FreshMix

WATER STORAGE MIXING SYSTEM

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FreshMix™ Water Storage Mixing System

Mixing in water storage tanks has long been recognized as critical to water quality. New limitations on chlorine by-products such as TTHM and HAAs have raised this concern even further. Thus, water tank mixing systems must provide quantifiable levels of mixing.

We use our in-house expertise to generate advanced flow calculations and project-specific Computational Fluid Dynamics (CFD) analysis to ensure that our Freshmix water storage mixing system meets requirements for Coefficient of Variation (COV), tank turnover and fill rate.

The hardware is cost effective and simple to install and maintain, and our design process results in a strong flow pattern that rapidly mixes the entire tank. We use the COV of chlorine concentration as an industry standard method to quantify mixing that you can check by sampling from various locations in your tank.

FreshMix System Advantages

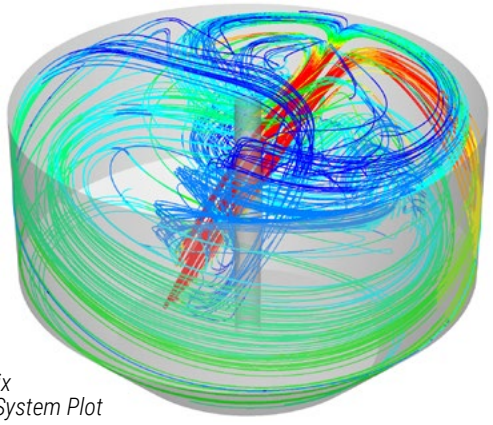
- Reduces taste and odor problems
- Uses the motive force of the entering water to mix the contents in a tank
- Simple and efficient – mixing system is composed of a nozzle specifically engineered to satisfy individual project requirements
- Has no moving parts, baffles, valves, or submerged motors – no maintenance required
- Meets or exceeds the mixing performance of other mixing systems for a much lower cost
- Project-specific computational fluid dynamics (CFD) analysis can demonstrate mixing parameters for the provided tank geometry, fill rate, and turnover
- Mixing performance can be quantified by calculating COV of chlorine concentration that can be checked by water sampling
- Can be installed in new and existing tanks of all styles and sizes: Waterspheroids®, Composite Elevated Tanks (CET's), Hydropillars, Standpipes and Reservoirs
- Can be retrofitted in existing tanks non-invasively, without a crane

Comparable Performance at a Fraction of the Cost

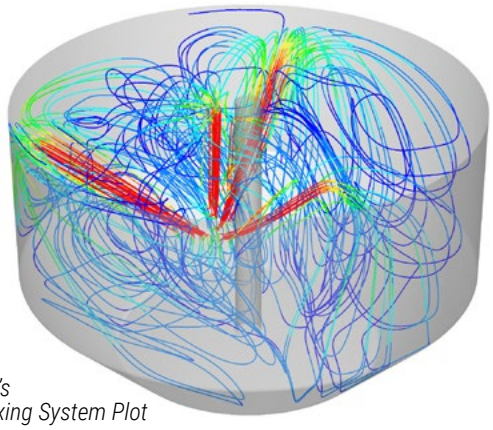
We compared our system and the competitor's system in a 1 million-gallon CET (based on our London, OH tank) at the high-water level with a 700 GPM fill rate. For this comparison, we modeled our mixer to have the same head loss as the competitor's to ensure an even comparison, as both mixers have the same pump demand and operating cost for the owner.

We ran a transient tracer study, where the tracer represented fresh chlorine, on both our Freshmix system and the competitor's system and calculated the COV versus the fill time. The COV is a measure of relative variability of the fresh chlorine through the tank. A COV of 10% is generally considered to represent a well-mixed tank.

