



Engineered to Excel

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Schwing Bioset to Display Equipment at WEFTEC 2018 Exhibit

For Release on 9/13/18

(Somerset, WI)

Schwing Bioset, Inc. (SBI) is once again exhibiting at the 2018 WEFTEC Technical Expo in New Orleans on October 1-3. Please be sure to stop by our booth **(#2914)** while you're on the exhibit floor to see our technologies and learn about how we help water and wastewater treatment plants. This year we will be showcasing several pieces of equipment.

Schwing Bioset is your complete solids handling provider, offering the widest range of high-performance screw presses, one of which will be displayed on the WEFTEC floor. Our screw press offers dewatering for those needing a cost effective, durable, efficient dewatering to reduce their volume of biosolids.

We will also be displaying our Membrane Bioreactor (MBR) filtration systems for water and wastewater, which utilize hollow fiber membranes. The unique end-free cartridge helps eliminate fouling experienced by fibers restrained on both ends.

Other equipment on display will be a sliding frame, biosolids piston pump, and Bioset reactor. The Bioset system is configurable to produce either Class A or B Biosolids, while each unit in the system is completely customizable to fit each plant.

Featured in the new Technology Center will be our integrated phosphorus management process offered under license from NuReSys, Fluid Bed Dryers, Container Wagons, SBI Solutions, and our marketing and hauling services.

"WEFTEC is an exciting time for us. It gives us a chance to showcase our equipment, meet new industry contacts, and connect with prospective and current customers. We are continually enhancing our existing technologies and bringing in new product offerings, so WEFTEC is the perfect venue to display those technologies," stated Chuck Wanstrom, Director of New Business Development for Schwing Bioset.

The SBI team members attending the show include Executives, Divisional and Regional Sales Managers, Service personnel, and more. If you'd like to meet with one of our team members, please **email us** and we'll put you in touch with the appropriate person to assist with your biosolids management needs.

Be sure to follow the Schwing Bioset, Inc. social media sites to see what we're up to at the show. In the meantime, read about our MBR's, Nutrient Management, Dewatering Equipment, Piston Pumps, Bioset Process, and other products **here, and then stop by booth 2914 to learn more!** You can also visit the conference website to view the event details and the exhibition map: <http://www.weftec.org>, and the **Schwing Bioset listing** for the show.

We are excited to see you at WEFTEC 2018!

About Schwing Bioset, Inc.

For more than 30 years, Schwing Bioset, Inc. has been helping wastewater treatment plants, mines, and industrial users by engineering solids handling solutions. Schwing Bioset's custom-engineered solutions can be found in over a thousand facilities across North America and around the world.

Our products include, among others, sludge, industrial, and tunnel piston pumps, screw presses, nutrient removal and management, membrane bioreactors, sliding frame and push floor silos, fluid bed drying products, Bioset process for Class A Biosolids, container wagons, and screw conveyors. We also offer on-site demos, spare parts and equipment maintenance services, and training.



**** Schwing BioSet's Newest Product Offering ****

Membrane Bioreactor (MBR) Technology

Schwing BioSet is proud to announce our newest product, an end-free hollow fiber PVDF MBR offered under license from Ecomity. Ecomity has over 2,000 installations worldwide and offers a unique cartridge design that assembles into larger cassettes. Because of this flexibility the dimensions can be easily adjusted to enable easy retrofits into existing installations of other technologies. The end-free hollow fiber design boasts:

- ④ Higher operation flux
- ④ Higher fiber packing density
- ④ Compact footprint
- ④ Drawer style design for easy installation and removal
- ④ Efficient air scouring with bubble confinement
- ④ End-free design eliminates likelihood of fiber breakage
- ④ Shorter fiber length reduces internal losses and increases flux
- ④ NSF/ANSI 61, California Title 22, and LT2 certifications




Capabilities:

(Click the images below to link to web page)

PISTON PUMPS

MORE WASTEWATER PLANTS HAVE RELIED ON THE DURABILITY OF OUR PISTON PUMPS THAN ALL OTHER MANUFACTURERS COMBINED



[LEARN MORE](#)

SCREW PRESSES


OFFERING THE BEST DEWATERING PERFORMANCE IN THE MOST COMPACT FOOTPRINT WITH THE WIDEST RANGE OF MODEL SIZES AVAILABLE



[LEARN MORE](#)

STRUVITE RECOVERY

MOST VERSITILE PHOSPHORUS RECOVERY TECHNOLOGY AVAILABLE THAT CAN BE APPLIED ON DIGESTATE, CENTRATE, OR A COMBINATION OF BOTH



[LEARN MORE](#)

MEMBRANE BIO REACTOR (MBR)

CUSTOMIZABLE MEMBRANE TECHNOLOGY SYSTEMS FOR FILTERING WATER AT TREATMENT PLANTS



[LEARN MORE](#)

BIOSET PROCESS

THE MOST SIMPLE, RELIABLE, AND ECONOMIC CLASS A TECHNOLOGY AVAILABLE. PERIOD.



[LEARN MORE](#)

FLUID BED DRYING

VERSATILITY IN DESIGN AND SAFETY UNMATCHED BY OTHER DRYING TECHNOLOGIES TO PRODUCE CLASS A GRANULES



[LEARN MORE](#)

SLIDING FRAMES & SILOS

ELEGANT DESIGN AND SIMPLE OPERATION RESULT IN THE MOST ECONOMICAL AND WORRY-FREE BIOSOLIDS STORAGE TECHNOLOGY



[LEARN MORE](#)

LIVE BOTTOM HOPPERS

MULTI-SCREW LIVE BOTTOM HOPPER SYSTEMS COMPLETE WITH SINGLE OR VARIABLE SPEED DRIVES



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CONTAINER WAGONS

TAKE YOUR DUMPSTER HANDLING TO THE NEXT LEVEL WITH AN AUTOMATED HANDLING SYSTEM TO MINIMIZE LABOR AND INCREASE PLANT SAFETY



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SBI SOLUTIONS

PISTON PUMP, BIOSET PROCESS, & SCREW PRESS DEWATERING. A ONE-STOP SOLUTION FOR BIOSOLIDS HANDLING



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SERVICE

TRAINED TECHNICIANS AND FACTORY SUPPORT TO KEEP YOUR SYSTEM OPERATIONAL



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SPARE PARTS

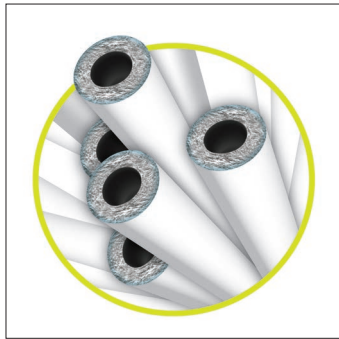
MILLIONS OF DOLLARS OF INVENTORY ENSURES QUICK DELIVERY OF THE PART YOU NEED



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Membrane Bioreactor

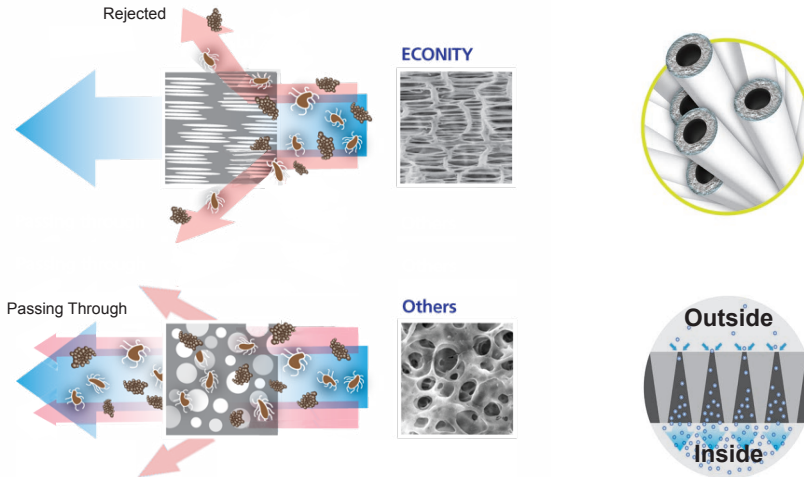
Submerged Hollow Fiber Membrane



Hollow Fiber Membrane

CF Series (E-Type)

For wastewater, water, and industrial applications, the Econity CF Series MBR is the world's first PVDF hollow fiber membrane using the TIPS + Stretching method of manufacturing. With the highest tensile strength and pure water flux, the technology is California Title 22 approved. This unique manufacturing process creates an asymmetric pore structure that allows high flux rates and excellent removal efficiency.



E-Type Specifications	
Materials	PVDF (Polyvinylidene Fluoride)
Type	Hollow Fiber
Pore Structure	Asymmetric
Nominal Pore Size	0.1 micron
O.D. / I.D.	1.2 mm / 0.7 mm
Operating Flux	~ 15 gal/ft ² *d (~25 LMH)
Chlorine Resistance	1,500,000 ppm-hrs

End-Free Design

Econity membranes have been in use for over 20 years in more than 2,000 installations around the world at facilities up to 50 mgd in daily flows. The unique end-free cartridge design provides an economical alternative to traditional longer fibers that are restrained on both ends and prone to fouling and more difficult maintenance procedures.

