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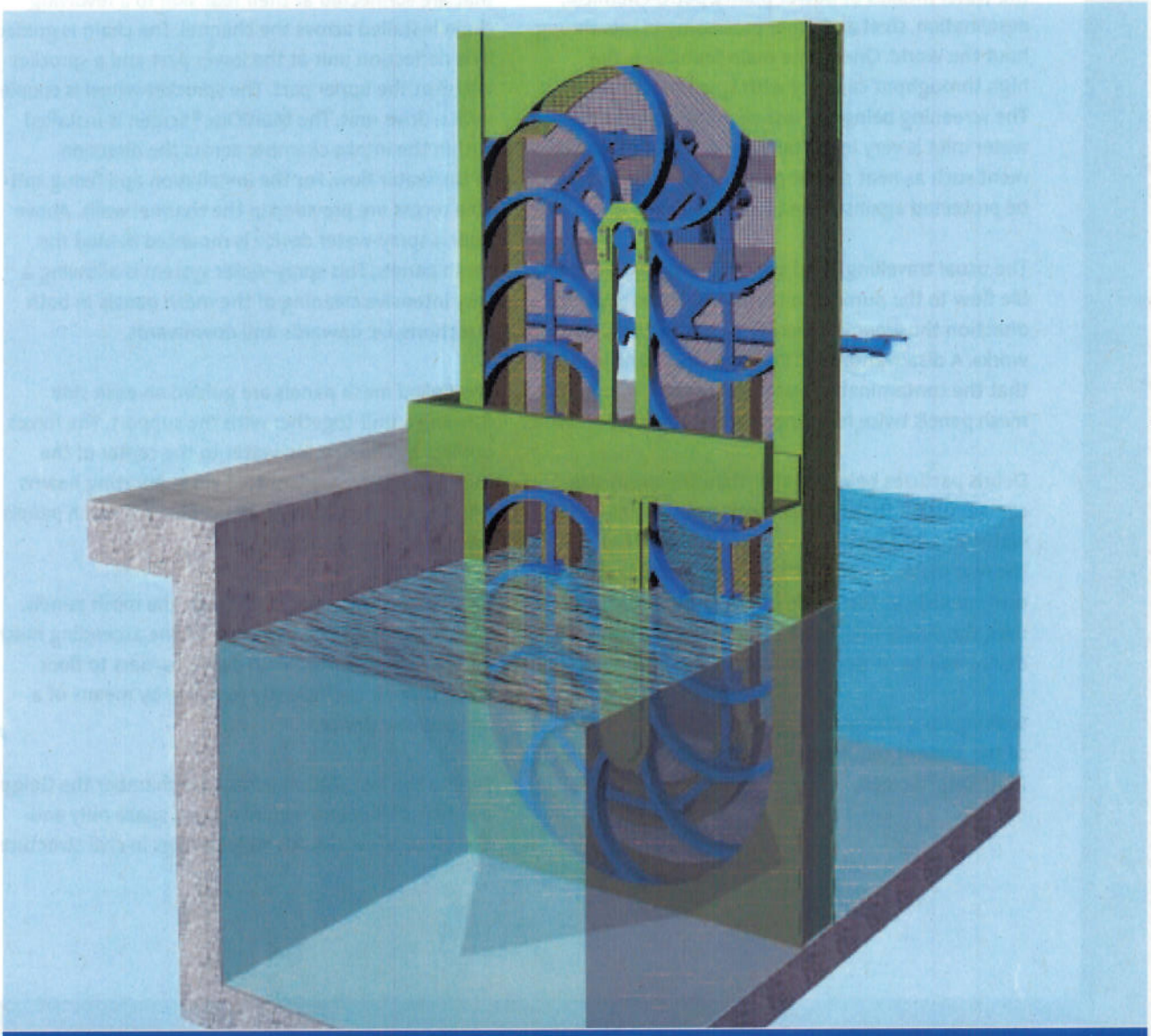
PASSAVANT GEIGER



Geiger MultiDisc® Screen

GEIGER | Products & Service

SCREENING TECHNOLOGY

BILFINGER BERGER Umwelttechnik

For many years Geiger Travelling Band Screens and Drum Screens have successfully been installed in the water intakes of power plants, petro-chemical, desalination, steel and other processing plants throughout the world. One of the main features is the high throughput capacity with small machine size. The screening being the last cleaning stage in the water inlet is very important as critical plant equipment such as heat exchangers and pumps have to be protected against damages.

