



Anshan Steel - China

FEDI Model: FEDI-2 HF 30X

No. of Streams: 3 x 198 gpm (3 x 45 m³/hr)

No. of Stacks: 21

Silica as SiO₂: < 20 ppb

Conductivity: 0.1 mS/cm

Project Background

Anshan Steel, one of China's largest steel producers, required demineralized water for its boiler application as the plant planned to expand its capacity. Demineralized water is being used for high pressure boilers as part of a captive power generation plant.

The feed water source is raw water, that undergoes comprehensive pretreatment that includes ultrafiltration, and is taken through a two-pass reverse osmosis system.

After evaluating the plant's demineralization solution options, electrodeionization was chosen as the most viable option. QUA's FEDI-2 HF (high flow) stacks were chosen for their capability of delivering a high quality solution at high product flow rates.

QUA Solution

QUA provided its Fractional Electrodeionization (FEDI) technology for the RO permeate polishing and demineralization component of this project.

The FEDI system is designed to treat 135 m³/hr of double pass RO feed water to be used for the plant's production purposes. Due to the FEDI's enhanced two-stage design, water containing lower silica and conductivity levels is being produced than could be accomplished by conventional technologies.

The water treatment system is key to the long-term success of the plant's power generation process. QUA's FEDI successfully delivered a reliable electrodeionization solution, coupled with a modular design, that allowed the plant to easily expand its capacity for future growth and increased production.

About QUA

QUA is an innovator of advanced membrane technologies that manufactures and provides filtration products to address the most demanding water challenges.

FEDI® Electrodeionization

Fractional Electrodeionization (FEDI) is an advanced EDI technology that was developed to address the limitations of conventional EDI. FEDI is a patented two-stage process that operates in a dual voltage configuration to reduce hardness scaling that may occur in conventional EDI.

FEDI's unique design maintains an acidic condition in the first stage and basic condition in the second stage of the electrodeionization concentrate chamber. This patented design reduces mineral scaling in the first stage and enhances silica removal in the second stage.