E-Type Hollow Fiber Membrane Properties

- ① Membrane fibers “potted” only at the bottom prevents fouling at top of unit increasing run times and reduces manual cleaning efforts.
- ① End-free fibers effectively eliminate possibility of fiber breakage.
- ① Shorter overall membrane fiber length reduces the internal pressure losses within the fibers which increases flux rates.
- ① Efficient air scouring with bubble confinement
- ① Highest packing density allows greatest flux rate in equivalent footprints
- ① Modular design allows for easy retrofit into existing installations



End-Free Fibers Prevent Fouling



Cut-Away of End-Free Cartridge

Customized Cassette Assembly

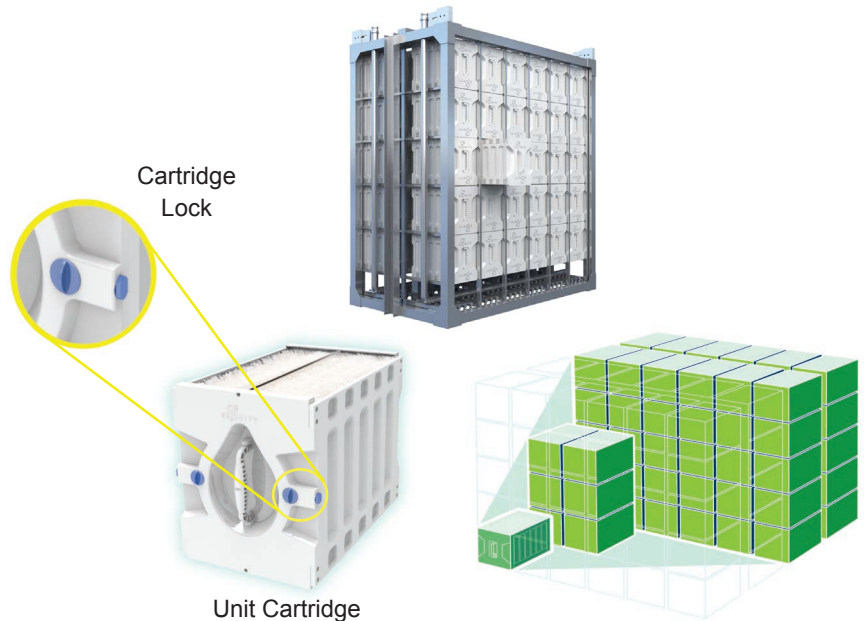
Cartridges are assembled into larger cassettes to suit the capacity and footprint of each installation. This modularity enables the MBR cartridges to be configured to retrofit existing tanks while simultaneously increasing performance.

Higher Operation Flux

- ④ Higher fiber packing density
- ④ Suitable for large and small plants
- ④ Compact footprint

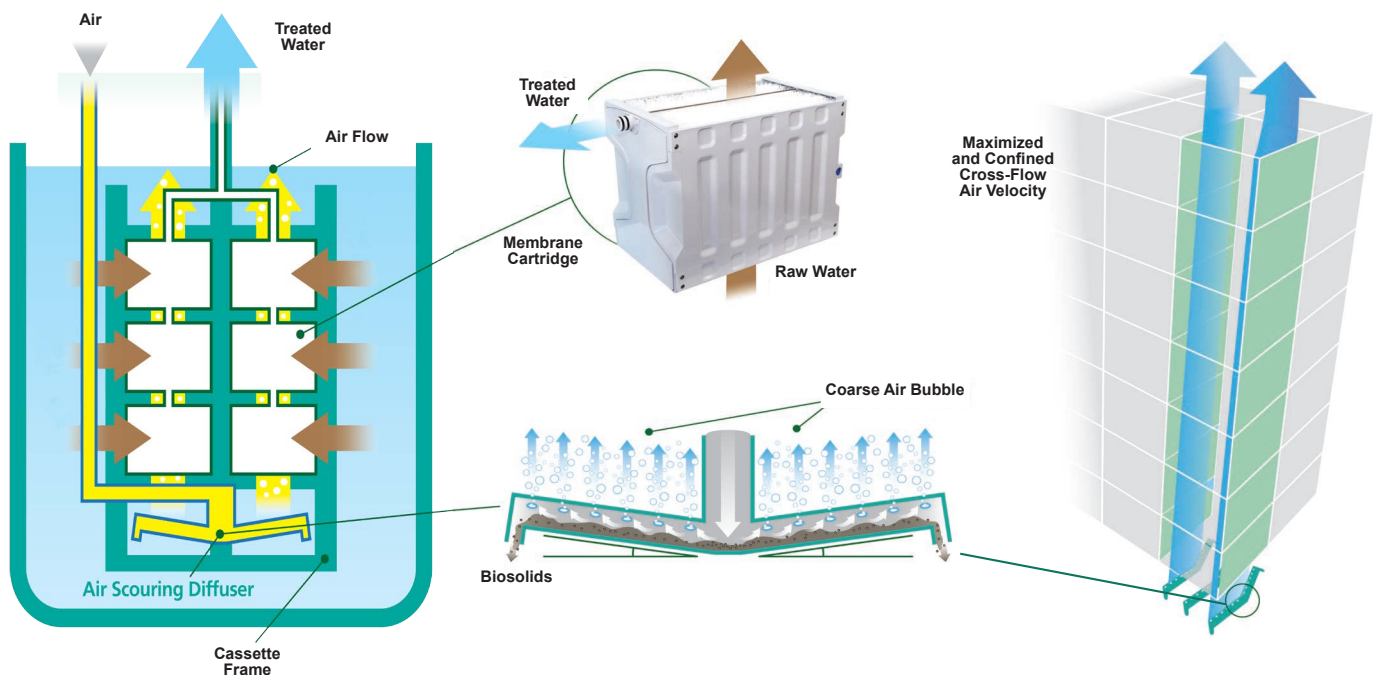
Convenient Design

- ④ Drawer-type cartridge for ease of installation and removal
- ④ Simple lock and release connections
- ④ Easily retrofit existing installations



Process Operation

Air scour is confined within membrane cartridges, allowing maximum efficiency and minimizing power usage. The highest packing density minimizes overall footprint and air scour requirements as compared to competing brands.

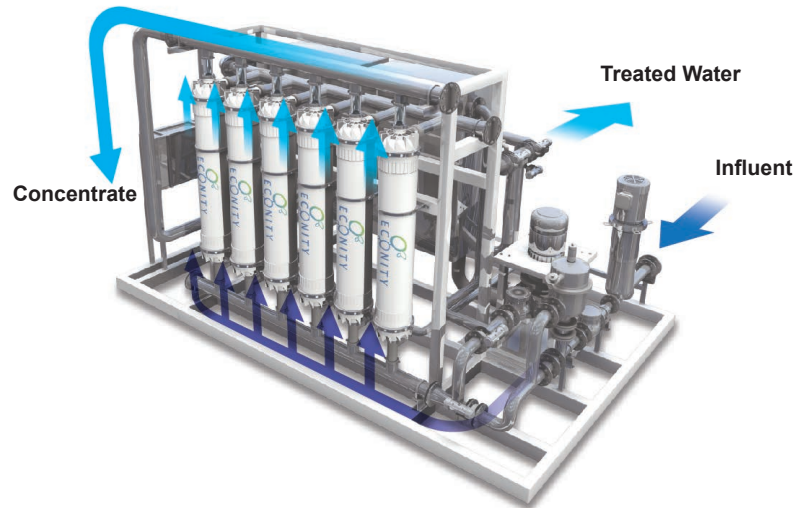


Pressurized Membrane Modules

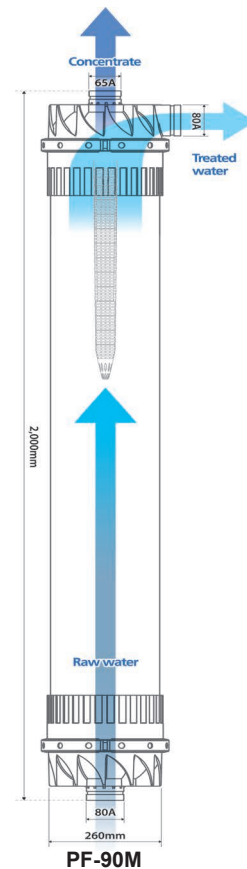
PF Series

The world's first hollow fiber membranes fabricated from PVDF utilizing both the TIPS and stretching method of fabrication yielding world class tensile strength and flux rates. The PF series pressurized membranes feature:

- 🌿 NSF/ANSI 61, CA Title 22, and Long Term 2 (LT2) Certifications
- 🌿 Large capacity modules
- 🌿 Reduced footprint requirements
- 🌿 PVDF material is exceptionally resistant to chemicals
- 🌿 Reduced membrane fouling
- 🌿 Suitable for drinking water, water reuse, and desalination pretreatment



