How Large Bubble Works

Large Bubble Process Tank Mixing Systems

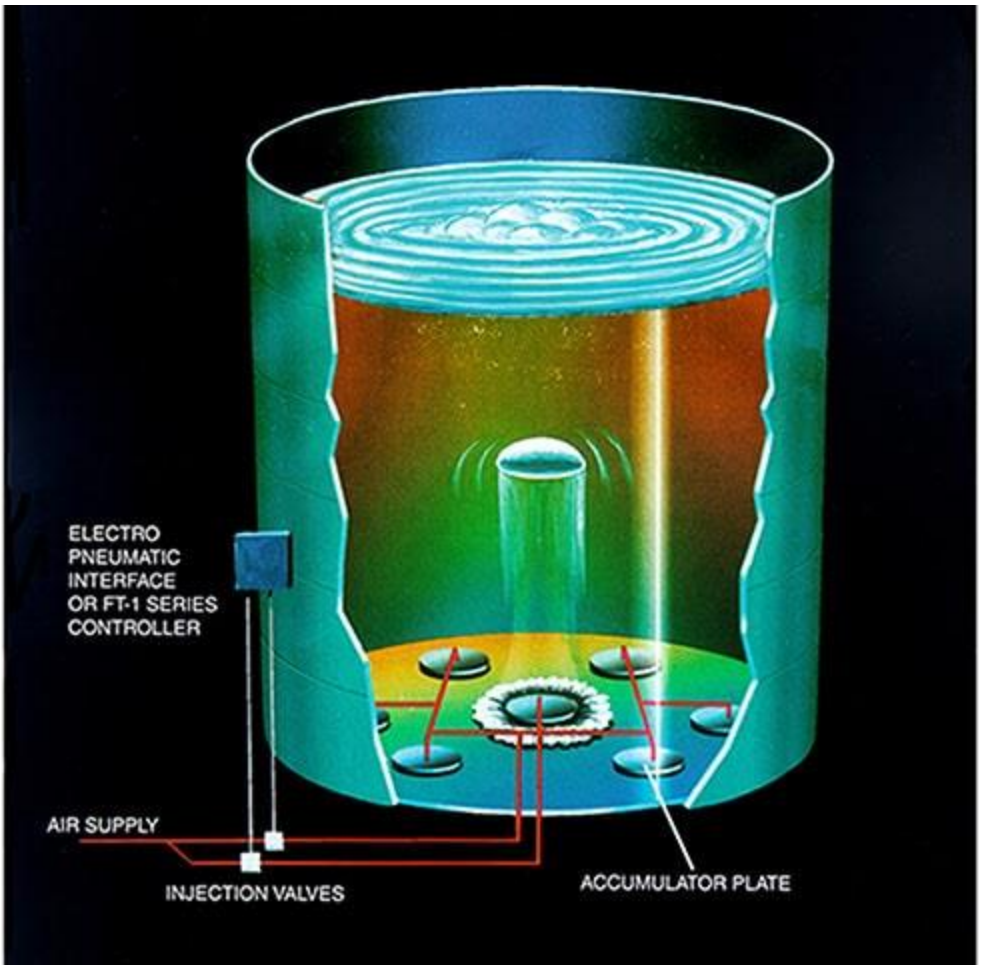
The tank mixing system of Large Bubble consists of moving mixtures vigorously throughout storage or process tanks. This innovative technology uses sequential bursts or pulses of air or gas. These bursts of gas are released through a series of units, located at the tank bottom. By strategically locating the units on the tank floor, virtually 100% of the tank's liquid contents can be uniformly mixed.

Tank Mixing Process

The process of sequentially releasing the bubbles at timed intervals. Thereby creates immediate vertical circulation in the tank and mixes 100% of the tanks contents. The sudden release of gas accelerates the liquids and if applicable any suspended solids, and keeps them in motion, thus preventing settling.

When enough air or gas fills the Large Bubble unit the gas shoots out vertically through a riser tube which pulls in and ejects the any settled solids on the tank floor into the rising liquid stream drafted behind the large bubble.

Underneath these Large sized bubbles, a vacuum is created that quickly pulls the bottom liquids and solids up to the surface. After the pulse of compressed air is instantaneously released, gravity and physics take over to force the air bubble to the liquid surface. As the bubble rises it also pushes the liquid above it up and out toward the tank perimeter. With no moving parts and minimal maintenance, pulsed air mixing tank technology reduces energy usage, extra maintenance, process downtime and costly repairs commonly associated with mechanical mixing tank systems.

