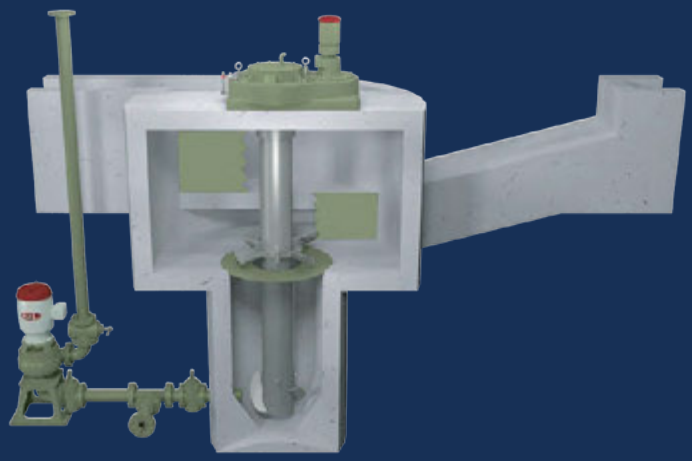
PISTA®

GRIT SOLUTIONS

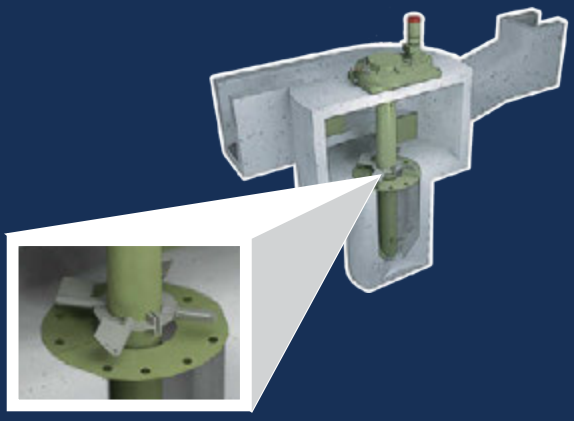
YOUR #1 GRIT REMOVAL PARTNER

MEET THE GRIT-PUMPING POWERHOUSE

PISTA® PRO-PAK™



Check out **pages 4-11** on the advantages of upgrading to the **PISTA® 270™** with the **OPTIFLOW™ Baffle System** or **PISTA® 360™** with **V-FORCE BAFFLE™**



Read **page 17** to see the newest **PISTA®** addition, the **iPLATE™**, which comes standard when upgrading to all S&L® baffled grit removal designs

Smith & Loveless Inc.

INSIDE THIS ISSUE

EXPLORE OUR SYSTEMS

Grit Removal Systems

	UPGRADE TO
PISTA® 270™	PISTA® 270™ OPTIFLOW BAFFLE™ System
PISTA® 360™	PISTA® 360™ V-FORCE BAFFLE™ System
PISTA® VIO™ - Variable Inlet/Outlet	
PISTA® WORKS™ - All-In-1 Skid	
PISTA® INVORSOR®	

Grit Pumping

	UPGRADE TO
PISTA® TURBO GRIT PUMP™ *Top Mounted*	PISTA® PRO-PAK™ *Cold Weather Package*
PISTA® TURBO GRIT PUMP™ *Remote Mounted*	

Screening Systems

OBEX™ Fine Screen
S&L® SCHLOSS® Mark-IX™ Coarse Bar Screen
S&L® SCHLOSS® Mark-CT™ Catenary Bar Screen
S&L® SCHLOSS® Mark-CI™ Pin Rack Screen
S&L® SCHLOSS® Mark-XV™ Fine Screen

Explore S&L® PISTA® GRIT CHAMBERS™

Controls

	UPGRADE TO
Relay Logic	QUICKSMART™ Controls
Vacuum Priming Panel	

Dewatering Systems

	UPGRADE TO
PISTA® GRIT SCREW CONVEYOR™	PISTA® TURBO™ Grit Washer
SCHLOSS® Grit Classifier™	PISTA® TURBO™ Grit Washer
PISTA® GRIT CONCENTRATOR™	

PISTA® 270™

THE ORIGINAL **PISTA®** DESIGN

After over 40 years, the proven performance of the **PISTA® 270™** maintains it as one of the most specified grit removal systems on the market today.

Build upon the performance of the **PISTA® 270™** with the **PISTA ® OPTIFLOW 270®** baffle units seen in this catalog. Then, reach the best 270 performance in the industry today with 95% grit removal.

PISTA® 270™

Our most cost-effective model, the **PISTA® 270™**, can handle flows up to 100 MGD. Allowing for multiple units to be arranged in a nested configuration, the 270-degree system efficiently removes grit from hundreds of millions of gallons of flow per day.

OTHER BENEFITS INCLUDE:

- Low-Energy Axial-Flow Propeller
- Flat Chamber Floor
- Engineered Non-Reliance on Gravity or Setting Design
- Capability to Handle Municipal to Industrial Applications
- Above-Grade, Semi-Recessed or Below-Ground Options
- Concrete, Carbon Steel or Stainless Steel Tankage
- Forced Vortex

before

Remember, Over Time Grit Will Wear-Down Your Systems, but We're Here to Help!

When you are upgrading your internals, it's also a great time to change to our all stainless steel option! Call Retrofit at 1-800-922-9048 to receive a quote to replace your **PISTA® 270™ GRIT CHAMBER™** internals today.

UPGRADE TO 95%

with the

PISTA® OPTIFLOW 270®

after

Improve your **PISTA® 270™ GRIT REMOVAL SYSTEM™** vortex unit, when you add the **PISTA® OPTIFLOW 270®** Baffle System through Retrofit! After installation, the **PISTA® OPTIFLOW 270®** forces grit along the flat-bottomed chamber floor for a secondary pass which improves the grit removal efficiency to 95% of 150 microns.

The sleek design of the **PISTA® OPTIFLOW 270®** reduces the weir effect at the outlet, which keeps more fine grit in the chamber for capture and improves the toroidal flow path within the chamber. Convert now to start saving on energy and maintenance time!

PISTA® OPTIFLOW 270®

UPGRADE TO 95%

Upgrade your PISTA® 270™ to modern efficiency with a plan that helps save money long term!

Scan to learn more on S&L® YouTube!

The **PISTA® OPTIFLOW 270®** Baffle System brings previously unachieved grit removal efficiencies to any 270-degree grit vortex system during peak and low flows alike. The **PISTA® OPTIFLOW 270®** Baffle System, like the other **PISTA® GRIT** Chambers products, are the only systems that adapt 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.

The Baffle System fits within the 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® improves grit removal with the **PISTA® OPTIFLOW 270®** to 95% of 150 micron grit during low and high volume flows. See how you can improve your system in the table below.

GRIT REMOVAL EFFICIENCY

CONFIGURATION	300 MICRON	210 MICRON	150 MICRON
PISTA® 270™	95%	85%	65%
Existing PISTA® 270™ Units with PISTA® OPTIFLOW 270® Baffle System	95%		
Non-S&L® Sloped Units Converted to PISTA® OPTIFLOW 270® Baffle System	95%		

PISTA® OPTIFLOW 270® BAFFLES

LFB

CONFIGURATION

The 270-Degree Low Flow Baffle (LFB) is installed on most units. Each baffle is custom engineered based on flow rate to achieve 95% removal of 150 micron 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/second for grit transportation with minimum turbulence. Concurrently, it provides the proper entry velocity into the main 270-degree grit chamber.

B

CONFIGURATION

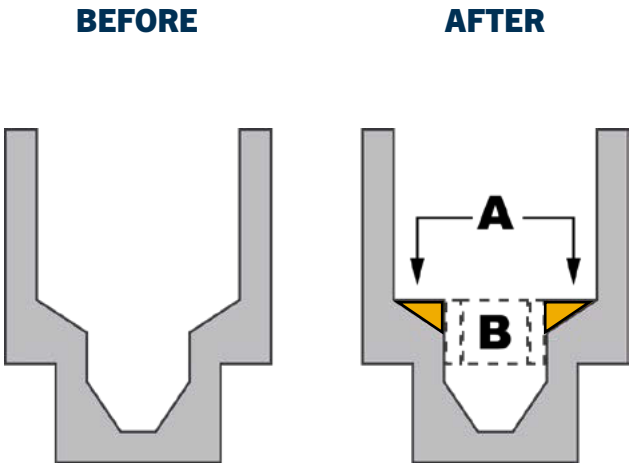
The 270-Degree Exit Baffle (B) is the essential component to every **PISTA® OPTIFLOW 270®**. It increases grit removal efficiency to 95% down to 150 micron on 270-degree grit chambers from most manufacturers. Each baffle is custom engineered based on flow rate to achieve 95% removal of 150 micron grit.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

STF

CONFIGURATION

The 270® Slope-to-Flat Chamber Floor Conversion (STF) 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, you must set the bottom of the chamber at a constant level elevation then, add (A). A **PISTA® OPTIFLOW 270® STF** Adapter Baffle Ring (B) and the chamber floor will go from a sloped surface to a flat surface to enhance the toroidal flow path within the chamber.



