VERTICAL
BARE
SCREENS
New Generation
520 million euros in annual sales* have been generated by the KLINGER Group in the 2018 fiscal year.

2,400 employees work for the KLINGER Group worldwide.

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KLINGER PORTUGAL

KLINGER Portugal Ltd., Started its activity in 1993, and the company was born with a clear vocation of service in the Industrial sector. In 2016, EQUIFLUXO became part of the KLINGER Group. With a team specialized in the water treatment sector, featuring solutions in dosing, pumps, instrumentation, pretreatment, and aeration, focusing on service and customer service.

All this allows KLINGER Portugal to present engineering solutions supported by technicians specialized in each area of activity.

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**ADVANTAGES**

- **Simplicity**
  
  A spoon with an opening / closing system based on gravity attached by a strap, a gear-motor and two limit switches to start and stop the cycle. The simplicity of our technology is taken to the extreme.

- **Custom made**
  
  Depth, height and side of waste discharge, width, screening mesh, material, etc. Each grid is unique.

- **Reliability**
  
  The innovative design of our products makes them very reliable, which is essential, given the context in which they operate.

- **Versatility**
  
  Several options are available to optimize the efficiency of the grids in all configurations.

- **Efficiency**
  
  All of our bare screens are designed and sized according to the specifics of each project, to offer the highest screening efficiency.

- **Easy maintenance / Low cost**
  
  Wear parts are few and easily accessible from the top floor. Changing a part does not require the grid to be stopped for a long period of time.

- **Adaptable**
  
  They can be installed in a canal, elevation or well, internal or external, in new or existing civil works.

- **Quick and easy installation**
  
  Delivered in one or several parts, each grid must be leveled and fixed to the wall of the channel or station. One working day is usually sufficient.

**UNIQUE TECHNOLOGY**

- **Leader in the water sector**
  
  For operators in the sector, our technology is an authentic reference. Your recognition is our greatest reward. It is by working closely with our customers daily that we can offer screening solutions adapted to their needs.

- **Gravity-based system**
  
  The spoon acts only thanks to the force of gravity. The opening and closing are due to the weight and angle of each part of it. This system based on gravity avoids the use of fragile and expensive hydraulic systems or motors.

- **Detection of obstruction by “belt stretch”**
  
  To avoid any risk of obstruction during the cleaning process, the detection system allows partial cleaning even if something prevents the spoon from reaching the bottom. This is a real advantage to ensure cleaning efficiency in the presence of sand or rocks in the wastewater.

- **Upstream grading**
  
  Our bare screens always collect waste on the upstream side of the bars. This is a real advantage. Our experience has shown that downstream cleaning is not recommended as it does not guarantee the efficiency and reliability of the process.

- **Polyester strap instead of cables or chains**
  
  - Absence of maintenance;
  - Roll-resistant flexible material;
  - Very high breaking load; (3 to 12 tones depending on the model)
  - Resistant to all chemicals and frost;
  - Easy replacement (less than 30 minutes);
  - Low cost;
  - Absence of corrosion;
In a well, fixed against the wall, the bare screens takes up as little space as a manual basket. Access to the pumps remains intact.

In a channel, at any depth, the occupied area is about 1 meter, thus helping to save on the cost of civil works.

Above ground level, the space occupied is reduced, which facilitates the installation of other additional equipment. All wear parts are located above ground level.

Reliability and longevity
The life span of our bare screens depends on how often they operate and how often they are maintained. Some of them lasted more than 25 years.

We put quality first: assembled by experienced technicians, each machine is checked, adjusted and tested before shipping.

Low electrical consumption
The least powerful of our bare screens uses only 180 Watts, and the most powerful, for larger projects, no more than 1.5 kW. Energy-related costs are minimized, as well as the impact on the environment.

Manufacture and standards
All of our bare screens are designed and manufactured in France and comply with all European Standards.

Channel installation
The automatic bare screen is installed in the channel, discharging waste upstream or downstream, depending on technical requirements.

In this case, we can supply stainless steel side deflectors to compensate for the difference in width between the grille and the channel.

We can therefore easily and without any modification to the civil work, replace competing manual or automatic bare screens, regardless of the technology used.

Installation in wells
The bare screen is installed in the well in front of the effluent inlet pipe against the vertical wall.

In most cases, the bare screen takes up as little space as a manual bare screen and does not prevent the pumps from being lifted.

This type of installation is also the most economical, as it no longer requires any civil works.