Category		Econity PF-90M	Econity PF-70M
Membrane Fiber	Material	PVDF (Polyvinylidene Fluoride)	
	Type	Hollow-Fiber	
	Pore Structure	Asymmetric	
	Pore Size	0.1 micron	
	OD/ID	1.2 / 0.7 mm	
	Tensile Strength Connector OD	> 1,300 f/fil	
Module	Material	ABS	ABS
	Potting	PU (Polyurethane)	PU (Polyurethane)
	Length	2,000 mm (80")	1,670 mm (65")
	Diameter	260 mm (10")	260 mm (10")
	Connector OD	3" / 3" / 2.5"	3" / 3" / 2.5"
	Surface Area	90 m ² (969 ft ²)	70 m ² (753 ft ²)
	Weight (Dry/Delivery/Wet)	93 lb / 154 lb / 242 lb	77 lb / 132 lb / 198 lb
Operating Requirements	Inlet Pressure	2.5 bar maximum	
	TMP	1.5 bar maximum	
	Water Temperature	40°C (104°F) maximum	
	Optimum pH	Optimum pH 2~10 / During Cleaning 1~11	
	Filtration Type	Outside to Inside	



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Florida:
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Screw Press

Dewatering Systems



Fully Automated Dewatering System

Your Partner in Solids Processing

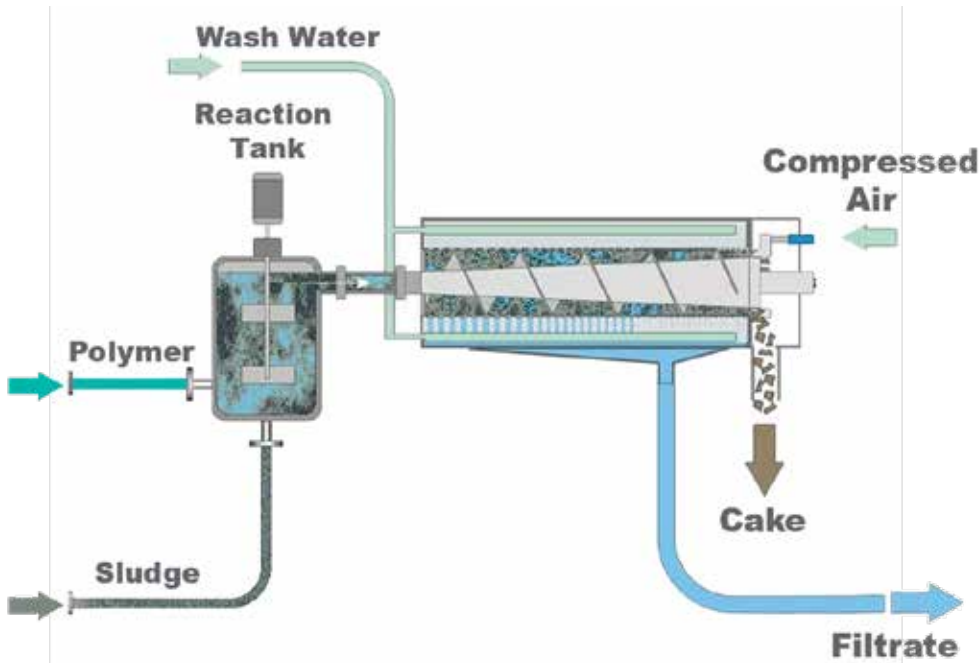
Schwing Bioset's expertise with biosolids dewatering, storage, conveyance, and nutrient removal make us the ideal partner to provide your complete solids handling system. Rely on our 30+ years of experience to get your project done right.

Screw Press Dewatering

Our fully automated screw press dewatering systems are for use in water, wastewater, mining, and industrial applications. With mobile pilot units and the widest range of unit models available, our screw press is the ideal dewatering solution for your application.



The Features You Want



Features

- Low speeds and automated control.
- Long lifespan due to slow speeds and robust construction.
- All wetted parts are Stainless Steel.
- Split screen casing to simplify screw removal and minimize footprint requirements.
- Sealing lip and screen can be replaced with screw in place.
- Dewatering operations do not need to be suspended during cleaning. Cleaning cycle is typically once per day for 3 – 5 minutes.
- Unattended operation requires no additional personnel or specialized training.

Engineering That Matters

Features

- Dewatering results similar to high speed centrifuges.
- Fifteen models available to handle the widest range of dewatering needs.
- Slow operating speed ensures no vibration loads.
- Enclosed system provides odor containment.
- Low power requirements.
- Low / intermittent wash-water requirements.
- Machined screens provide tighter tolerance allowing superior performance over other commercially available units.
- High-performance screen design with largest open area ensuring maximum throughput in smallest footprint.



Performance You Can Count On

Screw Press									Reaction Tank		Washwater	
Model	Capacity Aerobic 2.5% DS (dry lb/hr)	Capacity Anaerobic 3.5% DS (dry lb/hr)	Length (in)	Width (in)	Height (in)	Weight (lb)	Power (hp)	Model	Volume (gal)	Power (hp)	Washwater (gal/cycle)	Washwater Pump (gpm @ 60-90 psi)
FSP 302	130	185	107	32	42	1,720	0.75	RT 30	53	0.50	10	5
FSP 403	280	355	151	34	48	3,200	1.5	RT 40	106	0.50	30	15
FSP 502	415	450	164	39	56	4,850	1.5	RT 50	153	0.75	30	15
FSP 503	435	525	196	39	56	5,200	3.0				40	20
FSP 602	610	860	189	43	60	6,330	3.0	RT 70	225	1.5	40	20
FSP 603	700	990	218	43	60	6,830	3.0				60	20
FSP 703	970	1300	255	57	72	11,640	5.0				70	30
FSP 803	1310	1790	279	60	78	14,990	7.5	RT 80	344	2.0	85	40
FSP 903	1630	2220	319	64	82	18,740	7.5	RT 100	503	2.0	105	45
FSP 1002	1890	2570	267	68	86	18,960	7.5				105	45
FSP 1003	1970	2670	327	68	86	22,270	10				130	55
FSP 1102	2430	3240	303	74	90	22,930	10	RT 110	661	3.0	130	55
FSP 1103	2870	3820	362	74	90	27,560	10				155	65
FSP 1202	2760	3720	327	81	106	28,660	13	RT 120	925	5.0	155	65
FSP 1203	3090	4170	398	81	106	34,830	13				170	75

Schwing Bioset Solutions for Water and Wastewater



Piston Pumps for Solids

High-pressure positive displacement piston pumps with lowest life cycle costs to efficiently transport biosolids through pipelines.

Class A Bioset Process

Advanced alkaline stabilization technology that is totally enclosed and PFRP approved to operate at 55C.

Screw Press Dewatering

High-performance dewatering with low energy and maintenance requirements and the widest range of model sizes available.

Container Wagons

Evenly load containers with ground accessible service points, minimal maintenance requirements, and full automation.

Membrane Bioreactors (MBRs)

Microfiltration systems with end-free hollow fiber membranes.

Sliding Frames & Storage Silos

Truck receiving, truck loading, or intermediate storage of dewatered solids with lowest cost of ownership.

Class A Fluid Bed Drying

Thermal drying technology operating under inert conditions with high thermal efficiencies and low maintenance requirements.

Phosphorus Removal / Struvite Recovery

Remove nutrients from wastewater, improve dewatering, reduce scaling, and create a struvite end product.

Residuals Management

Offered through a partnership with our resource recovery company to transport, market, and beneficially reuse residuals.

Contact Information

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Nutrient Recovery

Struvite Harvesting



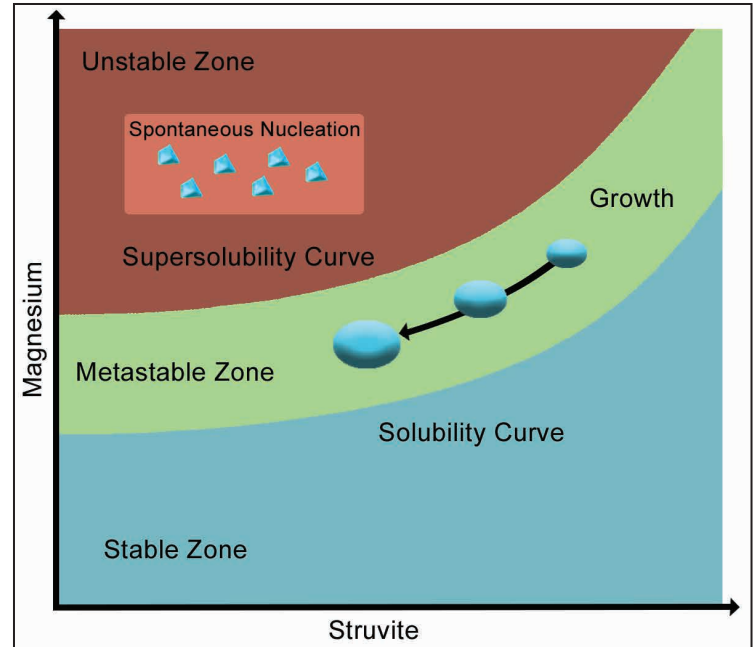
Struvite Recovery

Schwing Bioset's harvesting technology recovers orthophosphate ($\text{PO}_4\text{-P}$) and ammonia nitrogen ($\text{NH}_4\text{-N}$) from your biosolids stream to form pure struvite ($\text{NH}_4\text{MgPO}_4 \cdot 6\text{H}_2\text{O}$) crystals. The crystals are uniform, typically 1-3 mm in size, and are easily settled in the Crystallizer to be harvested.