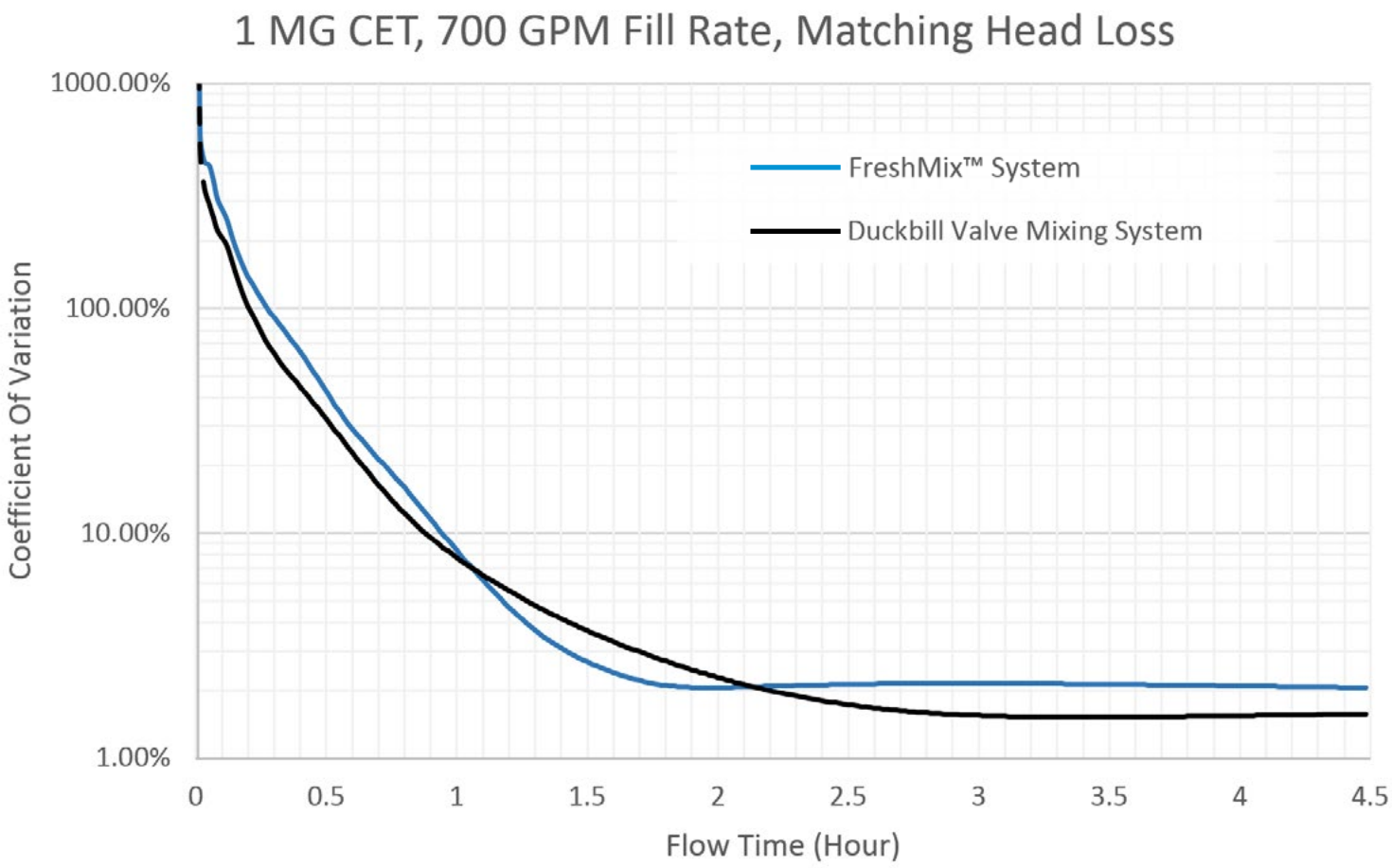
The results show that the new Freshmix mixes to the same COV within about 4 minutes of the competitor. Therefore, it has equivalent mixing performance to the competitor's system, but costs an order of magnitude less.



FreshMix Mixing System Plot



Competitor's Duckbill Mixing System Plot



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