



cleaning
systems
for liquids

Rinsing water from electroplating

Surface technology/electroplating

Case Study

New iron phosphating pretreatment

In response to growing demands for sustainability and resource efficiency, a plant manufacturer and system integrator for surface technology planned a new painting plant with high-quality pre-treatment for its customer in 2022. MKR-Metzger GmbH was commissioned to develop a customised wastewater treatment solution – under challenging conditions in terms of water quality, space requirements and costs.

Initial situation

The new painting plant was to be equipped with a multi-stage pre-treatment system, including iron phosphating and several rinsing zones with high-quality deionised water. The plant manufacturer turned to MKR for the associated wastewater treatment. This was a completely new construction project, for which no reliable wastewater volumes or samples were available. Specifications were provided in the form of construction elements, installation area and the desired operating mode in three-shift operation.

Requirements

- Very high water quality, especially for the deionized water fed into the system
- Compact design of the wastewater treatment plant due to limited installation space
- Cost optimization in terms of purchase and future expandability
- Possibility of virtually wastewater-free process control

Solution by MKR

MKR developed a compact and expandable wastewater solution based on the ET 250 evaporator, which can be easily upgraded to ET 350 if required. To ensure deionized water quality, the system was equipped with an activated carbon filter and two mixed-bed cartridges connected in series. This eliminated the need for pH adjustment – simple pH and conductivity measurement is sufficient for monitoring. UV disinfection is also used to prevent contamination. Water losses due to evaporation and discharge are compensated for by a reverse osmosis system with softening. The result is a virtually wastewater-free, reliable, and space-saving solution.

Project at a glance

Project:

Compact and sustainable water treatment for modern painting processes

System Technology:

- ET 250 evaporator
- Activated carbon filter
- Ion exchanger
- pH and conductivity measurement

Customer:

Plant manufacturer and reseller

Plant manufacturer and system integrator for surface technology

End customer

Internationally active industrial company with metalworking series production

Contractor:

MKR Metzger GmbH
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Results

- Successful implementation of an almost wastewater-free pretreatment system
- Compliance with all requirements for water quality, space requirements, and costs
- High operational reliability thanks to reliable components and a well-thought-out system concept
- Flexible expandability thanks to modular evaporator technology
- Minimized maintenance effort due to elimination of pH adjustment
- Sustainable and resource-saving solution for three-shift operation

