

Increasing the Efficiency of Process Water Pretreatment Without Interrupting Operations at a Paper Mill

The challenge

A leading global hygiene and health company was experiencing process water shortages in its largest paper mill in Germany. Accelerated aging of the membranes in the ultrafiltration stage of water pretreatment had led to lower quality produced water. The plant required the rapid replacement of the membrane modules without any downtime, while also increasing water treatment capacity to address additional production demands.

The solution

To avoid any disruption to the process water supply, the membrane modules were replaced using a combination of a temporary mobile microfiltration unit and a complete retrofit of the existing pretreatment unit.

Two Aria FAST™ C60 containers from Aria Filtra® and a buffer tank were positioned next to the existing filtration unit. These containerized low-pressure membrane filtration skids provided consistent, high-quality water for both the production process and the high-pressure boiler water pretreatment.

Once the mobile unit was in place and operating, the retrofit of the existing pretreatment unit began. The Aria CARE™ service team replaced all the existing microfiltration membranes with Aria Filtra high-performance membrane filtration modules modified the existing skids to accept Aria Filtra hollow-fiber membranes.

The results

During the retrofit of the existing installation, the fully integrated Aria FAST mobile membrane systems treated up to 500 cubic meters per hour (m³/h) of raw water to meet the mill's production requirements.

Prior to the upgrade, the four existing, on-site microfiltration racks treated up to 250 m³/h of raw water. Now, the Aria FIT™ systems and higher-performing Aria Filtra modules allow for a treatment capacity of up to 650 m³/h, a 150% increase in produced flow rate. The mill can now easily scale process water pretreatment to accommodate any large extension of capacity in the future.



“We now have an extension of capacity,” explained the paper mill’s environmental engineer for water treatment. “The design of the new plant provides more filtered water, while reducing wastewater and chemical use. From process through delivery, [Aria Filtra] fulfilled 100% of their promises—delivering on time with easy communication and professionalism.”

Performed in 12 weeks, the complete refurbishment of the mill’s process water pretreatment system included:

- The replacement of membrane modules
- A revamping of the piping systems through integration of down-flush manifolds to improve performance
- A complete set of tests and commissioning

Based on the success of this project, the mill selected a six-year-long agreement for technical support services, enabling the mill to proactively identify and resolve potential issues to prevent downtime and maintain water quality.

The benefits

The Aria FAST mobile microfiltration units enabled the mill to avoid any downtime during the retrofit of the existing pretreatment unit. Now with the Aria FIT microfiltration system in place, the mill is capable of producing the high-quality water necessary for production needs today and in the future.

- **Quick deployment and installation process**
- **Increased capacity to meet growing demand**
- **Deep process engineering knowledge to ensure complex water challenges were addressed**
- **Highly reliable system performance**

Aria FAST is ideal for:

- Keeping facilities operational during preplanned maintenance
- Addressing emergency situations
- Increasing plant capacity to meet seasonal demand
- Reducing the facility’s dependence on external water supplies
- Meeting current water treatment regulations



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