

**ESMIL**  
EQUIPMENT

EQUIPMENT AND TECHNOLOGIES  
for wastewater treatment

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High-efficiency

# Rake Bar Screen



for preliminary wastewater  
treatment

An ideal solution for the first stage of preliminary treatment at wastewater treatment plants and pumping stations to remove solids from wastewater stream, protect pumping equipment and reduce the load on the subsequent wastewater treatment processes. The use of this equipment ensures the reliability of the wastewater treatment process.



reliable design of the  
housing and mechanisms;



high throughput capacity;



easy installation in new  
or existing channels;



automated operation, low  
installation and maintenance  
costs;



durability – the screens are  
manufactured from corrosion-  
resistant materials.

# The advantages of ESMIL screens are enclosed in technical solutions

- ✓ Due to their reliability and efficiency, bar screens are one of the best screening solutions available on the market.
- ✓ The design of the screen was developed taking into account many years of practical experience in equipment operation at municipal and industrial wastewater treatment plants.
- ✓ We carry out hydraulic calculations for each case.

## Why do consumers opt for ESMIL Bar Screens?

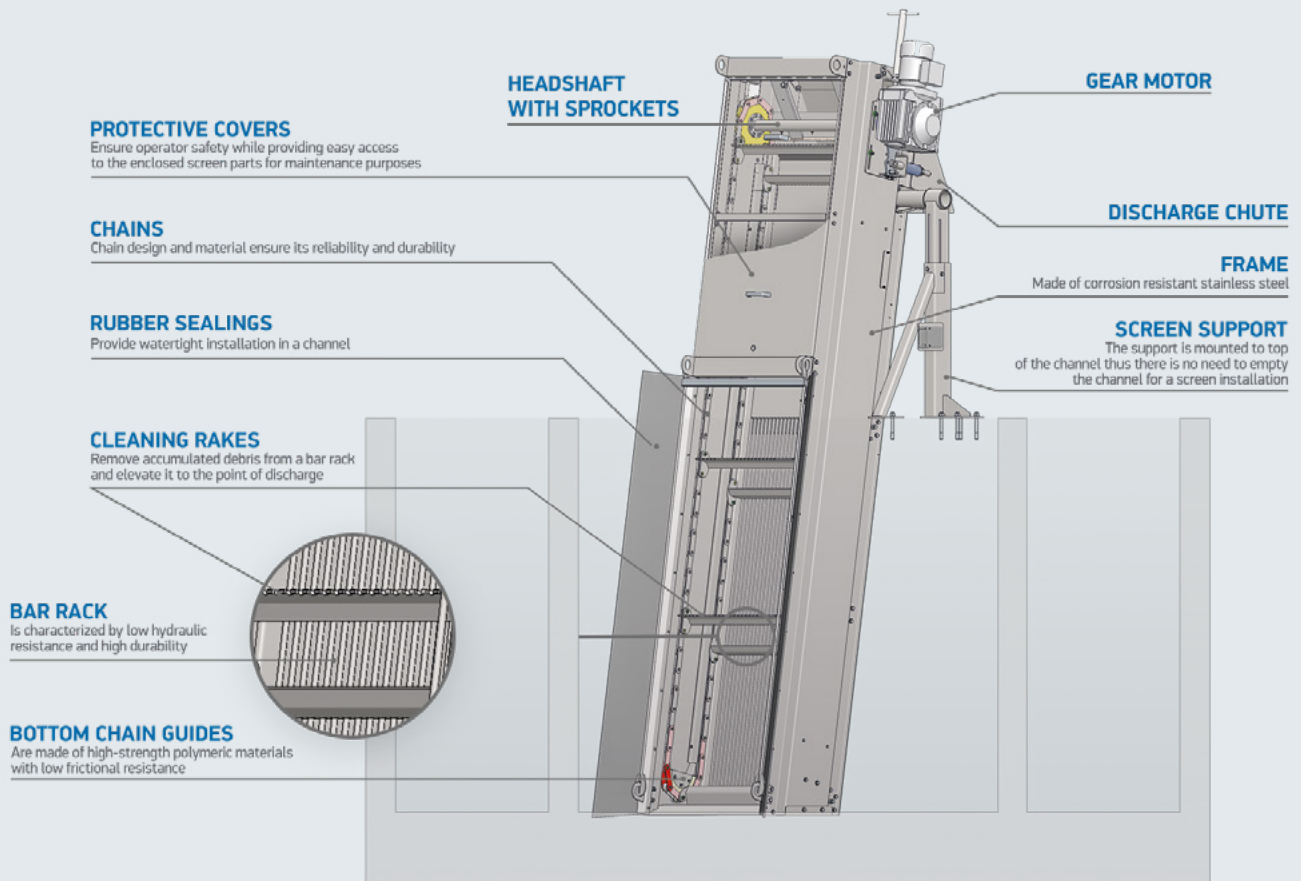
- » a wide range of bar spacings from 5 mm to 100 mm allows selecting a screen for both coarse and fine screening applications, taking into account the type of solid materials present in wastewater;
- » a unique teardrop-shaped bars minimize hydraulic resistance of the screen, increase its throughput capacity and protects the screen from solids jamming between the bars. Besides, the screen is resistant to grit and stones present in wastewater.
- » a removable bar rack, which, if necessary, can be easily replaced on site without dismantling the entire mechanism.
- » for more effective removal of the accumulated debris from the bar rack, it is possible to change the amount and design of cleaning rakes, or use rakes with alternating tooth length.
- » rakes can be easily dismantled for maintenance and replacement.
- » the chain is protected from clogging and wrapping with debris.
- » gear motors by one of the world's leading manufacturers – NORD DriveSystems are used to drive a raking mechanism.
- » the level of automation and the standards used in the manufacture of screens allow them to be integrated into existing wastewater treatment systems and synchronize their work with other types of equipment.

