

TIANJIN DAGANG DESALINATION PLANT



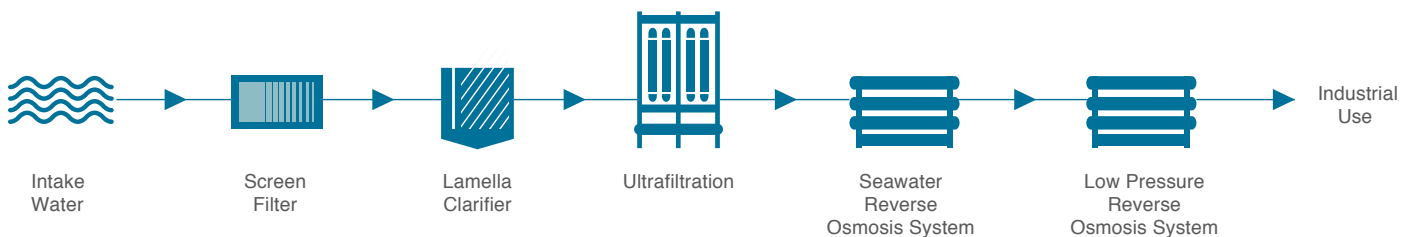
The Tianjin Dagang Desalination Plant supports the industrial growth of Tianjin and is a secure and sustainable source of water for the petrochemical industry.

FACTS & FIGURES

Client	People's Government of Tianjin City
Developer	H.J. NewSpring Limited, a 50/50 joint venture between Hyflux and JGC Corporation
Location	Dagang District of Tianjin City, China
Project Description	Build-Own-Operate on 30-year concession
Technology	Reverse osmosis (RO) with ultrafiltration (UF) for the pre-treatment
Capacity	100,000 m ³ per day; expandable to 150,000 m ³ per day
Online	2009
Land Area	11.6 hectares
Award	Global Water Awards 2010 – Highly Commended, Desalination Plant of the Year

Special Features

- (a) The plant draws its feedwater from the cooling water discharge from a neighbouring power plant.
- (b) This is the first desalination plant with Hyflux's Kristal® UF membranes for pre-treatment.



Intake

The plant is sited 8.5 km away from the Bohai Sea. The plant draws its feed water from the discharge channel of a neighbouring power plant's cooling water system instead of directly from the sea. With the intake water some 5°C warmer than ambient temperature, lower osmotic pressure is required during the treatment process, resulting in lower energy consumption. This also ensures the plant's continuous operation during the cold winter months. The intake structure footprint is minimised as well.

The feed water passes through filter screens of 20 mm and 2 mm for the removal of debris and large suspended particles before being pumped into the lamella clarifier. At the clarifier, chemicals are added to make the fine particles coagulate to form sludge. This sludge is then drained off and the water is passed to the next stage.

Pre-treatment

The feed water quality presents a challenge because of fluctuating turbidity and relatively high total organic carbon (TOC) levels. To optimise the performance of the downstream RO system and protect the RO membranes from fouling, an effective pre-treatment is required. Hyflux's Kristal® UF membranes have been proven to be an effective barrier to suspended solids and microorganisms, ensuring a consistent stream of high quality permeate to the RO system.

Reverse Osmosis

The water then undergoes a two-pass RO process to remove dissolved salts and minerals. The high-grade pure water that is produced is ready for use by the industry.