

Hubert

# Water intake systems

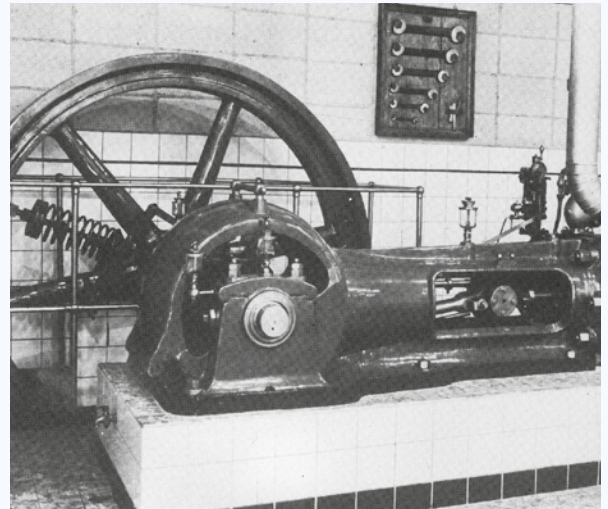


# Over 250 years of experience

## *2024 : a new chapter begins*

The journey of our collective “water power” began in 1880 with the foundation of Hubert, followed by the establishment of Landustrie in 1913. Since the early days of our shared history, Frisian craftspeople have been developing sustainable solutions in our water world. In 2011, the addition of Desah's innovative capabilities further strengthened our commitment to reliable quality.

As of 2024, we have begun a new chapter together. Noarding now combines the strength of three brands: Desah, Hubert, and Landustrie. This enables us to supply futureproof water technology solutions across the entire water cycle.



## Hubert water intake system

### *for industrial and power plants*

Hubert water intake systems are used to mechanically clean or screen water extracted from the sea, rivers or lakes. Mechanical cleaning removes unwanted matter with screens or sieves. This protects the downstream process stages from build-up, clogging and abrasion. The aim is to protect suction pumps and other downstream equipment such as desalination membranes, heat exchangers/condenser tubes from the carry-over of coarse and fine debris.

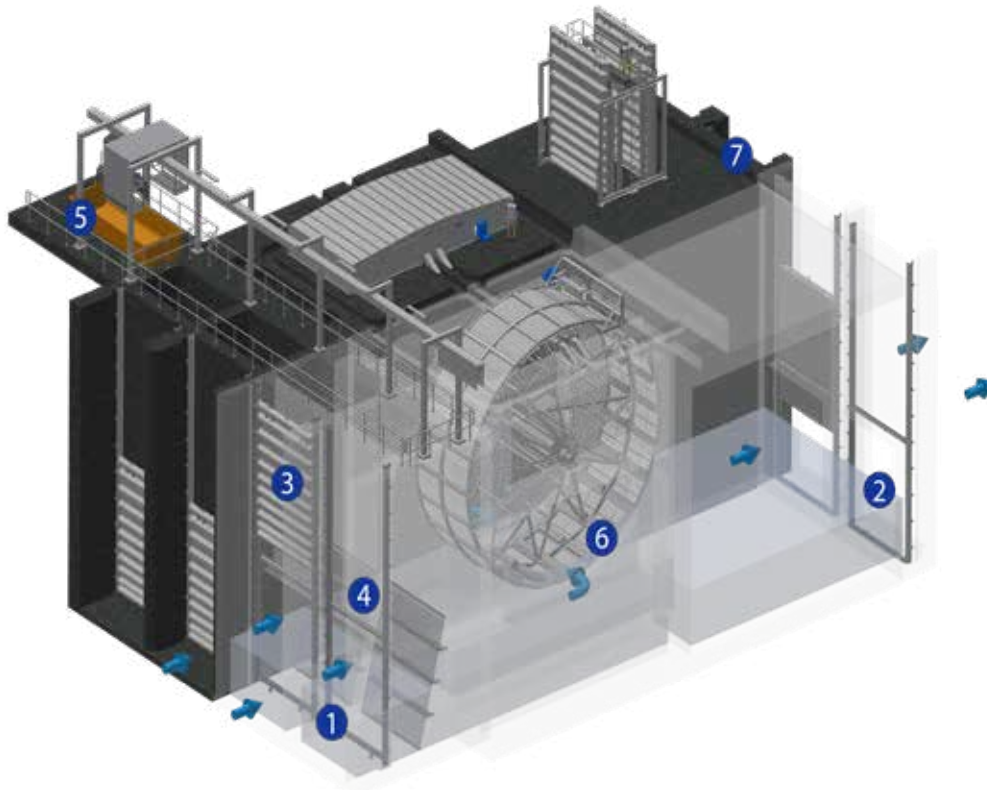
Water intake screening systems are used for filtering

