

Grit King[®] Advanced Hydrodynamic Vortex Separator

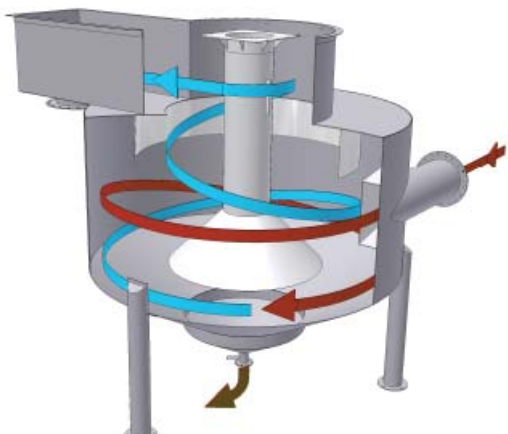
Removes up to 15 times more grit than conventional systems

APPLICATIONS

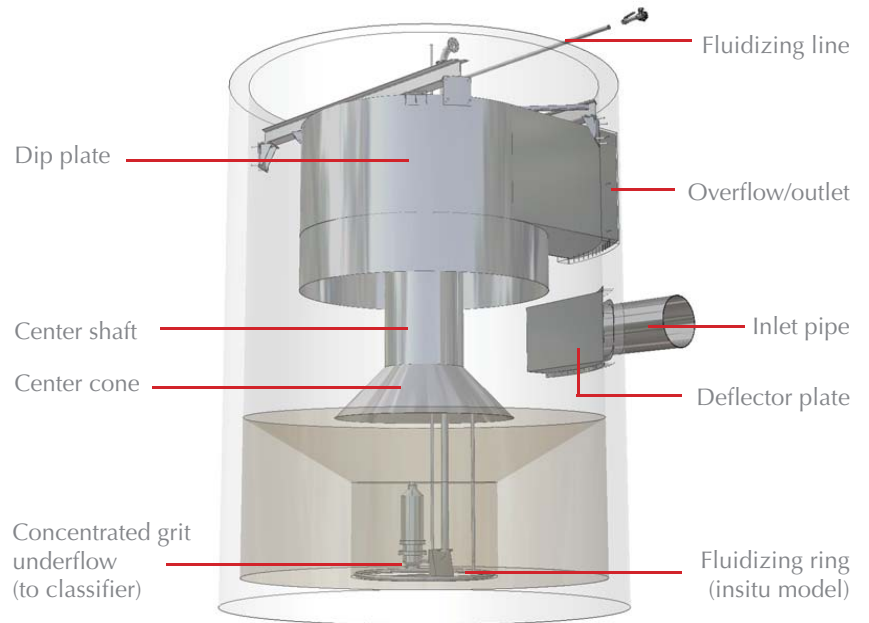
- New wastewater treatment plants
- Treatment plant retrofits
- Grit removal for potable water
- Grit removal for industrial effluent

ADVANTAGES

- No moving parts
- No external power source
- Recovers clean grit
- Easily linked with new or existing plants
- Economical to own and operate
- Compact design
- Minimal headloss



The **Grit King** is an advanced hydrodynamic separator that augments gravitational forces to separate grit from water. The **Grit King** is an economical choice for new or existing municipal or industrial wastewater applications.



HOW IT WORKS

Flow is introduced into the **Grit King** 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 and rotational forces. (red arrow)

The grit collects in the grit pot as the center cone directs flow away from the base, up and around the center shaft into the inside of the dip plate. (blue arrow)
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 or gravity fed to a grit classifier for dewatering. (brown arrow)

The result is clean dewatered grit with low organic content.



Configurations

The **Grit King** is available as either a **free standing** or **in situ** unit for versatile installation. The **Grit King** is supplied in either 304 or 316 stainless steel. For larger applications, typically flows over 10 MGD, the specialized internal components can be mounted in a concrete chamber.

The **Grit King System** is comprised of the **Grit King** unit and a grit washer/classification unit. Valving, grit classifiers, grit pumps, dewatering decanters, and control systems are available to provide a comprehensive grit removal package.

In Situ Grit King Unit



Free Standing Grit King Unit



Grit Kings can be supplied as free standing units up to 12 feet in diameter.



In situ units are designed for small or large applications ranging in size from 6 ft. in diameter to 40 ft. in diameter.

Grit King Design Requirements

Grit King sizing depends on:

- Average daily flow and peak flow
- Required particle removal efficiency
- Particle size gradation
- Site location drawing

Grit King Performance Notes

Removal Efficiency - 95% of particles equal to or greater than 100 or 150 microns at the design flow rate

Headloss - typically less than 12 inches at peak flow and less than 6 inches at average daily flow

Moisture and Organic Contents - less than 30% and less than 5% respectively when used with a grit classification unit

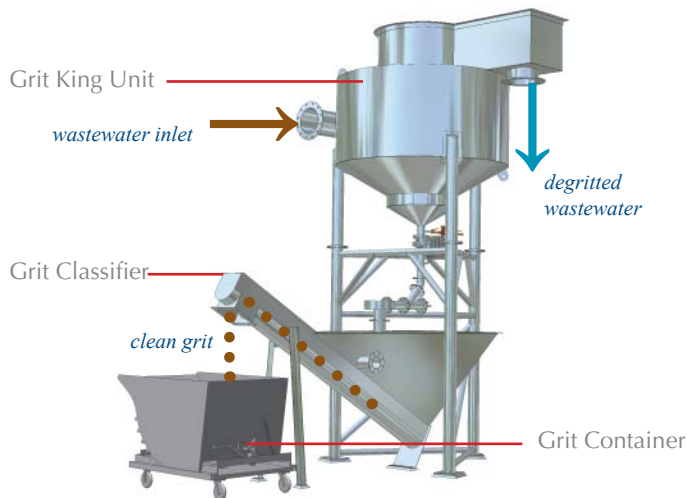
Flow Range - **Grit King** systems have been designed for flow rates from 0.25 MGD up to 135 MGD

Flow Variations - Turndown ratios for a standard design unit are 4:1 from peak to average flow *Note: ratios in excess of 15:1 can be accommodated*

Underflow Rate - variable, but typically 5 to 10 % of design flow

The Grit King System

The Grit King System complete with **Grit King** and **Grit Classifier**



For more information please call our office toll free at 800-848-2706 or inquire at www.hydro-international.biz.