

THERMAL OXIDISERS

FROM BRONX THERMAL

➔ Recuperative

➔ Regenerative

The Bronx Thermal Division of Bronx International provides engineering and manufacturing of high-quality Recuperative and Regenerative Thermal Oxidisers. Bronx manufactures its highly efficient oxidisers in Slovakia, at its sister company Bronx Process Technologies s.r.o.

Bronx Thermal's Oxidisers are used to destroy Hazardous Air Pollutants (HAPs) and Volatile Organic Compounds (VOC's) from industrial air streams. The oxidiser decomposes the hazardous gases at a high temperature and releases them into the atmosphere.

Bronx oxidisers are individually designed to ensure your system is perfectly matched to your requirements. Bronx Thermal's Oxidisers are designed and manufactured to provide a highly energy-efficient system that meets required high levels of VOC destruction.

➔ Recuperative Thermal Oxidiser

The recuperative thermal oxidiser uses an air-to-air heat exchanger of metallic construction (usually referred to as the primary heat exchanger) to pre-heat the curing oven exhaust gases before they enter the VOC destruction chamber.

Pre-heat temperatures can vary dependent upon the size of the primary heat exchanger used and typically range from 300°C to 500°C.

The higher pre-heat temperatures, although requiring more capital expenditure, do reduce fuel consumption and overall plant running cost.

After pre-heating the oven exhaust gases in the primary heat exchanger, the exhaust enters the oxidiser VOC destruction (or dwell) chamber via the burner chamber where it is heated to 760°C and held for the required dwell time, before being released to the atmosphere.

➔ Regenerative Thermal Oxidiser

In a regenerative thermal oxidiser (often referred to as an RTO) the oven exhaust gases flow over hot refractory media prior to entering the VOC destruction chamber. The direct contact between the exhaust stream and the hot refractory media provides a very efficient method of pre-heating the oven exhaust gases and pre-heat temperatures above the minimum oxidation temperature of 760°C can be achieved.

On a typical coil coating line application there will be sufficient solvent within the oven exhaust air stream for the auto-ignition of the solvent to generate sufficient energy to maintain the minimum required oxidation temperature without the burner being switched on. This is referred to as the Auto-Thermal condition.

After passing through the combustion / dwell chamber of the regenerative oxidiser the gases then exit via a second canister full of refractory media identical to the first. As the exhaust gases flow over the refractory media, heat will be transferred from the exhaust gases into the media.

After a period of about 90 seconds the media in the first canister will have reduced in temperature and the media in the second canister will have become hot and therefore the direction of the flow of the exhaust gases is reversed such that the media in the second canister are used for pre-heating the oven exhaust gases whilst the heat generated by the oxidation process is used to start re-heating the media in the first canister.

This cycle will continue to repeat itself during the operation of the regenerative oxidiser.

Due to the strict method of stack emission sampling used in some regions such as Europe and Australia, a third canister of media has to be added to the regenerative oxidiser to avoid the 'spike' of VOC contaminated exhaust that occurs during the flow reversal process.

Bronx Thermal works with its customers to tailor the best and most cost-effective solution for your coating line.

Thermal Audits and Upgrades – Colour Coating Lines

Bronx understands the importance of ensuring your coil coating line is performing at optimal levels. With increasing competition in the market, the need for an efficient, cost-effective solution to older systems is fast becoming the requirement for successful

high-quality production and energy efficiency. Bronx Thermal can provide a Thermal Audit of your line.

Bronx offers a complete range of upgrade services for your thermal requirements.

The team can upgrade your existing equipment to ensure it operates efficiently and is in line with current standards. Bronx can assist with optimising energy consumption and reducing emissions.



The Bronx Group of Companies has been providing Coil Coating Solutions since the 1970's and has expert Paint and Galvanizing Technologists, Thermal Engineers and an After Sales Team to support your business.

SERVICES OFFERED BY BRONX

- Equipment Design
- Installation & Commissioning
- Technology Transfer
- Training of Operators and Production Personnel
- Operator Manuals
- Technical Support
- Ongoing Customer Support

BRONX CAN ASSIST WITH:

- Thermal Upgrades
- Thermal Audits
- Optimising Energy Consumption
- Reducing Emissions

For more information on our range of thermal products please contact our Business Development Team or Sales Office: Phone: +44 1543 271615
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