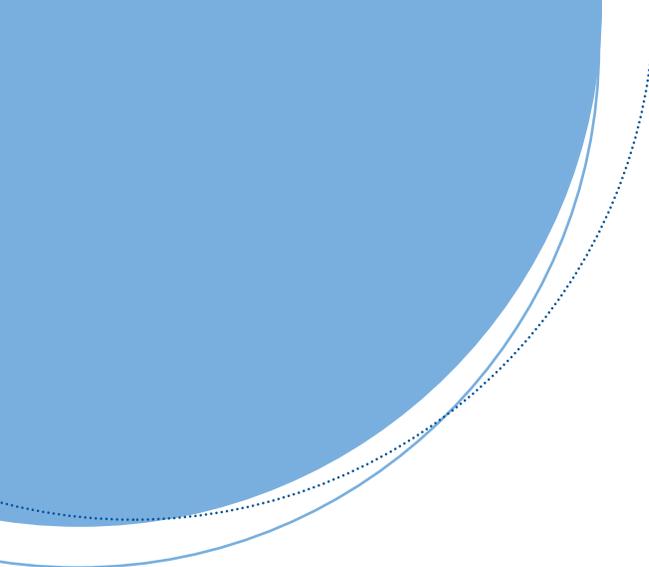
Automated Watering Systems
for Laboratory Animals



Introduction

An Edstrom Recirculating System is a unique design that provides water savings in either a chemical-free system, or in a system that uses residual disinfectants. Recirculation provides continuous water flow in an effort to keep animal drinking water from becoming stagnant. The concept is simple – water is pumped from a storage tank, through an ultraviolet (UV) disinfection unit, to the room distribution system, and back to the storage tank. Therefore, water is never wasted.

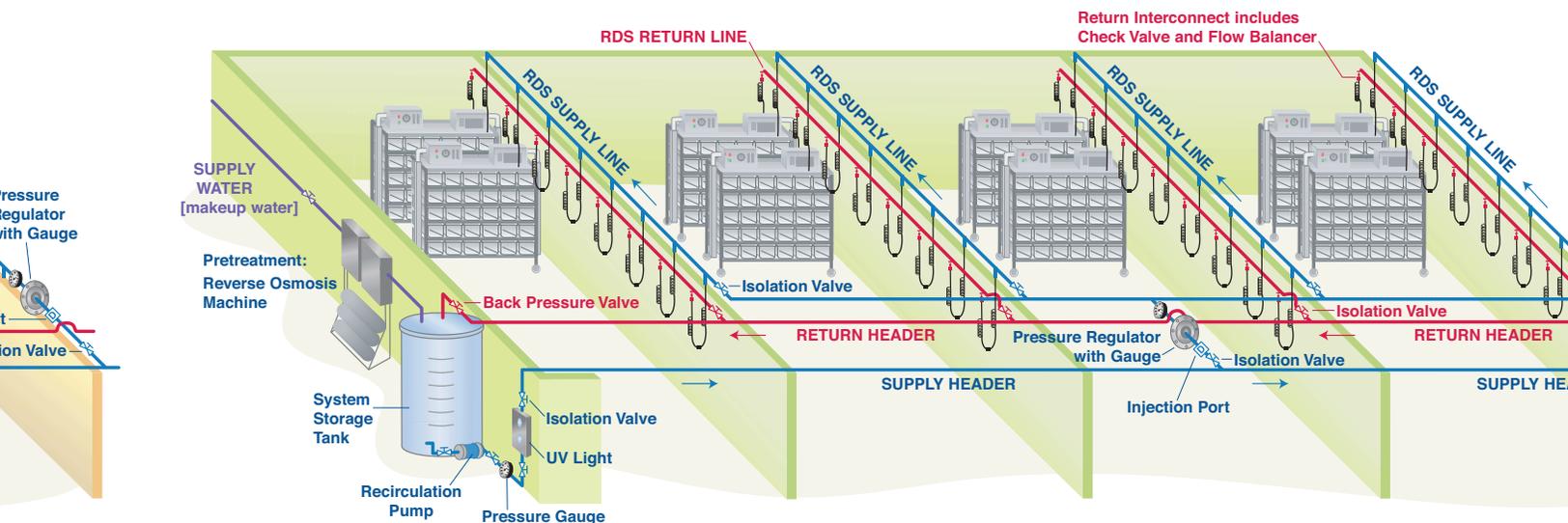




Through the Rack Recirculation

In a rack recirculation system the water is recirculated similar to the header room distribution system, except the water also enters the rack manifolds, bringing fresh water to each animal drinking valve. This is particularly important for species such as mice, that consume small amounts of water.