For every one pound of orthophosphate that is removed, an additional half pound of ammonia nitrogen is also removed. Minimum removal of 80% of the orthophosphate present in the solution can be converted to pure struvite, enabling maximum efficiency and recovery within your plant.

This is true up-cycling of your waste stream. Valuable struvite is recovered for re-use as a fertilizer, while the phosphorus and nitrogen loads that are returned to the head of the plant are greatly reduced, allowing more efficient operations and enabling plants to meet increasingly strict daily effluent limits. Added benefits include the prevention of struvite scaling and accumulation within the plant and improved dewatering performance in applications where biological phosphorus removal is used.

Crystallization Chart



Performance You Can Count On

Benefits of Struvite Recovery

- Avoid scaling and clogging of pipes, pumps, dewatering and other equipment
- Reduce accumulations in tanks that cause shut downs for removal
- Improve dewaterability of Biosolids by re-balancing mono and divalent cation ratios
- Create a valuable product from your waste stream
- Offset dwindling worldwide phosphate reserves
- Help prevent algal blooms in sensitive waterways
- Market the harvested product under trade name Bio-Stru®
- Harvested struvite can be marketed independently by the municipality or through Schwing Bioset's marketing channels

Features of Schwing Bioset Technology

- Process can be applied on either digestate, centrate, or a combination of both
- pH adjustment and struvite precipitation are accomplished in separate vessels for stable and precise process control, which eliminates the need for addition of caustics
- Offers continuous operation in a small footprint
- Fully-automated process controls
- Low operating and maintenance expenses
- Accommodates variable dewatering schedules as all configurations operate continuously or intermittently in batch mode

Nutrient Management by Schwing BioSet

If left untreated, Magnesium Ammonium Phosphate (MAP), better known as struvite, can build up inside pipes, pumps, valves, tanks, and other equipment, reducing a wastewater plant's capacity and resulting in expensive maintenance issues. Schwing BioSet, Inc., with technology under license from NuReSys, can help your plant run more efficiently, preventing unwanted struvite formation by recovering phosphate and nitrogen from wastewater. This "up-cycling" of your waste stream is the model for wastewater plants of the future. It creates a crystalline fertilizer product that can be harvested from the process and marketed, and at the same time removing those loads from the streams returning to the head of the plant.

Proper struvite control and recovery begin with managing the pH of the liquor streams to influence the reaction of magnesium with the phosphorus in the solution. This is accomplished in our Air Stripper. Once ideal pH conditions are created, the Magnesium (Mg) will precipitate the soluble orthophosphate ions in the form of struvite. Adding additional Mg in the form of Magnesium Chloride ($MgCl_2$) to the Crystallizer allows for the continual precipitation of struvite from the waste stream, which in turn consumes orthophosphate and ammonia nitrogen, and allows the micro-crystals to grow into larger, harvestable prills.

Three primary configurations of the technology are available, each designed and configured to solve specific issues encountered in wastewater treatment plants.

Prevent struvite deposits while creating a marketable fertilizer product

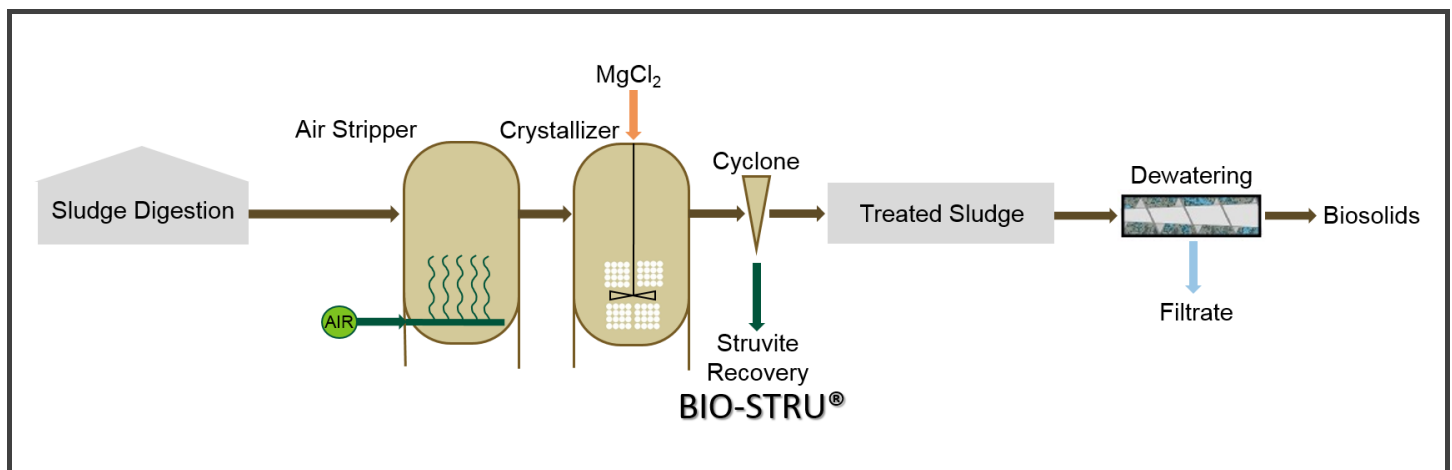


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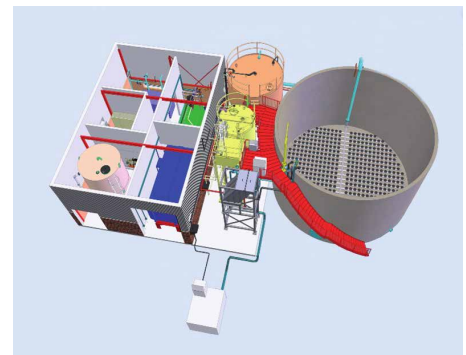
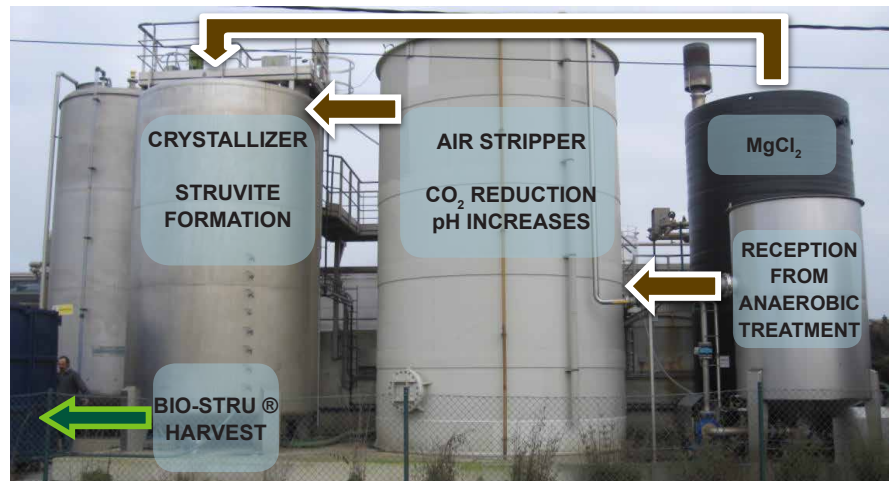
Digestate Solution

Both the Air Stripper and Crystallizer are applied on the digestate stream recovering struvite before it can cause fouling in downstream equipment. An additional benefit is an improvement in dewatering performance by a slight rebalancing of the ratio of the monovalent and divalent cations present in the biosolids. While theoretical results may be higher, typical "real world" results range from 1-3% improvement in the dried solids (DS) content of the biosolids, plus an additional 1% of DS gained by unrecovered struvite collecting in the biosolids.