The usual travelling band screens have an unfavourable flow to the pump due to multiple changes in flow direction thus requiring extensive civil structure works. A disadvantage of the thru-flow band screen is that the contaminated water has to flow through the mesh panels twice resulting in a higher loss of pressure.

Debris particles being smaller than the mesh size can penetrate through the mesh panel to the clean water side, but is not encouraged to flow through the rear mesh panel. Consequently, debris is retained continuously at the inside of the band screen. Moreover, the debris that is not removed by the spray-water device will be carried over to the clean water side.

Looking for a completely new concept and in view of the present requirements Geiger developed the MultiDisc® Screen.

Function

The basis are circulating sickle-shaped mesh panels that are connected at their rear side to a revolving chain installed across the channel. The chain is guided by a deflection unit at the lower part and a sprocket wheel at the upper part. The sprocket wheel is coupled with a drive unit. The MultiDisc® Screen is installed within the intake chamber across the direction of the water flow. For the installation and fixing suitable recess are provided in the channel walls. Above floor a spray-water device is mounted behind the mesh panels. This spray-water system is allowing a very intensive cleaning of the mesh panels in both directions, i.e. upwards and downwards.

The linked mesh panels are guided on each side forming a unit together with the support. The forces applied by the flowing water to the center of the mesh panels are transmitted via supporting beams into the civil structure. In the center the mesh panels are supported by rollers.

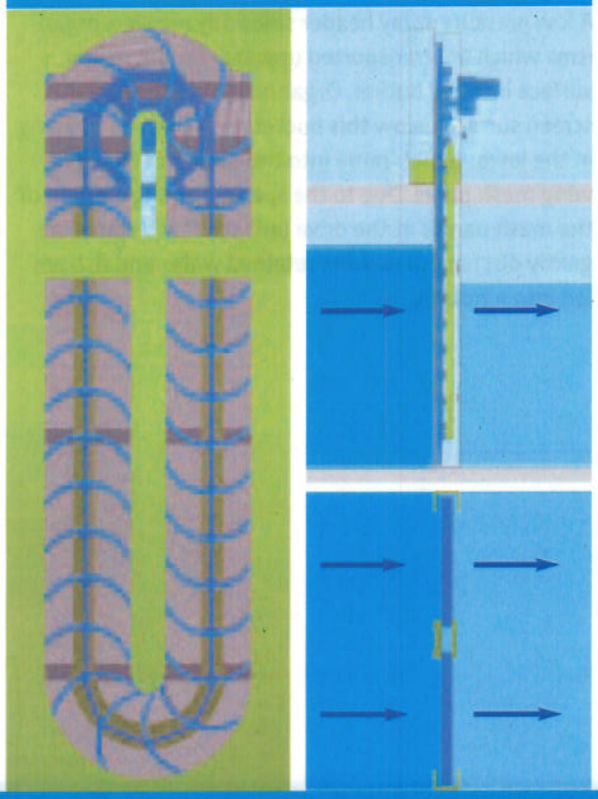
Raw water flows directly through the mesh panels. The debris retained at the face of the ascending mesh panels is transported with debris carriers to floor level. There it is efficiently removed by means of a spray-water device.

Due to the installation across the chamber the Geiger MultiDisc® Screens require a small space only and therefore allow considerable savings in civil structure.

