S&L Modular FAST®

Fixed Activated Sludge Treatment

BNR

Variable Flows

Scalable Wastewater Treatment Technology
Designed for On-site Variable Flows

Smith & Loveless Inc.
Protecting Water. Protecting People.™

Applications & Data

S&L Modular FAST® is uniquely designed to handle the variable flows of these applications





- Decentralized / on-site private developments
- Hotels and resorts
- Schools and university facilities
- Campgrounds, retreat centers, and recreation
- Restaurants, shopping and commercial centers
- Wineries and breweries with leach field discharge
- Lagoon effluent polishing for tighter regulations
- Retrofit in aeration basins to boost capacity

Application / Flow	BOD [mg/l] In	BOD [mg/l] Out	TSS [mg/l] In	TSS [mg/l] Out	Removal % BOD	Removal % TSS	Effluent N (% Removal)
High School 12,000 gpd [46 m^3/d]	186	3	74	12	98%	84%	0.5 (85%) NH_3- N
Gas Station 2,000 gpd [8 m^3/d]	716	3	900	18	97%	98%	18 (84%) Total N
Hotel 15,000 gpd [57 m^3/d]	622	17	101	19	97%	81%	7 (83%) Total N

Because of the wide range of process wastewater applications, contact us directly at (800) 898-9122 or via e-mail at answers@smithandloveless.com

Smart Automation Options

S&L Modular FAST® smart technology options meet your specific needs.

Add these to further simplify and enhance operation, while reducing labor time:

- Automatic air scouring
- Automatic valves
- Automatic screening
- Automated maintenance messaging and alerts
- Noise reduction and odor control packages

Advanced automated options are available, especially for larger jobs like above.

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Fixed Activated Sludge Treatment

Scalable Wastewater Treatment Technology Designed for On-Site Variable Flows

Decentralized Treatment • On-Site Private and Commercial Developments • Treatment and Capacity Augmentation

S&L Modular FAST®
Fixed Activated Sludge Treatment

Scalable Wastewater Treatment Technology
Designed for On-site Variable Flows

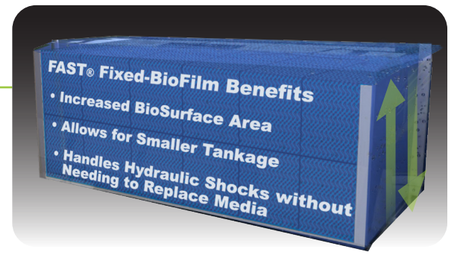
Proven. Resilient. Scalable. *These attributes accentuate the patented S&L Modular FAST® [Fixed Activated Sludge Treatment] biofilm process pioneered by Smith & Loveless. Specially designed to accommodate the constant fluctuations encountered by small-flow and on-site applications, S&L Modular FAST® adapts quickly to hydraulic shock loads and extended periods of low-flow without daily operator attention required, making it ideal for schools, camps and small flow commercial operations. And for private developments anticipating growth, adding modules to existing tankage allows for phased growth over time. Achieve BNR requirements with optional processes.*

Proven

in thousands of installations ranging from municipal and private development [on-site] applications to industrial and commercial sectors that require aesthetic considerations, flexible discharge, and/or variable flows.

Resilient

because its stable biofilm process yields a much longer sludge age [SRT] than typical biological systems, enabling it to withstand hydraulic shock loads and prevent bacterial washouts — all in a smaller footprint. Best of all, no daily operator attention is required because of the self-regulating process of the attached growth. Operation and maintenance are simple.

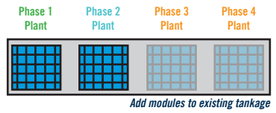


S&L FAST® Media significantly reduces tank sizing while protecting against shock loads.

Scalable

design makes it ideal for variable flows and on-site applications. Modules can be easily added for increased capacity or phased growth requirements. Meets environmental and aesthetical concerns by locating sub-surface.

Phased installation offers planning benefits



Add modules to existing tankage

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S&L Modular FAST® Fixed Activated Sludge Treatment

Flow Capacity

2,000 gpd - 100,000 gpd

10 m^3/d - 380 m^3/d

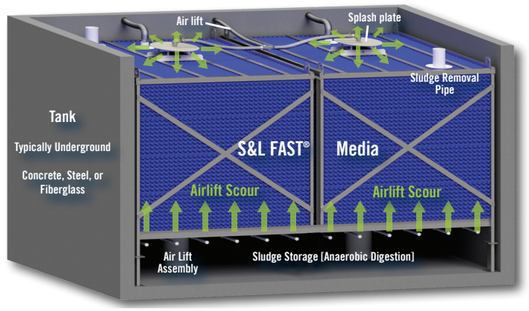
Scalable units comprise larger systems and future build-outs

Effluent Quality

BOD:	< 20 mg/l
TSS:	< 20 mg/l
Total Nitrogen / TN:	< 10 mg/l
Ammonia / NH_3:	< 3 mg/l

Nutrient removal achieved with optional process arrangements

S&L FAST® Media during initial start-up



How the Process Works S&L FAST®

Three treatment steps [aeration, settling, and digestion] in one media-filled tank, makes S&L Modular **FAST®** ideal for on-site applications. Aerated influent circulates through the submerged, bacteria-laden media in the tank, providing a higher surface area-to-volume ratio than suspended growth systems. Bacterial attachment prevents hydraulic peaks from washout. Rapid settling of sloughed solids keeps sludge away from the media (air scouring is available). A zone exists underneath the media where sludge settles and collects for further anaerobic digestion and sludge bed reduction. Advanced treatment levels allow for a variety of discharge arrangements: including drip irrigation, trench systems, leach fields, wetlands, spray irrigation, sewers and other subsurface disposal methods. [*See back page for automated options.*]

Sub-surface Placement

S&L Modular FAST® Benefits

- Handles wide flow and load variations while preventing biomass washout
- Aesthetics: No odors; design allows the system to be hidden underground
- Less O&M than activated sludge plants; optional automation / messaging
- Effluent quality extends leach field life, which can reduce field area reqs.
- Achieves nitrification and denitrification when appropriately configured
- Airlifts provide aeration and mixing, eliminating diffuser maintenance