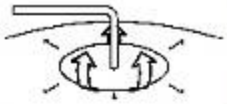
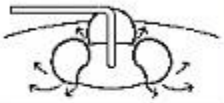
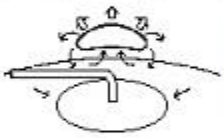
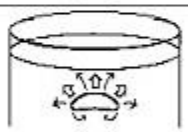
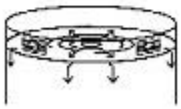


Powerful Liquid Industrial Mixer

Mixing Tank System Installation

The size of the air bubble, frequency of pulses and number of units in a process or storage tank depend on the diameter and depth of the tank. The mixing goals and the type of liquid are also factored in when designing a Large Bubble mixing system for your process.

Installation of ENG Designs LLC Large Bubble mixing tank system is simple and easy. Once they are installed, they require very little maintenance. The Large Bubble mixing system is sold as “kits” and include a set of tank drawings (for PPC systems). This enables the customer or contractor save money on the installation.

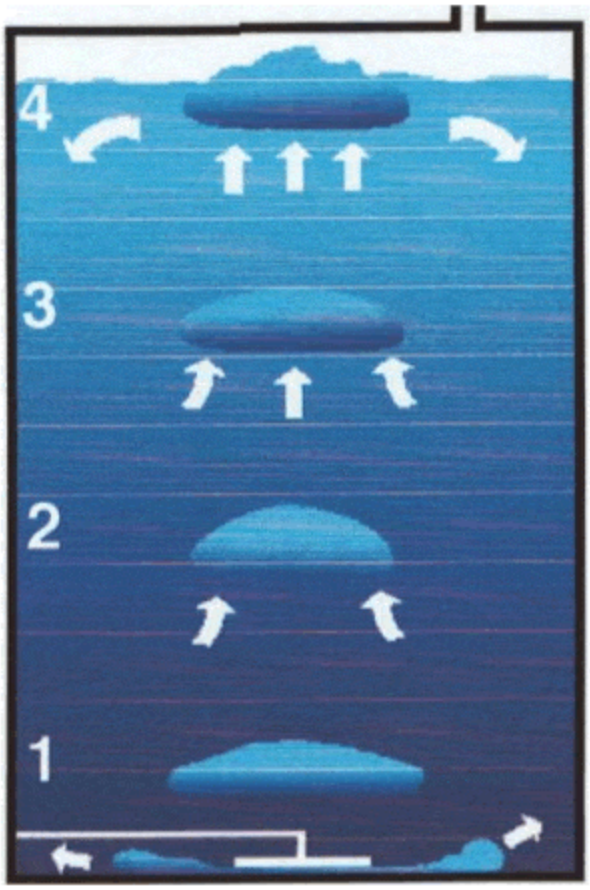
	**The Pulse** Compressed air is pulsed between the tank and accumulator plate, creating a shock that energize the fluid at the molecular level.
	**The Sweep** The air forms around the accumulator plate, which pushes liquids outward, mixing the heavier fluids and solids and cleaning the tank bottom.
	**The Vacuum** The bubble begins to ascend, pulling liquids and sediments back to the accumulator plate.
	**The Rise** Floating to the surface, the bubble generates currents that push and pull liquids and sediment up from the bottom and toward the top.
	**The Wake** The bubble releases through the surface, creating ripples and currents that move toward the side of the tank. The ripple reflect off the tank wall, creating mixing on the surface. The currents move down the side wall to the bottom, where the cycle is repeated.

4 As bubbles break the surface, they push liquids across the top of the tank and down the sides to the bottom, completing the circulation.

3 Bubbles continue to rise upward, forcing heavier particles to the surface and creating a vertical mixing action that quickly involves the entire tank contents.

2 Large, flat bubbles are formed immediately above the plates and begin rising toward the surface.

1 Pulses of air (or gas) are released beneath round, flat accumulator plates fastened 1/4 in. above tank bottom.



NOTE: Larger diameter tanks will require additional accumulator plates.

Contact ENG Designs LLC today to learn more about our mixing solutions.