

## Geiger MultiDisc® Travelling Water Screens

The Geiger MultiDisc® is an especially robust and compact travelling water/band screen with a central chain and self-supporting frame. It is used worldwide for the filtration process/fine screening to protect pumps, condenser tubes and other critical equipment.



For many years, Geiger® mesh screening machines have been successfully installed in the water intakes of power plants, petro-chemical, desalination, steel and other processing plants throughout the world. One of their main features is the high throughput capacity with compact machine size.

Standard travelling band screens (Centre-Flow, Dual Flow) have an unfavourable flow to the pump due to multiple changes in flow direction, hence requiring extensive civil structure works. A disadvantage of through-flow travelling band screens is that the contaminated water has to flow through the mesh panels twice, resulting in a higher loss of pressure and debris carry over risks.

To meet modern industrial requirements, Aqseptence Group specially developed and manufactured the renowned, innovative Geiger MultiDisc® Screen. This innovative development marked one of the greatest technical breakthroughs in the area of screening technology in the past 20-30 years.

Geiger MultiDisc® Screens are reliable, heavy-duty, low-maintenance travelling water screens with an operational life time of 35 years. Over 200 installations worldwide during the past 10 years (approximately 40 of these are in nuclear power stations) are clear proof of the Geiger MultiDisc®'s success and effectiveness in terms of total CAPEX (investment costs) and OPEX (operational costs) saving.

### Advantages

- Compact design = significant savings in construction costs
- Fast and simple plug-in installation / saving installation time
- Fish protection-compliant (EPA CWA 316b)
- Low operating costs: Only one maintenance-free side bar chain
- Self-supporting frame to simplify installation
- Easy maintenance; mesh panels can be changed at floor level (no need for channel dewatering)
- Less space/smaller footprint
- Easier installation
- Lower pressure loss: water only passes through the mesh once
- Highly robust
- Zero carryover of debris to the clean water side



Geiger MultiDisc® during FAT Test at the Manufacturing Site in Germany

## Function

The Geiger MultiDisc® Screens consist of rotating sickle-shaped mesh panels made of wire mesh or of perforated plastic (PE or POM). A single carrier chain connects the panels at the rear and runs through a deflection unit at the bottom and a sprocket coupled with a drive unit at the top. The mesh panels run on guide ways on both sides and form a unit together with the supporting structure.

The retained debris is transported to floor level by debris carriers and efficiently removed using a spray-water device. This device is situated behind the mesh panels, cleaning them intensively in both an upwards and downwards direction.

Geiger MultiDisc® Screens are installed in the free channel and fixed to the side walls. As they are installed across the channel they require much less space than standard Travelling Band Screens, helping to considerably save on construction costs.

## Material

- All types of stainless steel
- Geiger® Cathodic Corrosion Protection Systems also available
- Mesh panels made of perforated plastic (PE/POM) or wire mesh cloth (stainless steel)

## Sizes

- Channel width: 1.0 - 3.5 m
- Channel depth: 1.2 - 25 m
- Discharge height: 0 - 2.0 m
- Installation angle: 90°
- Chain speed: approx. 0.12/0.24 m/s
- Construction height above floor: up to 4.5 m
- Mesh panel apertures: 500 µm - 10 mm
- Flow capacity: up to 50,000 m<sup>3</sup>/h (per channel/per machine)

## References

DC Nuclear Power Plant in the USA:  
Row of 15 Geiger MultiDisc® Screens



MultiDisc® Installation at the GKM Power Plant in Mannheim



## Components

- Frame with guide ways and supporting structure
- Drive unit with two chain speeds operating directly on the driving shaft
- Highly-efficient spray-water system with water nozzles and water pressure monitoring
- Mechanical/electrical overload protection
- One side bar chain/sprocket
- Sickle-shaped plastic (PE or POM) mesh panels with debris carriers
- Spray-water casing with/without waste water trough

## Design Features

- Only one active screening area
- Less pressure loss/only one passage through the mesh
- Maintenance-free side bar chain
- Best adaptation of flow/cleaning efficiency ratio thanks to variable chain speeds
- Intensive mesh panel spraying by external control (no brushes)
- Adjustment of chain tension at floor level
- In case of usage in sea water, the option of installing special anodes for cathodic corrosion protection
- Automatic operation by differential sensor and timer
- Zero carryover
- Less space/easier maintenance and installation

## Optional

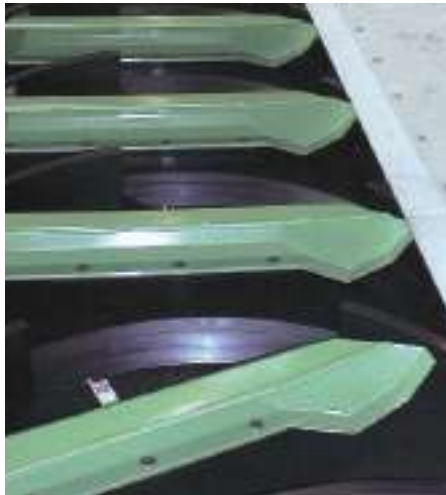
- Geiger® Cathodic Corrosion Protection Systems for chains and chain guidings
- Spray nozzle cleaning device
- Drive unit multiple speed or infinitely variable
- Installation and maintenance contracts

## Geiger MultiDisc® Screen – Fish Protection Systems (Optional or Upgrade)

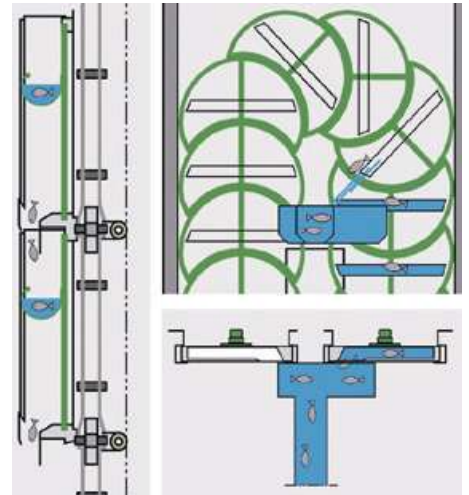
Power Plant Intake  
in Europe:  
Geiger MultiDisc®  
with Fish Trough  
and Cover Panels



Picture on the left:  
Geiger MultiDisc®  
with Fish Buckets



Picture on the right:  
Geiger MultiDisc®  
Screen – Fish  
Protection Systems



## Best Available Technology (BAT 316b Screens)

Geiger® screens such as the Multi-Disc® are particularly fish-friendly and pre-approved according to the EPA 316b Clean Water Act (CWA) as best state-of-the art fish protection screen.

Specially 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 spraying device enables organisms which are transported upwards on the screen surface to slide easily into the bucket. Organisms impinged on the screen surface below this bucket are led into the bucket of the following mesh panel via an opening in the lower panel frame. 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.

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The technical data stated in this brochure are indicative only and have to be determined for each individual case.  
Subject to technical changes.