

# Grit King®

Remove fine grit to protect downstream processes at wastewater treatment plants

## Product Summary

The Grit King® is a compact, unpowered advanced grit management system that removes up to 95% of 106 µm particles or larger, preventing costly downstream grit abrasion and deposits.

With no moving parts, requiring less than 150 mm of headloss at average flows and a capacity to handle flows as low as 11 l/s, the Grit King® is a versatile and economical grit removal system that cuts plant maintenance costs.

## Applications

- » New wastewater treatment plants or retrofit projects.
- » Grit removal for industrial effluents.
- » Grit removal for sand and gravel extraction plants.
- » Filter media recovery.

## Main Features

1. Dip plate
2. Centre shaft
3. Centre cone
4. Concentrated grit underflow (to classifier or Grit -Cleanse™)
5. Backwash distribution
6. Deflector plate
7. Backwash line

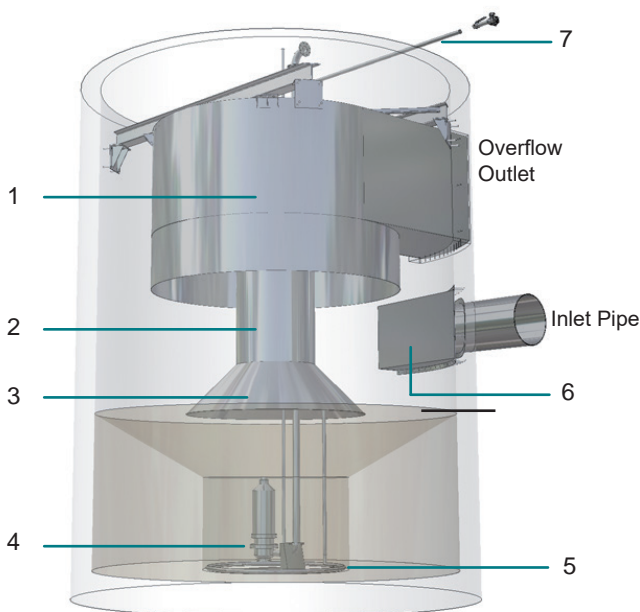


Fig.1 Grit King® (below-ground concrete chamber configuration)

## Performance

### Removal rates:

- » Removes up to 95% of grit particles 106 µm and larger at the design flow rate.
- » <20% volatile solids when paired with a Hydro International washing and dewatering system.
- » >60% total solids when paired with a Hydro International washing and dewatering system.

### Headloss:

- » <300 mm at peak flow.
- » <150 mm headloss at average daily flow.

### Capacity:

- » Single units can handle flows as low as 11 l/s.
- » Multiple units can handle virtually any flow.
- » Turndown ratios for a standard design are 4:1 from peak to average.
- » Turndown ratios in excess of 15:1 can be accommodated.

## Benefits

### Cut energy costs

Energy costs are one of the biggest expenses that wastewater treatment plants face. While the Grit King® requires no electricity to operate, even more substantial energy savings are realised by protecting downstream aeration systems from being clogged by grit which significantly increases the power required to run the blowers.

### Reduce maintenance costs

With up to 95% removal of 106 µm particles and larger, the Grit King® prevents grit from reaching downstream processes, protecting them against the clogging and abrasion wear that results in increased cleaning, maintenance, repair and replacement parts.

### Get grit removal designed to fit your needs

Available in freestanding or in-situ configurations, the Grit King® can be easily linked to your existing processes. The compact design requires minimal headloss to operate and performance is guaranteed to meet your plant's needs.



## Design requirements

- » Full flow to treatment
- » Particle removal efficiency
- » Available grit loading
- » Site location drawing

## Configuration options

- » Freestanding unit in stainless steel.
- » Specialised internal components mounted in a concrete chamber for below ground installation.



Fig.2 Grit King® (below ground configuration)

## How it works

1. Flow is introduced tangentially to the Grit King® via a tangential inlet creating a rotational flow path around the outside of the dip plate.
2. The flow gradually spirals around the perimeter allowing the grit and sand particles to settle out by gravity (**green arrow**).
3. The grit collects in the grit pot as the centre cone directs flow away from the base and up around the centre 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.
4. The concentrated grit underflow is pumped or gravity fed to a grit classifier for dewatering (**yellow arrow**).
5. When used with a Grit-Cleanse™ the result is a clean dewatered grit with very low organic content.

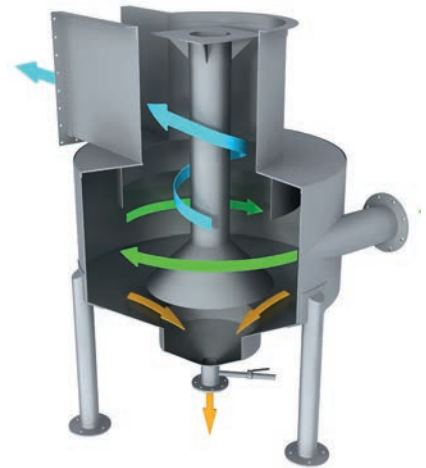


Fig.3 Grit King® (freestanding configuration)

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**To find out how the Grit King® can help you prevent grit damaging downstream processes and reduce maintenance/repair costs call 01275 878371 or visit:**

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