

THE NEXT BIG THING IN SMALL GRIT

95% OF 75 MICRON
NO DERATING





PISTA[®]

TURBO[™]

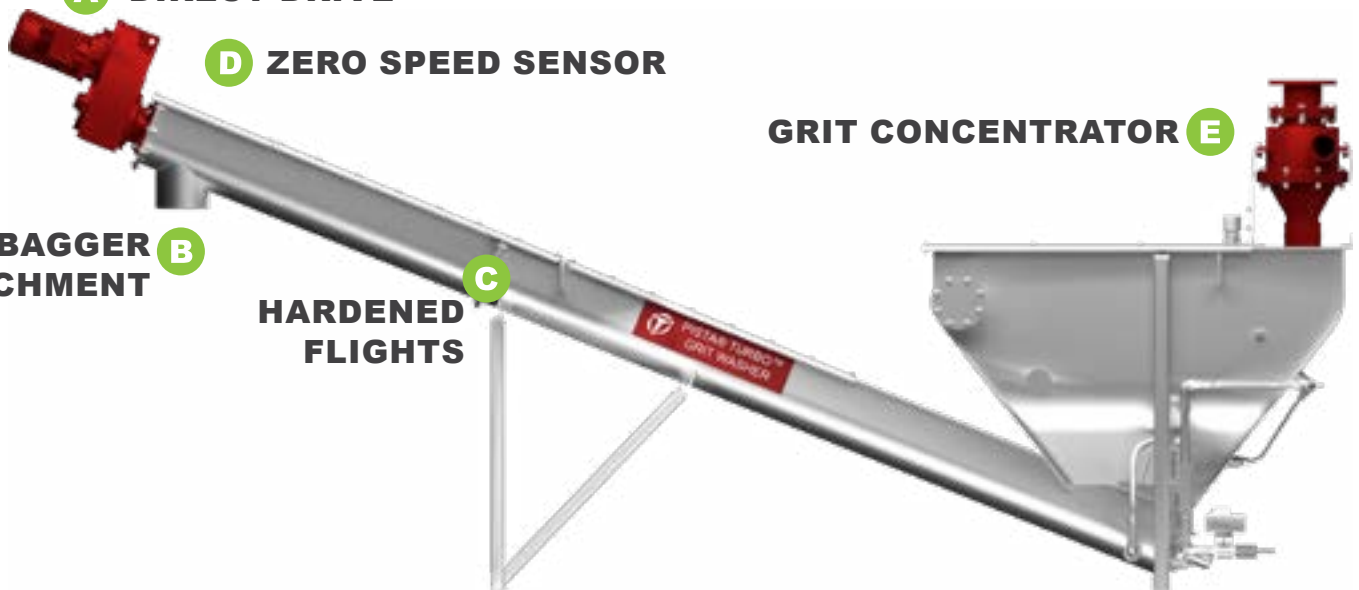
A DIRECT DRIVE

D ZERO SPEED SENSOR

GRIT CONCENTRATOR E

BAGGER ATTACHMENT B

HARDENED FLIGHTS C



FEATURES

The **PISTA[®] TURBO[™]** Grit Washer with **PISTA[®]** Grit Concentrator is the only dewatering unit to maintain 95% grit removal. Featuring Tri-Cleanse Technology[™] for retrofit applications, the **PISTA[®] TURBO[™]** Grit Washer can either be specified with or without the **PISTA[®]** Grit Concentrator, depending upon whether an existing **PISTA[®]** Grit Concentrator will be reused on the new **PISTA[®] TURBO[™]** Grit Washer. If a treatment plant already has the 500 GPM Ni-Hard **PISTA[®]** Grit Concentrator (as shown above) and one of the Smith & Loveless dewatering units (screen or **PISTA[®]** Grit Screw Conveyor), they can save money by reusing their existing **PISTA[®]** Grit Concentrator. Some piping changes will be required.

Get the most from your grit removal system by upgrading to the Smith & Loveless **PISTA[®] TURBO[™]** Grit Washer, the newest addition to the **PISTA[®]** Grit Removal System family of products. By upgrading, you'll have drier, cleaner grit with less putrescible organic material, less odor, and even better fine particle retention. The **TRI-CLEANSE TECHNOLOGY[™]** uses intense hydroflushing, air infusion and grit agitation to produce the cleanest, low odor grit around.