95% GRIT REMOVAL

OPTIFLOW 270®
Baffle System

PISTA® 360™

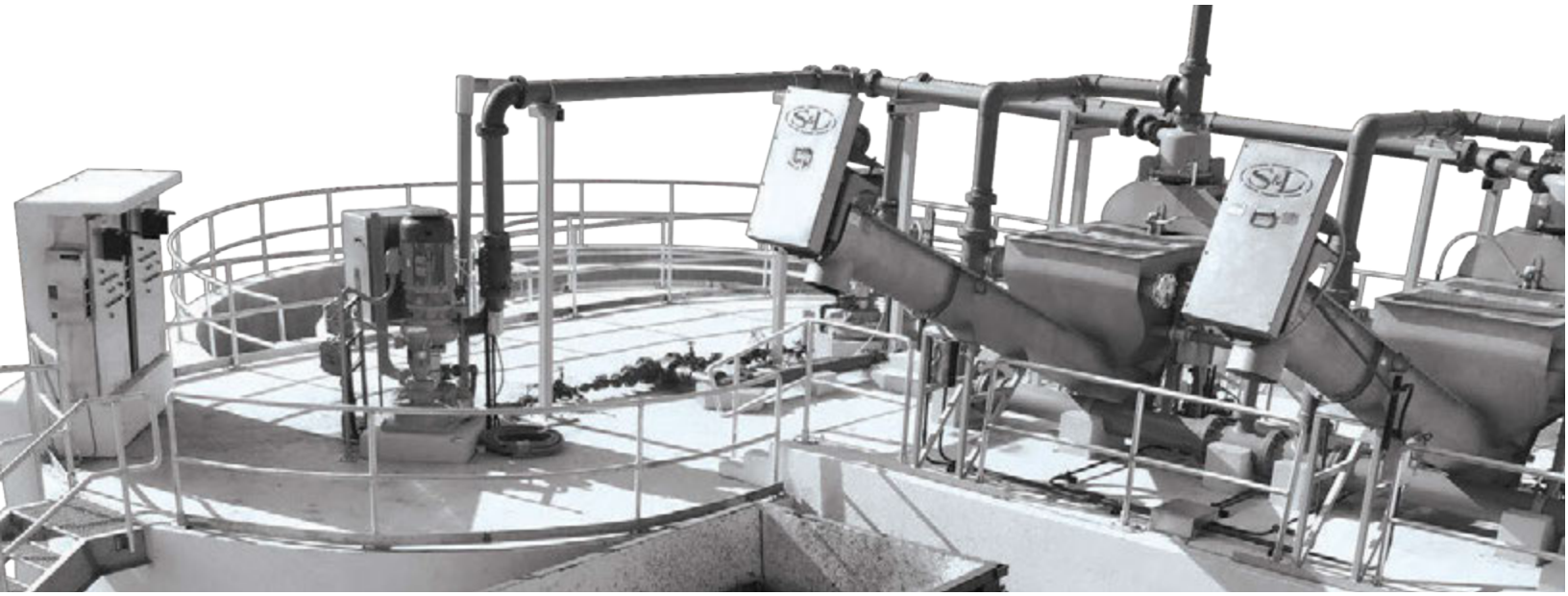
A CLASSIC PISTA® DESIGN

ADVANCED GRIT REMOVAL

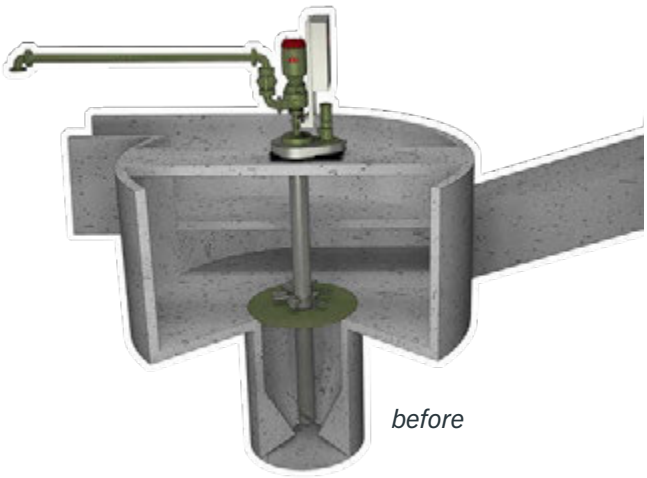
High removal efficiencies originate from the unparalleled hydraulic design of the **PISTA® 360™ GRIT CHAMBER™** including its flat chamber floor and patented, low-energy axial-flow propeller. The combination creates a true vortex that effectively separates grit from organics and the waste stream. Forced vortex action distinguishes the **PISTA® GRIT CHAMBER™** from all other so-called "Vortex Grit Chambers" because it does not rely on less efficient particle settling or gravity.

PISTA® offers flexible application whether from domestic sewage in a municipal headworks, or industrial process streams in a commercial production facility.

Install the **PISTA® 360™ GRIT CHAMBER™** above grade or below ground with concrete, carbon steel or stainless steel tankage. Individual units can handle waste streams less than 0.5 MGD (1900 m3/d) all the way to 100 MGD (378,500 m3/d). In large treatment works, multiple units arrange to efficiently remove grit from hundreds of millions of gallons of flow a day.



PISTA® 360™



before

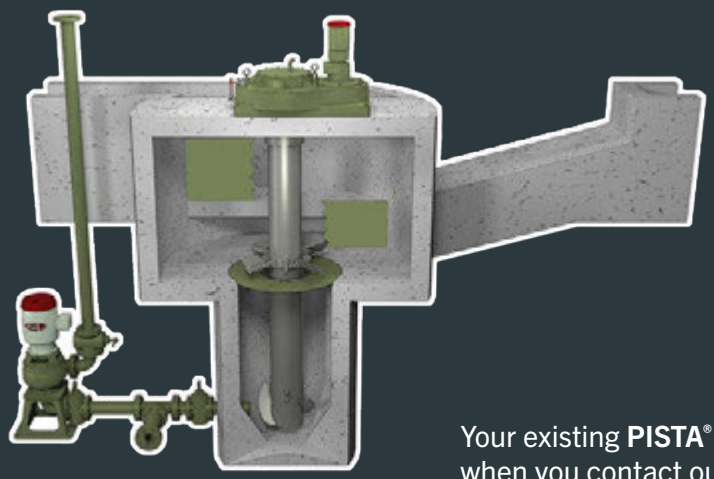
Try out another one of our budget-friendly options, the **PISTA® 360™**! Single units can handle up to 100 MGD with the 360-degree inline design.

Similar to our **PISTA® 270™** design, benefits include:

- Low-Energy Axial-Flow Propeller
- Flat Chamber Floor
- Engineered Forced Vortex for Grit Removal
- Non-Reliant on Gravity for Grit Removal
- Capability to Handle Municipal to Industrial Applications
- Above Grade, Semi-Recessed or Below Ground Options
- Concrete, Carbon Steel or Stainless Steel-Tankage

UPGRADE TO 95%
with the
PISTA® 360™ with V-FORCE BAFFLE™

Designed specifically for applications with high removal requirements, the **PISTA® 360™ V-FORCE BAFFLE™** has a 360-degree layout for 105 micron particle removal. Efficiently perfoming at a 95% effectiveness level, the system can handle a max capacity of 100 MGD.



after

With the addition of the baffle to enhance the original PISTA® 360™, you will achieve:

- Optimized Performance During Periods of Low Flow
- Increased Grit-Capturing Technology
- Design Flexibility for Controllable Water Elevations
- Adjustable for All Flow Conditions

Your existing **PISTA® 360™** can be retrofitted to have the **V-FORCE BAFFLE™** when you contact our Retrofit Department at **retrofit@smithandloveless.com**

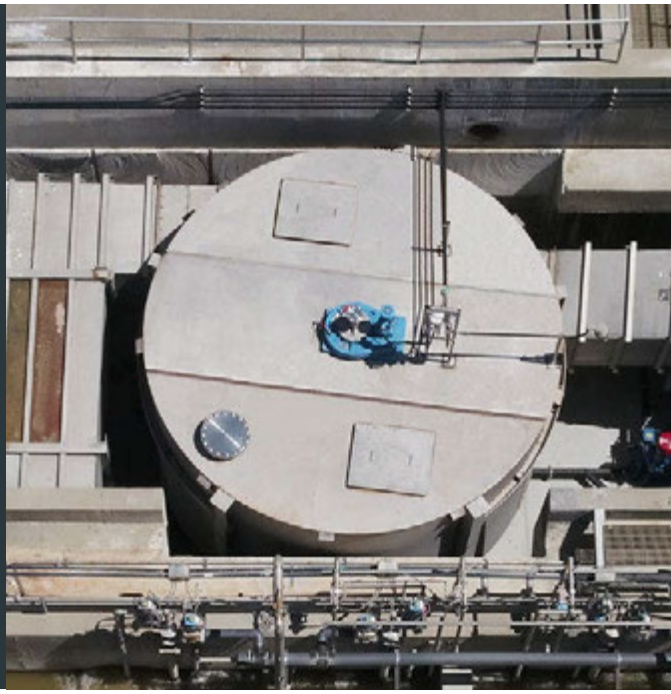
PISTA® 360™

WITH V-FORCE BAFFLE™

GRIT HAPPENS

Upgrade Your System's Performance to 95% Grit Removal Efficiency Down to 105 Microns

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-degree 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 ft/second (1.1 m/second) at peak flow and 1.6 ft/second (0.5 m/second) at minimum flow with a 10:1 turn down.



GRIT REMOVAL EFFICIENCY

CONFIGURATION	300 MICRON	210 MICRON	150 MICRON	105 MICRON
PISTA® 360™	95%	85%	65%	N/A
Existing PISTA® 360™ Units with V-FORCE BAFFLE SYSTEM™	95%			

PISTA® 360™ WITH V-FORCE BAFFLE™ GRIT CHAMBER

- 95% grit removal efficiency down to 105 microns particle size
- Construction cost savings due to decreased overall grit system footprint requirements
- Increases grit chamber velocity during low-flow periods
- Full 360-degree rotation in the chamber, lengthening grit extraction path
- Eliminates the need for downstream level control devices
- Designed to handle wide range of flows

See the difference with V-FORCE BAFFLE™

The **V-FORCE BAFFLE™** extends the grit extraction path within the vortexing grit chamber. This is key because a longer grit path within the flow pattern increases the effectiveness of grit being captured on the chamber's flat floor.

Beyond this, the **PISTA® 360™** with **V-FORCE BAFFLE™** also permits design flexibility so that water elevations can be controlled. Water level control is important because it maintains the proper velocities approaching the grit chamber. Previously, the most common way to accomplish water level control was to back up the flow with a downstream, submerged weir.

The **PISTA® 360™** with **V-FORCE BAFFLE™**, with its preset inlet and outlet openings, supplants the need for the submerged weir. By integrating the water elevation settings with the baffle, the overall outlet footprint requirements decrease as much as half the typical distance. The resulting smaller footprint provides significant construction cost savings.

PISTA VIO™

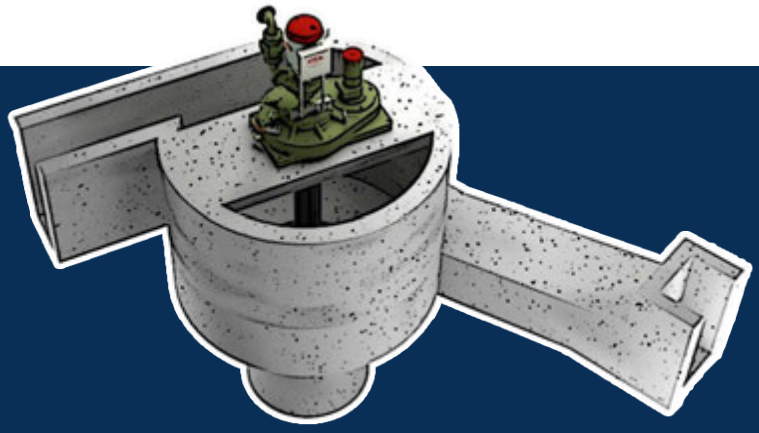
VARIABLE INLET OUTLET

PISTA VIO™

The **PISTA® VIO™**, or **V**ariable **I**nlet/**O**utlet system, provides adaptability to your needs, while maintaining 95% grit removal efficiency down to 105 microns.

