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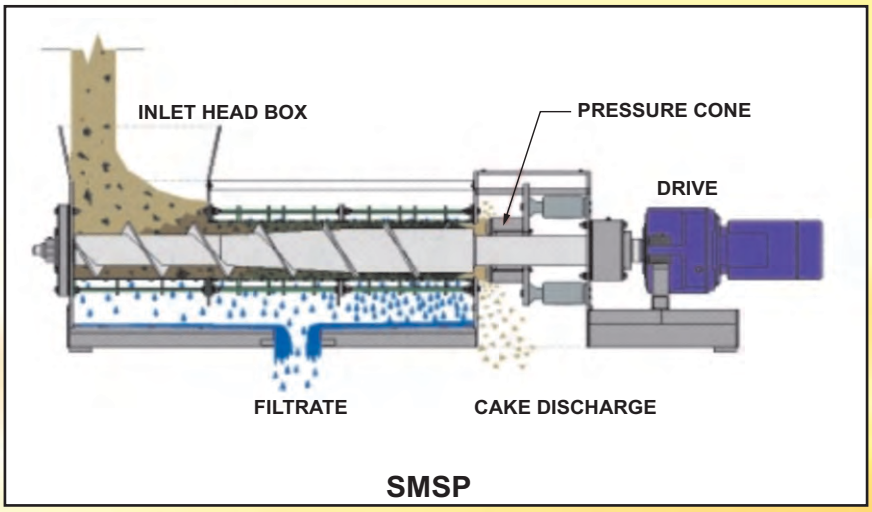
FAIRFIELD SERVICE COMPANY

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

SCREW PRESS

SMSP- Single Module Screw Press
MMSP- Multi Module Screw Press



SMSP

MMSP

Water & Wastewater Treatment Equipment

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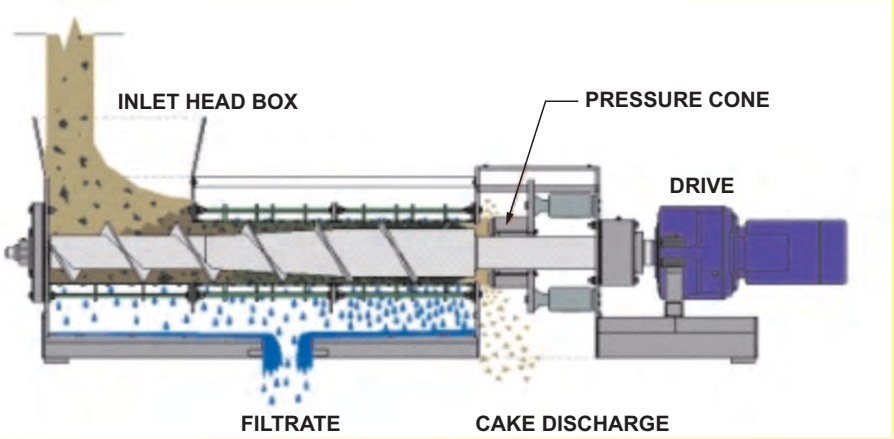
SMSP - Single Module Screw Press

The Single Module Screw Press is a durable and easily maintained screw press for liquid/solid separation. Dewatering in the SMSP is continuous, and is accomplished by gravity drainage at the inlet; it is also accomplished by reducing the volume per unit length of the conveyor as the material travels from the inlet to the discharge end.

Designing a Screw Press requires selecting several key elements and tailoring them to the Customer's particular application. Creating the proper balance of screw design, conveyance speed, and screen design to achieve a high density cake discharge while maintaining an excellent capture rate is the benchmark of Screw Press design; a benchmark that Fairfield strictly adheres to.



SMSP-Cross Section

Features:

- Lower power and maintenance than other screw presses, BFP's and centrifuges
- Slow screw speed
- Easy to install and operate
- Simple, automated operation
- Heavy duty construction
- Available in 304 or 316 stainless steel with a carbon steel base
- Custom designed for each application
- Low wash water usage compared to BFP'S
- Multiple sizes for any capacity
- Can accept varying flow rates and consistencies
- Fully enclosed covers
- Few moving parts

Advantages:

- Reduced landfill cost
- Reduced down time
- Easy maintenance
- Heavy duty construction
- Reliability
- Consistent dryness

Model	Output Capacity* TPD Dry Solids	Screw RPM	HP	Length Feet	Width Feet	Height Feet
SMSP-4	0.5-1	30	2	4	1.2	2
SMSP-6	2-4	20	5	7.5	1.5	2.5
SMSP-10	5-10	16	15	11	2	3
SMSP-12	10-20	15	20	13	2.5	4
SMSP-16	20-45	10	30	20	3.5	5
SMSP-24	40-100	9	60	23	4	5.5
SMSP-30	60-150	7	100	26	8	7