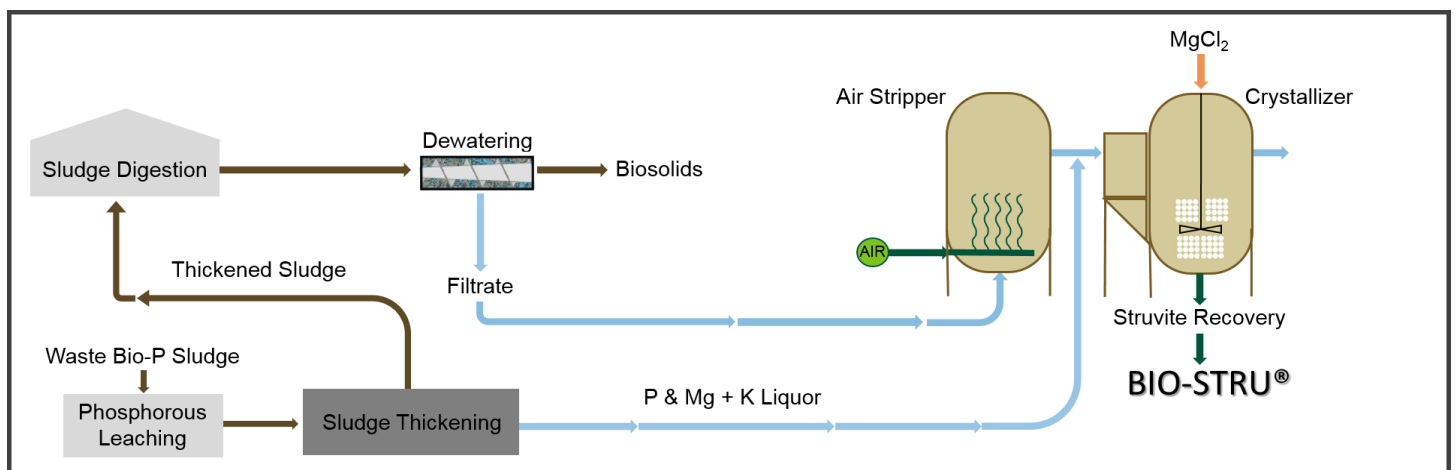
General Process Overview

1. Digestate or Centrate is pumped to the Air Stripper.
2. In the Air Stripper, CO_2 is removed, which raises the pH to the desired process condition.
3. Overflow from the Air Stripper proceeds to the Crystallizer.
4. MgCl_2 is added in accordance with $\text{PO}_4\text{-P}$ concentration and solids content of the treated wastewater stream.
5. In the Crystallizer, a Continuously Stirred Tank Reactor (CSTR), the Mg reacts with the soluble orthophosphate ions and nitrogen, allowing the struvite crystals to form and grow.
6. Harvested struvite prills are removed from the bottom of the Crystallizer.



Centrate Solution

Both the Air Stripper and Crystallizer are located after dewatering and process the centrate/filtrate from the dewatering device. While this solution has the benefits of minimizing equipment sizes, minimizing chemical dosages, and increasing prill harvesting efficiency, by being located after dewatering it cannot help with struvite formation in upstream pipes and equipment.



Decades of Experience

The Schwing Bioset *Advantage*

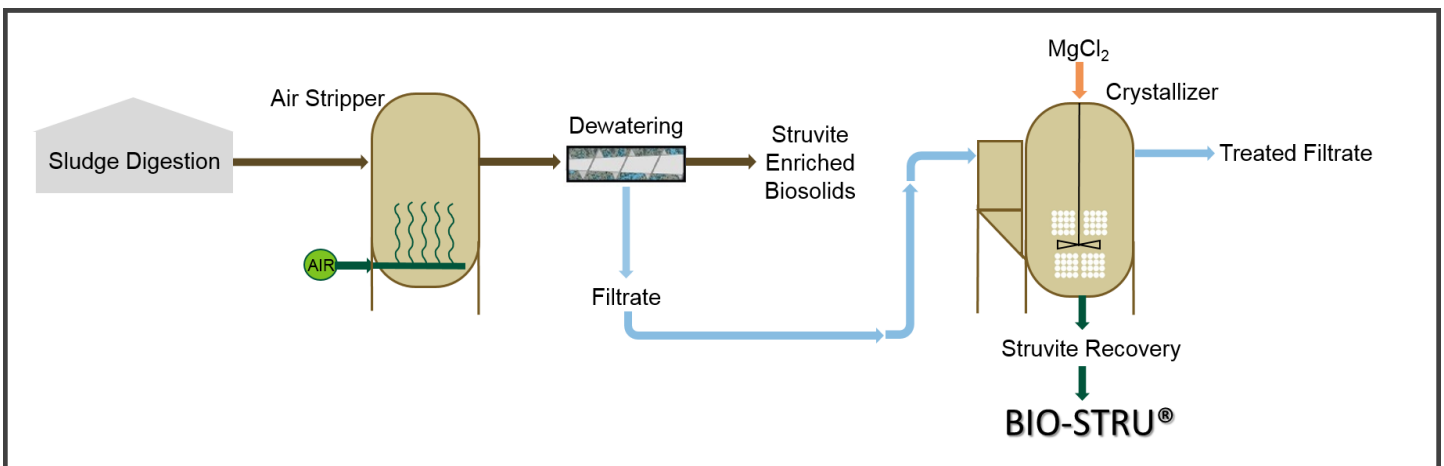
For over 30 years the Schwing name has been synonymous with quality, reliability, performance, and after-market support. Let our engineers work with your team to solve your specific operation issues to reduce maintenance and improve the overall performance of your plant.

We look forward to welcoming your utility to our long list of satisfied customers. Call one of our representatives today and learn more about the Schwing Bioset *Advantage*.



Hybrid Solution

The Hybrid solution optimizes struvite management within a wastewater plant. By locating the Air Stripper in the digestate line, the pH can be manipulated to form micro-crystals of struvite with the Magnesium that is naturally occurring in the stream. This controlled precipitation prevents accumulation in areas that will cause downtime and maintenance costs. The Crystallizer is located after dewatering on the centrate/filtrate stream such that smaller equipment, lower chemical dosages, and a more efficient prill formation and harvesting process can be implemented.



A Name You Can Trust

Piston Pumps



Schwing Bioset, Inc. is the recognized leader in sludge pump technology. SBI units pump dewatered biosolids from Presses and Centrifuges with dry solids content up to 55%. These versatile pumps were born in the concrete industry, but have been used successfully in wastewater plants since the mid 1980's.

Fluid Bed Dryer



Schwing Bioset's fluid bed dryer offers a thermally efficient means of producing dust-free Class A biosolids. The automated system allows for unattended operation, and produces a very simple product to store, transport, and apply.

Operating & Marketing Services



Schwing Bioset's partnership with Biosolids Distribution Services Inc. creates the unique ability to offer complete handling solutions with engineering, equipment, and distribution of Class A biosolids, responsibly offered by a single provider.

Sliding Frame



Sliding Frame systems, whether used as truck receiving, truck loading, or as intermediate storage, offer a flexible means of storing dewatered solids while eliminating bridging. The flexible design allows for numerous process configurations.

Screw Press Dewatering



Schwing Bioset's Screw Press provides excellent dewatering capabilities with a system that is virtually maintenance free, and can be run unattended.

Bioset Process



Schwing Bioset offers the Bioset lime stabilization process, which is approved to EPA's 503 regulations. The Bioset process provides municipalities a low cost Class A system that is affordable to operate and easy to maintain.

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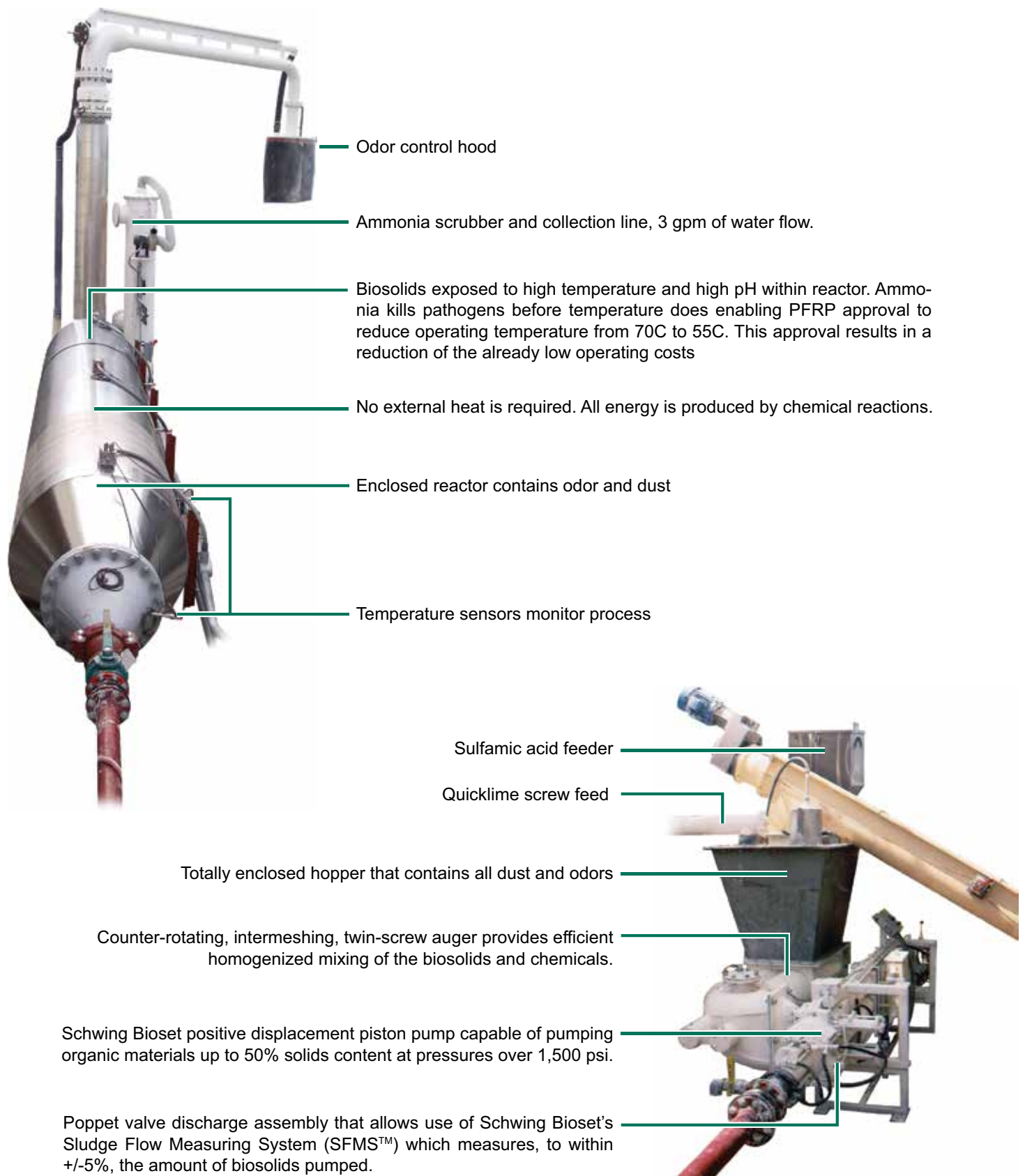
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Bioset Process

