

Reverse Osmosis (RO) Pump Sizing



Reverse Osmosis Multi-stage pump supplies the pressure needed to push water through the membrane(s).

FEATURES

- Pump pressure requirements - rough estimate take TDS content of water in ppm and divide by 100. This would be the minimum pressure in pounds per square inch.
- The natural osmotic pressure of typical seawater is about 350 psi, therefore, to get any water to pass through the membrane the applied pressure needed would be 600 to 1200 psi.
- Typical pressures for brackish water range from 225 to 375 psi.
- Fabricated 304 SS Pumps Will Contaminate Ultrapure Water.
- Ultrapure Water Will Corrode Fabricated 304SS Pumps.

POWER COSTS

- The power requirement is about 10 hp for 30 gpm up to 15 hp for 60 gpm. This is constant while the system is running. A 10 hp, 3-phase motor costs approximately 20 cents per hour to operate.

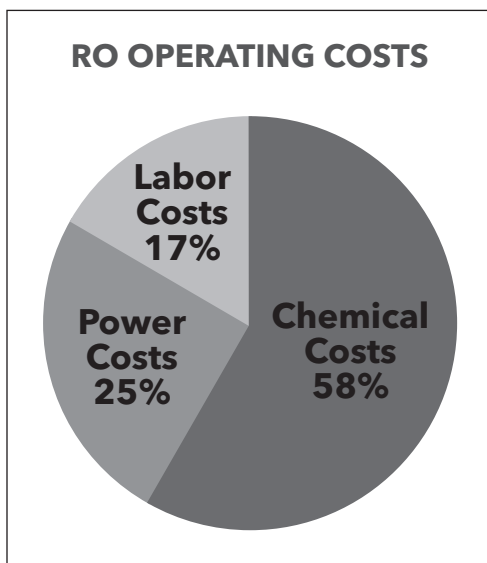
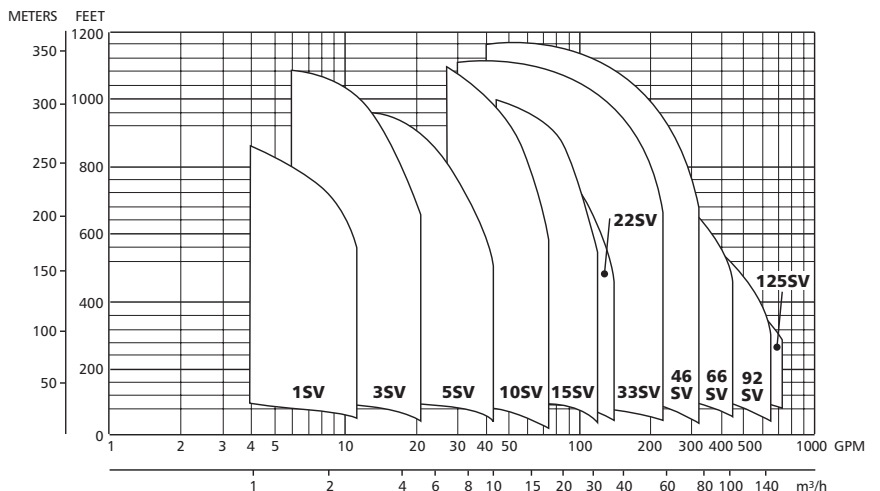
CHEMISTRY COSTS

- The chemistry costs for pretreatment involve salt for a water softener to keep the hardness ions from precipitating out. Total costs for a 30 gpm system runs about 10-15 dollars a day.

LABOR COSTS

- Labor costs for the system is usually very low due to the automated nature of the systems. Typical time for scheduled maintenance procedure is approximately 1 hour per week.

E-SV PERFORMANCE RANGE



e-SV hydraulic efficiency promotes cost reduction within the RO process

RO - Typical Application Uses

DRINKING WATER PURIFICATION

- Household use - sediment and active carbon filtering
- Desalinate seawater or brackish water to obtain drinking water

WATER AND WASTEWATER PURIFICATION

- Rainwater collection - clean, inject, reuse.
- Industrial Boilers - remove minerals; reduce fouling
- Treat effluent or brackish water - reduce chemical treatment costs.
- Production of deionized water
 - Laboratory use
 - Automotive industry - Batteries, cooling system.
 - Dry cleaning - steam irons

FOOD INDUSTRY

- Concentration food liquids - avoid heat treatment process
- Dairy farms (whey processing) - reduce liquid concentration

CAR WASHING

- Wash / Pre-rinse cycle - water reclaim
- Final rinse stage - "Spot Free"

MAPLE SYRUP PRODUCTION

- Remove 50% of water content from the sap...energy savings

REEF AQUARIUMS

- Artificial mixture of seawater
- Reduce containments; control algae

E-SV ADVANTAGES FOR RO APPLICATIONS

- Wide range of hydraulic performance
- Optimum hydraulic efficiency to support reduce life cycle costs.
- Standard motor configurations (Nema TC frame) to ease maintenance in remote locations
- Shaft seal access with removable gland.
- 316SS construction offering with optional passivation and electro polishing treatment

For more information, visit us at:
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Let's Solve Water