AIR POLLUTION CONTROL TECHNOLOGIES FOR VOCs, CO & NOx

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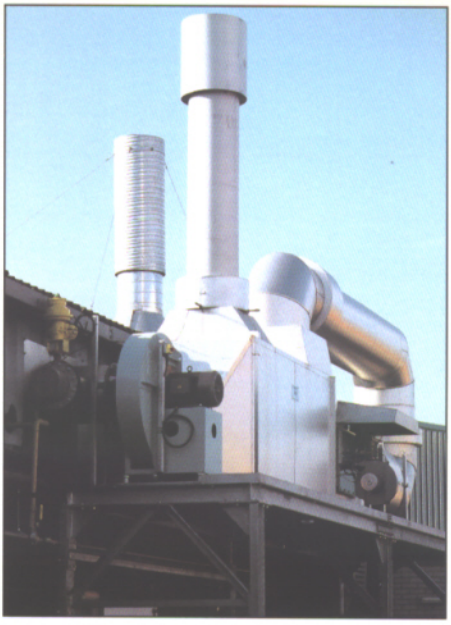
CATALYTIC EMISSION CONTROL SYSTEMS

HONEYCAT® CATALYST FOR VOC ABATEMENT

The Honeycat catalyst range from Johnson Matthey, a major worldwide supplier of industrial air pollution control catalysts, consists of thin-walled honeycomb supports coated with a fine dispersion of Platinum Group Metals, impregnated into a high surface area washcoat.

These catalysts, which form the heart of a Honeycat catalytic oxidiser, are derived from Johnson Matthey's autocatalyst technology programme and have many advantages over competitors' catalytic systems:

- Very high surface to volume ratio using metal and ceramic monoliths.
- Low resistance to gas flow with more than 90% open area.
- Very high intrinsic activity from the use of Platinum Group Metals (PGMs).
- Withstand high temperatures and temperature cycling
  - maximum 650˚C continuous
- High poison resistance and the ability to chemically wash the catalysts.
- Long catalyst life - Typically 5-7 years - Up to 10 years in many applications.
- Economic recovery of the catalyst due to the PGM value.
- Range of catalyst types
  - Standard VOC oxidation catalyst
  - Chlorinated VOC catalyst
  - LHC catalyst for methane, ethane, propane
  - Sulphur-resistant catalyst

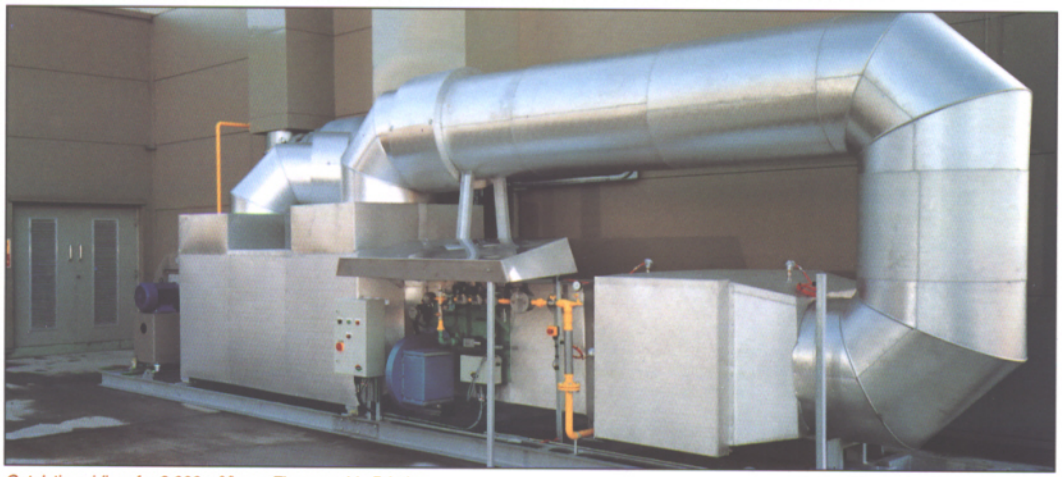


Catalytic oxidiser for 10,000 m³/hr on Rotogravure Printing

HONEYCAT® CATALYTIC OXIDISER DESIGN

Catalytic oxidation has great flexibility in application with the following features:-

- The range of flowrates which can be treated in a single catalytic oxidiser is from 10 m3/hr to 60,000 m3/hr.
- Catalyst modules for installation into existing process exhausts, utilising only the process temperature and pressure. For example, ovens, kilns and out-of-compliance thermal oxidisers.
- Concentrator + Catalytic oxidiser for low VOC concentrations.
- Secondary heat recovery for generation of steam, hot oil, hot water or hot air for space heating.
- Lightweight designs allow mounting on platforms or factory roofs.
- A range of fuels can be used from electricity, natural gas or propane to light fuel oil.
- Flexibility of operation from continuous to intermittent, with a warm-up time of 30 minutes or less.
- Low fuel costs - often zero fuel required during continuous operation.

