

# Regenerative Thermal Oxidizers

*Superior Expertise Means Superior Performance and Value*



NESTEC Inc.'s regenerative thermal oxidizers (RTOs) convert volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) to carbon dioxide and water vapor through thermal oxidation. For industrial processes, our RTOs are the best choice for your air pollution control needs.

**Proven Experience:** NESTEC Inc. engineers have been providing engineered solutions for air emissions using thermal oxidation for over 20 years.

**Low Utility Consumption:** Our RTOs are custom designed to minimize electrical usage and achieve over 95% thermal efficiency. Since no two process conditions are exactly the same, we use structured and random packing for optimum compatibility to the process conditions.

**Maximum System Value:** NESTEC Inc. RTOs use the most advanced controls and burner system to maximize performance while maintaining competitive costs. Our thermal oxidation systems are sized for all process conditions.

**MACT Performance:** NESTEC Inc. thermal oxidation systems achieve 99% VOC and CO control while emitting less than 0.04 lbs./MMBTU NO<sub>x</sub>.

**System Bakeout:** The NESTEC Inc. RTO is designed to control organic particulate buildup. The bakeout system controls the process offline to ensure safe operation and to minimize particulate emissions, which would otherwise cause compliance issues if performed online.

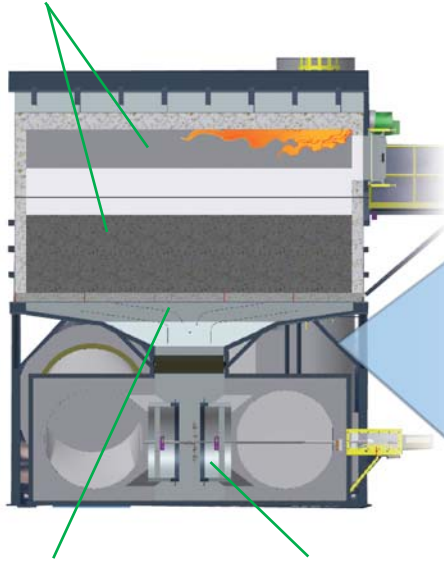
**Reliability, Easy Maintenance:** Our systems have been standardized for consistency in design, execution and operation. All components are accessible for inspection and service, and are stocked in the U.S.

**Comprehensive Service:** NESTEC has certified technicians located throughout the U.S. We provide system upgrades, repairs, utility reviews, optimization and used equipment. We will work on anyone's equipment anytime!

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## Innovative Design Features

Multiple heat recovery media beds made of high quality ceramic material recover thermal energy from the combustion process for reuse, reducing energy costs.



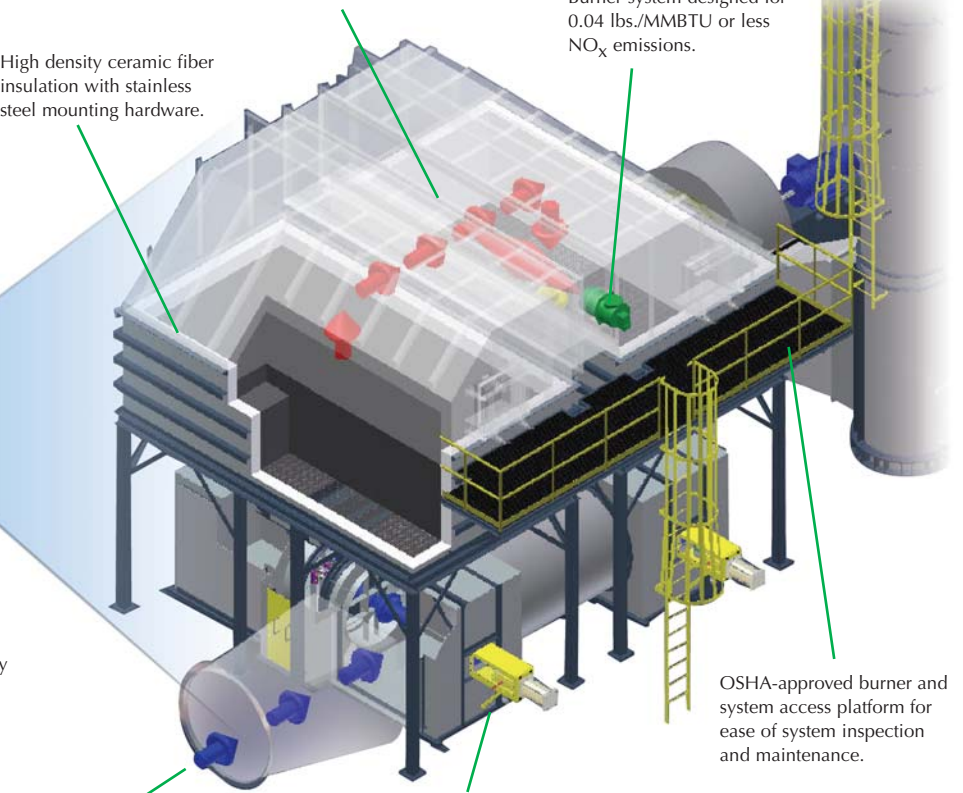
Optimally designed cold face plenum effectively distributes air across heat recovery media, reducing the non-destroyed process air ("puff") that exits during valve switching.

Fast acting valve switching minimizes leakage with only one valve per chamber making it simple to operate and easy to maintain.

High density ceramic fiber insulation with stainless steel mounting hardware.

Combustion chamber is designed for one-second retention at temperatures up to 2,000°F without showing mechanical wear or excessive downtime.

Burner system designed for 0.04 lbs./MMBTU or less NO<sub>x</sub> emissions.



Multiple process connection points allow for flexible installation where space is limited.

RTO designed to handle moderate to high gas flow rates up to 200,000 scfm, VOC loading up to 100% LEL and particulate concentrations of 0.02 gr/dscf.

OSHA-approved burner and system access platform for ease of system inspection and maintenance.

Industry/ Application	Flow/acfm	Average Inlet/ppm VOC	DRE/Average Outlet/ppm	Reliability/ % Uptime	Design/ Actual TER	Heat Recovery Media Type	Operating Temperature
Ethanol DDGS Dryer	56,425 acfm	515.0 ppm	99.4%/ 3.00 ppm	99+%	93.5%/93.8%	Ceramic Saddles	1,600°F
Ethanol Fermentation Scrubber	10,525 acfm	830.1 ppm	99.1%/7.11 ppm	99+%	95.0%/95.4%	MLM	1,600°F
Batch Chemical Reactor	87,300 acfm	440.0 ppm	99.6%/1.87 ppm	99+%	95.0%/96.1%	Ceramic Saddles	1,550°F
Kiln/Exhaust	45,190 acfm	99.0 ppm	98.1%/1.86 ppm	99+%	90.0%/91.3%	Ceramic Saddles	1,500°F
Styrene/Resin Curing	6,094 acfm	1641.0 ppm	99.7%/4.17 ppm	99+%	95.0%/Self- Sustaining	Monolith	1,550°F
Plate Coating	4,000 acfm	5,832.0 ppm	99.4%/37.60 ppm	99+%	85.0%/Self Sustaining	Monolith	1,600°F

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Environmental Products for Industrial Solutions