Design Data

- Channel width: 1.0 – 3,5 m
- Channel depth: 1.2 – 15 m
- Discharge height: 0 – 2.0 m
- Inclination: 90°
- Revolving speed: approx. 0.12/0.24 m/s
- Construction height above floor: up to 4.5 m
- Mesh panel apertures: 1 – 10 mm
- Flow capacity: up to 50,000 m^3/h

MultiDisc® – Functional Scheme



Moduls

- Panel with guideways and supporting beam
- Drive unit with two revolving speeds directly acting on the motor shaft
- Overload device mechanical/electrical
- Side bar chain with maintenance-free rollers with tension device
- Mesh Panels sickle-shaped with debris carriers
- Spray-water system with water nozzles and monitoring of the water pressure
- Spray-water hood with/without waste water trough

Optional

- Device for cleaning of water nozzles
- Drive unit multiple speed or infinitely variable

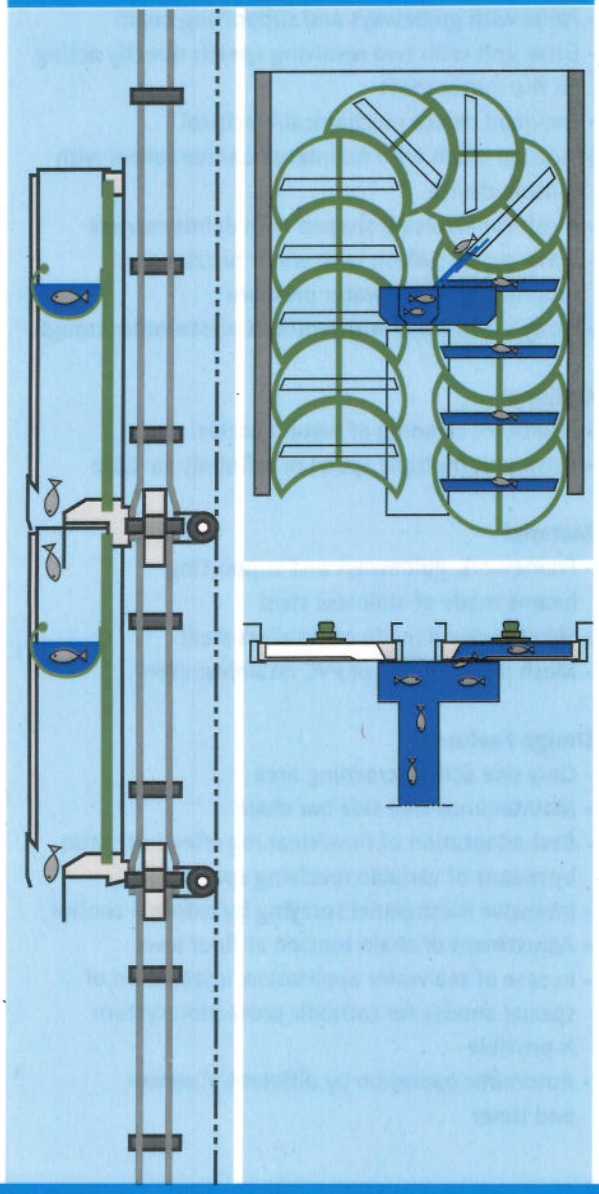
Material

- Framework, guideways and supporting beams made of stainless steel
- Side bar chain made of stainless steel
- Mesh panels made of PVC /stainless steel

Design Features

- Only one active screening area
- Maintenance-free side bar chain
- Best adaptation of flow/cleaning effectivity ratio by means of variable revolving speeds
- Intensive mesh panel spraying by external control
- Adjustment of chain tension at floor level
- In case of sea water application, installation of special anodes for cathodic protection system is possible
- Automatic operation by differential sensor and timer