In terms of maintenance, it is not necessary to descend to the well. All wear parts are located above ground level.
# BARE SCREEN RANGE

<table>
<thead>
<tr>
<th>Model</th>
<th>SI350</th>
<th>SG400</th>
<th>NG</th>
<th>XG</th>
<th>NI13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. Flow (m³/h)</td>
<td>50</td>
<td>120</td>
<td>6000</td>
<td>20000</td>
<td>25000</td>
</tr>
<tr>
<td>Spacing</td>
<td>6, 10, 15 or 20</td>
<td>3 or 30</td>
<td>3 or 60</td>
<td>3 or 60</td>
<td>10 or 100</td>
</tr>
<tr>
<td>Width (mm)</td>
<td>350</td>
<td>400</td>
<td>420 to 2000</td>
<td>450 to 2000</td>
<td>800 to 3000</td>
</tr>
<tr>
<td>Max. Depth (mm)</td>
<td>400 to 2000</td>
<td>5500</td>
<td>17000</td>
<td>17000</td>
<td>12000</td>
</tr>
<tr>
<td>Total Height (mm)</td>
<td>2730</td>
<td>8000</td>
<td>21000</td>
<td>21000</td>
<td>18000</td>
</tr>
<tr>
<td>Discharge Side</td>
<td>Downstream</td>
<td>Upstream</td>
<td>Upstream</td>
<td>Downstream</td>
<td>Downstream</td>
</tr>
<tr>
<td>Inclination</td>
<td>15º</td>
<td>0º</td>
<td>0º</td>
<td>0º</td>
<td>15º</td>
</tr>
<tr>
<td>Material</td>
<td>304L or 316L</td>
<td>304L or 316L</td>
<td>304L or 316L</td>
<td>304L or 316L</td>
<td>304L or 316L</td>
</tr>
</tbody>
</table>
SI350

Automatic bare screen with downstream discharge, for flows up to 50 m³/h

<table>
<thead>
<tr>
<th>Model</th>
<th>SI350</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>1 Unit</td>
</tr>
</tbody>
</table>

Characteristics

Discharge of solids downstream
Ideal for flow locations up to 50 m³/h
Channel-only assembly
Simple design = reliable and durable
Removable bar and claw
Compatible with CE marking
Control panel (optional)
Collect directly to the container.

Technical Specifications

<table>
<thead>
<tr>
<th>Maximum flow rates</th>
<th>m³/h</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance between bars</td>
<td>mm</td>
<td>6, 10, 15 or 20</td>
</tr>
<tr>
<td>Width</td>
<td>mm</td>
<td>350</td>
</tr>
<tr>
<td>Depth below ground</td>
<td>mm</td>
<td>400 to 2000</td>
</tr>
<tr>
<td>Solid discharge height</td>
<td>mm</td>
<td>600 to 1400</td>
</tr>
<tr>
<td>Solid discharge side</td>
<td></td>
<td>Downstream</td>
</tr>
<tr>
<td>Inclination</td>
<td>deg</td>
<td>15</td>
</tr>
<tr>
<td>Material</td>
<td></td>
<td>304L or 316L</td>
</tr>
</tbody>
</table>

Operating Principles

Upon receiving the operating signal, the spoon / cart assembly slides down open. At the end of the gutters, the spoon rests on the collection base. The belt unwinds completely, then rewinds the other side of the drum. The spoon closes by engaging the teeth on the bars and is lifted. When leaving the bars, the garbage is trapped between the comb and the “waste guide” plate. At the top, when the comb reaches the inclined plane, the garbage falls into the funnel. The car reaches the “upper” limit sensor, which stops the motor and activates the inverter. The engine speed is reversed, the spoon / cart assembly slides back into a new cycle.

Options

- Switchboard ...
- Hopper bagging strap
- Side deflectors
- Solar panel for power supply
- Single-phase gearmotor
- Assembly or assembly assistance provided by a specialist
- Waterproof current transformer if neutral is missing
SG400

Automatic bare screen with downstream discharge, for flows up to 120 m³ / h

<table>
<thead>
<tr>
<th>Model</th>
<th>SG400</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>1 Unit</td>
</tr>
</tbody>
</table>

**Characteristics**

- Upstream waste discharge
- Adapts to all civil works
- Simple design = long-term reliability
- Standard width of 400mm
- Low operating cost and easy maintenance
- Parts subject to wear and electrical parts are out of water
- Solids discharged directly into container

**Technical Specifications**

<table>
<thead>
<tr>
<th>Maximum flow rates (m³/h)</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distance between bars (mm)</td>
<td>3 to 30</td>
</tr>
<tr>
<td>Width (mm)</td>
<td>400</td>
</tr>
<tr>
<td>Depth below ground (mm)</td>
<td>5500</td>
</tr>
<tr>
<td>Maximum grid height (mm)</td>
<td>8000</td>
</tr>
<tr>
<td>Solid discharge side</td>
<td>Upstream</td>
</tr>
<tr>
<td>Inclination</td>
<td>0º</td>
</tr>
<tr>
<td>Material</td>
<td>304L, 316L or mixed</td>
</tr>
</tbody>
</table>

**Operating Principles**

Upon receiving the operating signal, the open spoon / cart assembly slides down. Under the effect of gravity, the moving part changes position, the belt loosens and releases a probe that acts on the "lower" limit sensor. The operating direction of the motor is then reversed, the belt is tightened, the shell closes by wrapping the teeth in the bars and is lifted. At the top, the spoon / cart assembly must support the studs and then rotate until the position of the moving part changes, causing the shovel to open and discharge the waste. The "upper" limit sensor stops the motor and drives the inverter. The open spoon / cart assembly slides back into a new cycle.