Perks of Choosing the **PISTA® VIO™**:

- Adjustability of the Inlet and Outlet Channels
- Flexibility for Various Installations
- Ability to Maximize Space on Construction Sites
- Ring and Tunnel Design Minimizes Grit Bypass
- Removes Particles Down to 105 Microns



The **PISTA® VIO™** Includes:

- Hydraulic Vortex Grit Chamber Design
- Ring and Tunnel System for Grit Removal

VARIABLE INLET OUTLET

Learn more on our YouTube!

GRIT REMOVAL EFFICIENCY

CONFIGURATION	300 MICRON	210 MICRON	150 MICRON	105 MICRON
PISTA® VIO™	95%			

PISTA INVORSOR®

ULTRA-FINE GRIT REMOVAL

Specially engineered to capture grit down to 75 microns, the **PISTA® INVORSOR®** is a combination of hydraulic forced vortex and inclined plates for the highest ultra-fine grit removal on the market today.

Extensive expert CFD modeling and rigorous testing in actual field conditions inspired our design. The patent-pending **PISTA® INVORSOR®** Vortex **GRIT REMOVAL SYSTEM™** combines the power of proven particle capture methods: enhanced settling by inclined plates meeting a defined surface overflow rate (SOR) with the established hydraulic forced vortex grit removal process. This achieves industry-best, Ultra-Fine grit removal efficiency down to 75-micron particle size across all flows with no derating.

Compared to other fine particle grit removal systems, the **INVORSOR®** delivers lower capital and operational costs, larger capacity in individual units, greater design flexibility for inlet-outlet design options and a higher surface area-to-volume ratio. Our system generatesh consistent fine grit capture during low flow, daily flow and peak flow conditions — up to 50 MGD in single units (190,000 m3/d).

Discover the power of the INVORSOR® on YouTube.

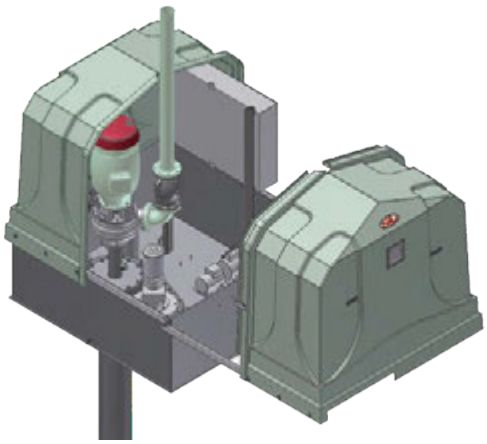
GRIT REMOVAL EFFICIENCY

CONFIGURATION	300 MICRON	210 MICRON	150 MICRON	105 MICRON	75 MICRON
PISTA® INVORSOR®	95%				

PISTA PRO-PAK™

PISTA® PRO-PAK™ ADVANTAGES

- Weather Protection for Top-Mounted **PISTA® TURBO GRIT PUMP™**
- Alternative to Building a Housing Structure at a Fraction of the Total Cost
- Factory Assembled, Above-Grade Components Mounted to Base
- Internally Wired and NFPA 820-Compliant
- Easier to Maintain than Typical Installations (No Heat Tracing Required)
- Optional Heater Offers Protection for Harsh Environments
- Four Material Finishes Available, Including **DURO-LAST®** Corrosion-Resistant Stainless Steel (with 25-Year Warranty)
- Available for Use on Existing Grit Systems



Special Features of the **PISTA® PRO-PAK™**

- PISTA® Drive Assembly
- Retractable Fiberglass Enclosure
- Low Lifecycle Costs
- Custom Engineered
- Vacuum Priming System and Controls
- Made in the USA

PISTA WORKS

COMPLETE PACKAGE SYSTEM

Upgrade to our all-in-one option, **PISTA®Works™**! This cost-effective option is completely automated with **QUICKSMART™** technology and an integrated screening system to capture and retain a high percentage of grit solids.

Choose from one of three **PISTA® GRIT CHAMBERS™: the PISTA® 360™ with V-FORCE BAFFLE™, PISTA® VIO™** or the **PISTA® INVORSOR®**

PISTA®Works™ Also Includes:

- **OBEX™** Fine Screen or **SCHLOSS®** screen
- **PISTA® TURBO GRIT PUMP™**
- **PISTA® GRIT CONCENTRATOR™**
- **PISTA® TURBO GRIT WASHER** or Classifier
- Two Platforms
- **QUICKSMART™** Controls
- And More!

Fully customize your **PISTA®Works™** when you email us at **retrofit@smithandloveless.com**.

PISTA®Works™ featured above in Texas

GRIT REMOVAL EFFICIENCY

CONFIGURATION	300 MICRON	210 MICRON	150 MICRON	105 MICRON	75 MICRON
PISTA®Works™ with V-FORCE BAFFLE™	95%				N/A
PISTA®Works™ with PISTA® VIO™	95%				N/A
PISTA®Works™ with PISTA® INVORSOR®	95%				

Straight From The Customer

When visiting Iowa, the manager of Municipal Pumping Systems Joe Schmidt, stopped to talk with the wastewater superintendent of a city of less than 5,000 people. During their conversation, they chatted about the pros of being a Smith & Loveless® customer.

The Iowa city superintendent described the S&L® equipment as “built like tanks.” We’ve had no problems with operations. When asked why they chose S&L®, the wastewater superintendent said, “[We] had Smith & Loveless® products in the past. If any problems arose for the city, I can rely on the S&L® customer service.” He described the S&L® Customer Service Team as a "good, resourceful staff [that] were able to get me a brand new rotating assembly fast," when he needed the new replacement part with a tight turnaround.

Feedback from customers like you encourages us to continue to get better and live out our goal of “Protecting Water. Protecting People™.” If you are interested in sharing your experience with one of our products, contact us at **retrofit@smithandloveless.com** or **parts@smithandloveless.com**.

In 2017, the city purchased:

- **Model 7.0 PISTA® 360™** with **V-FORCE BAFFLE™**
- A **4B2J PISTA® TURBO REMOTE MOUNTED GRIT PUMP™**
- **250 GPM PISTA® GRIT CONCENTRATOR™** with a **PISTA® GRIT SCREW CONVEYOR™**

