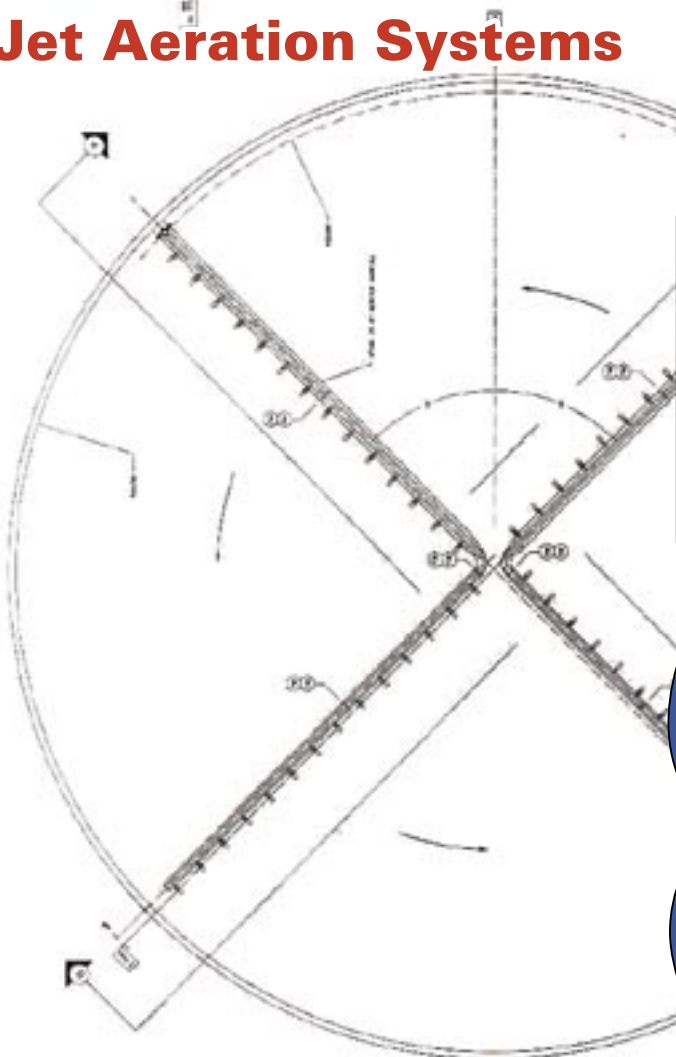
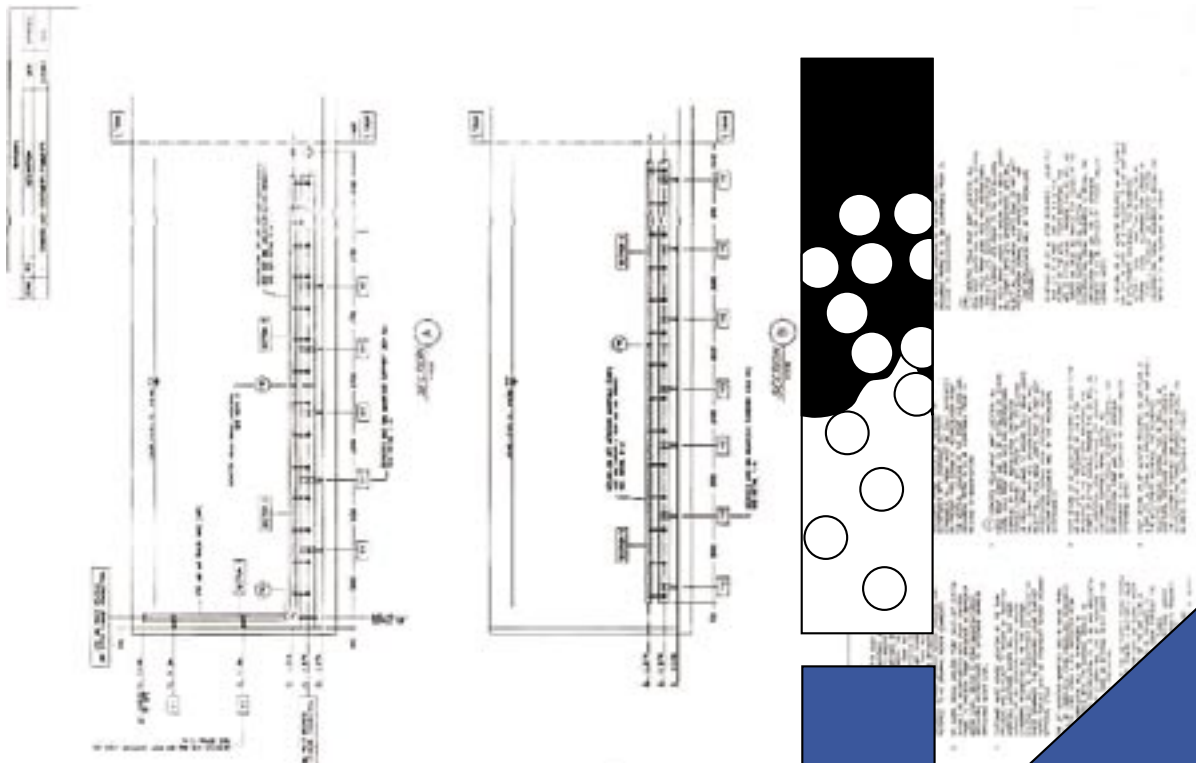
