Spiral Water™ Technologies, Inc.

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Taking the Lead with Spiral Water's Model T1000 Filtration

Did you know that automatic pretreatment using Spiral Water's (SWT) High and Variable Filtration Model T1000 (15–50 µm, self-cleaning) ahead of Dissolved Air Flotation (DAF), Moving Bed Biofilm Reactors (MBBRs), Membrane Bioreactors (MBRs), UF, and other membranes can deliver significant benefits? By stabilizing and cleaning the downstream biology, the T1000 helps reduce upsets, increase loading rates, minimize cleaning and hauling, and—in many fee structures—generate substantial savings in TSS surcharges.

Benefits at a Glance

- **Improved efficiency:** Removes 50–60% of TSS at 25 microns, reducing 20–50% of insoluble COD.
- **Higher biological performance:** Increases available liquid volume and boosts BOD remediation by 10–25%.
- **Greater capacity:** Supports higher maximum and peak MBR flow rates.
- **Lower operating costs:** Reduces sludge, scum, and FOG carryover; cuts polymer and anti-foam use; and shortens CIP cycles.

A Closer Look at Model T1000 Advantages

Trim TSS peaks & narrow variability

The T1000 removes 70–90% of suspended solids in the 25–300 µm band, shedding grit, fibers, rinds, and fines that foul electrodes, media, and membranes. A spiky 1,000–3,000 mg/L TSS feed is steadied into a 100–600 mg/L band (depending on screen and purge setpoints). The result: smoother F/M ratios, fewer foaming/sloughing episodes, reduced biomass stress, and higher uptime.

Protect critical surfaces

By cutting abrasive/inert loads, the T1000 safeguards membrane internals and downstream polishers. Electrode and biofilm cleanings, as well as CIP cycles, become less frequent and less severe.

Unlock hidden capacity

Cleaner feed enables equipment to operate closer to its intended loading rate—or sometimes even above it—rather than being derated to survive TSS swings. For plants planning expansion, pretreatment can defer costly reactor volume additions.

Lower downstream solids management

By intercepting particulate COD/TSS before it reaches the bioreactor, the T1000 reduces sludge yield, scum/FOG carryover, and ragging.

Reduce utilities and chemicals

With fewer CIPs, less polymer, less antifoam, and reduced mixing energy, operators achieve meaningful cost savings.

Surcharge savings

For facilities paying by mass, every pound of TSS removed upfront is direct savings—often the fastest ROI driver.

OpEx Savings	Improvement Using T1000 Prefilter
Chemical usage	↓ 15–30% (varies by application)
Sludge volume/disposal	↓ 10–25% cleaner, more concentrated sludge
Energy consumption	↓ reduced membrane system size reduces energy use
Equipment lifespan	↑ reduced TSS reduces membrane wear and fouling
Maintenance frequency	↓ significantly less downtime, labor

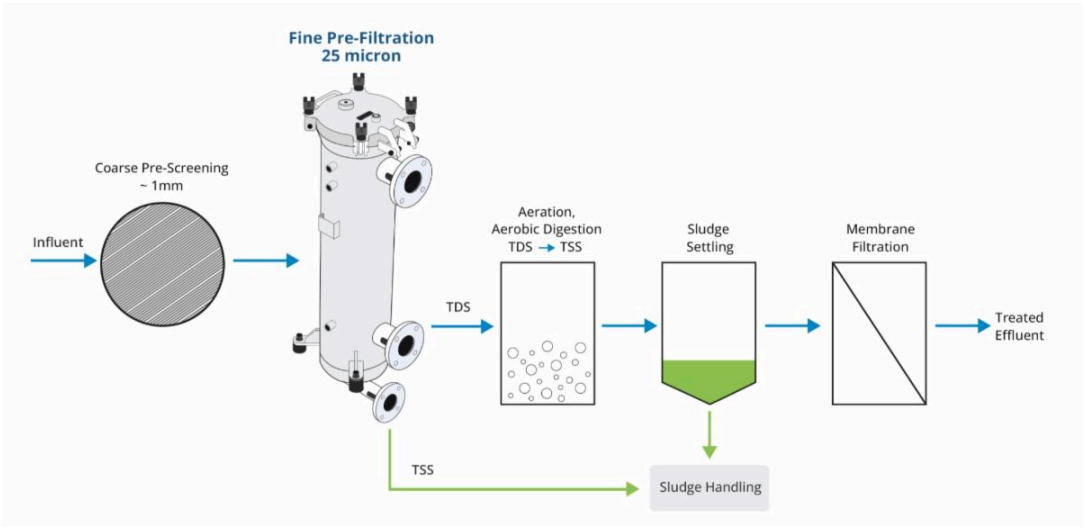
The ABCs of DAF

Dissolved Air Flotation (DAF) is a widely used treatment process in municipal and industrial wastewater, raw water clarification, and sludge treatment. It is especially effective at removing fats, oils, and grease (FOG), which otherwise cool, congeal, and create major problems in sewers and pipes.

DAF works by:

1. **Pressurization:** Air is dissolved under pressure into water.
2. **Flotation:** Tiny bubbles attach to suspended solids.
3. **Separation:** Bubble-solid clusters rise to the surface and are skimmed off.

Where the T1000 helps: By removing high solids and stabilizing the feed, SWT's Model T1000 dramatically improves DAF performance—reducing chemical demand, minimizing sludge, and lowering overall operating costs.



Inside Spiral Water's Model T1000

The Spiral Water Series T1000 automatic self-cleaning filter is designed for medium-to-high flow, high-pressure, high-temperature liquid/solid separation. Built of stainless steel for durability, it is ideal for industrial applications.

Engineered to handle ultra-high and variable TSS loads, the T1000 consistently removes solids from fluid streams with particle sizes between 15 and 1,500 microns. It can manage feed streams with more than 500 ppm TSS and remove bulk solids up to 15,000 mg/L—all while delivering continuous filtration.

In a single pass, the T1000 treats water up to 50 times dirtier than competing solutions, with significantly less energy use and a smaller footprint than large-scale capital equipment.

Spiral Water's Model T1000: delivering steadier biology, lower costs, and higher system uptime across the toughest treatment environments.

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