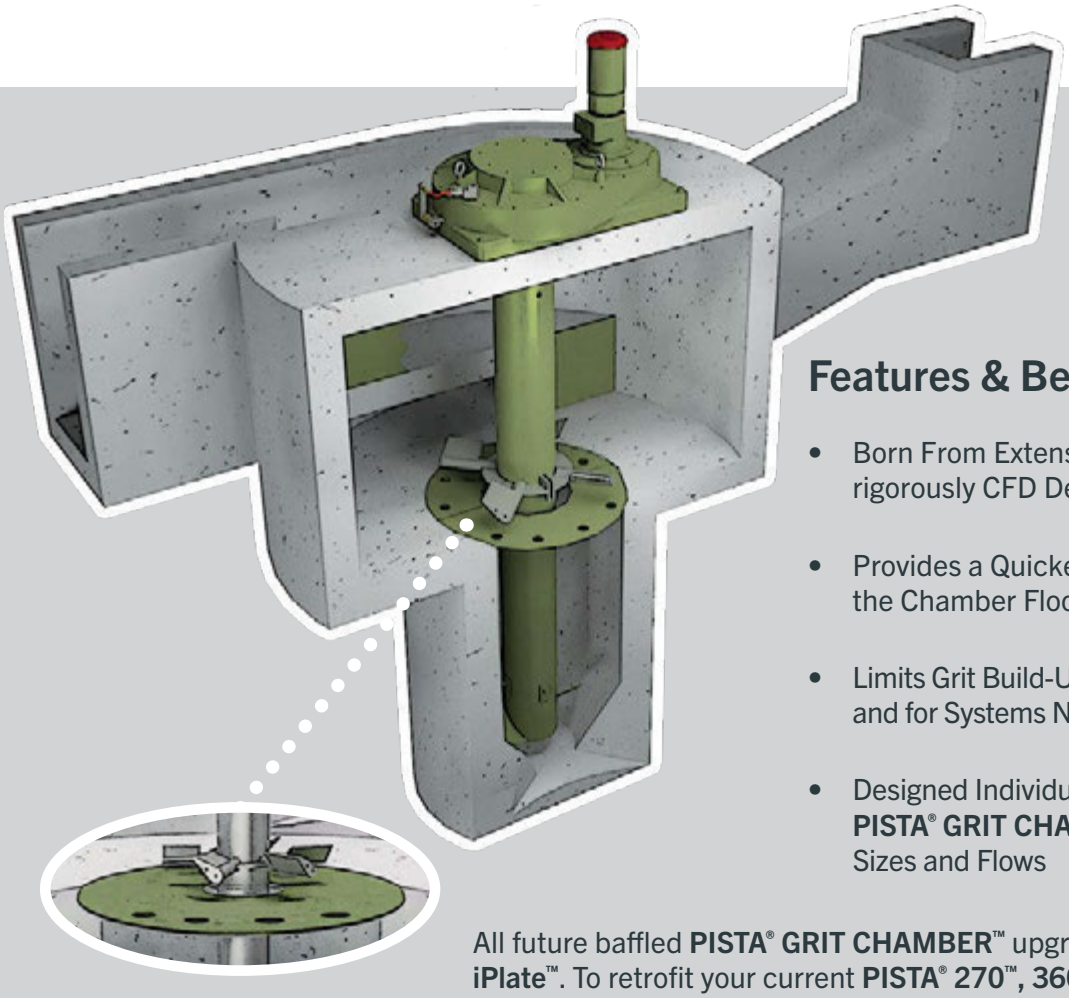
PISTA® iPLATE™

GRIT HOPPER COVER

PISTA iPLATE

PISTA® iPLATE™ Grit Hopper Covers with CFD Intelligence

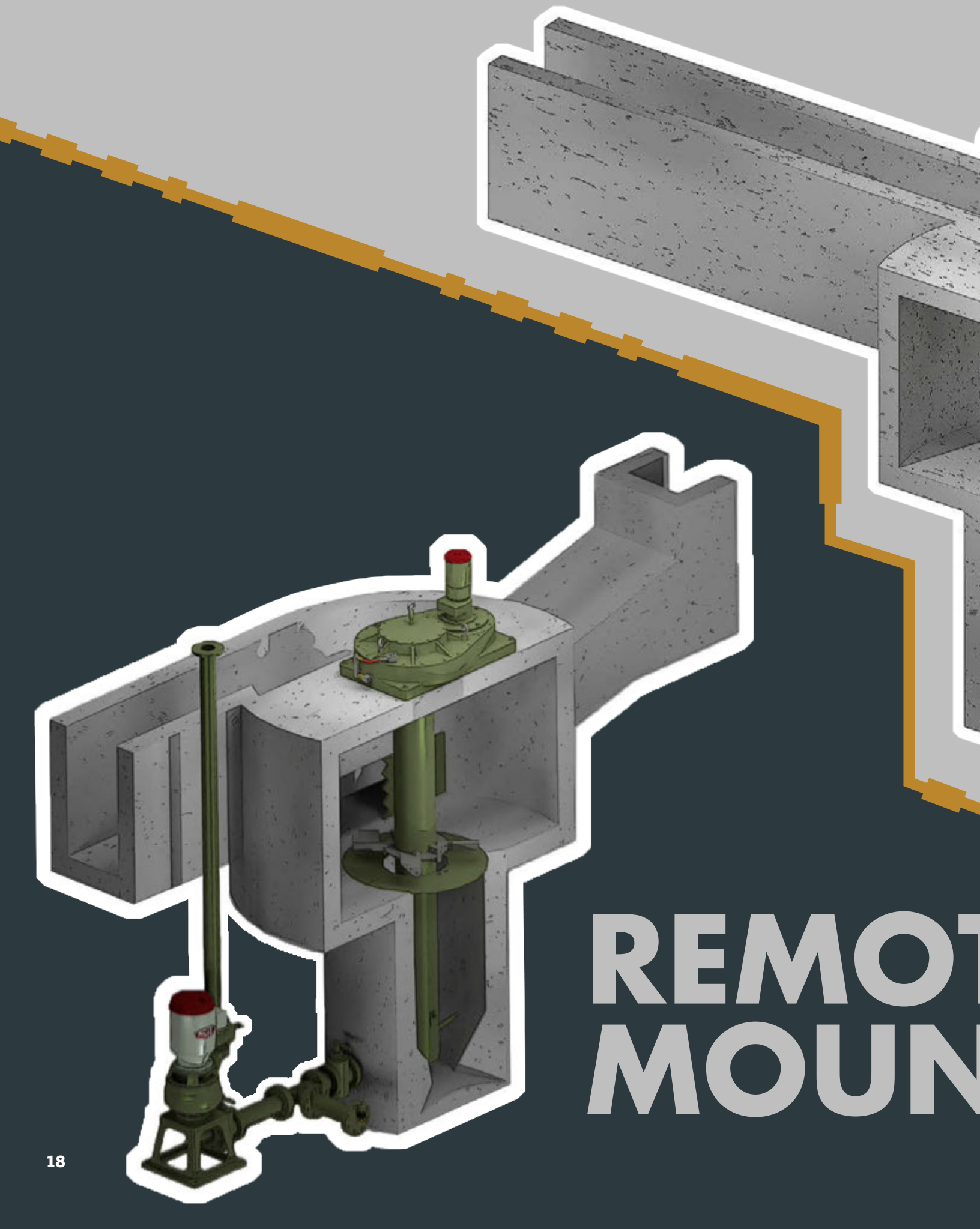
One of the newest innovations in the **PISTA®** product family, **PISTA® iPLATE™** Hopper Covers, represent extensive analysis performed by S&L® Engineering's certified CFD experts. As such, the **PISTA® iPLATE™** upgrades the conventional hopper cover plates critical to the **PISTA® GRIT CHAMBER™** unique flat floor and center opening around the drive tube. The custom CFD-enhanced perforations allow for more rapid capture and retention of grit particles, particularly in applications that experience significant low-flow periods. The **iPLATE™** comes standard on all **PISTA®** baffled model upgrades.



Features & Benefits

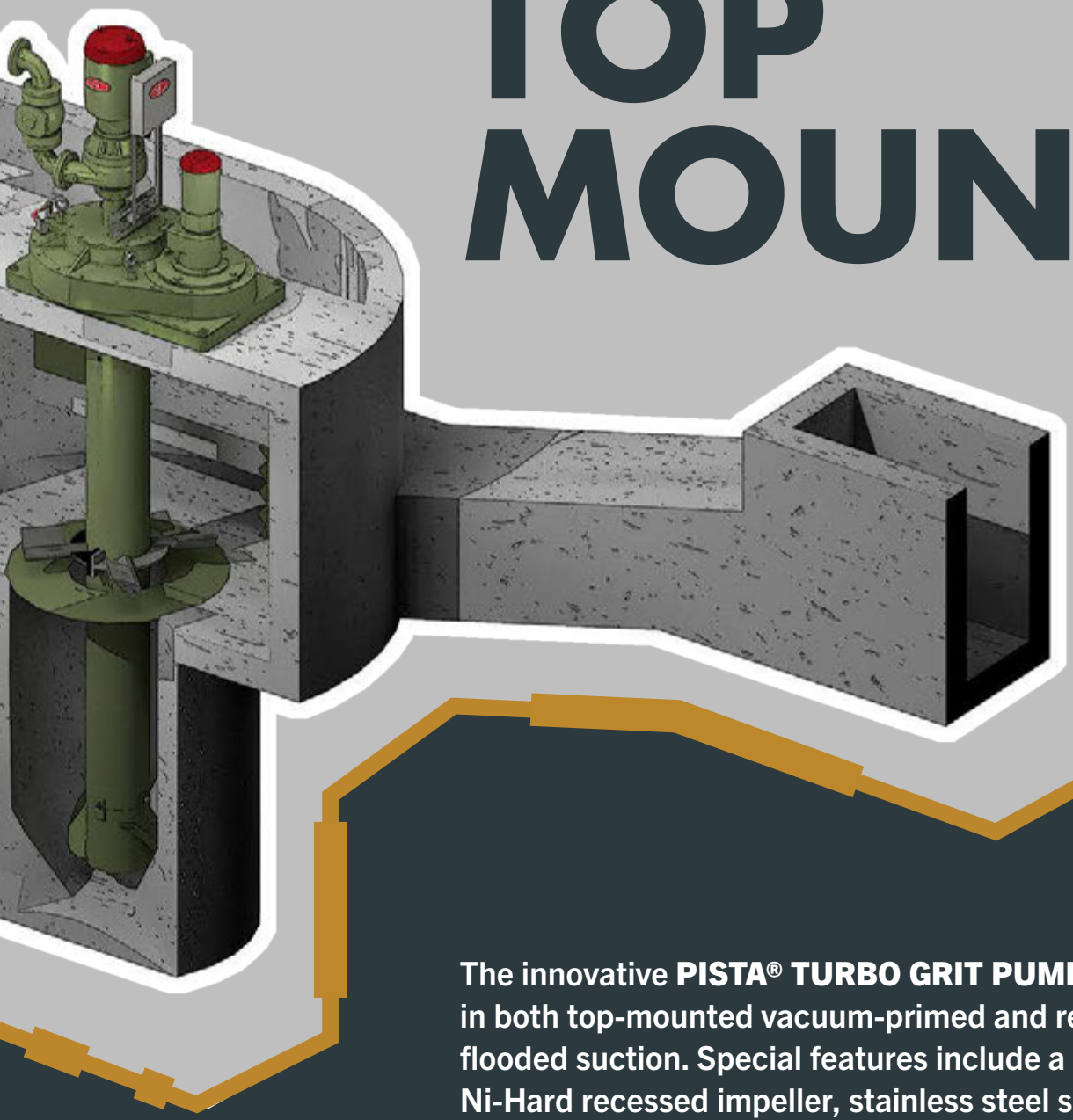
- Born From Extensive Research and Development: rigorously CFD Designed and Field-Tested
- Provides a Quicker Capture of Grit Swept Along the Chamber Floor Toward the Center Opening
- Limits Grit Build-Up During Extreme Low-Flow Periods and for Systems Not Meeting Design Flows
- Designed Individually for all Advanced Baffled **PISTA® GRIT CHAMBER™** Model Types, Sizes and Flows

All future baffled **PISTA® GRIT CHAMBER™** upgrades will come with the new **iPlate™**. To retrofit your current **PISTA® 270™, 360™, VIO™ or INVORSOR®** setup with the **iPlate™** today, email us at **retrofit@smithandloveless.com**.



REMOT
MOUN

TOP MOUNTED



The innovative **PISTA® TURBO GRIT PUMP™** is available in both top-mounted vacuum-primed and remote-mounted flooded suction. Special features include a Ni-Hard volute, Ni-Hard recessed impeller, stainless steel shaft, heavy-duty bearings and mechanical seals.

Email **retrofit@smithandloveless.com** to start your order for the **PISTA® TURBO GRIT PUMP™** with four-inch and six-inch piping arrangements based on your needs.