MultiDisc® Screen – Fish Protection Provisions



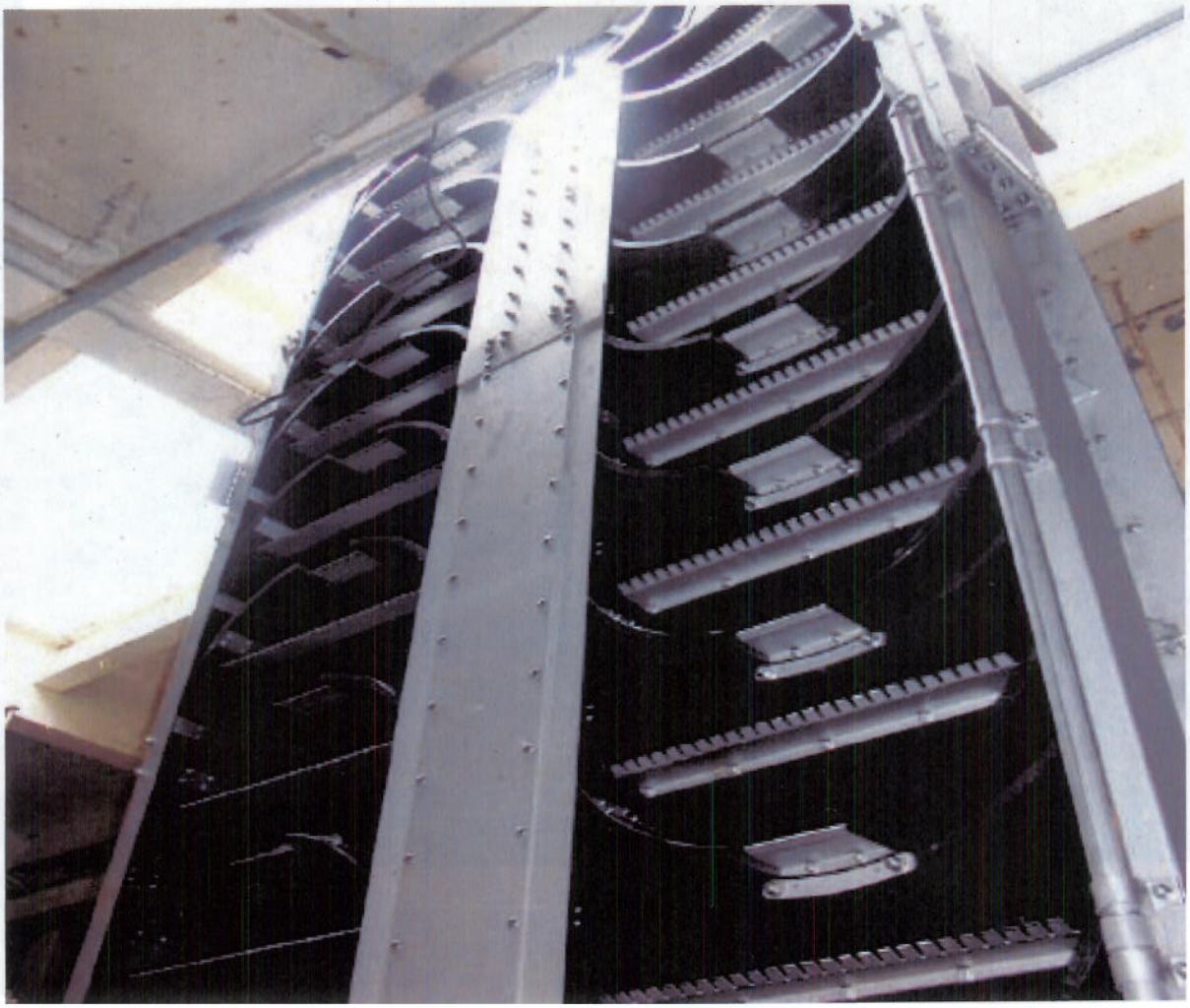
MultiDisc® Screen – Fish Protection Provisions
The new MultiDisc® technology can also be adapted to include special provisions for the increasing environmental concerns related to aquatic species protection.