PISTA® 270™

THE ORIGINAL PISTA® DESIGN

After more than 40 years, the **PISTA® 270™**'s proven performance makes it still one of the most specified grit removal systems on the market today. Build upon the **PISTA® 270™**'s performance with the **OPTIFLOW™** baffle units seen in this catalog and reach the best grit removal performance in the industry today with 95% grit removal.





UPGRADE TO 95%

Upgrade your 270° vortex unit to modern efficiencies with a plan that's easy on the wallet and saves you money!

The **OPTIFLOW 270™** Baffle System brings previously unachieved grit removal efficiencies to any 270° Grit Vortex system during peak and low flows alike. The **OPTIFLOW 270™** Baffle system is the only system that adapts both high and low flows into the ideal influent range of 2 to 3.5 ft/second and minimizes grit slugs frequently seen with large variability in flow. This baffle system fits within existing concrete structure to improve performance while avoiding the high costs of a full concrete structure replacement.

With more than 2,500 **PISTA®** Grit Chamber installations worldwide, Smith & Loveless continues to advance the science of grit removal with the patent pending **OPTIFLOW 270™** Baffle System for the **PISTA® 270™**. The **OPTIFLOW 270™** Baffle System brings previously unachieved grit removal efficiencies to new **PISTA® 270™** Grit Chambers, improving grit removal from 65% of 100 mesh (150 micron) grit and 85% of 70 mesh (210 micron) to 95% of 100 mesh (150 micron) during peak and low flows alike.

GRIT REMOVAL EFFICIENCY

CONFIGURATION	300 MICRON (50 MESH GRIT)	210 MICRON (70 MESH GRIT)	150 MICRON (100 MESH GRIT)
PISTA® 270™	95%	85%	65%
Existing PISTA® 270™ units with OPTIFLOW 270™ Baffle System	95%		
270° units by others with OPTIFLOW 270™ Baffle System	95%		

95%

BAFFLES

LFB *OPTIFLOW 270™*

The **270™LFB** Low Flow Baffle is installed on most units. Each baffle is custom engineered based on flow rate to achieve 95% removal of 150 micron (100 mesh) grit. Bisecting the influent channel, this baffle makes it possible for your existing unit to handle a wide range of flows while maintaining optimum channel velocity of 2 to 3.5 ft/sec for grit transport with minimum turbulence, and to provide the proper entry velocity into the main 270° grit chamber.

B *OPTIFLOW 270™*

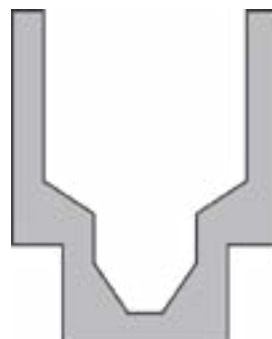
The **270™B** Exit Baffle is the essential component to every **OPTIFLOW 270™**. It increases grit removal efficiency to 95% down to 150 micron (100 mesh) on 270 degree grit chambers from most manufacturers. Each baffle is custom engineered based on flow rate to achieve 95% removal of 150 micron (100 mesh) grit. Installed within the chamber at the exit, the 270™B directs the flow toward the hopper, adding another pass along the flat-bottomed chamber floor for additional grit removal.

STF *OPTIFLOW 270™*

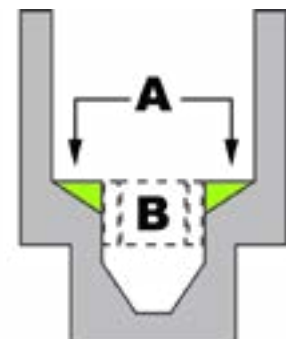
The **270™STF** Slope To Flat Chamber Floor Conversion is necessary only for non-**PISTA®** vortex grit chambers constructed with a sloping chamber floor.

To ensure the efficient transportation of grit, as well as simultaneous lifting and discharge of organic material, the bottom of the chamber must be set at a constant level elevation ^A. An **OPTIFLOW 270™STF** adapter baffle ring ^B will be added, and the chamber floor will go from a sloped surface to a flat surface to enhance the toroidal flow path within the chamber.

BEFORE



AFTER



DON'T JUST SETTLE... CAPTURE 75 MICRON GRIT

Completely new concept
in grit removal combines

Inclined plates

+

Hydraulic Force
Vortex



Only the
PISTA® INVORSOR™ Removes
Ultra Fine Grit Across All Flows
Without Ever Derating.