TE
TED

TOP TOP TOP TOP

1945 — The vacuum primed pump was created

1960 — S&L® created the first flooded suction grit pump

1980 — The first S&L® vacuum primed grit pump was created

TOP MOUNTED ADVANTAGES

- Eliminates Additional Excavation Required for a Pump Room
- Drops Prime After Each Cycle, Minimizing the Potential of Clogging
- Options for Additional Redundancy (Spare Rotating Assembly -Pump Motor, Pump Seal and Impeller)

Explore S&L® PISTA®TURBO GRIT PUMPS

REMOTE MOUNTED ADVANTAGES

- No Priming Cycle Required
- Allows for Two Pumps per Chamber
- Uses Flush Water to Fluidize Suction Pipe

REMOTE
REMOTE
REMOTE

VACUUM PRIMING FLOODED SUCTION

REMOTE MOUNTED PISTA® TURBO GRIT PUMP™

- Flooded Suction and Continuously Primed
- Uses Flush Water to Keep Grit Fluid After Each Pump Cycle
- Ability to Have Two Pumps for High-Volume Grit Removal
- Double Pumps Can Pump 1,000 GPM for High-Volume Grit Sites

BOTH STYLE PUMPS

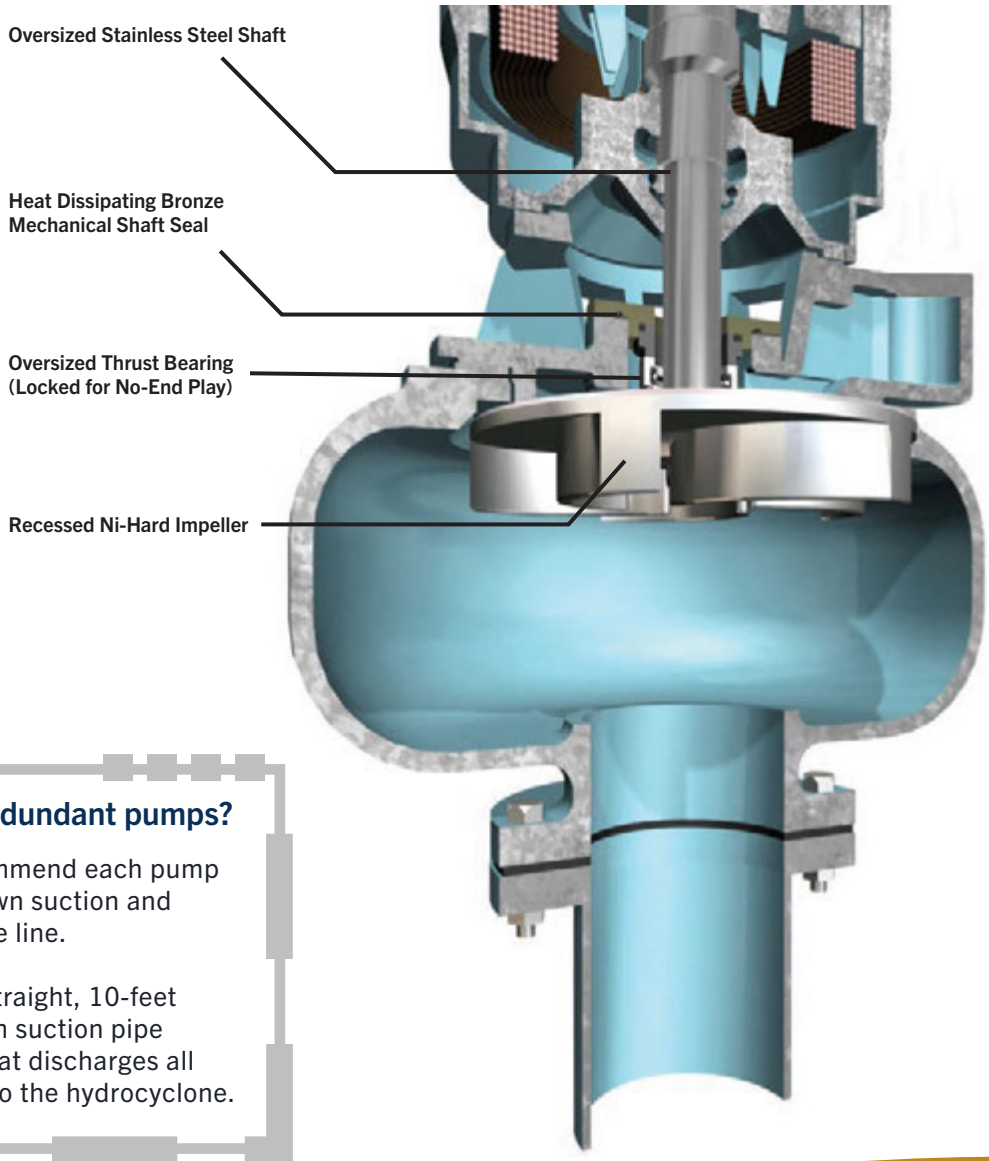
TOP MOUNTED PISTA® TURBO GRIT PUMP™

- Lower Operational Costs, Eliminating Expensive Piping
- Lowers Head Requirements and Horsepower Requirements
- Drops Prime and Grit in Suction -Pipe After Each Pumping Cycle
- Has **Sonic Start®** and **Wavestart®** Prime Sensing
- Vacuum Priming

BOTH STYLE PUMPS

- **No Belts or Sheaves**
- **Consistent 250 or 500 GPM Pumping**
- **Ample Velocity for Effective Grit Washing and Dewatering Devices**
- **Capable of Withstanding Severe Weather**
- **Ni-Hard Impeller and Volute**
- **4" Or 6" Diameter Pumps**
- **Oversized Thrust Bearings and Stainless-Steel Shaft**

PISTA® TURBO GRIT PUMP™



Need redundant pumps?

We recommend each pump has its own suction and discharge line.

Opt for straight, 10-feet maximum suction pipe length that discharges all the way to the hydrocyclone.

THE DISADVANTAGES OF SELF-PRIMING PUMPS

- Slow Acting Due to Simultaneous Priming and Pumping
- Decreased Efficiency Because of Internal Circulation to Prime
- More Maintenance for Additional Parts
- Unresponsive to Grit Slug, Inhibbiting Pumping
- Messy Unclogging
- Takes Up More Space

OPERATION OF THE PISTA®

Flushing vs. Fluidization

Flushing

- Injection of Plant-Effluent Water Into the Suction Side of a Flooded Suction Grit Pump Reduces Chances for Clogs or Slug of Grit Entering the Pump
- Not Required for a Top Mounted Grit Pump

Fluidization

- Uses Agitation to Prevent Grit Compaction in the Lower Grit Chamber
- Uses Fluidizing Vanes Rather than Fluidizing Water. Fluidizing Vanes are Attached to an Extended Drive Tube and Extend Into the Lower Chamber, Providing Mechanical Agitation
- Fluidizing Vanes Eliminate the Need for Using Constant Fluidizing Water

S&L PISTA® VS. HORIZONTAL BELT DRIVEN GRIT PUMPS

S&L Grit Pumps

- Vertical, Direct Coupled Pump is Easier to Maintain
- No Belt Maintenance
- Keep Grit Slurries Inside the Pump Volute When Accessing Impeller or Removal of the Rotating Assembly
- Take Up Less Space
- Do Not Require Shaft Sleeves
- Totally Driven by a Solid Stainless-Steel Shaft

Horizontal Belt Driven Grit Pumps

- Grit Slurry Spills When Split Open for Accessing the Impeller
- Belt Maintenance Required
- Take Up More Space

Both

- Non-Clogging, Recessed Impeller and Torque-Flow Vortex Type
- Contain Ni-Hard Impellers and Ni-Hard Volutes per Specifications

PISTA® TURBO™ GRIT WASHER

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 hydro-flushing, air infusion and grit agitation to produce some of the cleanest, low-odor grit around.

The **PISTA® TURBO™** Grit Washer, featuring **TRI-CLEANSE TECHNOLOGY™** 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 your treatment plant already has the 500 GPM Ni-Hard **PISTA® GRIT CONCENTRATOR™** and one of the Smith & Loveless® dewatering units (screen or **PISTA® GRIT SCREW CONVEYOR™**), you can save money by reusing your existing **PISTA® GRIT CONCENTRATOR™**.*

Whether your treatment plant already has a **PISTA®** Grit Dewatering System or another manufacturer's grit classifier, you can now upgrade to grit washer technology with one of our three material selections: 316 stainless steel, 304 stainless steel or painted carbon steel.

Smith & Loveless® now offers a replacement and upgraded grit level sensor (**Item F**). The new paddle type sensor is rated for Class 1, Division 1 applications, so there is no need for separate grit sensors for different area classifications. The new sensor is compliant for multiple classification requirements and has local status indicating LED lights.

**Some piping changes will be required.*

MATCH YOUR PISTA® WITH 95% EFFICIENT DEWATERING

DEWATERING
GRIT SCREW CONVEYOR

The dewatering **PISTA® GRIT SCREW CONVEYOR™** is designed to work in concert with the complete **PISTA® GRIT REMOVAL SYSTEM™**. The system provides superb dewatering and high retention of fine grit, without the burden of high maintenance. The **PISTA® GRIT SCREW CONVEYOR™** promotes a sleek design with a similar compact footprint to the **PISTA®** product line by S&L®.

The lamella plate design aids in the retention of fine grit, while reducing turbulence and overflow. Dewatered grit discharges into the adjacent container for disposal, while the flow and residual organics* are returned to the inlet channel prior to the grit chamber. By returning organics, the design by Smith & Loveless® keeps odor concerns to a minimum.

**Typically 93% of the flow and 95% of the organics.*

THE PISTA® GRIT SCREW CONVEYOR™ IS AVAILABLE IN THREE SIZES

MODEL	CONCENTRATOR	SCREW DIAMETER	CONVEYOR LENGTH	DIRECT DRIVE	MATERIAL OPTIONS
Model 15 **PISTA® GRIT SCREW CONVEYOR™**	250 GPM/ 16 LPS	9" / 230 MM	15' / 4.6 M	Standard with Belt Drive Option	Carbon Steel or Stainless Steel
Model 17 **PISTA® GRIT SCREW CONVEYOR™**	500 GPM/ 32 LPS	14" / 355 MM	17' / 5.2 M	Standard with Belt Drive Option	Carbon Steel or Stainless Steel
Model 19 **PISTA® GRIT SCREW CONVEYOR™**	1000 GPM/ 63 LPS	20" / 508 MM	19' / 5.8 M	Standard with Belt Drive Option	Carbon Steel or Stainless Steel

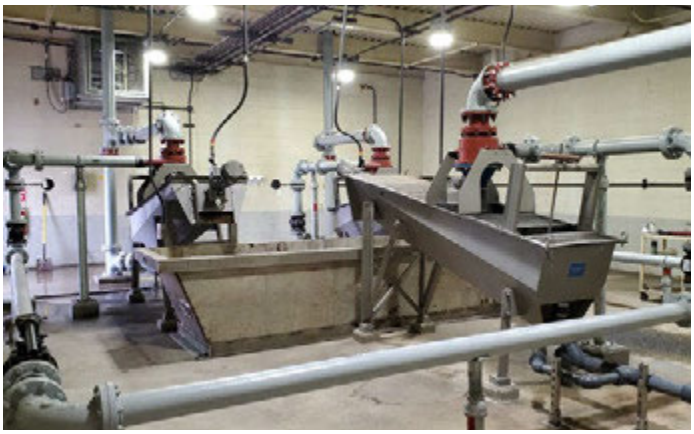
Consult S&L® for replacement Model 10 and Model 12 conveyors.

