

CASE STORY

Water treatment EREN ENERJI



Since 2010, the company ZETES (Zonguldak Eren Termik Santrali) owned by EREN (Eren Enerji Elektrik Üretim A.S.) has operated a coal-fired power plant including one unit of 160 MW (ZETES-1) and two units of 615 MW (ZETES-2) in Catalagzi, Turkey.

The sea water treatment plant at ZETES has been built by Aquamatch Türkiye on turnkey bases. This is one of the biggest desalination and demineralization plant in Turkey and consists of Ultrafiltration, Sea Water Reverse Osmosis, Brackish Water Reverse Osmosis and Mixbed Demineralization systems.

Sea water from the Black Sea is pumped to a storage tank and then feed to a pre-filtration system. The sea water passes through 1 mm coarse mechanical filter before entering three Bernoulli Filters, BSG 350 with 200 micron filter baskets. In this way the Ultrafiltration (UF) system is protected from coarse and fine particles. Filtered sea water is then chlorinated for oxidation of iron and magnesium content and disinfection of microorganisms and transferred to a raw water tank.

Treated sea water is then pumped to the UF-system consisting of six parallel trains with a total capacity of 1590 m³/h. The UF-system is an advanced pretreatment system before desalination system in order to filter suspended solids down to 0,02 microns and to reduce the turbidity and SDI (Silt Density Index) to desired values. The sea water is purified by physical contamination by the UF-system before entering the sea water reverse osmosis (SWRO) system for desalination. The total capacity of SWRO is 880 m³/h. Low conductivity process water of 700 m³/h will be supplied after a second pass RO-system. 500 of the 700 m³/h process water is used for soft process water and the rest, 200 m³/h is passed through a degasifier to remove dissolved CO₂ before entering a mixed-bed demineralization unit to provide pure water for steam boilers.

Facts and figures

Customer: Eren Enerji Elektrik Üretim A.S
Location: Catalagzi, Turkey.
Application: Prefilter UF-system
Filter model: 3 x BSG 350
Filtration: 0,2 mm
Operating flow: 3 x 1100 m³/h
Operating pressure: 2 bar g
Design pressure: 10 bar g



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SYSTEM