An economical Advanced Grit Management® option for small plants.

Technical Brochure - Product Profile

Grit removal systems, particularly Advanced Grit Management systems, have often been a luxury item not easily afforded by small plants – until now. Based on the proven performance in grit removal during more than 30 years of operating the Grit King hydrodynamic vortex separation system, Hydro International now offers an affordable option to provide 85-95% removal of all grit entering the treatment plant for peak flows up to 2.4 MGD with 106 micron performance or peak hydraulic flows up to approximately 5 mgd with 212 micron performance.

The Grit King PC is a complete Advanced Grit Management system supplied with a precast concrete tank for quick and easy installation. The precast tank is simply placed on an appropriate base and a grout cone is formed in the bottom. The internal components, made of synthetic materials and stainless steel, are installed with inlet and outlet connections sealed to the concrete chamber. A dry pit grit pump, Decanter grit dewatering box and control panel complete this economical Advanced Grit Management system.

Applications

- New wastewater treatment plants
- Treatment plant retrofits and upgrades
- Sediment removal pre-treatment for potable water
- Grit removal for industrial effluent

Advantages

- A complete Advanced Grit Management system including collection and dewatering
- No moving parts in the separator, the grit pump is the only mechanical component
- Economical to install, own, and operate
- Compact design with minimal headloss

How it Works

The Grit King PC is an advanced hydrodynamic separator that augments gravitational forces to effectively separate grit from water with no moving internal components. Flow is introduced into the Grit King PC via a tangentially positioned inlet causing a rotational flow path around the dip plate. The flow spirals down the wall of the chamber as solids settle out by gravitational forces and forces created by the rotating flow. The grit collects in the grit sump at the bottom of the unit as the center cone directs flow away from the base, up and around the center shaft into the inside of the dip plate and out the effluent pipe.

The upward flow rotates at a slower velocity than the outer downward flow. The resulting "shear" zone scrubs out the finer particles. The concentrated grit underflow is pumped to a grit dewatering dumpster.
**Grit King® PC Configurations**

The synthetic internal components and stainless steel support frame are supplied with a precast concrete tank. The precast concrete structure is simply placed on an appropriate base, a grout cone is formed in the bottom, components are installed and sealed connections are made to the influent and effluent piping.

The Grit King® PC is typically supplied with a dry pit grit pump, controls and a Decanter non-mechanical dewatering bin. Optional equipment includes a precast concrete tank for the pump, tank covers, and alternate pump and dewatering options.

**Grit King® PC Performance**

The Grit King® PC can be designed for 95% removal of all grit 75, 106, 150, or 212 micron and larger. Most Advanced Grit Management systems are designed for 95% removal of 106 micron and larger.

**Capacity**

<table>
<thead>
<tr>
<th>Unit Size</th>
<th>4'</th>
<th>6'</th>
<th>8'</th>
<th>10'</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Cut Point</td>
<td>Peak Flow, MGD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75 micron</td>
<td>≤ 0.17</td>
<td>≤ 0.48</td>
<td>≤ 1.0</td>
<td>≤ 1.75</td>
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<tr>
<td>106 micron</td>
<td>≤ 0.24</td>
<td>≤ 0.68</td>
<td>≤ 1.39</td>
<td>≤ 2.44</td>
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<tr>
<td>150 micron</td>
<td>≤ 0.36</td>
<td>≤ 1.0</td>
<td>≤ 2.05</td>
<td>≤ 3.58</td>
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<tr>
<td>212 micron</td>
<td>≤ 0.57</td>
<td>≤ 1.57</td>
<td>≤ 3.23</td>
<td>≤ 5.64</td>
</tr>
</tbody>
</table>

**Design Notes**

- A complete Advanced Grit Management system including the precast tank with internal grit separation components, pump, dewatering unit and controls
- Internal flow structuring components create a long flow path aiding settlement and maximizing grit capture
- All-hydraulic design with no moving parts ensures a long product life. The grit pump is the only mechanical component in the system

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The Grit King PC arrives on your site already installed in the tank. This allows you to rapidly get the system up and running with minimal installation time and costs.