APPLICATION DATA

Flow Capacity:	40-600 GPM/2-38 LPS and larger
Screw Sizing (US in.):	6, 9, 12, 18, 24 and 30
Screw Sizing (Metric mm):	150, 230, 300, 450, 600 and 760
Cyclone Sizing (US in.):	6, 10 and 15
Cyclone Sizing (Metric mm):	150, 250 and 380
Tank Construction:	Stainless Steel or Carbon Steel

GRIT CLASSIFIERS

Gets the Job Done for Every Size Plant



The successful engineering behind S&L® **SCHLOSS**® Grit Classifiers emanates from decades of S&L® **SCHLOSS**® experience in the bulk handling and mining industries. This results in a rugged grit classifier that achieves 95% of grit down to 100 micron in particle size. Our design takes special care for all aspects of classifier construction in order to maximize service life and performance over time. Systems are tailored to meet each application with various unit sizes and materials. We are available to collaborate with you during the design process.

FEATURES & BENEFITS

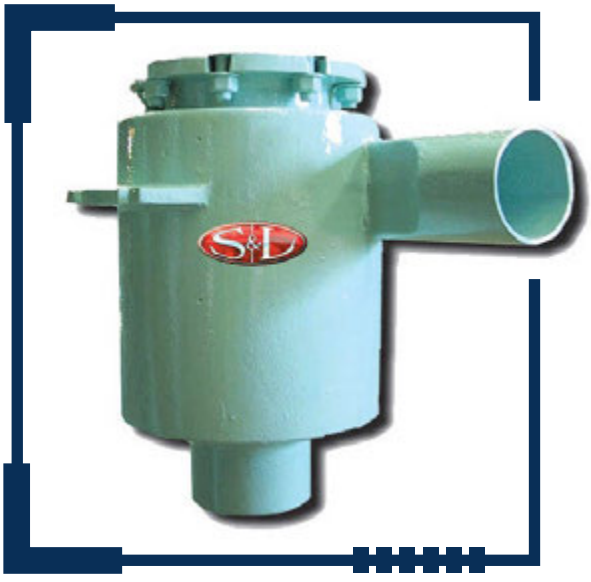
- Achieves Fine Grit Removal: 95% Down to 100 Micron in Particle Size
- Screw Sizes Range from 6”-30” / 150-760 mm
- Optional Long-Lasting Hydrocyclone(s) Allow for Smaller Classifiers
- Backed by Decades of Engineering Experience in Bulk Material Handling
- Various Wear Shoe Options Available
- Grit Concentrator Options
- Small Footprint

THE PISTA® GRIT CONCENTRATOR™ 250 GPM NI-HARD

The robust Smith & Loveless® **PISTA® GRIT CONCENTRATOR™** combines uncompromising strength and durability for superior grit concentrator performance.

Specially designed for small-flow applications, the **PISTA® GRIT CONCENTRATOR™** effectively washes collected grit, while delivering extended service life beyond standard concentrator designs. Constructed of Ni-Hard, with a minimum thickness of 1.25" in high wear areas, it features a large discharge orifice (3.5") to minimize clogging.

Working in concert with the **PISTA® GRIT SCREW CONVEYOR™** or the **PISTA® TURBO™** Grit Washer, the Ni-Hard **PISTA® GRIT CONCENTRATOR™** sits snugly above the grit hopper. The **PISTA® GRIT CONCENTRATOR™** functions as a primary grit washing and dewatering device, separating the pumped flow into its basic components — water, organics and grit — to achieve an overall performance greater than 95% removal of the residual organic material.



250 GPM Ni-Hard PISTA® GRIT CONCENTRATOR™ Features

- Large Diameter Discharge Orifice Minimizes Clogging
- Specifically Designed for Small Flow Applications
- No Wearing Parts or Liners Makes Maintenance Easy
- Longer Lasting, Minimizing Downtime

PISTA® GRIT CONCENTRATOR™

THE DURABLE PISTA® GRIT CONCENTRATOR™

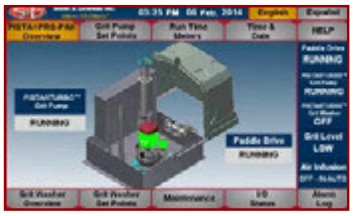
(250 GPM/16 LPS and 500 GPM/32 LPS)

The two-piece **PISTA® DURALYTE® GRIT CONCENTRATOR™** by Smith & Loveless® offers durable and efficient grit concentrator performance with minimal O&M and quicker installation/removal than the competition. The standard two-piece **PISTA® DURALYTE® GRIT CONCENTRATOR™** with Ni-Hard bottom cone (starting at 61 lbs/28 kg) effectively washes collected grit while providing added durability for harsh conditions and heavy grit, like applications with combined sewer systems or high infiltration and inflow (I and I).

PISTA® DURALYTE® GRIT CONCENTRATOR™ effectively functions as a primary grit washing and dewatering device, separating the pumped flow into basic components of water, organics and grit. Working in tandem with the standard **PISTA® GRIT SCREW CONVEYOR™** or premium **PISTA® TURBO™** Grit Washer, which the concentrator snugly positions above and discharges into, **PISTA® DURALYTE® GRIT CONCENTRATORS™** overall performance achieve greater than 95% removal of the residual organic material.

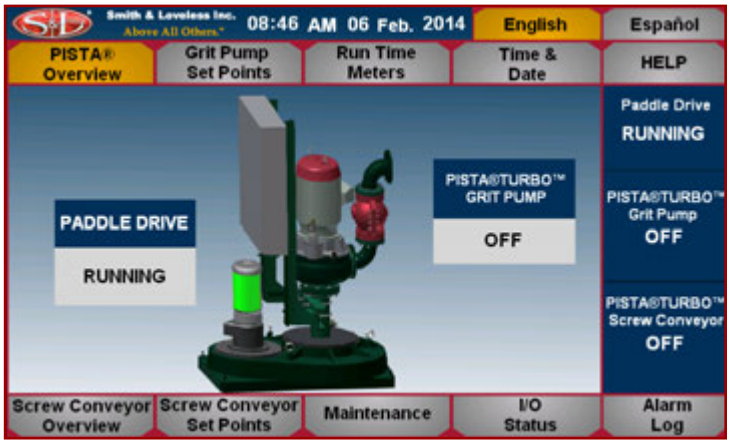
	NI-HARD W/ DURALYTE® BOTTOM CONE	PISTA® GRIT CONCENTRATOR™	ALL OTHERS
Ni-Hard Cast Construction Increased Thickness in High Wear Areas	✓	✓	
Fabricated and Cast Carbon Steel Housing			✓
Effective in Harsh Conditions (CSOs, High I and I and Heavy Grit Loads)	✓	✓	
Involuted Feed Entry	✓	✓	✓
Large Diameter Discharge Orifice to Minimize Clogging	✓	✓	
Longer Lasting, Minimizing Downtime	✓	✓	
Wearing Liners, Requiring Routine Replacement			✓
250 GPM (15.8 LPS) Capacity	✓	✓	✓
500 GPM (32 LPS) Capacity	✓		✓
Two-Piece Design for Easy Maintenance	✓		

QUICKSMART™ System Controls



Grit Washer Overview

I/O Status Overview



Maintenance Log

Morning Schedule

STATE-OF-THE-ART TOUCHSCREEN FOR HEADWORKS SYSTEMS

Main Features

- PLC System Control
- Alarm Management
- Grit Pump Configuration
- Grit Washer Configuration
- Help/Troubleshooting Info
- Graphical System Notifications
- English/Spanish Languages

Increased Functionality

Added features take headworks systems controller functionality to new levels. A new maintenance log feature displays periodic recommended O&M instructions, including lubrication suggestions based on actual run times. Furthermore, troubleshooting/ help support is improved and a new I/O status screen displays digital controls and analog I/O status.

Improved Navigation

Delivering simplified operation, yet powerful headwork system control, **QUICKSMART**™ System Controls provide unparalleled ability to monitor and adjust all of your headworks systems functions. A new layout makes control modifications, screen navigation and viewing of system status easier than ever, with screen function buttons and a status bar acccesible from each screen.

Improved Graphics

- 9.7" (24.6 cm) 65K-Color Active-Matrix TFT LCD Touch Screen HMI
- 7" (17.7 cm) 65K-Color TFT LCD Touch Screen HMI

VACUUM PRIMING PANEL

You will always have access to 24/7 reliable, long-lasting service with the Smith & Loveless® Vacuum Priming Panel. The Vacuum Priming Panel enclosure houses a vacuum pump used to prime the Top Mounted Smith & Loveless® PISTA® TURBO GRIT PUMP™ and a compressor used to actuate the pump's discharge pinch valve.

WHY CHOOSE SMITH & LOVELESS®?

Our panel enclosures are available in NEMA 12 (dust protection), NEMA 4 (watertight), NEMA 4X (watertight, stainless steel and corrosion resistant) and NEMA 7 (explosion proof).

We recommend the NEMA 4X model for coastal areas and for northern climates. Where freezing temperatures are common, we offer our Cold Weather or Extreme Cold Weather Package! The Cold Weather Package includes an additional thermostatically-controlled heater, and the Extreme Cold Weather Package with weatherproof heat tracing for the vacuum priming dome, solenoid and pinch valve.

If you are looking to replace your pinch valve or grit pump, Smith & Loveless® can provide you solutions! Start by emailing us at **retrofit@smithandloveless.com** to get the exact replacement and keep your system up-to-date.

Trust us as experts in our field with innovative solutions for over 30 years.

SINGLE MECHANICAL SEAL REPLACEMENT PARTS KIT

The Single Mechanical Seal was designed to have the longest seal life of any in the industry. Used on all Smith & Loveless® **PISTA®** products, it comes in three sizes, depending upon the shaft size.

SINGLE MECHANICAL SEAL PARTS KIT (TOP MOUNTED)

Includes: One carbon, one ceramic, one spring, one O-ring, and one quad ring. **Does not include seal housing gasket, quad ring, impeller bolt, locking washer, impeller washer, volute gasket or bolts for the bronze seal housing.*

PART#	SHAFT SIZE
H87A28	B-Shaft: 1-7/8”
H87A97	C-Shaft: 2-1/8”
H87A534	D-Shaft: 3”

SINGLE MECHANICAL SEAL PARTS KIT PLUS

Includes: One carbon, one ceramic, one spring, one O-ring and one quad ring, one Nylok impeller bolt, one locking washer and one impeller washer.
**Does not include volute gasket or bolts for the bronze seal housing.*

MECHANICAL SEAL	QUAD RING	GASKET	IMPELLER BOLT	LOCKING WASHER	IMPELLER WASHER	SHAFT SIZE
H87A28	60A110	60A11	60A12	6L391D	60A2	B-Shaft: 1-7/8”
H87A97	60A111	60A17	60A12	6L391D	60A20	C-Shaft: 2-1/8”
H87A534	60A112	60A84	60A87	6L391D	60A86	D-Shaft: 3”

BRONZE SEAL HOUSING

Includes: One bronze seal housing. **Existing bolts not included. Reuse existing bolts or order six new bolts.*

HOUSING PART#	BOLT PART#	SHAFT SIZE
87B2	6L59BC	B-Shaft: 1-7/8”
87B19	6L59BC	C-Shaft: 2-1/8”
87B73	6L59EC	D-Shaft: 3”

DOUBLE MECHANICAL SEAL REPLACEMENT PARTS KIT

DOUBLE MECHANICAL SEAL PARTS KIT (REMOTE MOUNTED)

The Double Mechanical Seal was also designed to have the longest seal life of any in the industry. Used on all Smith & Loveless® **PISTA®** products, it comes in three sizes, which is dependent upon the shaft size.