PISTA
INVORSOR
INVORSORTM

Product Summary

No Derated Efficiencies

The patented PISTA® INVORSOR™ delivers no derated efficiencies at 95% grit removal of 75 micron grit at all flows: low, average and peak, unlike stacked tray units that derate efficiencies to achieve this level of grit removal.

Customized Grit Capture

The PISTA® INVORSOR™ is the only vortex system that can customize grit capture at a specific cut particle size.

Cost Savings

At a 60 MGD peak flow WWRF Headworks for 95% grit removal at 75 micron, the PISTA® INVORSOR™ only requires two 30 MGD units. A stacked tray design requires five units because it has to derate its unit to achieve 95% grit removal at 75 micron for all flows: low, average and peak.

Flat Floor & Inclined Plates

A completely new concept in grit removal, the PISTA® INVORSOR™ combines two systems into one, the flat floor vortex with inclined plates for increased surface overflow rate. No other grit removal system offers this combination. One more grit removal breakthrough from Smith & Loveless.

Easy Maintenance

The removable plate modules allow for easy inspection and maintenance.

Flexible Design

The variable inlet to outlet orientation flexibility allows the PISTA® INVORSOR™ to fit into any headworks layout.

Energy Efficient

The PISTA® INVORSOR™ only uses a 2 HP motor even on its 50 MGD unit and there are no excessive non-potable water requirements.

Small Footprint

From excavation, backfill, concrete, grout fill, steel, to formwork, the PISTA® INVORSOR™ is more cost effective than the stacked tray, making it the most affordable system on the market today.



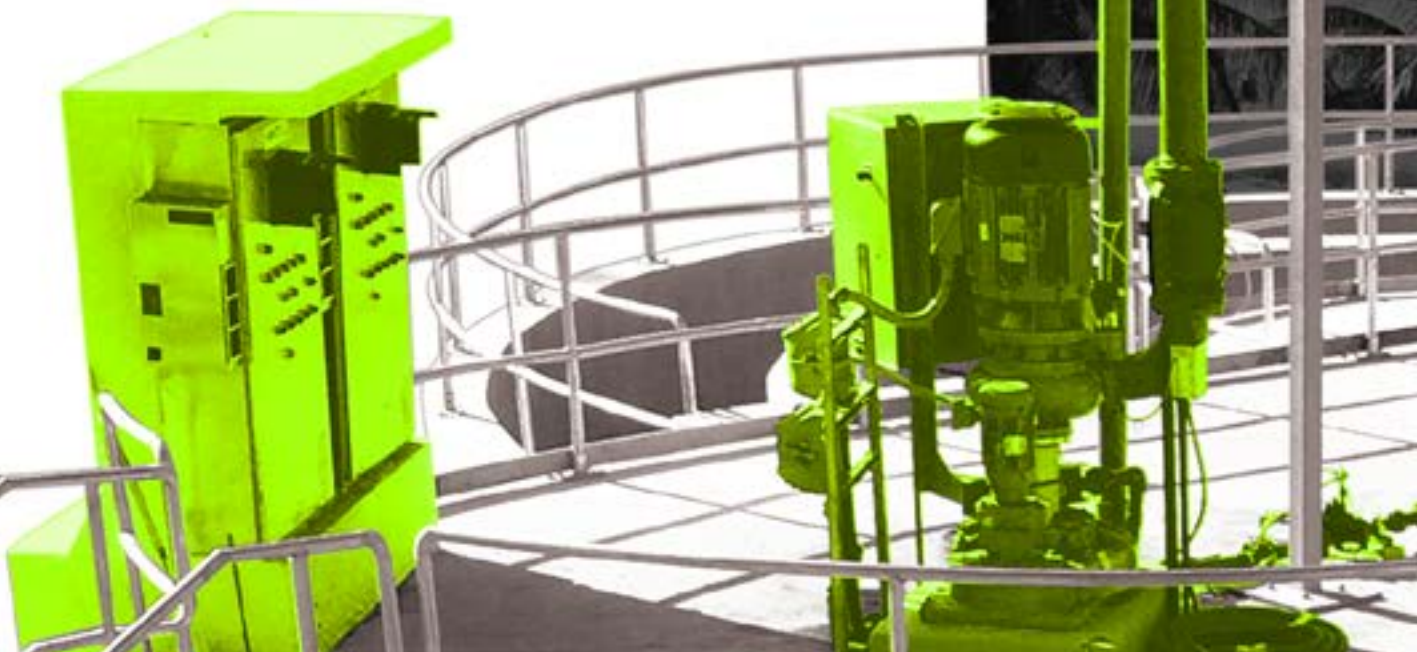
PISTA® 360™

WITH V-FORCE BAFFLE™

GRIT HAPPENS

Upgrade your PISTA® 360™ Grit Chamber with the **V-FORCE BAFFLE™**, which is an integral flow control baffle for both the inlet and outlet of the main chamber. The **V-FORCE BAFFLE™** is designed to direct the inlet flow into the chamber in a manner ensuring the proper vortex flow and prevents short-circuiting, allowing for a full 360° rotation through the inlet and outlet, providing maximum grit removal.

