



GEM System



ADVANTAGES

Small Footprint

At 1/10th the size of traditional gravity separation technology, the GEM fits easily into facilities with limited real estate.

Cost Effective

Few moving parts, efficient use of chemistry and low power requirements keep the GEM's operating and maintenance costs to a minimum.

High Contaminant Removal Rates

Through more effective and redundant flotation, the GEM system removes BOD/COD, TSS, FOG and Bio-Growth from a variety of process streams up to undetectable levels.

Dryer Solids

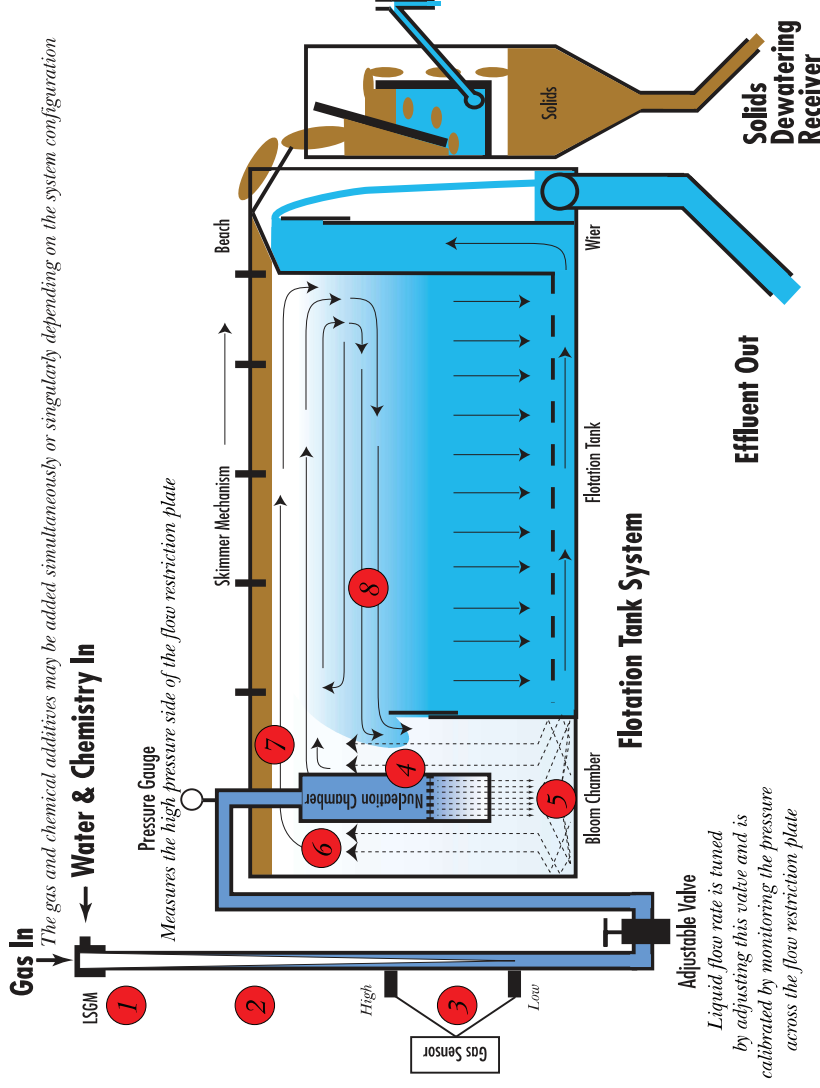
During the mixing process, fine micro bubbles come into immediate contact with stream contaminants to produce more durable flocks with high solids content.

Customized Control

The GEM has manual and PLC automation to allow for system customization and real-time stream management.

No Carry Over

Flotation redundancy at the water's surface allows the clean water to "drain" from the floating particles to the bottom of the tank and eliminate carry over.



Gas In
The gas and chemical additives may be added simultaneously or singularly depending on the system configuration

Water & Chemistry In

Pressure Gauge
Measures the high pressure side of the flow restriction plate

Skimmer Mechanism

Bench

Flotation Tank

Flotation Tank System

Effluent Out

Solids Dewatering Receiver

Adjustable Valve

Liquid flow rate is tuned by adjusting this valve and is calibrated by monitoring the pressure across the flow restriction plate

1. Linearization of Polymer-

Uncoil the polymer chain to expose ALL of the charge sites to particles.

2. Complete mixing-

Insures that ALL particles are attached to the exposed charge sites.

3. Gas Entrainment-

Dissolve the gas into 100% of the stream. First, creating bubble/particle attachments, then once attachments are made, causing those bubbles to expand in size.

4. Nucleation-

Dissolved gas evolves into a bubble that is in contact with the particle and the charge site.

5. Coalescence-

The pre-attached bubble then swells when additional dissolved gas molecules contribute to it.

6. Flocc to Flocc Attachments form-

Small floccules knit together, expanding gasses drive out excess water.

7. Top Delivery-

Mass flow carries flocs to top of tank, where they deposit and continue to de-water.

8. Recirculation Tank-

Semi-buoyant floc is pulled back into the entry stream. Potential carryover forms additional attachments to fresh incoming unused bubbles and floats to surface.