**Options**

- Gearbox, lower and upper limit switches
- Side deflectors
- Soundproofing
- Inspection door
- Manual grid for side bypass
- Heater to prevent freezing
- Metal channel
- Electric control and servo control unit

1. Structure
   Fixing by screws and wall plugs
2. Fixed bars
   Welded at the bottom end. Bar spacing on request.
3. Basis of Collection
4. Solid Discharge Hopper
   Front cover and side panel with hinges and an engine side panel. Standard equipped with a strap to secure the bag.
5. Solid Collection Spoon
   The carriage slides on the rails and unloads the solids in the upper position. The spoon is equipped with a comb to clean the grid.
6. Moving Part
   Attaches to the end of the strap, initiates the opening or closing of the spoon according to its position.
7. Gearmotor
   (SEW, P = 0.18kW), with single belt drum.
8. Polyester strap
   Resistant to all chemicals and frost (breaking load = 3 tones).
   Equipped with «up-down» buttons and emergency stop button. The gearmotor and limit switches are connected to it.
10. Position switch
    "Superior and inferior"
11. Safety switch
Automatic bare screen with upstream discharge, for flows up to 6000 m³ / h

<table>
<thead>
<tr>
<th>Model</th>
<th>NG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>1 Unit</td>
</tr>
</tbody>
</table>

Characteristics
- Upstream waste discharge
- Adapts to all civil works
- Simple design = reliable and durable
- Low operating cost and easy maintenance
- Wearable parts and electrical equipment are out of water

Technical Specifications

<table>
<thead>
<tr>
<th></th>
<th>m³/h</th>
<th>mm</th>
<th>mm</th>
<th>mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum flow rate</td>
<td>6000</td>
<td>3 to 60</td>
<td>450 to 2000</td>
<td>21000</td>
</tr>
<tr>
<td>Distance between bars</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth below ground</td>
<td></td>
<td></td>
<td>17000</td>
<td></td>
</tr>
<tr>
<td>Maximum grid height</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solid discharge side</td>
<td>Upstream</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inclination</td>
<td>0º</td>
<td></td>
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<td></td>
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<td>Material</td>
<td>304L or 316L</td>
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Operating Principles

Upon receiving the operating signal, the open spoon / cart assembly slides down. Under the effect of gravity, the moving part changes position, the belt loosens and releases a probe that acts on the "lower" limit sensor. The operating direction of the motor is then reversed, the belt is tightened, the shell closes by wrapping the teeth in the bars and is lifted. At the top, the spoon / cart assembly must support the studs and then rotate until the position of the moving part changes, causing the shovel to open and discharge the waste. The "upper" limit sensor stops the motor and drives the inverter. The open spoon / cart assembly slides back into a new cycle.

Options

- Manual filter for side bypass
- ATEX brush equipment to clean the comb
- Side deflectors
- Metal channel
- Depot inspection port
- Variable speed motor-reducer
- Heater to prevent freezing
- Electric control and servo control unit with or without variable speed drive
XG

Automatic bare screen with downstream discharge, for flows up to 20000 m³ / h

<table>
<thead>
<tr>
<th>Model</th>
<th>XG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>1 Unit</td>
</tr>
</tbody>
</table>

Characteristics
- Discharge of solids downstream
- Adaptable to all new or existing works
- Simple design = long-term reliability
- Made to measure
- Low operating cost and easy maintenance
- Conforms to CE standards
- Wear parts and electrical parts out of reach of water
- Discharge of waste directly into container

Technical Specifications

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum flow rate</td>
<td>m³/h</td>
</tr>
<tr>
<td>Distance between bars</td>
<td>mm</td>
</tr>
<tr>
<td>Width</td>
<td>mm</td>
</tr>
<tr>
<td>Depth below ground</td>
<td>mm</td>
</tr>
<tr>
<td>Solid discharge height</td>
<td>mm</td>
</tr>
<tr>
<td>Maximum grid height</td>
<td></td>
</tr>
<tr>
<td>Inclination</td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td></td>
</tr>
</tbody>
</table>