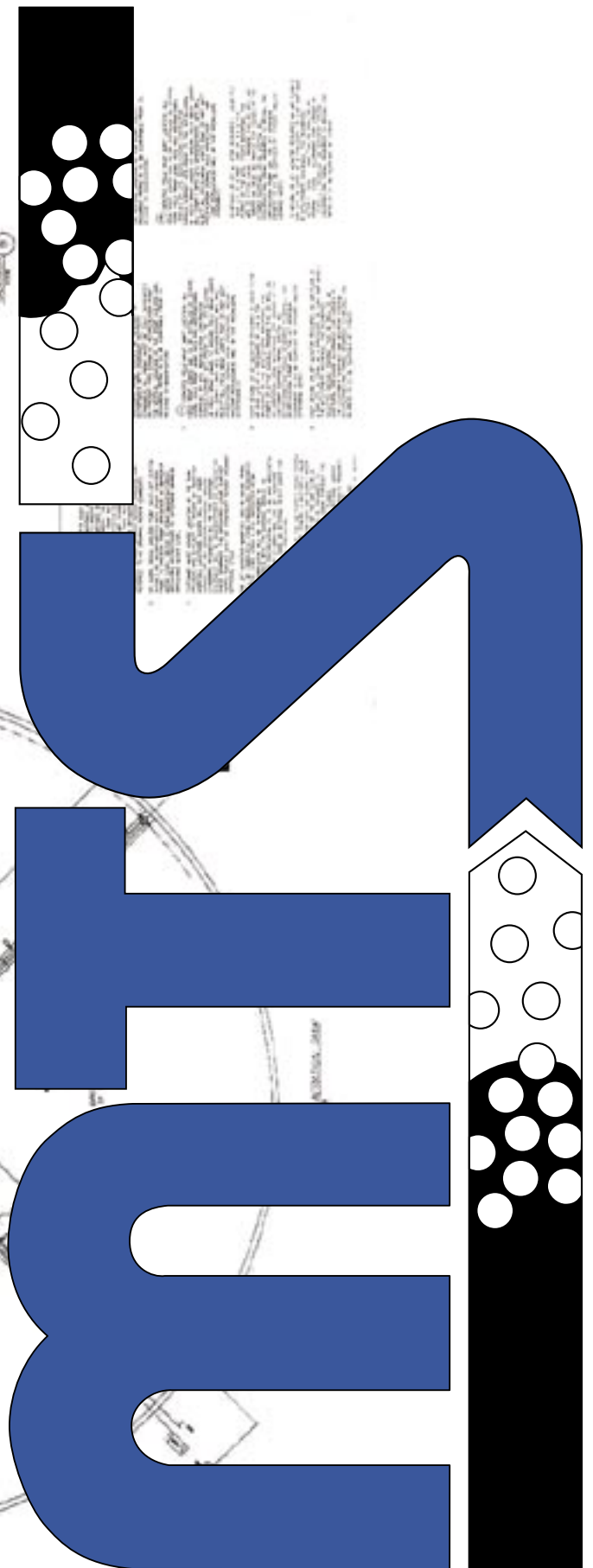