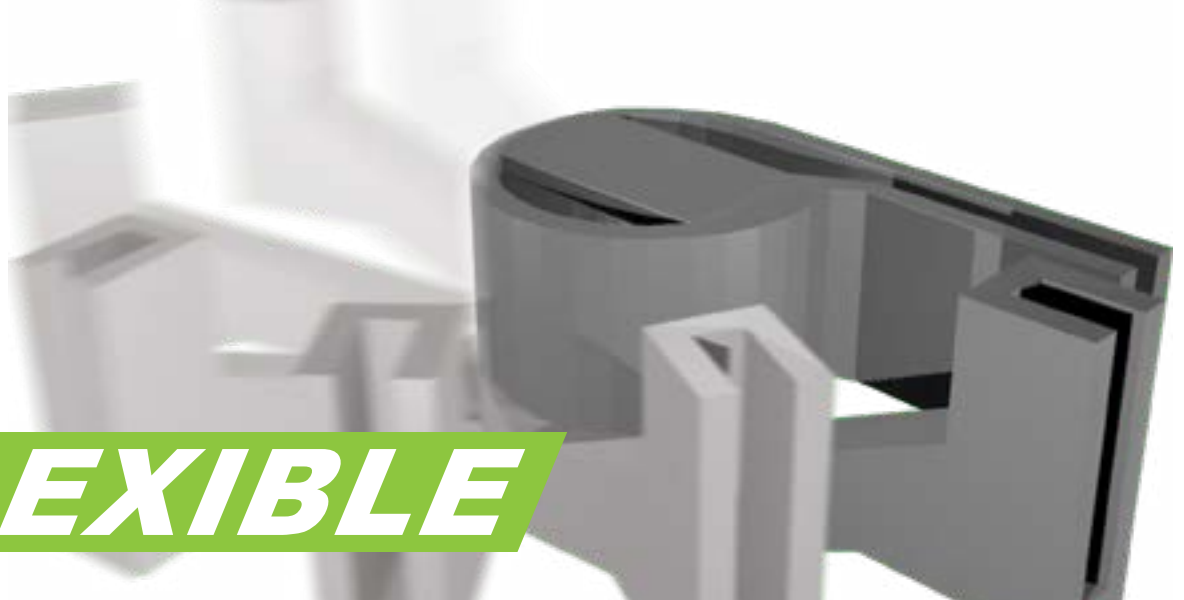
The **V-FORCE BAFFLE™** on the outlet directs the flow out of the unit and acts as a “slice weir” to control the water level in the main chamber and in the inlet channel. No additional downstream flow control device is required to keep the velocity between 3.5 f/s (1.1 m/s) at peak flow and 1.6 f/s (.5 m/s) at minimum flow with a 10:1 turn down.







PISTA® VIO™



FLEXIBLE

FOR YOU

PISTA® VIO™ features a hydraulic vortex grit chamber design that utilizes a ring and tunnel system to create the vortex flow pattern that facilitates grit removal, rather than a baffle system typical of other vortex systems. This allows for the unmatched 95% removal of 150 micron, or larger grit.

This type of grit removal system—one of the first of its kind in the industry—provides the ability to design the inlet and outlet channels at any variable angle up to the full 360° of the chamber. Designers can flexibly arrange the system to fit existing sites, or maximize space during construction on new sites.

The ring and tunnel system, in addition to providing application flexibility, also offers superior grit removal efficiencies. A ring attached to the chamber wall promotes the vortex flow pattern and separates the inlet and outlet paths, minimizing grit bypass. Influent flow is assisted through a tunnel that directs it towards the flat chamber floor for removal of grit.

95%

FEATURES

Smith & Loveless knows grit removal and headworks. Our experience flows from more than four decades of thorough R&D and 2500+ **PISTA**® installations throughout North America and the world. Along the way, we've continued to enhance the complete system with innovations that deliver unparalleled results. With the **PISTA**® Grit Removal System you receive the finest in system performance backed by the value-added experience and support of Smith & Loveless.