Includes: *Two carbons, two ceramics, one spring, two O-rings and two quad rings. *Does not include seal housing gaskets and quad rings, impeller bolt, locking washer, impeller washer, volute gasket or bolts for the bronze seal housing.*

PART#	SHAFT SIZE
H60A119	B-Shaft: 1-7/8”
H60A120	C-Shaft: 2-1/8”
H60A121	D-Shaft: 3”

DOUBLE MECHANICAL SEAL PARTS KIT PLUS

Have all the parts you need to rebuild your double mechanical seal? Don’t forget to order your volute gaskets.

Includes: two carbons, two ceramics, one spring, two O-rings, two quad rings, one seal housing quad ring, one seal housing gasket, one Nylok impeller bolt, one locking washer and one impeller washer. **Does not include volute gasket, bronze seal housing or bronze seal housing bolts.*

MECHANICAL SEAL	QUAD RING	GASKET	IMPELLER BOLT	LOCKING WASHER	IMPELLER WASHER	SHAFT SIZE
H60A119	60A110	60A11	60A12	6L391D	60A2	B-Shaft: 1-7/8”
H60A120	60A111	60A17	60A12	6L391D	60A20	C-Shaft: 2-1/8”
H60A121	60A112	60A84	60A87	6L391D	60A86	D-Shaft: 3”

DOUBLE MECHANICAL SEAL REPLACEMENT PARTS KIT

BRONZE SEAL HOUSING

Includes: One upper bronze seal housing and/or one lower bronze seal housing. **Does not include bolts. Reuse or order six new bolts for reassembly.*

	B-SHAFT	C-SHAFT	D-SHAFT
	1-7/8"	2-1/8"	3"
Upper Bronze Seal Housing	60C92	60C94	60C96
Lower Bronze Seal Housing	60C93	60C95	60C97
Single Bolt (Six Required)	6L59BE	6L59BE	6L59BE

COMPLETE BRONZE SEAL HOUSING ASSEMBLY

Keep a complete bronze seal housing on the shelf for quick changeouts that allow you to rebuild the assembly in the convenience of your maintenance or parts room.

Includes: Fully assembled, one upper bronze seal housing, one lower bronze seal housing, two carbons, two ceramics, one spring, two O-rings, two quad rings and three bolts. **Does not include volute gasket, impeller bolt, locking washer, impeller washer, seal housing, quad ring, O-ring and remaining three bolts. Reuse existing three bolts or order three additional bolts for 100% new bolts.*

	B-SHAFT	C-SHAFT	D-SHAFT
	1-7/8"	2-1/8"	3"
Complete Seal & Housing Assembly	60C98	60C99	60C100

Volute Gasket

VACUUM PRIMING PUMP VOLUTE GASKETS (TOP MOUNTED)

PART#	PUMP SIZE
60A26	4B2B, 4B2C, 4B2D, 4C2B, 4C2D, 4B2X and 4C2X
60A28	4B3B, 4C3B, 4D3B, 6B3B, 6C3B and 6D3B

VACUUM PRIMING PUMP VOLUTE GASKETS (TOP MOUNTED)

PART#	PUMP SIZE
60A88	8C4D and 8D4D
60A106B	4D4B

VOLUTE GASKETS

Each time the rotating assembly is taken apart, install a new volute gasket to increase the life span of your pump.

SEAL FILTER ASSEMBLY

The Pump Seal Filter is the first line of defense in protecting your pump's double mechanical seal. It filters out unwanted particles to help keep your mechanical seal lubricated. Our Smith & Loveless® customer service recommends keeping a backup filter or two on the shelf for quick changeouts. Doing this allows for specific parts to be reordered like the element, baffle and drain that wear over time so that you can rebuild the unit in the convenience of your shop.

All of the Smith & Loveless® Flooded Suction Pumps use the Pump Seal Filter. This includes its Underground Pumps and its Remote Mounted PISTA® Turbo Grit Pumps. No piping changes are required to convert your pump from one of the original seal filters to the most current PN:1L485 unit.

Don't let this critical part go unnoticed, because if it is gets too dirty, you'll be shortening the life of your pump's mechanical seal. Those take much longer to replace than a Quick Seal Filter swapout. Check out your Pump Seal Filter today.

PN: 1L485

COMPLETE FLOODED SUCTION PUMP SEAL FILTER ASSEMBLY

PART#	DESCRIPTION
1L485	Seal Filter Assembly

SEAL FILTER SPARE PARTS & REPAIR KIT

PN: 1L485

PN: 1L485 REPAIR KITS AND SPARE PARTS

PART#	DESCRIPTION
1L485A	Filter Element Kit: Includes Bowl O-Ring and Filter Element
1L485B	Bowl Kit: Includes Bowl, Bowl O-Ring and Drain Kit
1L485C	Drain Kit: Includes Twist Drain and Drain O-Ring
1L485D	Baffle Kit: Includes Baffle, Deflector and Bowl O-Ring

Smith & Loveless® carries a full line of repair kits for the PN: 1L485.

FLOAT CHECK VALVE

PN: 1L443H

COMPLETE FLOAT CHECK VALVE ASSEMBLY (TOP MOUNTED)

PART#	FLOAT CHECK VALVE
1L443H	Float Check Valve Assembly

The new PN: 1L443H Smith & Loveless® Float Check Valve diameter and length were completely changed in 1999 to the new design PN: 1L443H for better overall Float Check Valve assembly performance. The Float Check Valve is used on all Smith & Loveless® Vacuum Primed Pumps.

AIR COMPRESSOR

PN: 9L34
Air Compressor

9L34 AIR COMPRESSOR (TOP MOUNTED)

PART#	AIR COMPRESSOR
9L34	Air Compressor

9L34-6 AIR COMPRESSOR REPAIR KIT (TOP MOUNTED)

PART#	AIR COMPRESSOR REPAIR KIT
9L34-6	Repair Kit for 9L34 Air Compressor

VACUUM PUMP

PN: 8L32
Rugged Dual Piston
Vacuum Pump

8L32 DUAL PISTON VACUUM PUMP (TOP MOUNTED)

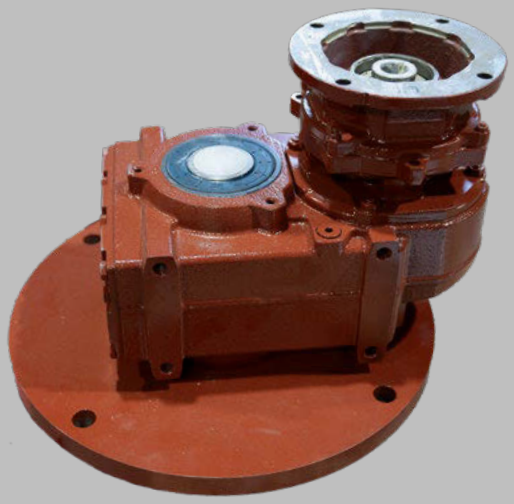
PART#	VACUUM PUMP
8L32	Rugged, Dual Piston model for 6" pump-station size

8L32 DUAL PISTON VACUUM PUMP REPAIR KIT (TOP MOUNTED)

PART#	VACUUM PUMP REPAIR KIT
8L32-1	Repair Kit for 8L32 Dual Piston model Vacuum Pump

PISTA® GEAR REDUCER

THE NEWEST MEMBER OF THE PISTA® FAMILY!



The latest product addition to the PISTA® set of products is the PISTA® Gear Reducer, a 24/7-functioning machine, which transmits mechanical power from an electric motor or other driver to a driven load. The S&L® conversion of power beings with a high-speed, low-torque input from the motor to a low speed, high-torque output in the gear drive.

We created the PISTA® Gear Reducer to rotate the PISTA® Drive Tube or for applications with viscous or abrasive liquid.

Inside the machine, you'll find one or more pairs of gears. In each pair, there will be a smaller driver gear and a larger driven gear. You can determine the reduction ratio of the pair by finding the ratio of the number of teeth on the driven gear to the number of teeth of the driver.

Want to learn more or get started on a quote?
Email us at **parts@smithandloveless.com**.