MTS Jet Aeration Systems

Mass Transfer Systems



MTS The Company...

Since 1984, MTS has specialized in the supply of MTS jet aeration and jet mixing systems for industries and municipalities throughout the world. The majority of our products consist of engineered systems for biological wastewater processes and a variety of industrial mixing applications.

The heart of the system, the jet aerator, is commonly fabricated out of fiberglass-reinforced plastic (FRP). We operate our own FRP production facility so that quality control and design continuity is maintained from conception through start-up/commissioning. This ensures our customers long-term, high-quality performance and system integrity.

MTS jet aeration equipment has transferred over 4 billion pounds (1.8 billion Kg) of oxygen, making it the most widely applied aeration system in biological treatment plants worldwide. Large industrial users in food processing, pulp/paper, chemicals, and pharmaceuticals have found that the MTS jet aeration system dramatically reduces the life cycle cost of their biological treatment systems.



This MTS jet aeration system installed north of Mexico City, Mexico serves a textile plant with a 35-ton-per-day BOD removal requirement.



Customers from the pulp/paper, pharmaceutical, food processing, petrochemical industries, as well as many municipalities, have benefited from the use of MTS jet aeration systems. Call us to determine how we can help you.

MTS Jet Aeration Systems

The Technology

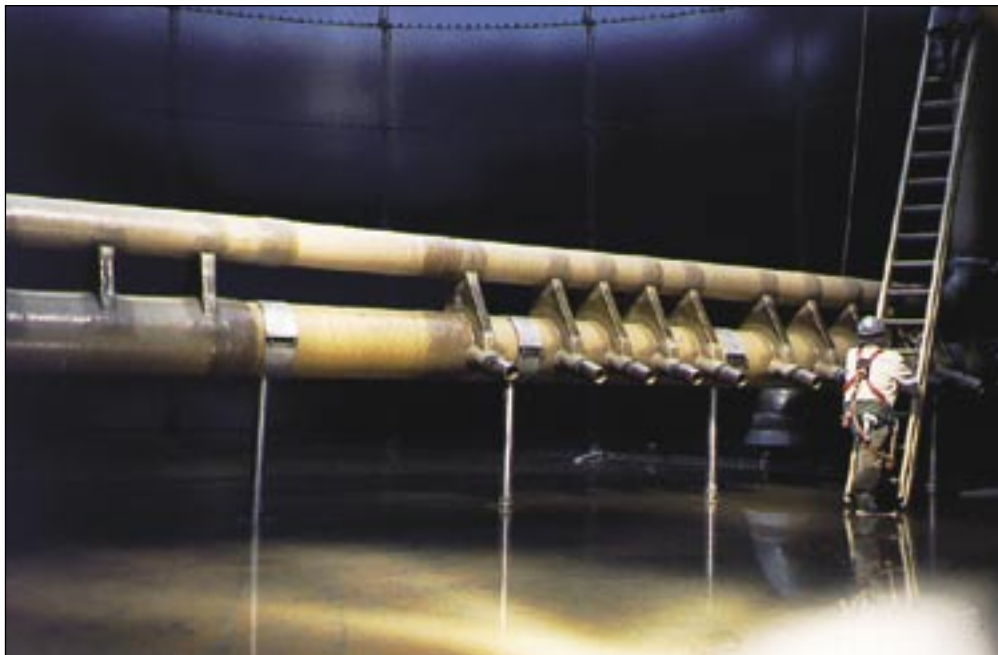
MTS jet aerators utilize two-phase jet nozzles to supply atmospheric oxygen to chemical and biological treatment processes. Special process benefits include high oxygen transfer efficiency, independent control of oxygen transfer and mixing, superior mixing, capital and energy savings, and reduced off-gas. Ease of maintenance is achieved through the use of conventional rotating equipment and our unique flushout system.

