



MEGTEC

# MILLENNIUM® Regenerative Thermal Oxidizer

Engineered Specifically for the Fermentation Process



# MILLENNIUM® Regenerative Thermal Oxidizer

Built for the fermentation process, the MILLENNIUM® RTO from Dürr Megtec combines cost saving metallurgies with heat recovery capabilities. The MILLENNIUM comes complete with O<sub>2</sub> sensors to control the necessary dilution air and operates with natural gas injection for additional fuel savings.

The MILLENNIUM RTO redefines the economics of clean air compliance in low-flow applications. This unique, compact system is designed specifically for the fermentation process at flows extending to 15,000 SCFM. The MILLENNIUM provides the efficiency, effectiveness, and reliability at very affordable capital, installation and operating costs.

## Compact and Cost-Effective Design

The system features integrated ductwork, individual poppet valves, and a unique, single-box configuration. These features save on both capital and installation costs. The compact, space-saving unit offers considerable installation flexibility.

## Money-Saving Media

The MILLENNIUM RTO uses a cost-effective and robust ceramic heat-exchange media. The exceptionally low-resistance of the media minimizes pressure drop, which means smooth operation and reduced electrical operating costs.

## Superior Fuel Efficiency

The system delivers thermal efficiencies of 95% and operates on natural gas injection, which reduces fuel costs.

## Regulatory Compliance

The standard system achieves 98%+ destruction of HAPs and VOCs, easily meeting clean air requirements.



*Preassembly and pretesting at the factory reduce MILLENNIUM RTO installation and start-up times to a minimum.*



*All units ship on commercial trucks.*



*Installation and start-up time is minimal. Turnkey installation options are also available.*

## Fast, Simple Installation

The system is preassembled, prewired, prepiped, and pretested at the factory. All units ship on commercial trucks. Installation and start-up time is kept to a minimum, typically requiring less than one week. Turnkey installations are available.

## Operational Reliability

The MILLENNIUM practically operates by itself. An advanced electronic control system automatically tunes the system for high VOC destruction rates with maximum fuel efficiency. The system's simple design offers low maintenance costs.

## Advanced Telemetry

Each MILLENNIUM RTO is equipped with a VPN for trending, monitoring, and remote diagnostics. A wide range of performance data is available to the operator for analysis, troubleshooting, and fuel optimization.

## Long-Lasting Performance

Designed specifically for the fermentation process, the MILLENNIUM offers corrosion resistant materials that stand up to the process conditions. The system's rugged construction and reinforced body ensure years of reliable service.

## Secondary Heat Recovery

Dürr Megtec offers secondary heat recovery for applications where higher solvent loading yields require more heat than what is needed to sustain oxidation. The recovered energy can be returned to process applications or used to reduce other plant energy requirements.

## Performance Features

- Energy efficient variable frequency drive (VFD)
- Low pressure drop ceramic media
- Simple, touch-screen controls
- Heated dilution air to raise the necessary O<sub>2</sub> levels
- VPN connections
- Operates on natural gas injection
- Reduces operating costs
- Lowers CO Emissions
- Lowers NO<sub>x</sub> emissions

The MILLENNIUM RTO efficiently oxidizes VOCs & HAPs generated during the fermentation process:

- Ethanol
- Methanol
- Acetic Acid
- Lactic Acid
- Acetaldehyde
- Acrolein

## Operating Specifications

|                                  |   |
|----------------------------------|---|
| Flow Capacity                    | up to 15,000 SCFM<br>(23,700 Nm <sup>3</sup> /hr) |
| VOC Destruction                  | typically 98%-99%                                 |
| Thermal Efficiency               | up to 97%   |
| System Fan                       | Forced draft w/VFD                                |
| Optional Secondary Heat Recovery | Yes   |
| Heat Exchange Media              | Ceramic   |

*The MILLENNIUM RTO offers the economic advantages of regenerative thermal oxidation exclusively for low-flow process applications.*

*Dürr Megtec uses DFSS (Design for Six Sigma) methodology to ensure equipment and service quality.*



*The MILLENNIUM RTO has a small footprint, which allows the unit to be installed in tight spaces.*



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