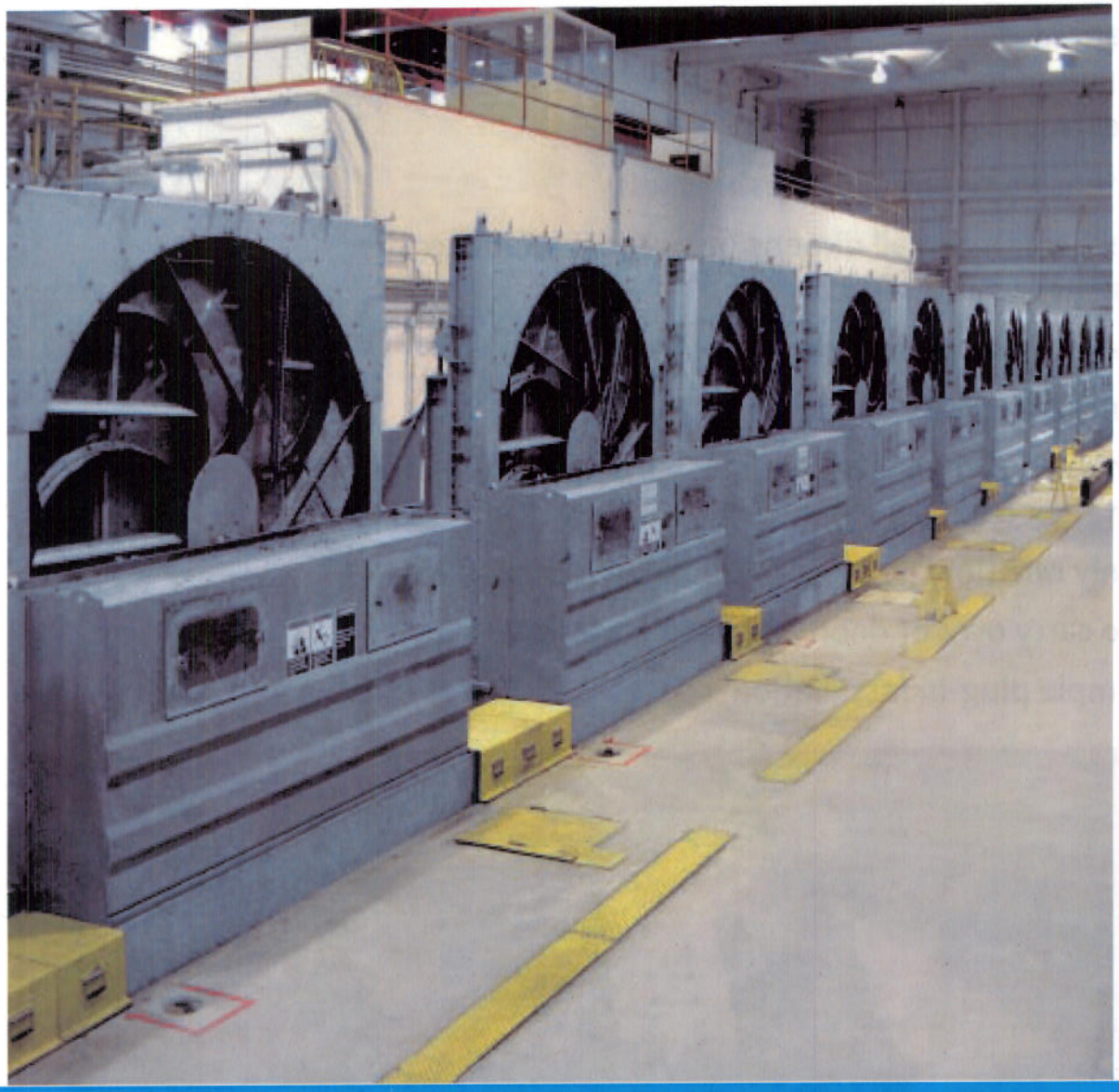
Specifically designed fish buckets attached to the screen panels retain some of the water during its upward travel, thereby allowing any captured fish "to survive within the water" once the fish buckets exit the water level. As fish may retain adhered to steel alloy surfaces, the fish buckets are surface treated with a special sliding composite material.

A low pressure spray header smoothly recovers organisms which are transported upwards on the screen surface into the bucket. Organisms impinged on the screen surface below this bucket are led via an opening in the lower panel frame into the bucket of the following mesh panel. Due to the special turning system of the mesh panels at the drive unit the fish buckets are gently discharged and the retained water and fish are led into a trough.

Advantages

- → Suitable for process water intakes and waste water treatment plants
- → Intensive cleaning of mesh panels
- → Very small overall dimensions - considerable cost savings in civil structure
- → Maintenance free side bar chain
- → Only one chain is necessary
- → Change of the individual mesh panels can be made on floor level
- → Only one flow pattern, therefore lesser head loss
- → No carry over of debris to clean water side
- → Simple plug-in installation





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