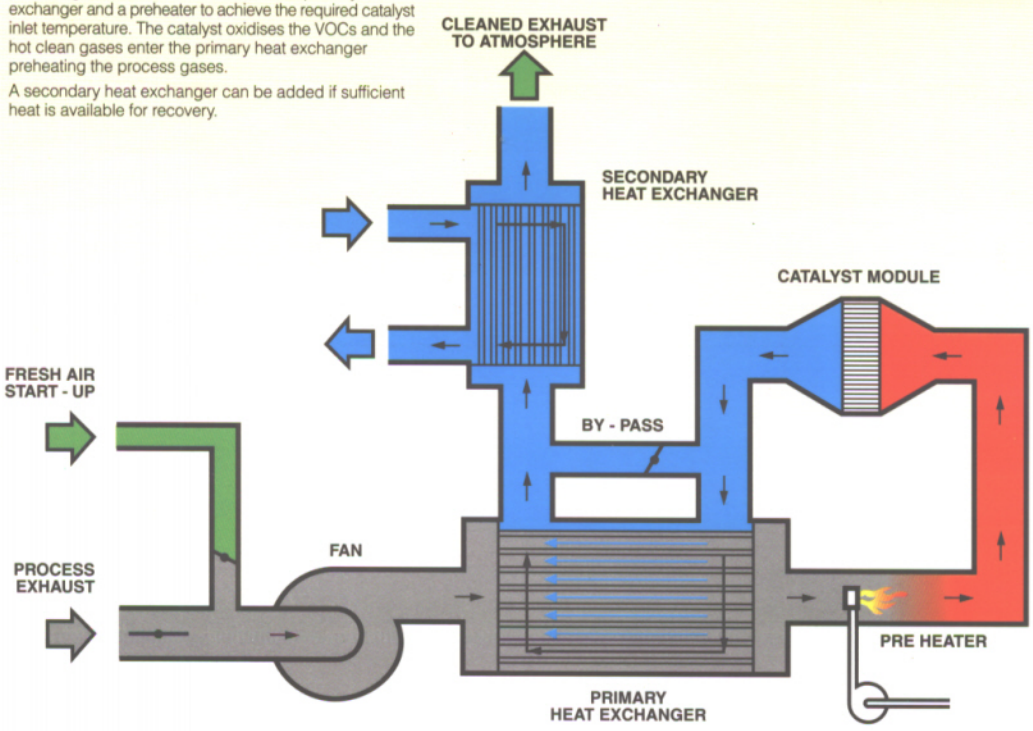


Catalytic oxidiser for 8,000 m³/hr on Flexographic Printing

A HONEYCAT® CATALYTIC OXIDISER

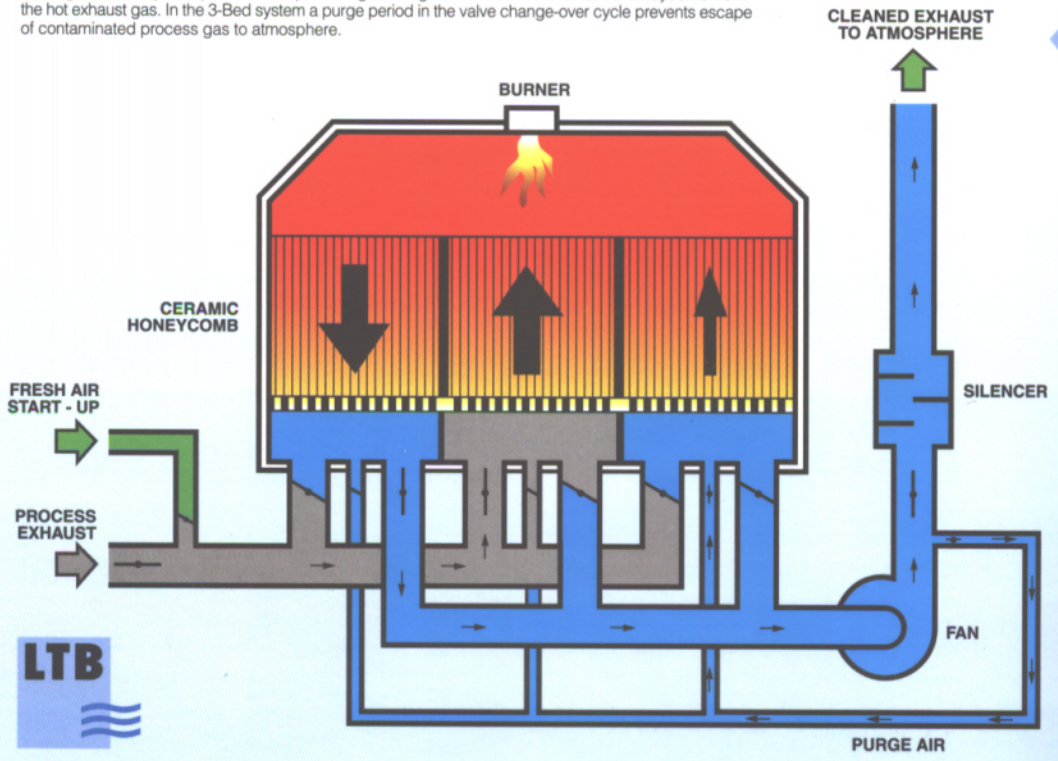
The Honeycat Catalytic Oxidiser System preheats the process gases with a combination of the primary heat exchanger and a preheater to achieve the required catalyst inlet temperature. The catalyst oxidises the VOCs and the hot clean gases enter the primary heat exchanger preheating the process gases.