How It Works

The MTS jet aerator combines large volumes of recirculated liquid with low pressure air in a proprietary mixing nozzle. Recirculated liquid is pumped through the inner, primary nozzle, creating a high velocity liquid stream, while air is fed into the secondary, outer nozzle. The high velocity liquid stream shears the air into a turbulent, fine dispersion of gas and liquid.



The oxygen-rich gas/liquid plume is then discharged out of the secondary nozzle, entraining the surrounding liquid. The gas/liquid plume has both horizontal and vertical energy components and provides intense mixing of the basin.



The MTS Directional Jet Manifold Aerator is ideally suited for deep tank aeration projects resulting in energy and capital savings as well as a significant reduction in plant footprint.

Key Benefits

Oxygen Transfer Efficiency:

In addition to the efficiency inherent with a fine bubble dispersion of gas into liquid, the turbulent nature of jet aeration produces constant renewal of the gas/liquid interface, further facilitating oxygen transfer. The alpha factor is a relative measure of oxygen transfer performance in process wastewater vs. clean water. This constant surface renewal of the gas/liquid interface results in alpha factors that are higher when compared to most other fine bubble diffuser technologies.

Process Flexibility:

MTS jet aerators offer independent control of oxygen transfer and mixing. This allows operators to turn the air/gas supply up or down as needed, while still maintaining mixing via the recirculated liquid. Coupled with manual or automatic D.O. control, this leads to significant energy savings during periods of low loading. The ability to turn air completely off while maintaining mixing is ideal for biological processes that are cycled from aerobic to anoxic conditions.

Superior Mixing:

In addition to the vertical component caused by bubble rise, the recirculated liquid imparts a horizontal component of mixing energy. Full mixing of the basin is achieved without the need for the full floor coverage required of standard diffused air systems, resulting in significant installation time/cost savings.

Reduced Off-Gas/Aerosols:

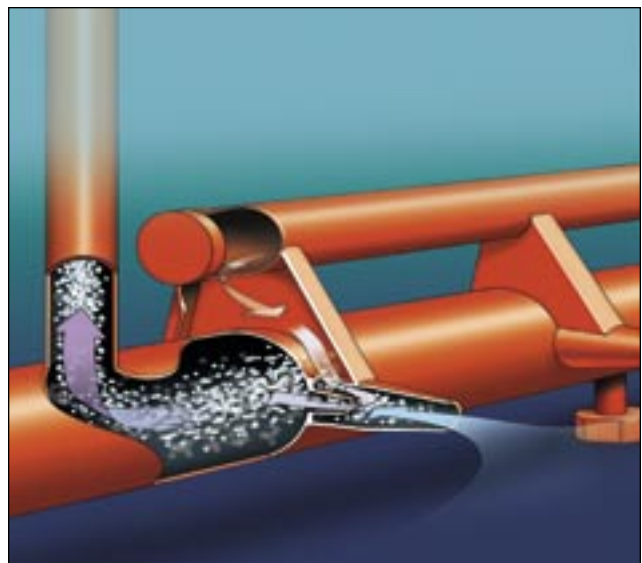
As air quality regulations become increasingly stringent, off-gas and/or aerosol production within the aeration process can be a concern. Because of the high oxygen utilization of jet aeration, significantly less gas is produced, lessening capital/operating requirements for off-gas collection and treatment. As a sub-surface device, MTS jet aerators do not produce the problematic aerosols typical of most surface aeration devices.

Ease of Maintenance/Reliability:

MTS jet aerators commonly utilize conventional accessories such as centrifugal pumps and centrifugal or positive displacement blowers. Typically, all moving parts are located outside of the basin for ease of maintenance. The high liquid/air velocities within the jets reduce the potential for fouling, and the aerators can be fitted with a self-cleaning flushout option.