7L331 SERIES	7L445 SERIES	PART #	OUTPUT RATIO	FRAME SIZE	HORSE POWER
7L331A	7L445A	67B925A-SP-301	30.26.1	56	3/4
7L331B	7L445B	67B925C-SP-301	45.45.1	56	3/4
7L331C	7L445C	67B925G-SP-301	45.45.1	140	1-2
7L331E	7L445H	67B925E-SP-301	30.26.1	140	1-2
7L331H	7L445H	67B925E-SP-301	30.26.1	140	1-2

PINCH VALVE AND ADDITIONAL PARTS

PART #	DESCRIPTION
2L159A	Standard 4” Pinch Valve – Complete Valve
2L159C	Smart Wear 4” Pinch Valve – Complete Valve
2L159-1	Alarm Module for Smart Sleeve Pinch Valve (1 required per pinch valve)
2L159B	Standard 6” Pinch Valve – Complete Valve
2L159D	Smart Wear 6” Pinch Valve – Complete Valve
2L159-1	Alarm Module for Smart Sleeve Pinch Valve (1 required per pinch valve)

PISTA® PINCH VALVE

PN: 1L447

RELIEF VALVE FOR PISTA® PINCH VALVE

RELIEF VALVE

PART#	DESCRIPTION
1L447	Relief Valve for Pinch Valve

PISTA® PINCH VALVE JACKET

FOR COLD WEATHER TEMPS DOWN TO -30°F

PART#	DESCRIPTION
H67A381	PISTA® PINCH VALVE JACKET (For temperatures to -30°F)

PINCH VALVE SLEEVE PARTS AND SONIC START®

PART #	DESCRIPTION
2L159AA	Standard 4” Pinch Valve Sleeve Only
2L159CC	Smart Wear 4” Pinch Valve Sleeve Only
2L159-1	Alarm Module for Smart Sleeve Pinch Valve (1 required per pinch valve)
2L159AB	4” Pinch Valve Side Gasket
2L159AC	Side Bolts for Pinch Valve
2L159BB	Standard 6” Pinch Valve Sleeve Only
2L159DD	Smart Wear 6” Pinch Valve Sleeve Only
2L159-1	Alarm Module for Smart Sleeve Pinch Valve (1 required per pinch valve)
2L159BA	6” Pinch Valve Side Gasket
1L287A	Anchor Coupling
1L142BB	Pinch Valve Vacuum Line Tubing (3/8” Green Tubing) (Required 6’)

PISTA® PINCH VALVE SLEEVE

PN: 87B728B

EXPLOSION PROOF SONIC START® PROBE

PART#	DESCRIPTION
87B728B	Explosion Proof Sonic Start® Probe
4L628N	Sonic Start® Probe (Non-Explosion Proof) 120 VAC


SCHLOSS®

S&L SCHLOSS® MARK IX™
UP TO 100+ MGD

The **MARK IX**™ was designed for small and large wastewater treatment facilities. The distinctive S&L® **SCHLOSS**® **MARK IX**™ Coarse Bar Screen delivers remarkably reliable screening performance with minimal maintenance for flows up to 100+ MGD. These screens can be pivoted to incorporate in plants with no bypass channel.

On the small and medium plants (up to 15 MGD/657 LPS) the **MARK IX**™ features extremely dutiful service combined with low-maintenance requirements because of the unique **SCHLOSS**® single-chain design.

COARSE BAR SCREEN

Application Data

Flow Ranges:	1 - 100+ MGD (44 - 4380+ LPS) Dual-Chain Mark IX-A™ (Up to 15 MGD/657 lps)
Sizing:	Custom for application
Channel Widths:	Minimum 2' (610 mm) and larger
Angle:	Normally 75 degrees, 80 degrees, 84 degrees and 90 degrees available
Clear Openings:	1/4" and larger openings (6.4 mm)
Construction:	SST or CS and other alloys

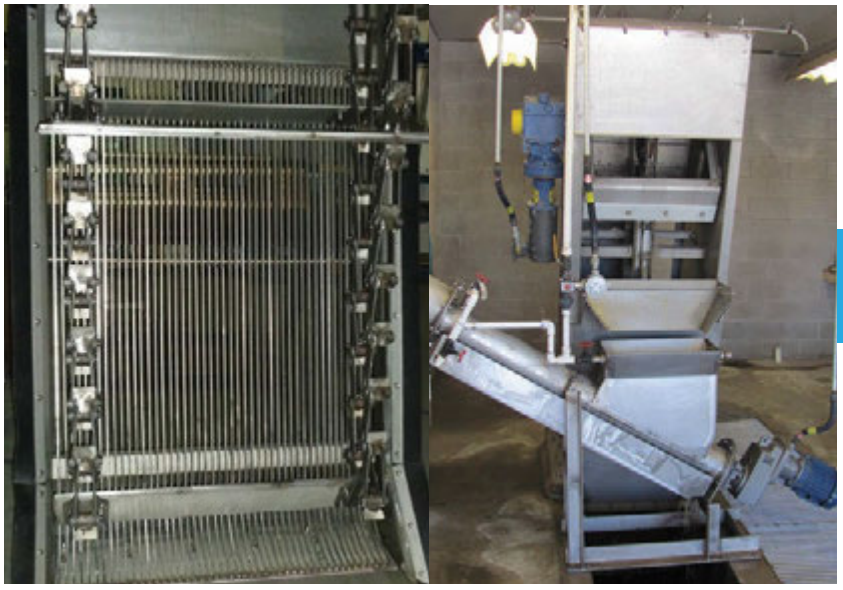
MARK-CI™ PIN RACK SCREEN

COARSE SCREEN UP TO 100+ MGD

Application Data

Flow Ranges:	**1-100+ MGD (44-4380+ LPS)**
Sizing:	**Three sizes/custom for application**
Channel Widths:	**Minimum 2' (610 mm) and larger**
Angle:	**80 degrees, 84 degrees or 90 degrees**
Clear Openings:	**1/4" and larger/6.35 mm**
Construction:	**SST or CS and other alloys**

Multiple rake arm selection, precision pin rack assembly design and customized system options make the S&L® **SCHLOSS**® **MARK-CI**™ Pin Rack Screen the cost-effective choice for efficient coarse screening for mid-size to large treatment plants and industrial applications with bulky material.



MARK-CT™ CATENARY BAR SCREEN

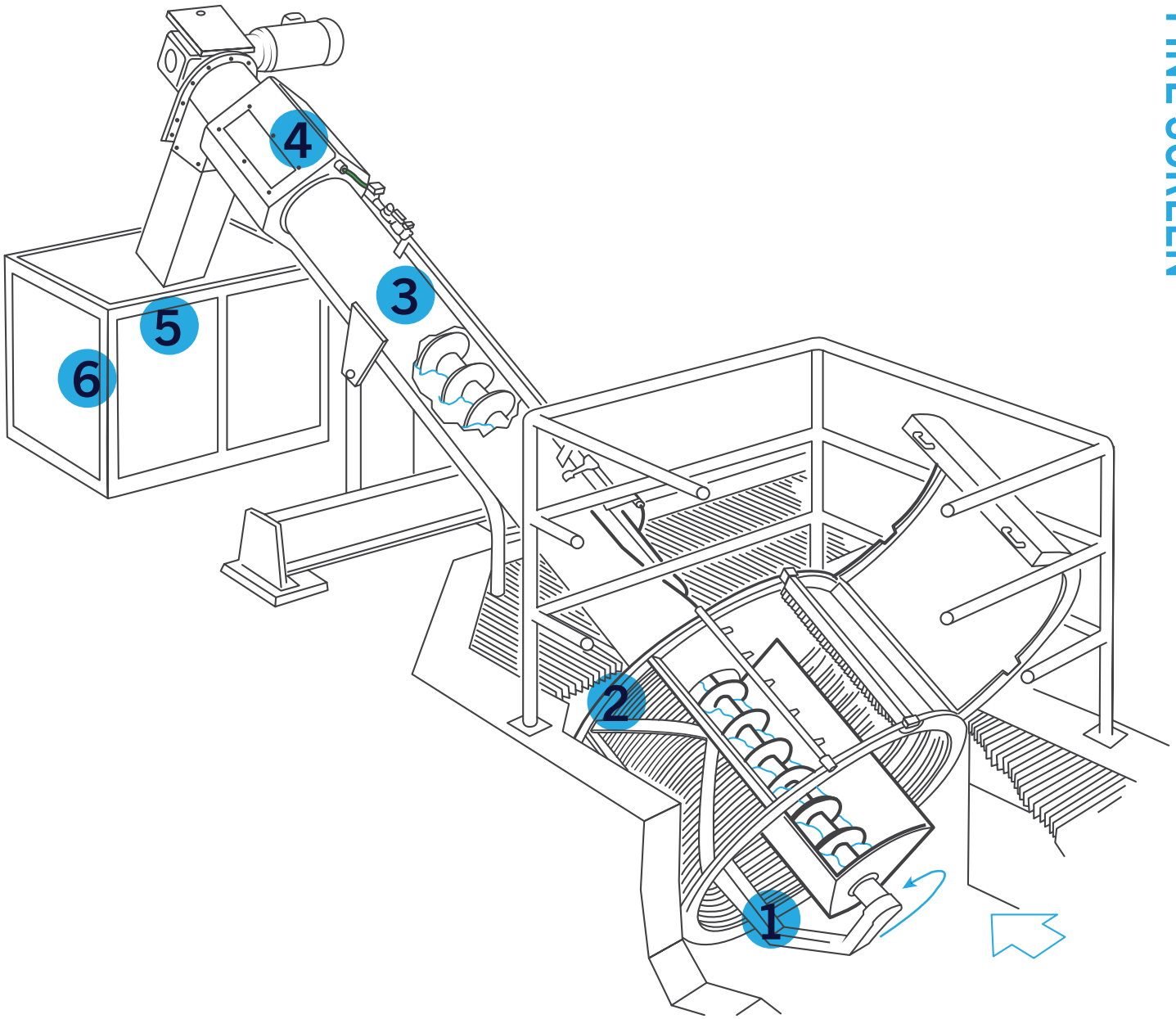
COARSE SCREEN UP TO 75 MGD

Catenary screen technology offers proven performance for small to large flow applications with large, bulky material. The S&L® **SCHLOSS**® **MARK-CT**™ Catenary Bar Screen features less wearing parts than other kinds of bar screens because there are no lower sprockets and bearings. Combined with other S&L® **SCHLOSS**® design features, the **MARK-CT**™ proves to be the industry's most durable.

S&L® SCHLOSS® MARK XV™

FINE SCREEN UP TO 13 MGD

Designed for smaller in-channel flows, the S&L® **SCHLOSS® Mark XV™** cost-effectively achieves superior fine screening. Its robust design combines an inclined, stationary screen basket with a conveying screw, featuring an outer spiral brush for cleaning. The screen basket incorporates a recommended perforated sheet or wedge wire screening, while the higher efficiency shafted screw design provides increased durability and service life when compared to imported, shaftless designs. Screenings are washed and dewatered uniquely in a trouble-free plug-type compaction zone.



1) Rotating Rake Arm

Moves fine solids built up in the openings of the screening basket to screw.

2) Screening Basket

Wedge-wire basket design with reliable, trouble-free brush cleaning.

3) Shafted Screw

Transports the removes fine solids for washing, dewatering and disposal.

4) Washing/Dewatering

Solids material wash and dewater to reduce odors and water content.

5) Compactor (Optional)

Solids can be compacted up to 50% to reduce related disposal costs.

6) Bagging (Optional)

Solids can be bagged to further reduce odor and simplify disposal.

7) Weather Protection (Optional, Not Pictured)

Weather protection is available for colder climates, including various heating and insulation options.

Smith & Loveless, Inc.
14040 Santa Fe Trail Drive
Lenexa, KS 66215

FOLLOW US ON SOCIAL MEDIA

SMITH & LOVELESS INC.

SCAN TO JOIN OUR COMMUNICATIONS

Smith & Loveless Inc.