

Passive Screens

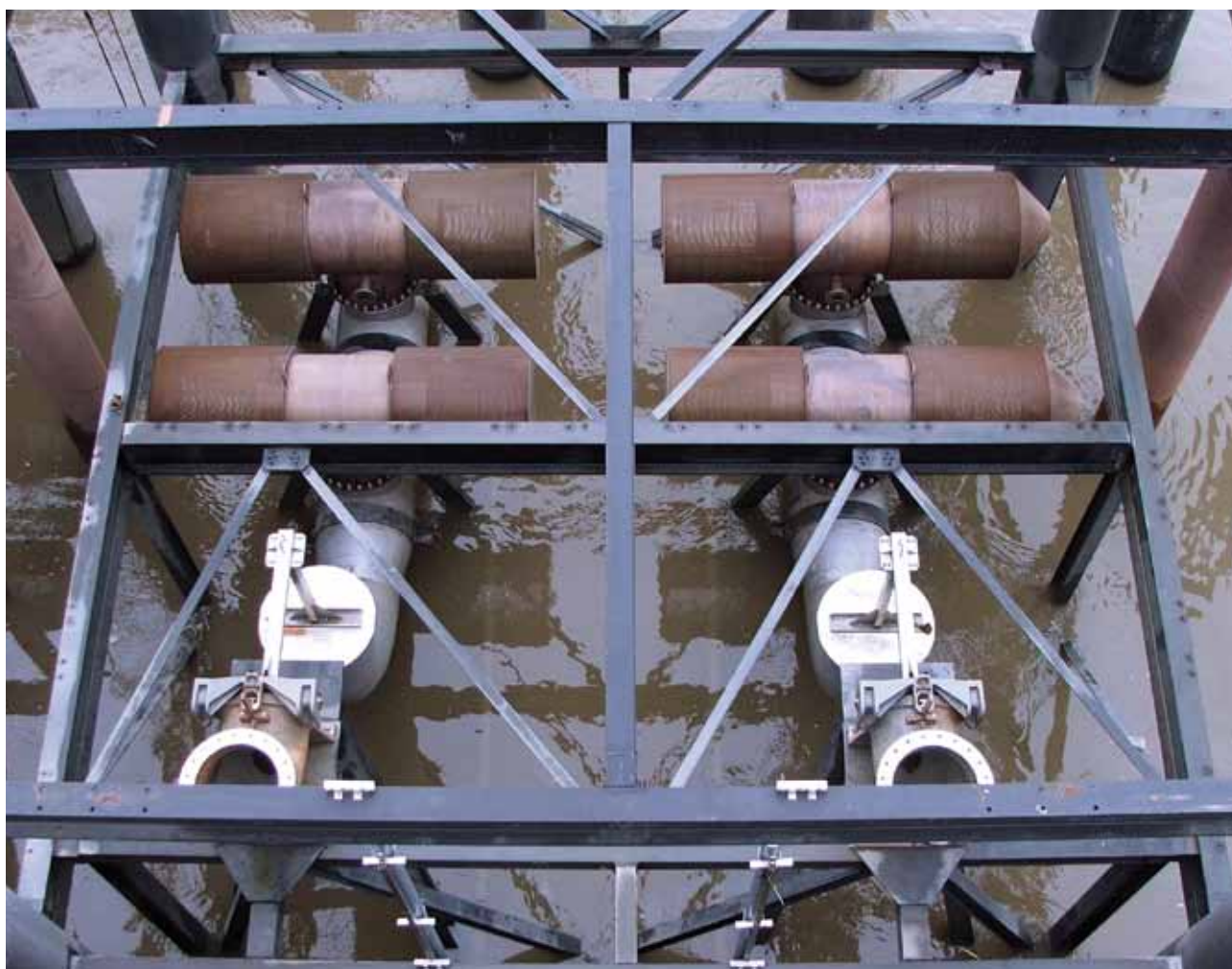
Passive Screens, offering advantages not found in other screen types

Key features & benefits

- Reduces fish kills and prevents fish entrainment
- Prevents plant shutdown
- Finer openings with larger wire or bar sizes for longer weirs
- Bio-fouling stays off the screen

How we create value

- Greater flexibility in design, forming and shaping
- Reduced civil work requirement lowers costs
- Simple intake and pump station design
- Low maintenance costs, and reduced risk of plant failure or fatigue
- No debris handling/disposal issues



Passive Screens

The Problem

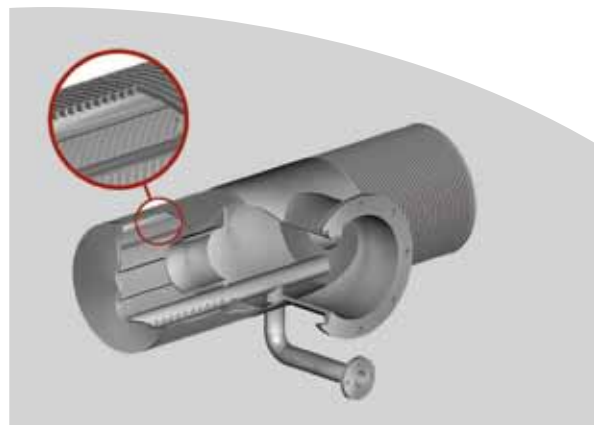
Water intake screening impingement or entrainment through water intakes amount to tens or even hundreds of millions of fish kills per annum. While legislation to protect marine habitats applies in some countries, others only operate Codes of Best Practice or do nothing at all.