* It Varies according to the substances involved in the Input

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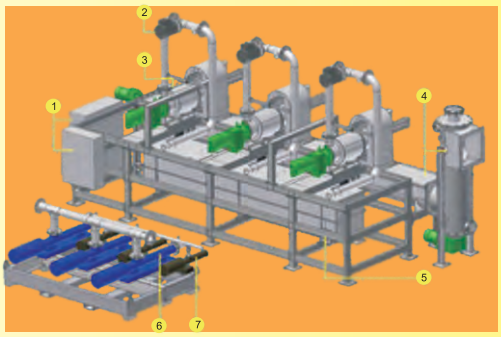
MMSP-Multi Module Screw Press

Main components of the MMSP:

1. Electric switchboards and PLC'S
2. Poly-electrolyte supply and mixing section
3. MMSP unit with (three in standard unit) with:
   - sieve basket
   - dewatering section I (2-10% Dry solids)
   - dewatering section II (10-17 % Dry Solids)
   - dewatering section III (17- max % Dry solids)
   - pneumatic press cone (14-65 psi)
4. Spiral conveyor sludge transport system
5. Water collecting compartment
6. Sludge feeding pumps
7. Poly-electrolyte pumps



Process

Sludge is pumped into the pipelines and mixed with poly-electrolyte by the dynamic mixer.

Stage I

After the mixer, the mixture is led into the inlet screw-chamber where primary sludge dewatering takes place. Partially dependent on the incoming sludge quality (especially its % dry matter) preliminary draining takes place. This can be compared to the first section on a BFP. The consistency of the sludge becomes a "thick liquid." The special designed conveyor within the screw-chamber using variable pitch and diameters conveys the sludge slowly forwards into stage II.

Stage II

In this stage the sludge (+/- 10-12 %) is gently pressed through the micro sieve and completely is retained in the conveyor with the unique combination of :

- shape of the conveyor
- resistance
- pressure

Stage III

In this stage sludge is brought to +/- 15-17 % dry matter. At this point it is quite dry with an angle of repose of approximately 45 degrees

In this third stage and final stage mechanical forces are applied under pneumatically controlled back-pressure removing the remaining free/un-bound water from the product. The third stage pressure is accomplished by means of an air cylinder adjustable in incremental step-like adjustments to a maximum counter pressure of 65 PSI. Sludge is extruded around the perimeter of the special designed cones by the action of the conveyor. A continuous flow of dewatered sludge continues at this point. The following parameters are adjusted during start-up and operation:

- the speed (rpm) of the conveyor
- the feeding pressure of the sludge
- the retention time of the poly-electrolyte (many different types)
- the energy input in mixing
- the counter-pressure of the cone

Capacity

Capacity in	1-module	2-modules	3-modules	4-modules	5-modules
4% solids	300	325	950	1250	1575
5% solids	245	490	750	1000	1250
6% solids	200	400	600	800	1000
8% solids	150	300	450	600	750
Solids lbs/h	770	1540	2350	3080	3800
F^3/h (25%)	34	68	102	136	170

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MMSP has complete remote operation capability to provide the Owner (client) the following operational flexibilities:

- Over the ethernet (read technical internet) one can log in with a code
- When in the system one can read all the parameters of the system
- Depending on the key (access permission) the operator can change setting, read data, start installations, etc.
- One can guide the operation as if one were beside the MMSP
- All data is available for monitoring 24-7, with software available that interfaces with Excel Excess files from Microsoft
- Maintenance systems monitoring

Features:

- Compact and modular built
- Very low noise level below (70 dBA)
- Not sensitive to sand/grit or equivalent
- Special hardened surface on dewatering unit
- There is no start-up water
- There is no wash water
- SHUTDOWN and START-UP Under normal operating conditions, No cleaning is needed after the equipment is idle over a period of 5 days (Longer times are possible but not tested)

Advantages:

- Uses less polymer than other screw presses BFP's and achieves 2 to 3% drier cake for the same type of incoming sludge
- MMSP can be modified later to add heat or lower pH to produce Class A & B sludge
- Lower wash water usage compared to BFP'S
- Small footprint, compared to all other dewatering equipment
- Low maintenance offering guaranteed costs per hour and per ton of dry solids. MMSP for the same dry ton output will cost 30% less than a BFP, and require as little as 47% of the power MMSP for the same dry ton output will cost about the 50% less than a centrifuge, and requires up to 85% less power
- Cake solids for aerobically digested biosolids is 18% to 26%, and between 20% and 32% for mixed primary/secondary sludge

Applications:

- Municipal WWTP Sludge of All Types (aerobically digested, anaerobically digested, raw)
- Pulp and paper industry
- Primary, Secondary, or Mixed Sludge
- Industrial Biosolids
- Other

FAIRFIELD SERVICE COMPANY IS MBE CERTIFIED.

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