



HUBER Multi-Rake Bar Screen RakeMax®

High-performance chain screen for water withdrawal from surface water

- ▶ Very high screenings removal capacity due to short cleaning cycles
- ▶ Very low headloss – high separation efficiency
- ▶ Simple and robust design adapted to project-specific requirements
- ▶ Various design options enable use for both coarse and fine screening of large dirt loads

The powerful Multi-Rake Bar Screen RakeMax® cleans surface water even with high dirt loads

Due to the increasing pollution of surface water, operators of water withdrawal systems are faced with the challenge of effectively removing protective substances via mechanical cleaning. The extent of surface water withdrawal from rivers and seas is also growing due to increasing drinking water withdrawal via desalination plants or new applications such as regenerative heat from river water or the generation of hydrogen. The correct choice of the mechanical screens determines the stability of subsequent process steps and thus the economic efficiency and safety of the entire plant.

The HUBER Multi-Rake Bar Screen RakeMax® is ideally suited for these requirements and reliably removes high dirt loads from the water. Thanks to innovative solutions, the RakeMax® can also meet special requirements such as the removal of jellyfish and seaweed or efficient water withdrawal without harming fish.

Our decades of experience in project implementation and maintenance enable us to perfect the Multi-Rake Bar Screen RakeMax® to suit real use conditions and for use in a wide range of water qualities and dirt loads. Combined with modern engineering and manufacturing methods, this guarantees a long service life of the RakeMax® with high reliability and low maintenance.



Installation of a RakeMax® during plant modernisation.

Design and function of the machine

The HUBER Multi-Rake Bar Screen RakeMax® is a coarse screen with front flow in the channel as the first stage for screening surface water. The RakeMax® can also be used as a fine screen.

As the water to be screened flows through the bars, the impurities are retained by the bars. The retained substances clog the bars and also lead to a filter effect, which further increases the screen's separation efficiency. The cleaning rakes, which are attached to the chain system, are moved through the bars by the rake drive and transport the dirt load upwards. The separated material is discharged into a container or another unit for dewatering via a discharge mechanism in the upper part of the screen. The cleaning elements attached to the chain system can easily be adjusted to different requirements, enable project-specific design of the screening discharge capacity. This is especially favourable for high solids loads.

The discharge height of the RakeMax® above the ground is very low. It is designed specifically for the project depending on the installation height of the screenings discharge/evacuation. The design ensures that no impurities fall back into the incoming sewer.

The RakeMax® can be operated manually, with time control or automatically with water level differential measurement. An overload protection device ensures that the RakeMax® drive switches off in the event of a blockage.



Schematic drawing of the HUBER Multi-Rake Bar Screen RakeMax®.

Areas of application of the HUBER Multi-Rake Bar Screen RakeMax®:

The HUBER Multi-Rake Bar Screen RakeMax® is used as a coarse screen for surface water treatment and is used in various industries:

- ▶ Thermal power plants: Treatment for cooling water
- ▶ Water power plants: water treatment
- ▶ Industrial, chemical and refinery plants: water treatment
- ▶ Drinking water supply and seawater desalination: water treatment
- ▶ Agriculture and parks: recycling of irrigation water

Sizes and process engineering data

- ▶ Channel widths up to 4 m
- ▶ Channel depth up to 25 m
- ▶ Installation angle up to 90°
- ▶ Wedge wire spacing: 2 – 100 mm
- ▶ Flow rates of up to 80,000 m³/h per channel

Advantages of the HUBER Multi-Rake Bar Screen RakeMax®

- ▶ Throughput – very low headloss with high separation efficiency
- ▶ Discharge capacity – short cleaning intervals to increase the machine's discharge capacity
- ▶ Discharge capacity – optionally available with buckets for high quantities of jellyfish or special rakes for seaweed
- ▶ Installation and assembly – quick and easy installation of the machine in the structure
- ▶ Easy maintenance – all maintenance steps can be carried out from the operator level
- ▶ Increased corrosion resistance through suitable selection of materials or corrosion protection systems
- ▶ Variable cleaning speed to optimise machine runtimes
- ▶ Automatic wiper system – no washing water or brushes required for cleaning

HUBER Multi-Rake Bar Screen RakeMax® handles even challenging dirt loads

The RakeMax® can be manufactured in stainless steel, duplex or super duplex depending on the project-specific requirements. The combination of stainless steel and cathodic corrosion protection is also possible. Different discharge elements can also be selected for a wide range of contaminants.

One example of this is jellyfish in seawater applications. Depending on the season, large quantities of jellyfish often lead to operational problems or failures of the screens and thus of the entire process. The HUBER Multi-Rake Bar Screen RakeMax® can be equipped with specially developed jellyfish removal elements for these applications to increase the removal capacity and ensure continued operation despite high quantities of jellyfish.



Large groups of jellyfish seasonally with jellyfish blooms.

Success stories

HUBER has supplied numerous solutions for new plants and the modernisation of existing plants worldwide. High-quality screening machines ensure smooth water

withdrawal and reliably protect downstream systems from damage caused by contamination.



Paper production / Germany

- ▶ Complete solution from HUBER (mechanical and electrical equipment)
- ▶ Combination of coarse and fine screening
- ▶ Optimised plant concept with perfect integration into the construction of the overall structure for cooling and process water extraction
- ▶ 1x HUBER Multi-Rake Bar Screen RakeMax® for coarse screening
- ▶ Commissioning in 2019



Irrigation for agriculture / South Africa

- ▶ Timely installation in cooperation with local partners
- ▶ Robust low-maintenance machines that efficiently protect the pumps for the irrigation canal system from contamination
- ▶ High reliability over many years of operation
- ▶ 3 x HUBER Multi-Rake Bar Screen RakeMax®
- ▶ Commissioning in 2007



Electricity generation from hydropower / Switzerland

- ▶ Modernisation for a water power plant in the Swiss Alps
- ▶ Coarse screening must be carried out on water from the Lac Supérieur de Fully reservoir to protect the water turbines
- ▶ Installation at over 2,000 m above sea level was logistically extremely demanding due to the difficult-to-reach location; transport to the construction site took place by helicopter
- ▶ 1x HUBER Multi-Rake Bar Screen RakeMax®
- ▶ Commissioning in 2021

HUBER SE

Industriepark Erasbach A1 | 92334 Berching
Phone: +49 8462 201-0 | water-intake@huber.de
www.huber.de

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