

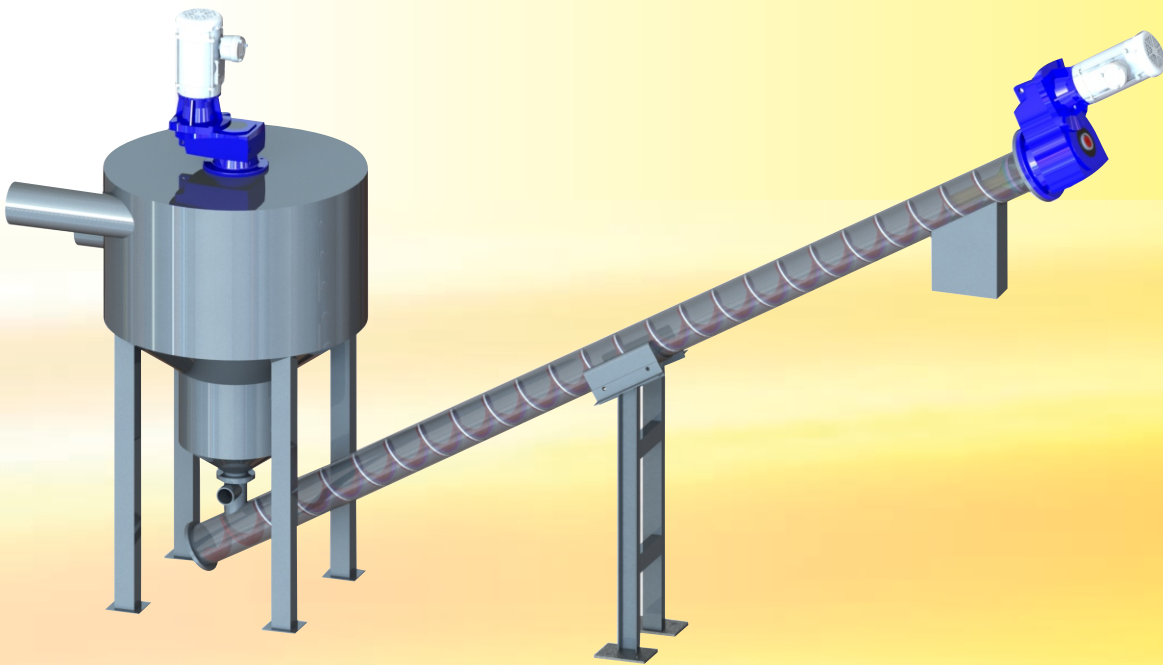
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# FAIRFIELD SERVICE COMPANY

Providing excellence in Service, Product, and Value in our efforts to support the Water, Wastewater, and Material Conveyance industries since 1978.

## VoR-CLAS

“VORTEX GRIT CLASSIFIER”



### FEATURES

- ♦ Rugged Materials of Construction
- ♦ Capable of removing fine grit of up to 95% in 105 micron Specific Gravity more than 2.6 or greater.
- ♦ Integrated Grit Classifier
- ♦ Minimal head loss characteristics
- ♦ Few moving parts

### BENEFITS

- ♦ Can operate over a wide flow variation
- ♦ No submerged mechanical components requiring maintenance
- ♦ Returns valuable organic material back to process
- ♦ Energy efficient
- ♦ Less space requirements than conventional systems. Lowers total ownership costs

**Water & Wastewater Treatment Equipment**

## OPERATION

The Fairfield Vortex Grit System operates on the simple mechanically induced vortex principle to capture grit solids in the centre hopper of a circular tank. Grit is captured at the chamber floor once it passes through the inlet flume. A baffle deflects the flow downward. At the centre of the chamber rotating paddles maintain circulation within the chamber to optimize grit capture. The combination of the internal components (baffle, paddles and inlet flow) produces the optimal flow pattern to lift lighter organic particles and helps to settle the grit faster.

The grit chamber's outlet is typically twice the width of the inlet. This provides a lower effluent velocity, thereby preventing grit below the opening level from being drawn into the effluent flow.

Grit solids at the bottom of tank is then lifted out by means of a pump or can be transferred to the integrated Screw conveyor system. The Screw conveyor system consists of a spiral screw conveyor, gear reducer with motor, washing system and controlled isolation valves.

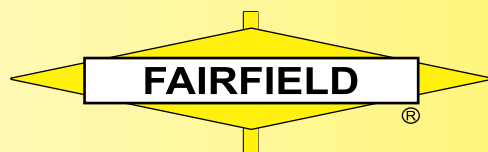
A mechanically driven propeller fluidizes and scours the grit bed, causing grit particles to shear against each other, this separates the organic materials from the sand/grit particles. The heavier particles (grit/sand) falls to the bottom of the tank, displacing water and creating a sand bed. The organic matter and excess water exit the tank through the drain pipe. This operation allows the system to achieve approximately a 97% organic removal with 95% retention of sand particles greater than 0.2 mm.

Once the sand bed reaches a predetermined level, the screw conveyor system operates, removing the sand particles clean and dry.

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Peak flow MGD	Flume Std. inlet. pipe in inch	Flume Std. outlet pipe in inch	Normal Screw dia in Inch	Screw length in Inch	Vortex dia Ft	Vortex TOTAL HEIGHT Ft
0.5	5	6	6	160	33	5.0
1	7	10	6	227	4.7	7.0
1.5	10	12	8	278	5.7	8.6
2	10	14	8	321	6.6	9.9
3	12	16	8	393	8.1	12.1
4	14	20	10	454	9.3	14.0
5	16	20	10	508	10.4	15.7
7.5	20	25	10	622	12.8	19.2
10	25	32	12	718	14.7	22.2
15	32	32	12	879	18.1	27.1
20	32	40	12	1015	20.9	31.3
25	32	40	12	1135	23.3	35.0

NOTE All dimensions above are for reference and can be changed per customer requirements



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## MATERIALS OF CONSTRUCTION

- ◆ Typically Type 304 SS materials designed for most Wastewater applications.
- ◆ Other available materials
  - o A36 Carbon Steel, hot-dipped galvanized.
  - o Type 316 stainless steel, for aggressive areas.
- ◆ Shaftless screw design with motor mounted at top of unit. No need for lower bearing.
- ◆ Equipment supports made from same materials as unit.
- ◆ The "footprint" (horizontal dimension) of a vortex grit removal system is small relative to other grit removal systems, making it advantageous when space is an issue.
- ◆ Grit Pump
  - o Standard Self-Priming Pump
  - o Optional Air Lift Pump
  - o Optional Flooded Suction Pump
- ◆ Paddle maintains rotational velocity even at low velocity input, allowing grit to settle down.

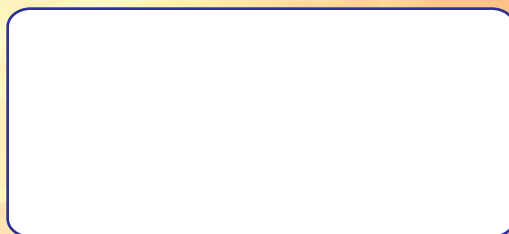
## STANDARD SAFETY FEATURES

- ◆ OSHA safety guards at rotating parts
- ◆ Local control panel. Start/Stop/E-Stop
- ◆ SCADA interface and control (optional)

## FAIRFIELD SERVICE COMPANY IS MBE CERTIFIED.

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