



eVOQUA
WATER TECHNOLOGIES



VARI-CANT Jet Mixing systems are cost-effective and available for new installations or the retrofit of existing basins.

VARI-CANT® JET MIXING SYSTEMS

PRINCIPLES OF JET MIXING

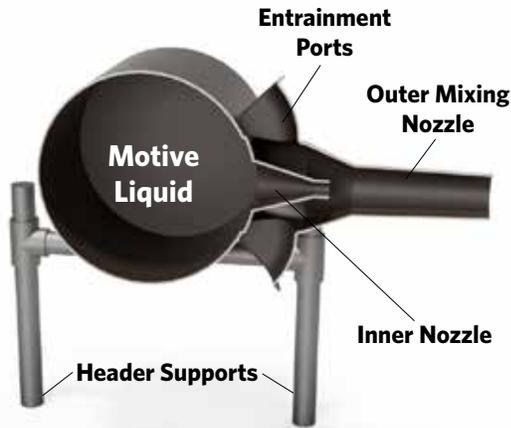
The VARI-CANT® jet mixing system provides submerged mixing of liquids up to 8% TSS in both industrial and municipal applications. This system offers unlimited flexibility of design and operation. Floor-mounted headers are configured to provide mixing and blending with either single or dual-phase (liquid and air/gas) jet nozzles. There are no moving parts within the basin. Pumps and blowers are located outside the basin for ease of operation and maintenance. Jet headers and nozzles are constructed of FRP (fiberglass reinforced plastic) or stainless steel for strength and corrosion resistance.

APPLICATIONS

Evoqua's VARI-CANT jet mixing systems have been installed in hundreds of industrial and municipal wastewater applications including: equalization and neutralization basins, anoxic reactors, anaerobic digesters, SBRs, aeration basins, and blend tanks. Evoqua's jet mixing systems are cost-effective and available for new installations or the retrofit of existing basins.

JET MIXING FEATURES

- Provides mixing only and/or aeration
- Increased flow through mixer entrainment ports (3 - 5 times)
- Maintain solids in suspension with minimal energy.
- Better energy distribution
- No moving parts in the basin to service or maintain.
- Corrosion and abrasion resistant
- Suitable for any basin geometry.
- Ideal for covered tanks
- Efficient cleaning system without dewatering.
- Low installation cost.



Evoqua's VARI-CANT Jet Mixing Systems are highly energy efficient providing superior mixing rates.



Evoqua's VARI-CANT Jet Mixing Systems are available in a wide range of applications including lagoons.

PRINCIPLES OF OPERATION

VARI-CANT® Jet Mixing systems are a highly efficient method to distribute mixing energy while minimizing horsepower requirements. Each project design applies multiple mixing nozzles located strategically within a basin to optimize efficiency. Each nozzle is designed with an inner liquid jet and a secondary outer nozzle for entrainment of liquid or air. An external pump recirculates basin liquid to drive the jets. For single phase liquid mixing, the high velocity of jet discharge creates a low pressure region within the outer nozzle. This low pressure induces liquid from the surrounding medium to flow through the entrainment ports into the mixing throat of the outer nozzle. Here the pumped motive liquid and the entrained liquid are mixed before leaving the outer nozzle. The entrainment ports are located on the top and bottom of the nozzle to provide smooth and uniform draw of fluid. The increased flow caused by the entrainment ports allow 3 to 5 times the pump discharge rate to flow through the mixing nozzle.

Two-phase mixing jets are similar but the mixing nozzle receives induced or compressed air (or other gas) which is then dispersed into the tank in a fine-bubble stream for maximum uplift mass movement of bulk liquid.

For most designs, multiple nozzles are generally attached to a manifold to form a header system. Both the header and nozzles are constructed of fiberglass reinforced plastic or stainless steel for strength and corrosion resistance. Mixing nozzles are also used on radial jet clusters. Evoqua has several sizes of mixing nozzles to choose from for the particular type of mixing application desired. Suitable for any tank geometry with a 50,000 gallon minimum and no limit on size.

Jet Tech
an EVOQUA technology



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