

Auto Assembly Plant Improves Production by Using a Mobile Water Treatment System



Challenge

In the automotive assembly process, improvements to paint application technology have increasingly relied on a consistent, high quality supply of high purity water. The water is used to improve the adhesion of anti-corrosive compounds to a car's frame and body parts, and for rinse water between paint coats to improve adhesion and consistency of the finish. The industry has traditionally operated ion exchange demineralizer systems to purify the water, which is used for the paint process. Those systems require chemical regeneration with acid and caustic soda, which must be applied under carefully controlled conditions for successful operation of the purification system. In one assembly plant, the equipment often experienced operational or regeneration failure and proved unreliable in providing the needed quality and quantity of high purity water, causing very costly production delays. In addition, use of the chemicals for regeneration proved a challenge for wastewater discharge, as the acidic stream required pH neutralization in a highly controlled operation.

Solution

GE provided a complete trailer enclosed mobile demineralizer system, which was delivered in re-generated form and was ready to produce the required quantity and quality of purified water to support continuous production. Water quality and quantity are guaranteed to meet the plant's requirements. The mobile system is replaced with another mobile system upon exhaustion, and chemical regenerations are performed at GE facilities. The plant no longer experiences an interruption of the water treatment process during regeneration, and avoids the hazards associated with handling and discharge of the regenerant chemicals.

Results

Production losses and delays due to water system failure have been eliminated, resulting in a significant savings in the cost to produce each car. Wastewater discharge has been reduced, and environmental and safety compliance have been improved by removal of the hazardous regenerant chemicals from the plant. The mobile system provides an additional advantage in that it can provide higher peak flow than the system, which it replaced. This provides flexibility when supplemental supplies of treated water are needed for batch processes and occasional cleaning operations.



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