Whether legislation exists or not, installing fish protection systems can avoid the risk of plant shut down due to, for example, migrating smolt or sprats being drawn into the downstream plant and pipework. Such problems are expensive to resolve.

The Solution

The Ovivo passive screen is a reliable and robust physical barrier, separating marine life and debris from large volumes of water withdrawn from rivers, lakes, reservoirs and the sea. The screen also eliminates the need for additional fish or debris handling equipment, reducing whole water intake design costs.

The screens have no moving parts and are manufactured in high grade stainless steel for increased durability. Large volume flows pass through its tapered bar structure at a low, uniform velocity. This unique design reduces the effects of blinding and increases the duration of uninterrupted operation between cleaning cycles.



Purpose

- Conforms to legislation and Habitats Directive
- Reduce risk of early mechanical plant fatigue or failure

Advantages

- Reliable water delivery



High Performance Filtration

Minimal visual impact

Installing an intake screen at the correct depth, distance from the shoreline and at the optimum distance from each other is a crucial step in maintaining the screen's efficiency. For example, locating screens away from the shoreline, distant from high concentrations of debris and marine life, will reduce screen fouling, improve the water quality and increase the operating period under full flow. However, where this is not possible, cleaning can be performed more frequently using the air backwash system.

Flexible configuration

The air backwash system aggressively scours the external surface area of the screen with a rapid release of air through several nozzles installed in the intake system. The sudden expansion of air leads to a temporary reversal in the flow direction, thereby lifting debris up and away from the openings of the screen's surface area.

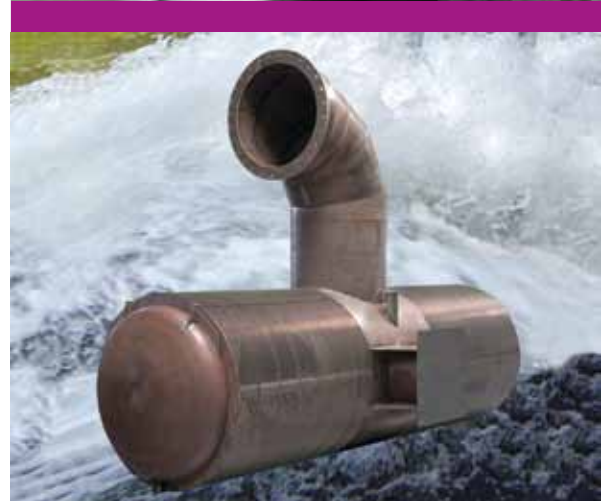
Reducing Bio-fouling Problems

Intake screens are subject to fouling or plugging by aquatic vegetation, including zebra mussels. Copper-nickel alloy or a variety of non-toxic coatings help minimize the problem and allow for easy removal by physical scrubbing or high pressure cleaning.

Additionally, a chemical injection system may be specified to disperse an approved biocide into the screen body to control aquatic life that has passed through the screen area. These systems are carefully designed to ensure toxic chemicals are not released into the water source.

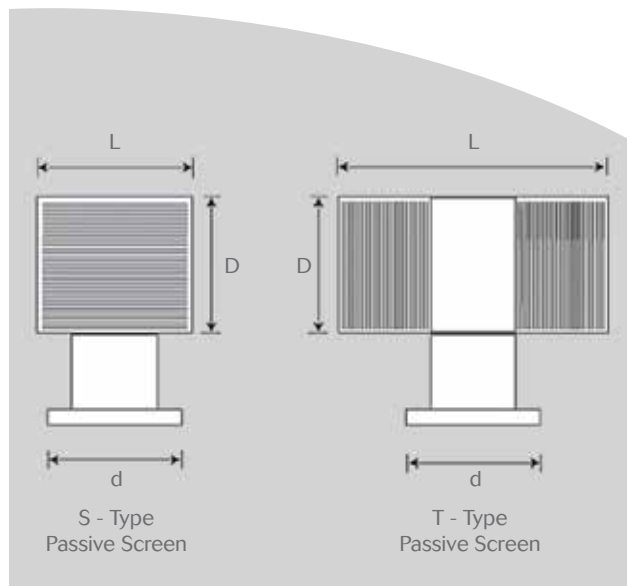
Combined solutions

A combination of the Passive Screens and Fish Guidance Systems (also available from Ovivo) has been used extensively in dam and river applications. This combination protects fish from hydroelectric turbines, pumps and dams, and complies with NMFS standards. The combined solutions are specified by the U.S. Department of Fish and Wildlife, Corp of Engineers and accepted by many State Departments of Fish and Wildlife Depts. for the protection of fish.



Other Applications

Ovivo also designs, manufactures and supplies a range of liquid-solid separation and process treatment systems for many other applications in the power, industrial and utility sector.



Passive Intake Screens - Ultra Range						
Model	Flow/unit (M ³ /hr)	Screen Diameter D (mm)	Overall Length L (mm)	Outlet Flange Diameter d (mm)	Airburst Connection size (mm)	Approximate Weight (kg)
S12-UC	149	324	511	200	25	25
S16-UC	234	406	635	250	40	35
T12-UC	297	324	1397	300	25	55
T16-UC	468	406	1695	350	40	81
T24-UC	1054	610	2442	450	50	208
T36-UC	2375	914	3655	800	80	649
T48-UC	4217	1219	4721	900	100	1150
T60-UC	6590	1524	5788	1000	150	1671
T72-UC	9489	1829	6861	1200	200	2840
T84-UC	12916	2134	8081	1500	200	3906

Note: Capacity given is based on 3mm slot width and 0.15 m/sec slot velocity and is for information only.