3rd Gen Regenerative Thermal Oxidisers (RTO)

Advanced VOC & HAP Abatement

ERG Air Pollution Control

Key benefits of ERG's Yurcent range of Rotary RTOs

- Airflow range: 5,000 – 100,000 m^3/h
- VOC and HAP destruction efficiency >99.5%
- Heat recovery efficiency >97%
- Continuous rotary valve – fewer moving parts, lower maintenance
- Uniform temperature distribution for stable performance
- Compact structure and high processing efficiency
- Heat exchanger options available for energy recycling
- Suitable for a wide range of industrial exhaust gas applications
- IED compliant discharge standards

Rotary RTO Technology

The Rotary Regenerative Thermal Oxidiser (RTO) is designed to abate VOCs (Volatile Organic Compounds) and Hazardous Air Pollutants (HAPs) by oxidising contaminated exhaust gases at high temperature. This process converts pollutants into harmless CO_2 and water vapour whilerecycling the heat released.

The ERG Yurcent Rotary RTO features:

- Combustion chamber, ceramic packing bed and rotary valve for robust, reliable operation
- 12-chamber furnace design: 5 inlet chambers, 5 outlet chambers, 1 cleaning chamber, 1 isolation chamber
- Motor-driven distribution valve for smooth, continuous chamber switching
- Fewer moving parts than 2 or 3 bed RTOs – reducing wear, downtime and costs

Performance and Applications

ERG Yurcent range of Rotary RTOs deliver >99.5% decomposition efficiency and >97% thermal recovery, ensuring outstanding environmental compliance and operating cost savings. Their compact and robust design makes them ideal for VOC and odour abatement in industries such as:

- Chemical and pharmaceutical production
- Coatings, resins and adhesives
- Petrochemical and refining
- Waste treatment and recycling

Zeolite Rotor – VOC Adsorption and Concentration

The zeolite rotor is designed for the efficient adsorption and concentration of low concentration exhaust gases. The concentrated gas stream is then directed to a Regenerative Thermal Oxidiser (RTO) for final treatment.

The rotor is divided into three functional zones:

- Adsorption Zone – Low-concentration exhaust gas passes through the adsorption section, where VOCs are captured. The purified air is then released directly to atmosphere.
- Desorption Zone – Once the zeolite media is saturated, it is regenerated by a small flow of hot air (180 - 220 °C), which desorbs the VOCs and creates a concentrated exhaust stream which is then treated in an RTO.
- Cooling Zone – The rotor is cooled before returning to the adsorption stage, allowing the cycle to continue uninterrupted.

Through this continuous process, VOCs are concentrated by a factor of 5 - 30 times, achieving an overall purification efficiency of 95 - 98%.The zeolite rotor is ideally suited to handling large volumes of low concentration exhaust gases, especially in industries such as coating, printing and surface treatment. Different zeolite formulations are selected depending on the exhaust gas composition, with concentration ratios and system parameters tailored to each application. Field experience across multiple industries has proven the Yurcent zeolite rotor to deliver reliable emissions control, consistently meeting regulatory standards and earning strong customer feedback. Single-unit treatment capacity: 1,000 m^3/h – 200,000 m^3/h.

ERG also offers a range of air pollution control and odour control systems for industrial and municipal applications.

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