Alkaline Stabilization/Pasteurization - Class 'A'



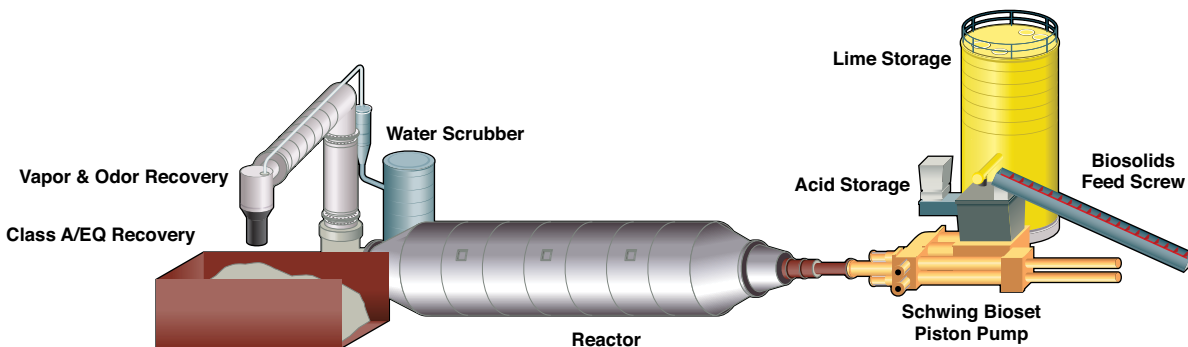
Features



Benefits

The Bioset process achieves Class 'A' biosolids via the time vs. temperature equation and pH adjustment per the EPA 503 regulations. Additionally, the USEPA has granted PFRP approval such that the Bioset process can also operate at 55C for 40 minutes. Operating under the PFRP approved conditions reduces operating expenses by 25-30% offering end-users a significant savings on the already low operating costs. Temperature is achieved through the addition of Quicklime and Sulfamic acid and the high pH is achieved through the addition of the Quicklime. Biosolids and chemicals are homogeneously mixed in a Schwing Bioset twin screw feeder and pumped with a Schwing Bioset piston pump through an insulated reactor.

As the Bioset process is totally enclosed within the reactor the process operates odor free. The reactor discharge provides the only location for gases to escape and they are easily collected and scrubbed utilizing a small water scrubber. The resulting final product has an odor that is similar to wet-concrete.



Easy operation and reliable results

From start-up to shut-down the Bioset process remains the easiest to operate and most reliable Class 'A' system available. Even on shut-down, biosolids that remain in the reactor are treated to Class 'A' levels and discharged as such on the next start-up.

Cleanliness

The Bioset process is a clean system to operate as it is totally enclosed from start to finish. Being totally enclosed prevents dust and odors from escaping at the inlet, prevents biosolids from spilling during the process, and allows point source odor capture at the discharge.

No supplemental heat

All of the heat to operate the Bioset process is achieved via chemical addition. No expensive and maintenance intensive supplemental heat sources are required.



Odor control

As the Bioset process is contained within the reactor the process operates odor free. The reactor discharge is where gases are emitted and they are easily captured at this single point with a small water scrubber. The final Class 'A' material has an odor, due to the high lime content, similar to wet concrete.

Operating cost

With ever-rising energy costs the Bioset process stands out as the most economical method of producing Class 'A' biosolids as it is not reliant on auxiliary electrical, steam or thermal oil based heating systems.

Reduced operating costs through PFRP approval

PFRP approval to reduce the operating temperature is possible as the ammonia that is generated through lime addition is entrained with the biosolids inside the reactor and kills the pathogens. The EPA has recognized this phenomena and has granted site specific approval to reduce operating temperatures from 158F (70C) to 131F (55C).



A Name You Can Trust

Piston Pumps



Schwing Bioset, Inc. is the recognized leader in sludge pump technology. SBI units pump dewatered biosolids from Presses and Centrifuges with dry solids content up to 55%. These versatile pumps were born in the concrete industry, but have been used successfully in wastewater plants since the mid 1980's.

Fluid Bed Dryer



Schwing Bioset's fluid bed dryer offers a thermally efficient means of producing dust-free Class A biosolids. The automated system allows for unattended operation, and produces a very simple product to store, transport, and apply.

Operating & Marketing Services



Schwing Bioset's partnership with Biosolids Distribution Services Inc. creates the unique ability to offer complete handling solutions with engineering, equipment, and distribution of Class A biosolids, responsibly offered by a single provider.

Sliding Frame



Sliding frame systems, whether used as truck receiving, truck loading, or as intermediate storage, offer a flexible means of storing dewatered solids while eliminating bridging. The flexible design allows for various process requirements.

Container Wagon



Due to plant layout restrictions, many facilities face the challenge of transporting solids from one loading / unloading point into and out of the process stream. The SBI Container Wagon system provides a variety of solutions.

Screw Press



SBI's Screw Press provides excellent dewatering capabilities with a system that is virtually maintenance free, and can be run unattended.

Contact Information

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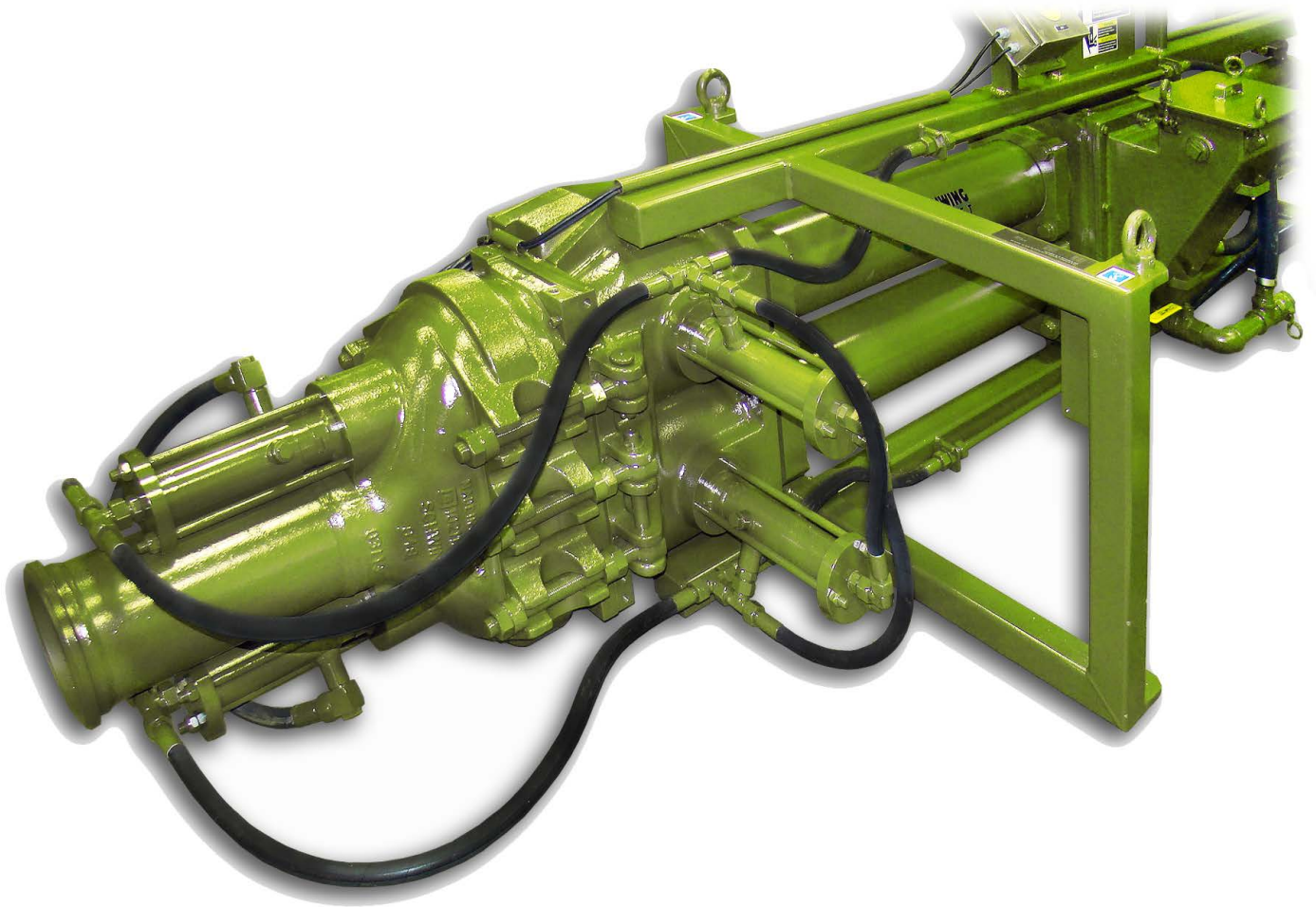


