Water Intake Screens

Passive Screens offer advantages not found in other types of screens
Passive Screens

**Purpose**
- Conforms to legislation and Habitats Directive
- Reduction of fish kills
- Prevention of fish entrainment
- Prevention of plant shut down
- Reduce risk of early mechanical plant fatigue or failure
- Finer openings with larger wire or bar sizes for longer weirs.
- Greater flexibility in fabricating, forming, and shaping.

**Friendly to aquatic life**
Fish kills, caused by water intake screening impingement or entrainment through water intakes, amount to tens or even hundreds of millions of fish per annum. While legislation is applicable in some countries, others operate Codes of Best Practice or do nothing at all to protect marine habitats.

Whether legislation exists or not the benefit of installing fish protection systems can avoid the risk of plant shut down due to migrating smolt or sprats, for example, being drawn into water intakes causing damage or blockage to the downstream plant and pipework, all of which are likely to be expensive to resolve.

**Debris remains in flow**
The Hendrick Passive Screen exclusively distributed by Eimco Water Technologies provides a reliable and robust physical barrier, separating marine life and debris from large volumes of water withdrawn from rivers, lakes, reservoirs and the sea. A further benefit of the Hendrick screen is that the cost for additional fish or debris handling equipment can be eliminated from the water intake design.

**Advantages**
- Reliable water delivery
- Reduced civil work requirement
- Simple intake and pump station design
- Low maintenance cost
- No debris handling/disposal issues
- Environmentally fish friendly
- Bio-fouling stays off the screen

**No moving parts**
The screens, having no moving parts, are manufactured in high grade stainless steel. 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.
**Minimum visual impact**
Installing an intake screen at the correct depth, distance from the shoreline and optimum distance from each other is a crucial step in maintaining the screens efficiency for example; locating the screens away from the shoreline, distant from high concentrations of debris and marine life will reduce fouling of the screen, improve the water quality and operating period under full flow. However, where this is not possible, cleaning can be performed more frequently, using the Hendrick Airburst system.

**Flexible configuration**
The Airburst system aggressively scour the external surface area of the screen, with a rapid release of air through a manifold of nozzles designed into 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 screens surface area.

**Reducing Bio-fouling Problems**
Intake screens are subject to fouling or plugging by aquatic vegetation, which can include zebra mussels. Hendrick offers a copper-nickel alloy or a variety of non-toxic coatings to aid in minimizing the problem and allow for easy removal by physical scrubbing or high pressure cleaning.

In addition, 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 natural water source.

**Combined solutions**
A combination of the Passive Screens and Fish Guidance Systems, available from Eimco Water Technologies, have been extensively used in dam and river applications. This combination protects fish from hydroelectric turbines, pumps and dams complying 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.
Eimco Water Technologies also designs, manufactures and supplies a range of liquid solid separation and process treatment systems for many other applications for the power, industrial and utility sector.

### Passive Intake Screens - Ultra Range

<table>
<thead>
<tr>
<th>Model</th>
<th>Flow/unit (m³/hr)</th>
<th>Screen Diameter D (mm)</th>
<th>Overall Length L (mm)</th>
<th>Outlet Flange Diameter d (mm)</th>
<th>Airburst Connection size (mm)</th>
<th>Approximate Weight (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S12-UC</td>
<td>149</td>
<td>324</td>
<td>511</td>
<td>200</td>
<td>25</td>
<td>25</td>
</tr>
<tr>
<td>S16-UC</td>
<td>234</td>
<td>406</td>
<td>635</td>
<td>250</td>
<td>40</td>
<td>35</td>
</tr>
<tr>
<td>T12-UC</td>
<td>297</td>
<td>324</td>
<td>1397</td>
<td>300</td>
<td>25</td>
<td>55</td>
</tr>
<tr>
<td>T16-UC</td>
<td>468</td>
<td>406</td>
<td>1595</td>
<td>350</td>
<td>40</td>
<td>81</td>
</tr>
<tr>
<td>T24-UC</td>
<td>1054</td>
<td>610</td>
<td>2442</td>
<td>450</td>
<td>50</td>
<td>208</td>
</tr>
<tr>
<td>T36-UC</td>
<td>2375</td>
<td>914</td>
<td>3655</td>
<td>800</td>
<td>80</td>
<td>649</td>
</tr>
<tr>
<td>T48-UC</td>
<td>4217</td>
<td>1219</td>
<td>4721</td>
<td>900</td>
<td>100</td>
<td>1150</td>
</tr>
<tr>
<td>T60-UC</td>
<td>6590</td>
<td>1524</td>
<td>5788</td>
<td>1000</td>
<td>150</td>
<td>1671</td>
</tr>
<tr>
<td>T72-UC</td>
<td>9489</td>
<td>1829</td>
<td>6361</td>
<td>1200</td>
<td>200</td>
<td>2840</td>
</tr>
<tr>
<td>T84-UC</td>
<td>12916</td>
<td>2134</td>
<td>8081</td>
<td>1500</td>
<td>200</td>
<td>3906</td>
</tr>
</tbody>
</table>

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