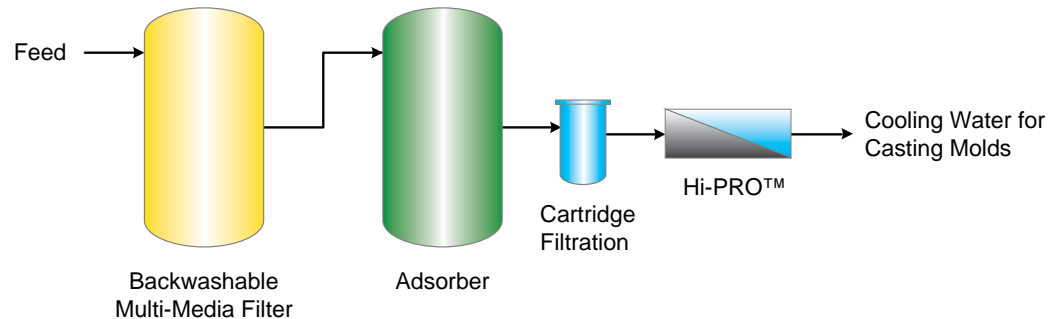


*Casting Mold
lifetime extended
using membrane-
based cooling water
treatment system*

High Purity Reverse Osmosis



Background:

The precision casting of engine components using aluminum molds requires high-purity water for cooling purposes. Typically feed water available to industry is from municipal water sources containing medium to high levels of total dissolved solids. Unless these ionic components are eliminated from the cooling water stream, they can readily corrode the expensive molds, resulting in major plant downtime. Removal of these salts by reverse osmosis technology provides a cost-effective means of maximizing plant operation and mold life.

Solution:

AVANTech provides complete treatment solutions that can be easily and cost-effectively integrated into customer facilities. This system employs a pretreatment scheme consisting of multi-media filtration, carbon adsorption, and cartridge filtration prior to a reverse osmosis system that produces 200 gpm of high purity water for casting operations. The feed water is from an adjacent lake, so chlorine is injected to kill bacteria and ionize organics. Operations are closely monitored and controlled through an inline chlorine detection probe and meter. Particulate is removed from the feed stream through the use of AVANTech's highly efficient multi-media filter utilizing coarse media layers at the top of the process vessel and successively finer media deeper in the bed. The result is highly efficient depth filtration with typical removal down to 10 μ . Next, chlorine, organics, color, and tannin are removed using an activated carbon column. Different types and sizes of carbon can be used to ensure effective treatment.

Hi-PRO™ is designed to produce water given varying feed water temperature and the requirement to maintain constant flow and product quality throughout the year. This system includes in-line instruments for pressure, temperature, conductivity, and pH. The entire system is controlled through the use of a touchscreen controller that interfaces with the facilities' distributive control system. The system continuously supplies high purity product water (<10 μ S) that meets the cooling water specifications for the casting mold. It is skid mounted to support quick installation and startup. It is also supplied with a clean in-place (CIP) system for periodic membrane cleaning.