MTS Flushout System:

MTS jet aeration systems are available with an optional flushout system, eliminating the costly requirement of basin drainage or aerator retrieval throughout the expected service life. Flushouts are used to unclog plugged aeration nozzles. The principle of operation is similar to that of an airlift pump, and as shown below, results in a powerful reverse flow through the jets, exiting a riser pipe attached to the liquid manifold. A typical flushout operation takes only five minutes and one person to perform it. The system can easily be set up for automation or remote actuation if required. A flushout system is commonly used for jet aerators in domestic sewage plants and in industrial treatment facilities such as pulp and paper mills.



A Summary of Key Benefits of the MTS Jet Aeration System:

(Chemical Plant Effluent – AOR=1000 kg/hr, 6m liquid depth)

	Alpha	SOR (kg/hr)	Air Required (m ³ /hr)	kW Required	In-Tank Maintenance	Mixing w/o Aeration
Jet Aerators	0.90	1492	20,400	650	No	Yes
Coarse Bubble Diffuser	0.70	1925	43,340	1020	No	No
Fine Bubble Diffuser	0.40	3358	36,890	925	Yes	No
Surface Aerators	0.90	1492	None	850	Yes	No

Note: kg/hr x 2.2 = lb/hr; m³/hr x 0.59 = scfm; kW ÷ 0.746 = bhp

MTS Jet Aeration Capabilities

MTS engineering teams work closely with our customers at every stage of a project, from conceptual design to commissioning. Our challenge is to balance all of the effluent quality requirements of the treatment plant with the optimization of the biological process, the heart of which is the jet aeration and jet mixing system.

Our services start with a budget proposal and design that our application engineers develop based on the inquiry we receive from prospective customers or their consultants.

After our preliminary design has been reviewed and the MTS jet technology has been chosen as the aeration solution, our engineering staff will furnish more detailed information and equipment descriptions to incorporate into detailed specifications for the treatment plant.

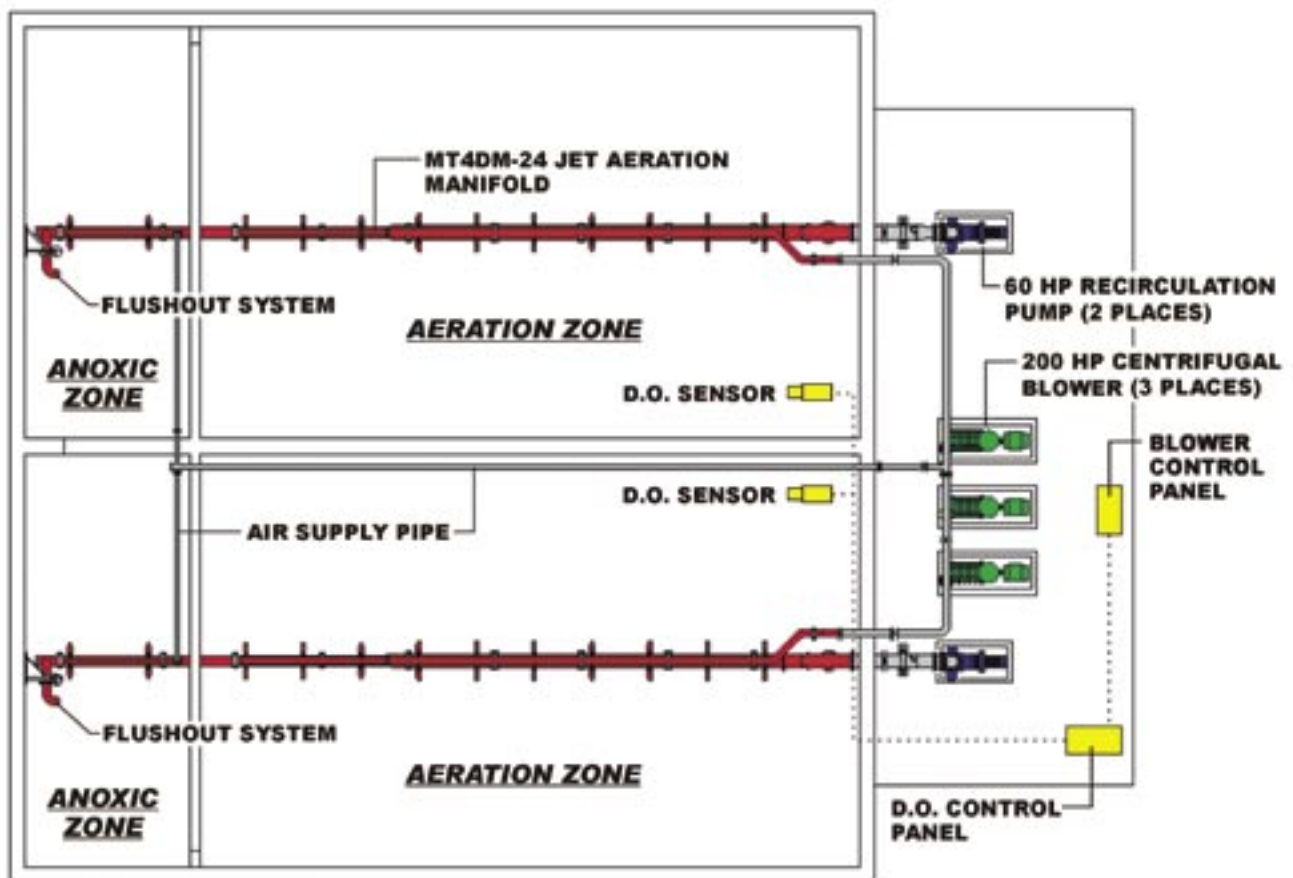
The final detailed proposal includes our standard oxygen transfer performance guarantee. We warrant all components within our scope of supply.

