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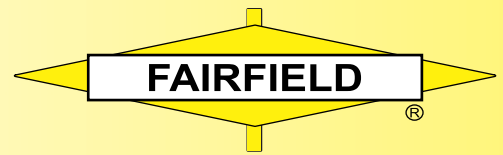
FAIRFIELD SERVICE COMPANY

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

GRIT COLLECTOR



Water & Wastewater Treatment Equipment



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► **Chain and Bucket Grit Collector**

This grit collector consists of chain and buckets installed in a long narrow horizontal settling channel, dewatering vertical section to elevate the grit from the channel, and screw conveyor to discharge grit into a container or re-circulate the grit back into the channel during periods of maximum flow. This re circulation reduces the organic matter that has settled along with the grit during periods of low sewage flow.

► **Chain and Flight Grit Collector**

This grit collector consists of chain and flights installed in a long narrow horizontal settling channel. It consists a dewatering discharge section inclined 30 degrees from the horizontal designed to discharge the grit into a container or re-circulate it back into the channel.

The main difference between both collectors is bucket and flights. The collectors consist of,

► **Bucket**

Buckets are v-shaped and built of steel and are mounted in between approximately four feet center, two matched strands of chains running over six sets of sprockets. Stirring flights can be furnished between the buckets to improve the separation of grit from the organic matter in the sewage flow.

► **Flights**

Flights are built of steel and are mounted approximately every four feet to single strands of chain running over three sets of sprockets. Stirring flights can be furnished between carrying to improve separation of grit from the organic matter in the sewage flow.

► **Wear shoes**

Removable wear shoes are provided on the both sides of buckets for carrying and return run of horizontal tank. Each wear shoe can be readily rotated to provide four operational sliding surfaces.

► **Shafting**

Shafting will be cold rolled steel, straight and true, extending across the full width of the channel and held in alignment with set screwed set collars. Shafting will be designed to withstand the maximum torsion, bending and shearing forces imposed upon them.

► **Bearing**

Bearing are grease lubricated babbitted, for non-immersed shafts and water lubricated self aligning babbitted, for underwater shaft. Take up assembly is the screw type.

► **Collector chain**

Chain will consist of two matched strands of malleable iron. pintle chain having an average ultimate strength of 39,000 pounds.

► **Collector chain sprocket**

Sprockets will be cast iron with chill hardened teeth. Driving sprockets will be keyed firmly to the head shaft and corner shafts will be fitted on sprocket set screwed and one to run loose on the shaft.

► **Head enclosure**

The vertical elevator head section is enclosed with steel plate not less than 12 gauge, reinforced with structural shapes and supported from the top of the concrete channel.

► **Return track**

► **Drive assembly**



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► Screw and Elevator Grit Collector

This grit collector consists of a screw conveyor with a vertical bucket elevator and dewatering screw. Grit collector is installed in a regular settling tank designed for a velocity of approximately one foot per second at average sewage flow and sized for not less than one minute retention. Forced air can be introduced into the tank, at period of low sewage flow by means of air diffusers to produce hydraulic turbulence that simulates the normal designed velocity to keep the organic from settling along with the grit.

Screw and elevator grit collector consists of following parts:

► **Bottom connecting screw**

The bottom connecting screw is mounted on a steel pipe designed to span the full width of the conveyor without intermediate bearings.

► **Buckets**

Buckets will be fabricated from malleable iron, mounted intermittently by means of bolted attachments to a single strand of chain running over three sprockets.

► **Collector chain**

Sprockets will be cast iron with chill hardened teeth. Driving sprockets will be keyed firmly to the head shaft and corner shafts will be fitted on sprocket set screwed and one to run loose on the shaft.

► **Baffles**

Baffle is fabricated from thick steel and is provided between the collecting screw and the bucket elevator.

► **Water spray piping**

Water spray piping can be furnished for washing grit from the buckets and will consists of piping, adjustable spray nozzles and valves.

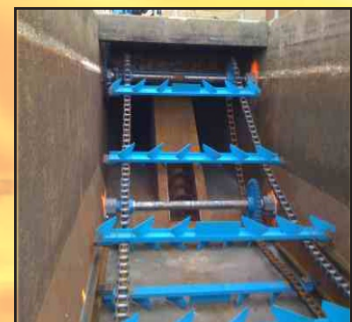
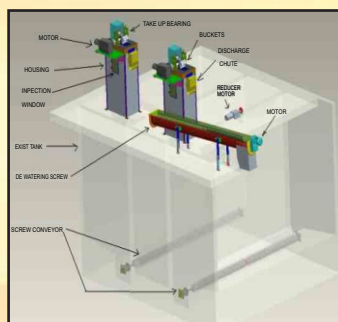
► **Aeration system**

Aeration system can be provided to keep the organic from settling along with the grit. System will consist of header piping capped at the outer ends connected to a tee at the center for connection to the down feed pipes. Header pipes will be drilled with orifices. Support will be provided to hold the header in position in the tanks.

► **Dewatering screw conveyor**

Dewatering screw conveyor can be installed at the elevator discharge section to more efficiently remove organic matter from the grit. The tank is built of steel reinforced with structural steel and provided with less flanged inlet from the bucket elevator.

► **Shafting** ► **Bearings** ► **Collector chain sprockets** ► **Head enclosure** ► **Drive assembly**





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► Cyclone grit chamber :

Cyclone grit chamber is mainly used in the cyclone grit chamber at the town sewage treatment plant and this equipment uses the hydraulic rotational flow to separate the sand from organic substance effectively. It is the ideal desanding equipment.

The cone-bottom round tank is used for cyclone grit chamber. The blade separator is installed inside the tank. The sewage inside the tank along the tangential direction and rotates by 270° (as per the clock wise direction in top view). Afterwards, the sewage is discharge through discharge channel and certain flow velocity of water is used as the dynamic power to carry out the tangential motion along the inner wall of the round grit to form cyclone, At the same time, the propeller blade is agitated to facilitate the liquid cyclone and axial whirl. Thus, the setting of the sand particle in the sewage is accelerated to separate the organic substance in the water from the sand particle effectively. The closer water closes the tank center, the smaller water flow section is and the water flow velocity accelerates as well as the bottom water flow velocity is increase the centripetally.

By using this principle, the sand sealed at the tank bottom moves to the central sand hopper by spiral trace and the organic substance lift up the tank center as well as it is discharged out together with effluent water flow. The sand settled at the bottom is lifted up by lifting device and the sand water separation is completed after the sand enters into the sand water separator. Afterwards, the sewage flows back into the screen well.

► Installation List

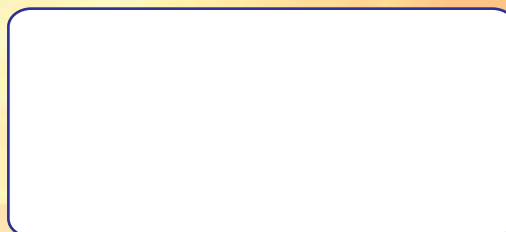
1. South Portland,
ME Front St. & Pearl St. Pumping Station
2. Willard Beach Pumping Station
3. South Portland, ME
Fish creek WWTP
4. Stow, OH
Upper Tuscarawas WWTP
5. Akron, OH
Meridian, MS WWTP
6. Rocky Mount, NC WWTF
Water Pollution Control Facility
7. Gloucester, MA
8. Mount City, TN WWTP



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