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Piston Pumps

General & Technical Overview



A Systems Approach to Responsible Biosolids Handling

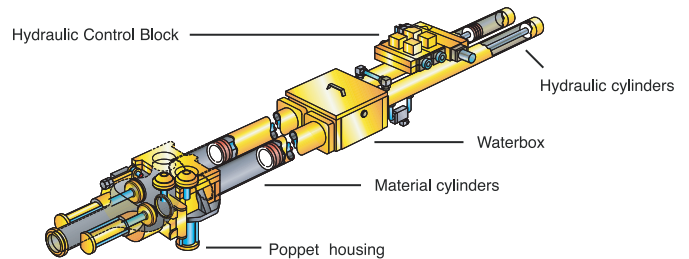


For more than three decades Schwing has addressed all aspects of residual management by pioneering the concept of moving materials through a pipeline. This technology was originally developed and successfully applied to concrete pumping using a twin cylinder, all-hydraulic piston pump. This same basic design has proven very effective conveying a myriad of materials through a pipeline including biosolids in municipal applications worldwide.

Today Schwing Bioset is the recognized leader in biosolids pump technology.

A broad range of Schwing Bioset sludge pump systems with pumping rates exceeding 1000 gpm and pumping pressures over

3,500 psi on some models suggest unlimited possibilities for conveyance of materials previously considered unpumpable. Schwing Bioset pumps, feed systems, power units, pipelines, drying, alkaline stabilization, sliding frame discharge systems, valves, control systems and accessories provide single source responsibility and versatility to tailor a system to nearly every application. Our goal is to ensure your confidence when dealing with the world-wide leaders in sludge pump technology - Schwing Bioset.



Pump Model	EKSP		KSP 5						KSP 10						KSP 12(L)		
Pump version	EKSP 10	EKSP 17	KSP 5 -KSP 5V			KSP 5R -KSP 5RV			KSP 10-KSP 10V			KSP 10R-KSP 10RV			KSP 12-KSP 12V		
Pressure version	K	K	S	K	HD	S	K	HD	S	K	HD	S	K	HD	S	K	HD
Delivery capacity output (GPM) max.**	13	26	35	35	35	35	35	35	53	53	53	53	53	53	88	88	88
min.*	2.6	2.6	6.6	4.4	1.8	6.6*	4.4*	1.8*	11.0	6.6	3.5	11.0*	6.6*	3.5*	17.6	8.8	6.6
Pumping pressure (PSI) max.	1305	1305	1160	1450	2175	1015	1015	1015	870	1305	2175	870	1015	1015	580	870	1740
Length (inches)	106.5	145.9	105.5	105.5	112.6	85.4	85.4	92.5	105.5	105.5	112.6	85.4	85.4	92.5	105.5	105.5	112.6
Width (inches)	23.6	23.6	26.8	26.8	26.8	32.7	32.7	32.7	26.8	26.8	26.8	32.7	32.7	32.7	26.8	26.8	26.8
Weight approx. (lbs.)	1124	1235	1653	1653	1918	1785	1785	2050	1720	1720	1984	1852	1852	2138	1864	1864	2128
Pumping cylinder capacity (gallons)	2.3	4.6	1.4	1.4	1.4	1.4	1.4	1.4	2.3	2.3	2.3	2.3	2.3	2.3	3.4	3.4	3.4
Pumping cylinder dia. x stroke (inches)	5.9 x 19.7	5.9 x 39.4	4.5 x 19.7	4.5 x 19.7	4.5 x 19.7	4.5 x 19.7	4.5 x 19.7	4.5 x 19.7	5.9 x 19.7	5.9 x 19.7	5.9 x 19.7	5.9 x 19.7	5.9 x 19.7	5.9 x 19.7	7.1 x 19.7	7.1 x 19.7	7.1 x 19.7
Hydraulic cylinder diameter (inches)	3.5	3.5	3.5	3.5	4.9	3.5	3.5	4.9	3.5	3.5	4.9	3.5	3.5	4.9	3.5	3.5	4.9
Cylinder ratio	2.78	2.78	2.36	1.63	.85	2.36	1.63	.85	4.01	2.78	1.44	4.01	2.78	1.44	5.79	4.00	2.07
Suction poppet diameter * (inches)	5	5	5	5	5	-	-	-	5	5	5	-	-	-	5/8	5/8	5/8
Pressure poppet diameter * (inches)	4	4	4	4	4	-	-	-	4	4	4	-	-	-	4/6	4/6	4/6

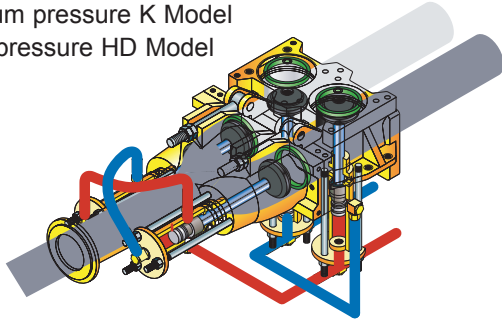
Pump Version: R = Rock Valve™ (patented transfer tube)
 V = Vertical configuration
 H = Horizontal configuration
 L = Large poppets - suction and discharge
 XL= Extra Large Poppets - suction and discharge

Pressure Version: S = rod side
 K = piston side
 HD = high pressure version

Schwing Bioset Patented Valve Technology

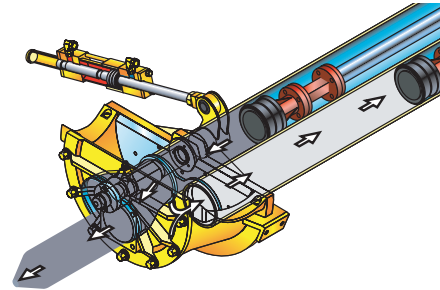
Pump models are available with the Poppet Valve, which is best suited for compressible, mechanically dewatered slurries and the Rock Valve™, which is available for pumping materials with particles up to 3" in diameter. Most models have three hydraulic configurations available to best match the pump to the application:

- 1: Low pressure S Model
- 2: Medium pressure K Model
- 3: High pressure HD Model



Poppet Valve

Application: Compressible sewage sludge, filter cake and slurries



Rock Valve™

Application: Uncompressible sludge with large, coarse foreign particles up to three inch diameter in size

