

# FSM® Grit Wash Unit

High Performance Grit Separation & Washing

SWA





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## Grit Washing Designed for Maximum Efficiency

During the development phase of the FSM Grit Washer, three primary objectives were the focus of all design decisions:

- The unit should achieve maximum separation of the finest grit particles.
- The unit should operate with the lowest water consumption at the lowest pressure.
- The maximum amount of organic material should be removed from the grit.

### How These Objectives Are Achieved.

The FSM SWA Grit Washer can accept intermittent or continuous pumped flow from a grit removal system without the need for primary separation. There is no need for a cyclone, or preliminary dewatering classifier.

The grit washer can be divided into three distinct sections. The lowest level being the grit bed. On top of the grit bed is a layer of organic material that has been wash from the grit and, finally, above the organic material is the "gray water" containing any floatable material.

### Principle of Operation

Grit slurry consisting of grit with attached and free organics is pumped to the FSM SWA Grit Washer. This organics laden grit enters the washer on the side of the circular tank where it is retained by the boundary layer formed by the tank body. The liquid and floating organic material swirls out an overflow weir while the grit settles onto the top of the grit bed. During the operation of the grit washer, a bed of grit is maintained in the washer at all times. Grit bed height is controlled with a grit bed pressure sensor.

Wash water is injected up through the grit bed while slowly rotating mixing blades keep the grit in motion. The movement of the grit particles creates a scouring action that dislodges the organic material from the grit particles. The heavy organic slurry formed by the release of the organic material from the grit rises upward to the top of the grit bed. This heavy organic material which resembles a black tar-like substance cannot rise to the top overflow weir due to its specific gravity. Instead, it is removed via the automatic, electrically actuated organics' drain valve located just above the maximum grit bed level.

The washed grit is collected at the bottom of the washer and removed by an integral screw conveyor. A pressure sensor activates the dewatering/ extraction screw when the grit bed level reaches a predetermined level. The screw turns slowly and intermittently as it carries the clean grit to discharge. Without the clinging organics, the slow movement of the screw allows the sand to drain and shed any residual water producing a very dry product at discharged.

The end result is a clean, dry grit with less than 3% organic material and the elimination of odor and vector attraction. The dry weight of the grit is typically 85 – 90%.

The grit washer is fully automatic with minimal maintenance. The materials of construction are 304 or 316 stainless steel, with the exception of the grit dewatering screw which is manufactured from special hardened high tensile alloy steel – optional stainless steel is available.



Dry, clean stackable grit



Wallingford CT Clean Grit





Property of Joliet II

## Features

- Dirty grit can be pumped or airlifted to the SWA Grit Washer.
- The Grit Washer is completely enclosed for odor control.
- Organic content in the washed grit is < 3%.
- Grit separation is > 95% of the grit with a particle size of 106  $\mu$ .
- Clean, dry grit is at least 85% dry weight.
- Grit washer frame and transport tube is 304 SS (optional 316 SS).
- Spiral is made of high-tensile specialty spring alloy steel (SS optional).
- The SWA Grit Washer combines grit separation, washing, and dewatering in one unit.
- Fully automatic with minimal maintenance.
- Optional swivel discharge

## Technical Data

<b>Length/Width/Height:</b>	17' / 7.2' / 10', other dimensions on request
<b>Throughput:</b>	Up to 650 gpm, other throughputs on request
<b>Organic Content:</b>	< 3 % volatile solids
<b>Separating Capacity:</b>	> 95% of particle size 106 $\mu$ .

## Models

Model	Capacity Up To	Wash Water
SWA 10	158 gpm	5 – 8 gpm
SWA 18	285 gpm	16 gpm
SWA 30	476 gpm	16 gpm
SWA 40	650 gpm	16 gpm



# FSM® Tub-Style Grit Wash Unit - SWA-TB

A space saving design



This tub-style unit requires minimal space while producing maximum results.

## Technical Data

<b>Peak Capacity</b>	35 cfh
<b>Discharged grit</b>	> 85% dry
<b>Organic content</b>	< 3%
<b>Grit removal</b>	95% of 212 $\mu$ .
<b>Wash water</b>	15 gpm @ 30 psi



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