



# Glass Manufacturer – Gujarat, India

**FEDI Model:** FEDI-2 SV 30X  
**No. of Streams:** 12m<sup>3</sup> /hr  
**No. of Stacks:** 4  
**Application:** High purity water for glass manufacturing

## Project Background

A global leading manufacturer of float and fabricated glass in Gujarat, India required high purity water for its glass cleaning process. Their water source is tertiary treated or river water, which is filtered through disc filters, and is followed by a pretreatment system that includes ultrafiltration, two pass reverse osmosis and a final polisher unit. After evaluating various demineralization options, the client selected electrodeionization as the final polishing step, because of the various advantages offered by the technology.

Electrodeionization is a continuous, chemical-free process that removes ionized and ionizable impurities from the feed water using DC power. EDI is most commonly used to treat Reverse Osmosis (RO) permeate and replaces Mixed Bed (MB) ion exchange; producing high purity water of up to 18 M Ω.cm. Fractional Electrodeionization (FEDI) is an advancement of EDI technology that was developed to address the limitations of conventional EDI.

## QUA Solution

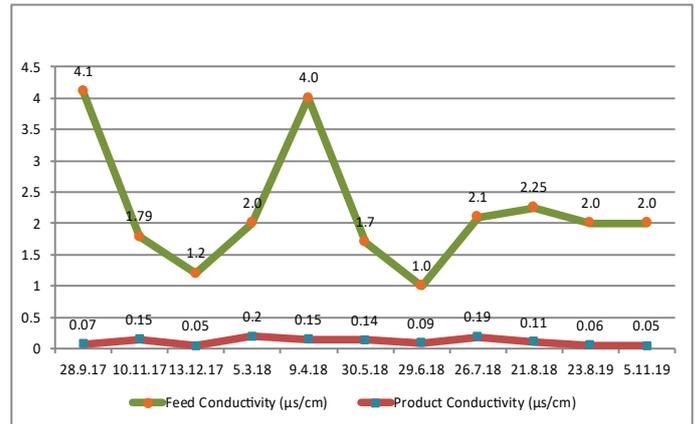
FEDI is available in various models to suit different feed water conditions. There are some models designed to handle higher feed hardness and others designed for lower hardness. FEDI’s dual voltage model is used where the feed hardness is more than 1 ppm. For less than 1 ppm feed hardness, FEDI has a single voltage (SV) model.

In this plant, the feed to FEDI is a two pass RO permeate. Since the feed hardness is low, the client selected the FEDI SV model, after detailed technical and commercial assessment. QUA supplied 4 numbers of its FEDI-2 30X SV. The FEDI system is designed to polish 12m<sup>3</sup>/hr of RO permeate.

## Results

The FEDI system was commissioned in September 2017, has been performing well since commissioning, and is consistently delivering superior product water quality with low conductivity, of less than 0.2 microS/cm, to be used in the glass manufacturing process. The FEDI is key in ensuring continuous glass manufacturing at the client's production facility.

### Product Conductivity Consistently Less than 0.2 microS/cm



## 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

QUA's Fractional Electrodeionization (FEDI) is an advancement of the 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 that reduces hardness scaling that may occur in Product Conductivity Consistently Less than 0.2 microS/cm conventional EDI. FEDI's unique design maintains an acidic condition in the first stage and basic condition in the second stage of the EDI concentrate chamber. This patented design reduces mineral scaling in the first stage and enhances silica removal in the second stage.