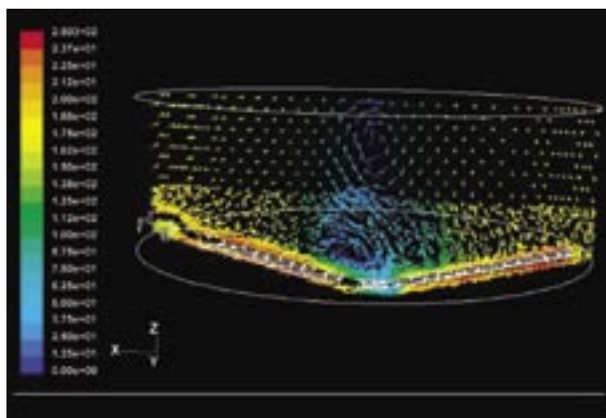
Upon receipt of a formal purchase order, MTS begins the detailed engineering process, documenting all details of the project. This documentation includes detailed plans and specifications; detailed design and performance data; project schedule; quality control and inspection documentation.

Upon formal release to manufacturing, procurement and production begins. The parts to be manufactured specifically for your project are ordered. Our purchasing team begins working with your approved vendors to ensure on-time delivery.

Throughout every step of design, manufacturing, and installation, your MTS project team is conducting in-process inspections and maintaining strict Quality Assurance guidelines. The fabrication process is subjected to frequent inspections, which continue through the entire commissioning process. Simply put, our goal is to ensure that each MTS jet aeration system performs beyond your expectations.

A typical MTS jet aeration system, this outline for a major industrial client shows the simplicity in design and equipment layout.





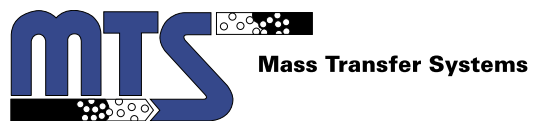
MTS jet aerators systems are designed based on over 30 years of operational experience and have been confirmed through CFD computer analysis.



This MTS jet aeration system installed in a 1.4 million (5,500 m³) Food Processing Wastewater Treatment Plant to supply 800 lb/hr (370 kg/hr) or oxygen.



The MTS jet aeration system for a combined industrial/ municipal wastewater treatment facility furnishes 200,000 Kg/d (440,000 lb/d) of oxygen to the biological process.



For more information about MTS jet aeration, contact:

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