

Industry Lighting & safety system manufacture
Company Cooper Lighting and Safety Ltd.
Product Lanemark tank heating & oven burners

Lanemark tank and oven process heating at the heart of new lighting system paint plant

The benefits of process heating efficiency and accurate temperature control – for both tank heating and oven installations – are now in evidence at one of the UK's leading manufacturers of lighting and safety systems.

A new powder coating line, installed by specialists TD Finishing Ltd. at the Doncaster premises of Cooper Lighting and Safety Ltd., features both Lanemark's TX tank heating systems and the company's FD oven drying counterparts – notably in the form of the latest FD-C (GA) gas and air modulating control system.

The facility is already achieving excellent results and helping Cooper Lighting and Safety to fulfil growing demand for its industrial and commercial lighting and fire alarm systems.

The installation is dedicated to the powder coating of a range of steel and aluminium panels and components that feature in a wide range of Cooper Lighting and Safety enclosure and casing designs.

Individual components are located on an overhead conveyor that enters the system via a four-stage, pre-treatment facility. Here, a degreasing phosphate tank and a demineralised water rinse tank sit directly underneath the two spray chambers with each heated by a Lanemark TX60 burner system firing into a small diameter immersion tube heat exchanger through the process tank walls. The use of Lanemark's TxCalc modelling software played a key role in the heat exchanger design, predicting efficiencies in excess of 80% – which are now being readily achieved.



Lanemark FD-C (GA) burners (above) and TX burners (over) – achieving excellent results for Cooper Lighting and Safety Ltd.

From here, components are transferred to a three-pass dry off oven that utilises a Lanemark FD10-C (GA) burner system, before proceeding to the automatic powder coating facility. In turn, this leads into an eight-pass curing oven, which also benefits from two Lanemark FD10-C (GA) burner systems – located at opposite ends of the oven chamber – before removal of the components from the conveyor system for onward assembly.

"The benefits of using gas as an energy source are well defined at the Cooper Lighting and Safety Ltd. site," comments Lanemark's General Manager Adrian Langford. "Not only does this offer economic benefits compared with alternatives such as electricity, its use also enables a more uniform heat distribution than that created by radiant heating methods. This is particularly important given the variety of component shapes that are processed.

"We also believe that the decision to utilise our latest FD-C (GA) modulating gas and air technology reflects on key benefits associated with the burner design, not least its high turndown capability and its ability to optimise the gas/air ratio, which all assist in maximising efficiency," he adds.

Industry Lighting & safety system manufacture
Company Cooper Lighting and Safety Ltd.
Product Lanemark tank heating & oven burners

With over a 100-year pedigree, American-owned Cooper Lighting and Safety Ltd. is one of the largest manufacturers of its type in this country. Its commitment to utilising the most up-to-date and advanced manufacturing plant available in key areas of production is reflected by the TD Finishing design and the use of Lanemark gas process burner equipment. The new facility, which runs

at some six metres per minute – markedly faster than the line it replaces – is central to the production levels now being achieved by the three-shift operation.

“We are happy to report an increase in demand for our range of products, particularly the LED ranges and fire protection systems,” comments Maintenance Manager at the site, Tony Parkin who highlights reduced power consumption as being fundamental to efficient operation.

“The performance of the pre-treatment heating system together with the accurate temperature control and even heat distribution that we are achieving in both the drying and curing ovens, are central to the success of the operation. In particular, these help to create a greater speed of throughput,” he says. “We are confident that the results being achieved with the new plant installation will make a major contribution to our continuing success in the markets we serve.”

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 turndown 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.