## The following factors are the root cause of high durability of the ESMIL Bar screens:

- » perfect pairing between the elements of the housing and screen mechanisms due to the use of high-precision manufacturing technologies.
- » high corrosion resistance achieved by the use of stainless steel (AISI 304, AISI 316) in the construction, which is extremely important when equipment operates in an aggressive wastewater environment.
- » the screen production process includes anti-corrosion treatment: bulk etching and passivation by special means.
- » mechanical protection: safety clutch of the drive mechanism with the possibility to adjust the force of operation using a spring device.
- » electrical protection against overload and power surges
- » sprockets of the raking mechanism have an increased number of teeth; they are made of wear-resistant polyamide, are corrosion-resistant and durable.
- » the use of powerful chains with plastic rollers. They are characterized by durability and wear resistance. The rollers minimize rolling friction and ensure maximum work efficiency.
- » there is no need to worry about the condition of the underwater parts of the screen – there are no submerged rotating elements, the chains move along the lateral polymer guides.
- » reinforced rake design is implemented.
- » the rake wiper is manufactured with a polyamide overlay to reduce screen wear.







## Design advantages

### Why are ESMIL screens convenient to use?

- » the highest level of maintainability: the screens are easily maintained due to the availability of the main components in operating condition. The pivoting of the screen out of the channel can be carried out without its dismantling thanks to a unique rotary mechanism. There is no need to empty the channel or dismantle the screen.
- » the bar rack can be easily replaced in case of damage.
- » closed air-tight structure, ergonomic easy-to-open covers for screen inspection and carrying out scheduled works.
- » easy maintenance and simple adjustment of the screen chains due to the convenient access to the chain tension mechanism.
- » special design of the rake wiper ensures optimal removal of debris from the rakes and prevents their return to the channel.



# WHAT OPTIONS CAN WE OFFER?

- » the screen can be equipped with an ESMIL intelligent automation system with the ability to track and position the rakes and control the rake travel speed within a wide range of adjustable parameters
- » ESMIL can integrate all screening equipment – screens, screening conveyors, presses and grinders – into a single complex, which gives such advantages as ease of installation, high level of automation, air-tightness and ease of maintenance.
- » if necessary, to simplify installation (e.g., installation into a deep channels, lack of space in the room), the screen can be made with a demountable housing.
- » ESMIL screens can be easily adapted for outdoor use.
- » in the cases of non-standard installation (e. g., installation into a short channel), the screen is mounted on telescopic supports.

**Customers can always be sure that they will get individual project proposals and the parameters of the proposed screen will correspond to the working conditions of a particular facility.**



## Specifications

Parameter	Value
Channel width, mm	600 - 2100
Channel dept, mm	600 - 6500
Bar spacing, mm	5 - 100
Bar shape	teardrop / tapered / rectangular
Chain	with plastic rollers
Installation angle, °	75 - 85
Discharge height	project specific
Gearmotor	0.5 - 1.0 HP, IP 55 – IP67



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