INFLUENT FLUME A

Directs the flow towards the chamber wall to create vortex movement at necessary velocities.

AXIAL-FLOW PROPELLERS B

Redesigned axial-flow propellers have been improved to allow for improved lift of organics within the deeper chamber.

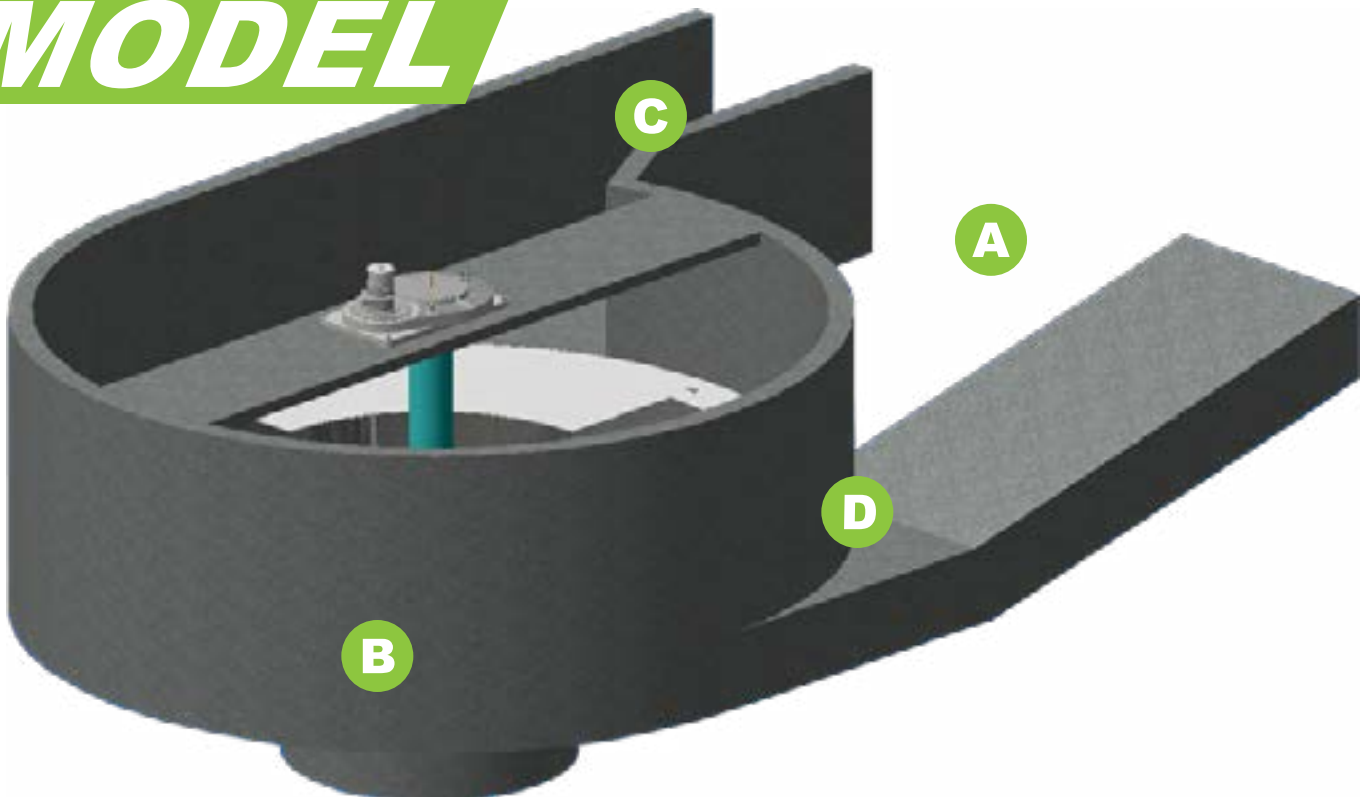
EFFLUENT FLUME C

Designed to minimize the harmful weir effect that can contribute to grit bypass in these systems.

UNDER DRIVE D

Supports influent flow velocity, which is especially helpful during low flow.

MODEL





SMITH & LOVELESS, INC.
14040 SANTA FE TRAIL DRIVE
LENEXA, KS 66215



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*Reach out to Smith & Loveless for
all of your parts and upgrade needs!*