LANEMARK INTERNATIONAL

Case Study

Industry Subcontract coating
Company Northpoint
Product Lanemark gas & air burner

Lanemark gas and air technology helps improve energy use – with help from the Carbon Trust

Significant reductions in both energy consumption and carbon emissions – which fully satisfy the loan conditions required by the Carbon Trust – are being enjoyed by one of the country's leading subcontract coating specialists as a result of modulating air and gas burner technology from Lanemark International Ltd. Northpoint Ltd. has recently focused heavily on energy conservation, particularly via improvements in process control, which has prompted an ongoing programme of oven refurbishment, with Lanemark burner technology a key factor at each stage.

The powder coating of water processing pipes is a key part of Northpoint's work – and now benefits from Lanemark's gas and air burners (as shown on reverse).

The interest free loans available from the Carbon Trust, based on the CO_2 emission reductions that were forecast during the project-planning phase, have been an important factor in the drive for improved efficiency at Northpoint's Cheshire factory. The use of Lanemark's FD-C (GA) oven burner systems is at the heart of one of the most recent undertakings at the site as Northpoint's Managing Director Garry Marshall explains –

"We have had a long and successful relationship with Lanemark who have installed burners over a number of years on the four main ovens at our premises," he says. He points out that as a result of the use of Lanemark's technology, burner loadings have reduced which, along with other modifications to the ovens themselves, have resulted in a significant reduction in the energy consumption and thus carbon emissions.

One of the latest ovens to be modified – which now benefits from the use of modulating gas and air burner control systems – is dedicated to the powder coating of water processing pipes. This sector accounts for 35% of Northpoint's fusion-bonded epoxy business, the majority of which comprises subcontracting work on behalf of fabricators who supply a range of UK based and international main contractors. The product coatings themselves are accredited to ISO 9000 2008 and meet the requirements of the Drinking Water Inspectorate (DWI) which requires the burners to meet tight control parameters, such as close operating temperatures and variable dwell times, irrespective of product configuration and size – some of which can be up to five tonnes in weight, 2.5 metres in diameter and 6.5 metres long.

"Before the refurbishment work, we used fixed air burners which could cause air to 'spill out' of the oven unless an oversize exhaust fan was used," explains Garry Marshall. This can often be a characteristic of direct-fired heating systems where products of combustion are greatly diluted in the re-circulating air and a check on combustion efficiency is thus extremely difficult. The common solution is to allow a 'generous amount' of excess air to be used, which must be heated from ambient to the oven operating temperature. This results in more than a doubling of air volume and an inevitable spill out from oven ends leading to an unavoidable loss of energy.

"However, the Lanemark gas and air burner control design uses variable speed motor controllers to ensure that the correct volume of combustion air is delivered to

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each burner thereby eliminating the air spillage risk and minimising the energy input. This is particularly relevant when high operating temperatures are not required," adds Garry Marshall.

"The link between the burner control and response is vital and is a key feature of our FD-C (GA) gas and air burner design," comments Adrian Langford, General Manager at Lanemark International. "We have worked closely with key personnel at Northpoint and also with independent consultants Ray Greaves and with Mike Milner of Redford Design Ltd., who project managed the programme and assisted with the application for the loan support from the Carbon Trust.

"Four Lanemark FD10-C (GA)N-3 modulating gas and air burners are installed with a total maximum heat input capacity of 1000 kW," he explains. "New digital temperature controllers provide 0-10V DC control signals to the combustion air fan motor speed controllers fitted in each burner control box. As the combustion air fan speeds vary, changes in the burner 'windbox' pressures are transmitted directly to Kromschroder modulating gas/air control valves which ensure that the correct gas to combustion air ratio is maintained at all levels of heat demand."

"The oven in question is now up to 15% more efficient – a figure which rises to over 20% in the summer months. In the context of rising gas prices, this will see pay-back achievable in approximately 18 months," continues Northpoint's, Garry Marshall.

Largely due to the proven success of this project, Northpoint Ltd. has been granted additional interest free loan funding to assist with the costs of other energy saving projects that are actively being considered for installation in the coming months. Lanemark's advanced high efficiency process gas burner technology will continue to enable Northpoint to maximise their potential energy cost reductions.

Lanemark modulating gas and air burners – the key facts

The FD-C (GA) packaged burner design overcomes limitations often associated with fixed gas and air valve linkage control arrangements that may not respond accurately to changes in plant conditions. The Lanemark burner design maximises both performance and energy efficiency.

- **Provides flexible high turn-down gas and air control, utilising the latest 'air pressure lead' monobloc gas valve technology.**
- **Changes in process heat demand are transmitted directly to the burner varying the speed of the burner combustion air fan – the burner wind box differential air pressure is increased/decreased accordingly. These pressure changes are transmitted to the main gas control valve, adjusting the gas flow rate to maintain a safe and efficient gas/air ratio at all times.**
- **Models in the FD-C (GA) range provide heat inputs from 9 to 880 kW (30,000 to 3 million BTU/h) with natural gas or propane options.**

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