A secondary heat exchanger can be added if sufficient heat is available for recovery.



THE ROXITHERM RTK 3-BED REGENERATIVE THERMAL OXIDISER

The regenerative system preheats the process gas using heat stored in the ceramic honeycomb from the hot exhaust gas. In the 3-Bed system a purge period in the valve change-over cycle prevents escape of contaminated process gas to atmosphere.



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REGENERATIVE THERMAL OXIDATION SYSTEMS

Regenerative Thermal Oxidation for Industrial Applications

Volatile Organic Compounds (VOCs) are generated by a wide range of industrial processes in which organic compounds are used as solvents or reactive chemicals. In addition to causing localised odour problems VOCs have been implicated in a wide range of environmentally damaging processes, including the generation of low-level ozone and smog. For this reason legislation has been introduced in many countries setting very low emission limits for VOCs in process exhaust gases.

We are the UK's agent for LTB of Germany who supply very efficient state-of-the-art Regenerative Thermal Oxidation systems. The RTO has been established over recent years as a technology that is suitable for high levels of destruction of VOCs, combined with very high thermal efficiencies and economic operating costs.

Roxitherm RTK 3-Chamber Oxidiser on Chemical Plant.

Roxitherm RTM 2-Chamber Oxidiser on Rotogravure Printing.

Roxitherm Oxidiser Design

- High volumes of exhaust gases can be treated.
- Two and three-chamber designs.
- Compact, unitary construction.
- High temperature operation for 99%+ VOC destruction efficiency.
- Very high thermal efficiency, up to 97%, for low running costs.
- Low CO and NOx emissions.
- Purge system to prevent emissions of untreated VOCs during the valve operating cycle.
- Burn-out system for removal of organic deposits.
- Low leakage valves with unique soft-seal method of valve sealing.
- Ceramic honeycomb energy recovery media for low pressure drop.
- Rapid heat-up from cold.
- Factory-installed thermal insulation in ceramic fibre blanket for low surface temperatures.

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ABOUT THE COMPANY

AirProtekt Limited was established in 1994, from the former Environmental Products business of Johnson Matthey plc. AirProtekt operates in partnership with Johnson Matthey as its sole UK distributor for Industrial Air Pollution Control Catalysts. Worldwide, a total of more than 1000 catalytic oxidation systems have been installed using Johnson Matthey catalyst.

AirProtekt is also the sole UK distributor of Regenerative Thermal Oxidisers for Lufttechnik Bayreuth Ruskamp GmbH, who have installed more than 60 RTOs across Europe. AirProtekt have been successful in obtaining orders for a number of RTO systems for major industrial companies in the UK.

The strength of AirProtekt lies in our considerable breadth of market knowledge and technical experience gained from over twenty five years in the Air Pollution Control business. With the benefit of our partner companies, we are in a unique position of knowledge and experience of many different industries and applications for which Air Pollution Control systems will be suitable.

AirProtekt offers the following products and services:-

- Catalytic oxidisers
- Regenerative thermal oxidisers
- NOx abatement systems
- Exhaust catalysts for stationary engines and turbines
- Full design, manufacture, installation and commissioning
- On-site pilot trial demonstrations
- Exhaust gas analysis
- Optimisation of dryer and oven exhaust systems
- Annual servicing and breakdown maintenance

For up to the minute technical advice and consultation on current air pollution control legislation, please contact our Cambridge office for help and further information.

High performance long life catalytic products supplied by AirProtekt.

CURRENT AIRPROTEKT INDUSTRIAL APPLICATIONS

The following industrial applications are benefiting from emission control systems designed and installed by AirProtekt:

- Abrasive materials manufacture with phenol/formaldehyde coatings.
- Plastics coating of fabrics.
- Impregnation of glass fibre with phenol/formaldehyde.
- Varnish and paint manufacture.
- Chemicals/pharmaceuticals/cosmetics manufacture.
- Kilns for firing of technical ceramics and bathroom tiles.
- Tempering ovens for rubber and synthetic seals.
- Mirror coating plant.
- Silicon carbide manufacture.
- Insulation board manufacture.
- Synthetic resin production.
- Brick manufacture.
- Food processing.
- Can and metal coating.
- Printing and converting.
- Soil remediation.
- Wood/paper/fibre processing.
- Hospital sterilisation.

TECHNICAL SUPPORT AND SERVICES

DESIGN, SUPPLY AND INSTALLATION

AirProtekt offers a complete service for design, supply and installation of emission control systems. From definition of the critical process exhaust parameters through design of the optimum engineering package, taking account of any space restrictions, to installation and commissioning of the completed system.

MAINTENANCE AND SERVICING

Following installation and commissioning AirProtekt provides a comprehensive programme for maintenance and service. Annual servicing to customer schedule and breakdown maintenance.

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