- cooling water for power plants (combined cycle, nuclear, thermal and hydro)
- raw water for desalination and other potable and drinking water production plants
- process water for industrial production processes, such as petrochemical plants and refineries.

Other examples are food processing and mining, drainage channels, fire fighting channels and irrigation offtakes.







## Features and benefits

1. Inlet (unfiltered water)
2. Outlet (filtered water)
3. Sluice gate / stoplog
4. Trash rake gripper
5. Debris container
6. Drum screen
7. Intake structure

## Operation

The Hubert water intake screen system consists of a stoplog or sluice gate (3) for closing the inlet channel for maintenance or inspection (downstream). Next is a coarse screen and raking machine (4) for primary filtration, which removes large quantities of debris including high volumes of biological material (e.g. jellyfish, fish, seaweed). After that there is a drum screen (6) or a travelling band screen. This is the secondary/fine filtration, which can filter debris to 2–3 mm. After the drum screen or travelling band screen another stoplog or sluice gate is placed to close the channel for maintenance or inspection (upstream).

## Lowest operation costs and fish friendly

Our solutions are environmentally friendly and are used in both submerged passive water and open surface water intakes to deliver debris-free water. In addition, they can be supplied with a fish recovery system that allows trapped fish to be removed in a gentle and effective way, in line with applicable regulations. The tailor-made design of our screening systems allows for the lowest possible operating and maintenance costs, including maximum performance and reliability, effective design, and good quality and particle-free filtered water. Our cathodic corrosion protection systems (based on sacrificial anodes or an impressed current cathode protection (ICCP) system) provide corrosion resistance and longer lifetimes in seawater. Today, a lot of duplex and super duplex stainless steel (PREN > 40) is used for screens. You will find our projects in both new construction (engineering, procurement and construction – EPC) projects and renovation/optimization of existing water intakes.

# Stoplog and sluice gate

The stoplog and sluice gate provide a secure water seal for safe inspection and maintenance of the screening intake. Built from steel plate and rolled steel sections with neoprene seals, Hubert stoplogs and sluice gates are engineered to withstand specific design differentials. Stoplogs are lowered in sections using a crane, while sluice gates, typically raised or lowered in one piece, can be motorized and automated.



# Coarse Screen

Hubert coarse screens provide a cost-efficient way of cleaning and removing large quantities of debris, including biological material, from the intake water. The distance between bars is usually 20 mm to 100 mm. We supply various coarse screens tailored to every local situation. All screens are suitable for use in aggressive and extreme environments such as seawater. We also retrofit coarse screen and raking machines into existing intake systems.



# Travelling Band Screen

Our travelling band screens require only a small installation area due to the vertical construction. This type of screen is used in places where the construction area of the total cleaning installation is limited or where tidal differences occur. Flow rates vary from 1500 up to 50,000 m<sup>3</sup>/h per screen, but this depends on customer requirements and the local situation at the intake. Woven mesh with a diameter of about 2 mm to 10 mm is used as a relative fine filter medium.