1. Structure
- Fixing by screws and wall plugs
2. Fixed harrowing
- Distance between bars on request
3. Basis of Collection
4. Solid Discharge Hopper
- With removable panel or visiting door.
5. Solid Collection Spoon
- The carriage slides on the rails and unloads the solids in the upper position. The spoon is equipped with a comb to clean the grid.
6. Moving Part
- Fixed to the end of the strap, initiates the opening or closing of the spoon according to its position.
7. Gearmotor
- (SEW, P = 0.25 to 2.2kW), with single belt drum. Safe with hinged lid and pneumatic cylinder.
8. Polyester strap
- Resistant to all chemicals and frost (breaking load = 3, 5 or 12 tons according to the grid dimensions).
- Equipped with «up-down» buttons and emergency stop button. The gearmotor and the limit switches are connected to it.
10. Position switch
- «High», «Very high» and «Low».
11. Ejector
- Articulated around an axis and equipped with a scraper in HD 1000.
12. Debris Guide
13. Blocking

Operating Principles
Upon receiving the operating signal, the open spoon / cart assembly slides down. Under the effect of gravity, the moving part changes position, the belt loosens and releases a probe that acts on the “lower” limit sensor. The operating direction of the motor is then reversed, the belt is tightened, the shell closes by wrapping the teeth in the bars and is lifted. At the top, the spoon / cart assembly must support the studs and then rotate until the position of the moving part changes, causing the shovel to open and discharge the waste. The “upper” limit sensor stops the motor and drives the inverter. The open spoon / cart assembly slides back into a new cycle.

Options
- Manual filter for side bypass
- ATEX brush equipment to clean the comb
- Side deflectors
- Metal channel
- Depot inspection port
- Variable speed motor-reducer
- Heater to prevent freezing
- Electric control and servo control unit with or without variable speed drive
NI13

Automatic bare screen with downstream discharge, for flows up to 25000 m³ / h

<table>
<thead>
<tr>
<th>Model</th>
<th>NI13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>1 Unit</td>
</tr>
</tbody>
</table>

Characteristics
- Discharge of solids downstream
- Channel-only mounting
- Simple design = long-term reliability
- Made to measure
- Low operating cost and easy maintenance
- Conforms to CE standards
- Wear parts and electrical parts out of reach of water
- Discharge of waste directly into container

Technical Specifications

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum flow rate</td>
<td>m³/h</td>
</tr>
<tr>
<td>Distance between bars</td>
<td>mm</td>
</tr>
<tr>
<td>Width</td>
<td>mm</td>
</tr>
<tr>
<td>Depth below ground</td>
<td>mm</td>
</tr>
<tr>
<td>Maximum grid height</td>
<td>mm</td>
</tr>
<tr>
<td>Solid discharge side</td>
<td>Downstream</td>
</tr>
<tr>
<td>Inclination</td>
<td>15º</td>
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<tr>
<td>Material</td>
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</tbody>
</table>

Operating Principles

Upon receiving the operating signal, the open spoon / cart assembly slides down. Under the effect of gravity, the moving part changes position, the belt loosens and releases a probe that acts on the "lower" limit sensor. The operating direction of the motor is then reversed, the belt is tightened, the shell closes by wrapping the teeth in the bars and is lifted. At the top, the spoon / cart assembly must support the studs and then rotate until the position of the moving part changes, causing the shovel to open and discharge the waste. The "upper" limit sensor stops the motor and drives the inverter. The open spoon / cart assembly slides back into a new cycle.

Options

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side deflectors</td>
<td>Electrical control</td>
</tr>
<tr>
<td>ATEX equipment</td>
<td>Control box with or without variable speed drive</td>
</tr>
<tr>
<td>Variable speed gearmotor</td>
<td></td>
</tr>
<tr>
<td>Structure manufactured in several parts according to the depth or layout</td>
<td></td>
</tr>
</tbody>
</table>
Solar Power Grid

Self-sufficient operation

In remote locations, where it is difficult to supply energy, we offer a “Solar Energy Package” for our bar screens, allowing the machine to be completely self-sufficient. The “Solar Energy Package” is sized according to the location and solar data provided by the European Commission over 5 years. Available for SI350, SG400 and NG type bar screens.

Solar energy package includes:

- High efficiency solar panels, 90 to 250 W, anti-yellowing glass, electrical junction box IP65, 10 years manufacturer’s warranty.
- Waterproof gel batteries, 12V, 65 to 200 Ah, maintenance free.
- MPPT (Maximum Power Point Tracking) charge controller. Avoids deep discharge and improves the efficiency of solar panels.
- Control panel IP55.
- 304L stainless steel pole and battery box.
- Autonomy without light for 6 to 8 days.

SERVICES

Services provision

Our portfolio is enriched with our experience and know-how ...

» Installation of our equipment
» Commissioning
» Equipment testing
» Consultancy and support
» Technical assistance
» Seminars and training