Water is pumped from the storage tank, through the UV unit, and through the supply header at high pressure. Each room distribution loop feeds off of the supply header at a controlled, reduced pressure. Water is distributed evenly through the racks from the RDS supply line. The water exits the RDS return line, and goes back to the storage tank through the return header.



Balanced Flow Recirculation System through the Racks





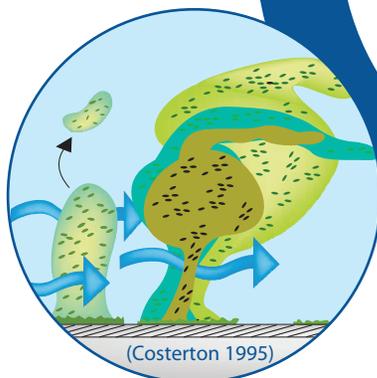
RO8600 Reverse Osmosis Machine

Pretreatment

The quality of the water going into the storage tank is very important. Because water is constantly being recycled in the recirculating system, it is best to begin with purified water. Reverse osmosis removes 95-99% of most contaminants in the water including microorganisms, organic compounds, dissolved inorganic compounds, microbial by-products such as endotoxins and pyrogens, and many carcinogenic compounds. Reverse osmosis also provides nutrient-poor water, which supports less biofilm* than regular tap water, resulting in a thinner, less harmful biofilm.

*What is Biofilm?

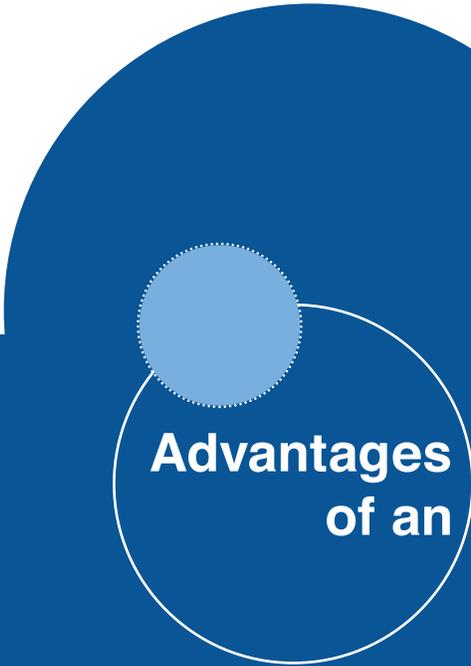
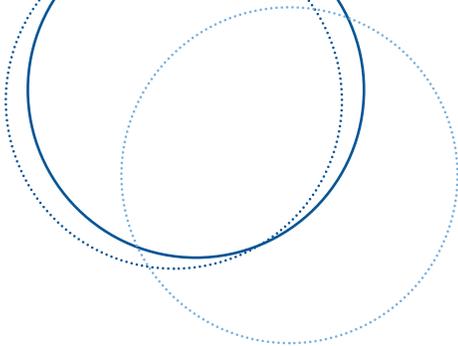
Biofilms are communities of microorganisms surrounded by the slime they secrete – a place where bacteria can thrive and multiply. Biofilms are the source of much of the free-floating bacteria in drinking water that is consumed by laboratory animals. These bacteria can cause infection and disease. Biofilm will develop on any surface that comes in contact with water – even in ultrapure water systems.



(Costerton 1995)



ADER



Advantages of an Edstrom Recirculating System

- Conserves water, helping to protect a critical natural resource
- Controls water costs associated with treating and disposing of waste water as well as the cost of the water itself
- Provides continuous water flow to reduce water stagnation
- "Green" system - using UV as a disinfectant means no chemicals are required
- Simple design
- Supply header has ample pressure and flow, allowing it to be tapped into for supplying water to other devices such as a bottle filling station
- On-Line Rack Flush option for Header-RDS Recirculating System ensures racks receive fresh water
- Clean Joint Fittings eliminate crevices in the watering system where harmful bacteria can grow
- Plastic piping available for economy systems
- Electro-polishing of stainless steel components makes the system more resistant to corrosion
- Electronic monitoring of flow conditions available
- High quality, dependable watering systems backed by 30 years of experience
- Flexibility – we can design any recirculating system to meet your needs

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