The travelling band screen operates on a conveyor belt principle. The conveyor belt is composed of mesh panels that are mounted between two endless heavy-duty transport chains. The chains are driven by a sprocket wheel. The debris trapped on is removed by water spray jets and discharged through a flushed chute. The drive unit, flushing mechanism and debris hopper are located at deck level. The upper section above deck level is fitted with a metal or reinforced polyester composite cover. Hubert travelling band screens are available for different flow patterns.

Special designs can be provided with facilities for removing and discharging other debris, such as jellyfish and seaweed.



# Case study

## Saline Water Conversion Corporation (SWCC) Yanbu II and III

We secured the contract for delivering a marine package for a seawater intake filtration system, overseeing subcontracted deliveries to meet specifications.

### Yanbu II

Starting in 2013, this project involved constructing a seawater intake system with four intake channels to filter out debris like sea grass, plastic, and jellyfish. We supplied four Hubert drum screens, each 13 m in diameter and 6.6 m wide, with a 110,000 m<sup>3</sup>/h capacity, along with bar screens equipped with automatic raking on a monorail. Hubert stoplogs enable safe closure of inlet channels for maintenance. We also delivered the water spray system, cathodic protection, and electrical and instrumentation (E&I) components.

### Yanbu III

In 2015, Hubert began the Yanbu III project, providing 10 drum screens to filter particles over 2 mm from seawater. These 316-grade stainless steel screens measure 11 m in diameter, 6.2 m wide, and have a 124,000 m<sup>3</sup>/h capacity. The scope included design, production, and on-site installation supervision, plus spare parts and performance testing of a complete drum screen at our facility in the Netherlands. This project was completed within a tight seven-month schedule to meet SWCC requirements.

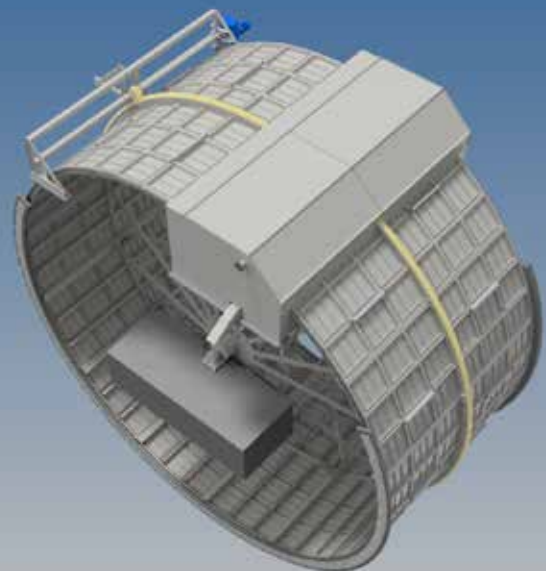
### Key Figures

Location:	Yanbu region, Saudi Arabia
Products:	drum screens, stoplogs, bar screens and monorail raking system
Materials:	Duplex stainless steel
Year:	2013 -2016

## Drumscreen

A Hubert rotary drum screen is mainly used for seawater intakes as part of power plants and desalination plants, where very large amounts of water are required and where tidal differences can also play a role. Our definition of a vertical drum screen is that debris discharge takes place at the periphery of the filter at deck level.

A drum screen is typically installed in water intake systems downstream from coarse bar screens. Flow rates are usually between 40,000 and 120,000 m<sup>3</sup>/h per screen, depending on customer requirements and the local situation at the intake. Woven mesh with a diameter of about 2–3 mm is used as a filter medium.





### Hubert is part of Noardling

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### Our Water Cycle

From water intake systems to water cooling, from water management to wastewater treatment, hydropower, pumping installations, and award-winning innovations in the field of decentralised wastewater treatment, discover the water cycle here by scanning the QR-code.



The Noardling company is engaged in Futureproof Water Technology. With more than 250 years of experience in moving and treating of water.

### Noardling brands:



Decentralised Wastewater Solutions



Water Screening Solutions



Water Treatment Solutions