KSP12(L)			KSP 17						KSP 25 (L)						KSP45L			KSP 50L(XL)		
KSP 12R-KSP 12RV			KSP 17-KSP 17V			KSP 17R-KSP 17RV			KSP 25-KSP 25V			KSP 25R-KSP 25RV			KSP 45-KSP 45V			KSP 50R-KSP 50RV		
S	K	HD	S	K	HD	S	K	HD	S	K	HD	S	K	HD		HD		K	HD	
88	88	88	110	110	110	110	110	110	158	158	158	158	158	158		253		289	188	
17.6*	8.8*	6.6*	11.0	6.6	3.8	11.0*	6.6*	3.8*	17.6	8.8	6.6	17.6*	8.8*	6.6*		22		17.6*	8.8*	
580	870	1015	870	1305	2175	870	1015	1015	580	870	1740	580	870	1015		1537		1869	2920	
85.4	85.4	92.5	148.0	148.0	154.3	131.9	131.9	137.0	148.0	148.0	154.3	131.9	131.9	137.0	148.0	148.0	154.3	242	242	
32.7	32.7	32.7	26.8	26.8	26.8	32.7	32.7	32.7	26.8	26.8	26.8	32.7	32.7	32.7	26.8	26.8	26.8	70.2	70.2	
1896	1896	2183	1874	1874	2150	2083	2083	2712	2084	2084	2349	2183	2183	2811	2084	2084	2349	8200	8200	
3.4	3.4	3.4	4.6	4.6	4.6	4.6	4.6	4.6	6.7	6.7	6.7	6.7	6.7	6.7		11		13.4	13.4	
7.1 x 19.7	7.1 x 19.7	7.1 x 19.7	5.9 x 39.4	5.9 x 39.4	5.9 x 39.4	5.9 x 39.4	5.9 x 39.4	5.9 x 39.4	7.1 x 39.4	7.1 x 39.4	7.1 x 39.4	7.1 x 39.4	7.1 x 39.4	7.1 x 39.4		9.1 x 39.4		7.1 x 63.0	7.1 x 63.0	
3.5	3.5	4.9	3.5	3.5	4.9	3.5	3.5	4.9	3.5	3.5	4.9	3.5	3.5	4.9		5.9		5.9	5.9	
5.79	4.00	2.07	4.01	2.78	1.44	4.01	2.78	1.44	5.79	3.99	2.07	5.79	3.99	2.07		2.35		3.67	1.44	
-	-	-	5	5	5	-	-	-	5/8	5/8	5/8	-	-	-		8		-	-	
-	-	-	4	4	4	-	-	-	4/6	4/6	4/6	-	-	-		6		-	-	

- + = Poppet valve diameters are nominal measurements
- * = Minimum depending on the admissible valve change-over time
- ** = Maximum theoretical output (100% filling efficiency) based on pumping water. Pumps will be derated per specific material requirements.

Multiple Applications

Flow Measurement System

Schwing Bisset's patented flow measurement system measures the volume of material pumped within 5% and instantaneously reports the filling efficiency of the material cylinders providing real-time monitoring of the health of your pump. This information is used by operating staff to precisely control operations and schedule wear part replacement on their schedule, rather than reacting to any unexpected shut-downs. Schwing Bisset's Flow Measurement System is just another example of how our industry leading technology plays a key role in your operations success.



SCHWING BIOSET FLOW MEASURING SYSTEM

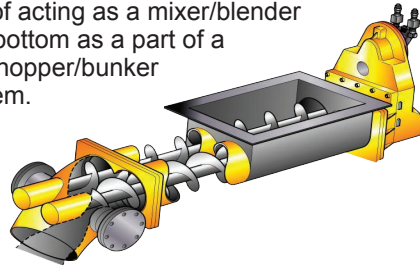


65L _(XL)	KSP 80L _(XL)						110L _(XL)	140L _(XL)	220L _(XL)	315 _(XL)	Pump Model
KSP 65 KSP 65V	KSP 80-KSP 80V			KSP 80R-KSP 80RV			KSP 110 KSP 110V	KSP 140 KSP 140V	KSP 220 KSP 220V	KSP 315 KSP 315V	Pump version
HD	S	K	HD	S	K	HD	HD	HD	HD	HD	Pressure version
391	506	484	462	506	484	462	740	765	785	968	Delivery capacity output (GPM) max.**
34	26.4	22.0	13.2	26.4*	22.0*	13.2*	60	75	116	166	min.*
1885	638	1074	1551	638	1074	1450	1885	1885	1885	1885	Pumping pressure (PSI) max.
215	245.7	245.7	250.0	218.9	218.9	223.0	215	289	374	390	Length (inches)
40	39.4	39.4	39.4	61.4	61.4	70.9	40	47	52	66	Width (inches)
6,000	5920	5920	6229	5445	5445	5644	10000	13700	17700	35300	Weight approx. (lbs.)
17.0	22.0	22.0	22.0	22.0	22.0	22.0	29.8	37.3	57.9	83	Pumping cylinder capacity (gallons)
9.1 x 63.0	9.1 x 78.7	9.1 x 78.7	9.1 x 78.7	9.1 x 78.7	9.1 x 78.7	9.1 x 78.7	11.8 x 63.0	11.8 x 78.7	11.8 x 122	14 x 122	Pumping cylinder dia. x stroke (inches)
5.9	4.9	4.9	5.9	4.9	4.9	5.9	7.9	7.9	7.9	9.8	Hydraulic cylinder dia. (inches)
2.35	5.73	3.39	2.35	5.73	3.39	2.35	2.25	2.25	2.25	2.07	Cylinder ratio
8/11	8/11	8/11	8/11	-	-	-	8/11	8/11	8/11	11	Suction poppet diameter * (inches)
6/9.8	6/9.8	6/9.8	6/9.8	-	-	-	6/9.8	6/9.8	6/9.8	9.8	Pressure poppet diameter * (inches)

For continuous operation it is not recommended that a pump be sized to operate at maximum pressure. SCHWING Bisset reserves the right to change specifications without notice.

Screw Feeders: Models SD 250, 350, 500

While primarily used as a feeder, each unit is also capable of acting as a mixer/blender and /or a live bottom as a part of a large storage hopper/bunker pumping system.



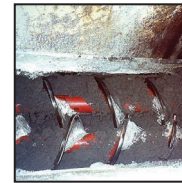
Twin Screw Feeder: The primary application for the twin screw feeder is for feeding non-flowable material that cannot be sucked into the cake pump to improve filling efficiency.

The power unit is equipped with an auxiliary hydraulic pump to control speed by varying hydraulic pump output; output may be adjusted manually or electronically. The screw feeder can be located in multiple configurations in relation to the pump.

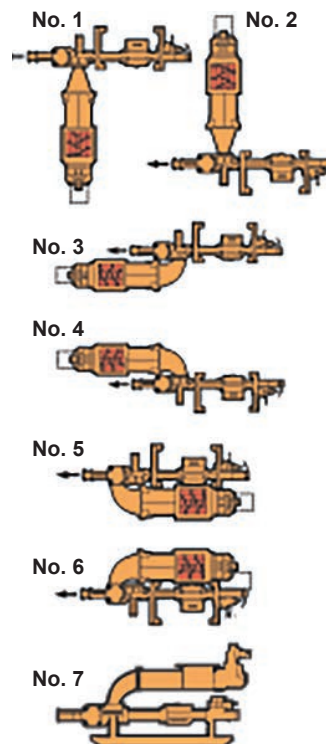
The screw feeder is a combination of two intermeshing segmented flight cake breakers and twin screw conveyors. The unit is designed to be self-cleaning during conveying. The inlet is a rectangular flange and has dimensions corresponding with customer specifications. The drive gear box is sized in accordance with the material to be pumped and the pressure required in the suction housing to insure good volumetric filling efficiency. The entire rotating assembly provides continuous duty under all anticipated load conditions.

The screw feeder is bolted to the pump suction housing with a flanged connection. The screw feeder tub/housing and screws can be constructed of A36 steel or stainless steel.

Pressure Control: An optional transducer is located in the transition between the pump and screw feeder. This device will control the sludge pressure in the transition. A signal from the pressure transducer will control the output of the hydraulic pump, and consequently the screw feeder RPM insuring the pressure in the transition will be maintained at the preset point. This control will optimize the pump's filling efficiency, maximize wear part life, minimize power consumption and lengthen intervals between service.



Standard Screw Feeder / Discharge Configurations



Screw feeder is positioned 90 degrees to the pump on the right or left side in the direction of flow. Pump and screw feeder are in the same horizontal plane.

Screw feeder is positioned in front and parallel with the pump on the right or left side in the direction of flow. Pump and screw feeder are in the same horizontal plane.

Screw feeder is positioned parallel with the pump on the right or left side in the direction of flow. Pump and screw feeder are in the same horizontal plane.

Screw feeder is positioned above the pump. The pump cylinders are positioned in the horizontal plane.

Screw Feeder Model		SD 250	SD 350	SD 350 HD	SD 500
Pressure Version	(HD = High Pressure)	Standard	Standard	HD	Standard
Inlet Opening Width min/max	(inches)	17	24/30	24/30	34.7
Inlet Opening Length min/max	(inches)	24/204	24/204	24/204	24/204
Screw Speed min/max	(RPM)	0-40	0-40	0-40	0-40
Flight Diameter	(inches)	9.8	13.8	16.5	19.7
Standard Version	(kw/HP)	13.6/18	13.6/18	N/A	37/50
High Pressure Version	(kw/HP)	N/A	22/30	35/50	N/A
Weight Approx.	(lbs)	1720 / 2866	2866 / 3968	8156 / 10582	4409 / 6393
(varies with Inlet Opening Length)					

A Name You Can Trust

Screw Press Dewatering



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Fluid Bed Dryer



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Sliding Frame



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Nutrient Recovery & Struvite Harvesting



Schwing Bioset's nutrient removal system recovers Ortho-Phosphate and Ammonia Nitrogen from wastewater as struvite, reducing phosphorus loads, preventing plant fouling, and creating a valuable end product.

Bioset Process



Schwing Bioset offers the Bioset lime stabilization process, which is approved to EPA's 503 regulations. The Bioset process provides municipalities a low cost Class A system that is affordable to operate and easy to maintain.

Contact Information

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