SLG®- F Mobile Pretreatment & Sludge Thickening

Sludge Thickening Equipment

Introduction

The SLG®-F Pretreatment and Sludge Thickening System is a high-performance solids conditioning and thickening solution engineered and exclusively provided by Orege North America. The system leverages Orege's patented SLG® (Solid–Liquid–Gas) technology to optimize sludge characteristics ahead of downstream processes, delivering enhanced thickening performance, improved solids capture, and reduced chemical consumption.

Designed as a compact, modular system, the SLG®-F integrates advanced sludge conditioning with efficient thickening to increase sludge solids concentration while stabilizing process performance. By conditioning sludge upstream of polymer addition, the SLG®-F improves floc formation, enabling more effective separation and higher throughput in primary or secondary treatment stages.

The system is ideally suited for applications requiring robust pretreatment, including load equalization, solids concentration prior to dewatering, and process optimization in facilities with variable influent conditions. Its modular design supports rapid deployment, ease of integration, and consistent performance with minimal operator intervention.

Application

The SLG®-F Pretreatment and Sludge Thickening System is suitable for municipal wastewater streams including waste activated sludge, primary sludge, and blended sludges where improved solids concentration and process stability are required upstream of dewatering or disposal.

The system is also applicable to a wide range of industrial pretreatment and solids concentration processes, including food and beverage, pulp and paper, chemical, pharmaceutical, and energy-related applications. It is particularly effective in facilities experiencing variable influent conditions, low solids capture, or inefficient thickening performance.

The modular, trailer-mounted design allows the SLG®-F to be deployed for temporary, supplemental, or permanent pretreatment and thickening applications with minimal site preparation, supporting rapid integration into existing treatment processes.

Working principle

The SLG®-F Mobile Sludge Thickening System operates by conditioning the feed sludge using Orege's patented SLG® (Solid–Liquid–Gas) technology prior to polymer addition. The SLG® applies controlled pressure, air, and velocity changes to restructure the sludge matrix, increasing available surface area and improving polymer reaction efficiency. Following SLG® conditioning, polymer is injected to promote rapid and uniform flocculation. The conditioned sludge then passes through a deaeration stage to release excess air and entrained gases before the FloSep Feed Tank. The flocculated sludge floats in the tank and exits over the top of the externally fed wedge wire screen releasing clean water through the wedge wire screen drum and thickened sludge is pumped away. The thickening process maximizes total solids and capture rate.

Benefits

- Improved cake dry solids through advanced SLG® conditioning
- Reduced polymer consumption
- Improved solids capture and filtrate quality
- Stable operation across varying sludge conditions
- Low maintenance requirements
- Fully integrated, turnkey rental solution
- No customer capital investment or spare parts responsibility

Features

- Patented SLG® sludge conditioning technology
- FloSep: 2 - 1.5m Externally Fed Rotary drum Thickeners
- Direct-injection polymer preparation and dosing system
- Integrated compressed air system and deaeration stage
- VFD-controlled feed and auxiliary equipment
- Integrated control panel
- Fully trailer-mounted, mobile design

Features description

SLG® sludge conditioning system

- Patented, in-line conditioning technology utilizing pressure, air, and velocity changes
- Restructures the sludge matrix upstream of polymer addition
- Improves polymer effectiveness and reduces overall polymer consumption

Polymer injection and flocculation

- Direct-injection emulsion polymer preparation and dosing system
- Rapid, controlled flocculation following SLG® conditioning
- Optimized floc structure for enhanced gravity drainage and pressure dewatering

Thickening

- Tank fed wedge wire screen rotary drum.
- Uniform sludge distribution across width of drum
- Adjustable pressure plate to improve water removal
- Optimizes filtrate separation prior to pressure application

Deaeration stage

- Downstream deaeration to release excess air and entrained gases
- Stabilizes sludge prior to FloSep entry
- Improves drainage efficiency and operating consistency

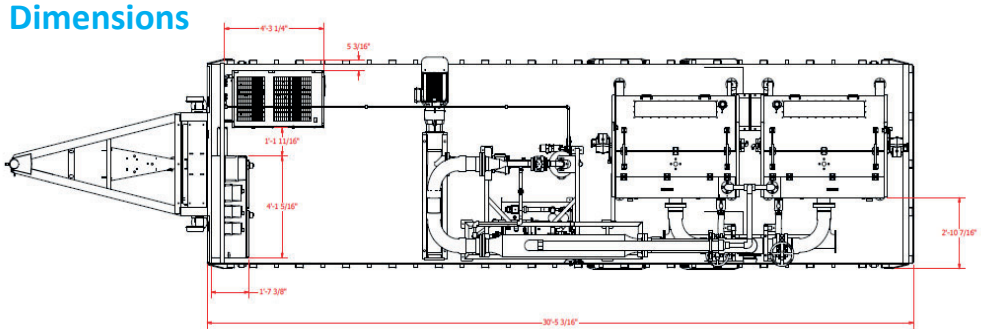
Thickened Sludge transfer

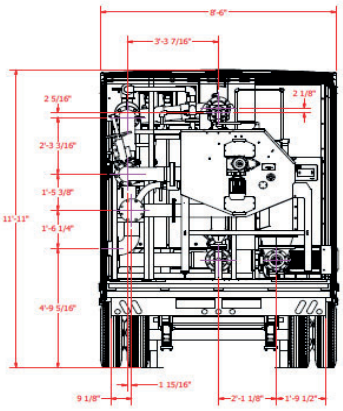
- Level control
- Thickened sludge pump transfers sludge efficiently to tankers, digesters, or sludge holding tanks.

Integrated controls and utilities

- Centralized control panel for SLG®, ancillary equipment, and FloSep rotary drum thickeners
- VFD-controlled feed & thickened sludge pumping and auxiliary systems

Dimensions





Model	SLG-F Trailer
Design Flow Rate	150-300 gpm [34-68 m³/hr]
Solids Capacity Range	0.1-3.5% [8-35 g/l]
Maximum Mass Capacity @ 2% Feed Solids WAS	3,002 lb/hr @2% [1,361 kg/hr @20g/l]
Typical Thickening Results	WAS: 4-6% 60%VS Primary: 8-10% Blended: 6-8%
Typical Polymer Treatment Rate Range	12-20 lb/DT [5.4 - 9.1 kg/DT] Active WAS
Trailer Overall Length & Width	432”x102” [10,973 x 2,591mm]
Trailer Overall Height	143” [3,632.2mm]
Weight	~14,500 lb [6,580 kg]
Power	460v 3ø 125A 60hz, plug or direct wire
Feed Sludge Connection	4” Male Camlock or 4” Flange [DN100]
Filtrate Connection	6” Male Camlock or 6” Flange [DN200]
Polymer Feed Water Connection Potable	1.5” [DN40] Pot. Water 1800-3200 GPH [6.8-12.1 m³/hr], 25-50 psi [1.72-3.44 bar]
Wash Water Connection Reuse	2” [DN50] Reuse Water 4,800 GPH [18.17 m³/hr], 15-100 psi [1-6.9 bar]

PreTreatment and Thickening performance, including cake dry solids, throughput, and polymer consumption, is influenced by sludge characteristics and site-specific operating conditions; Orege works collaboratively with each client to optimize system performance throughout the rental period.