



NobleLight®

Infrared System Boosts Line Speed and Efficiency of Paint Curing

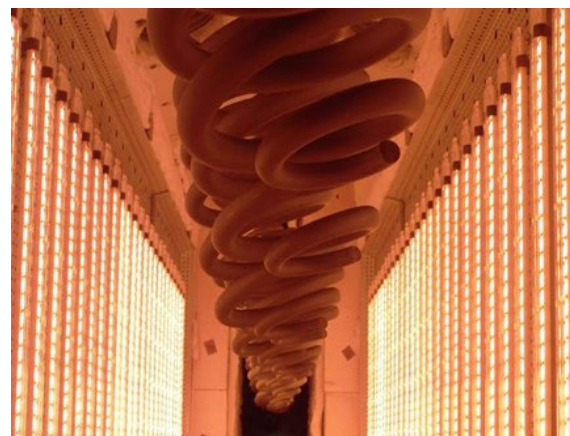
A retrofitted electric infrared system has significantly improved the efficiency and line speed of a gas catalytic oven used for curing powder coatings at the Dubai manufacturing facility of Ideal Design and Display. The special design of the infrared emitters also allows the system's power to be increased to meet future production requirements.

Ideal Design is a full-service provider for the design, engineering, and manufacturing of POS displays and retail store fixtures. All displays and fixtures are powder-coated to customer specifications in the company's in-house powder-coating facility, which features a gas catalytic curing oven. Powder-coating gelling is often performed using convection ovens, which are energy-inefficient, require substantial floor space, and generate noxious gases—contradicting Ideal's eco-friendly philosophy. Gas catalytic ovens, however, are flameless, relying on a chemical reaction between propane or natural gas and a platinum-catalyst ceramic composite heater panel that produces infrared radiation in the long to low-medium wave spectrum. Unfortunately, if the powder coating does not fully gel, powder can accumulate on the catalyst, reducing oven efficiency and slowing line speeds.

This was the challenge Ideal Design faced, and to solve it, the company installed an electric infrared PreGel oven from Excelitas. The system was easily retrofitted into the existing oven vestibule. The electric IR PreGel consists of five zones of medium-wave infrared emitter modules, each individually adjustable from 0–100% to match the size and cross-section of the coated profiles. Each electric IR Twin Tube emitter contains two separate filaments wired in parallel. With a single filament activated, the system operates at 70 kW—aligned with Ideal Design's current electrical capacity. When both filaments are used, power increases to 140 kW, enabling higher throughput and faster line speeds once the planned power-supply upgrade is completed.

Since installation, the new PreGel oven has delivered substantial improvements to the powder-coating process. At 70 kW, line speeds have increased by 20–30%, and Datapaq analysis has confirmed that curing temperatures in the gas catalytic oven are reached more quickly and consistently. Tests at the full 140 kW demonstrated that line speeds can be doubled, with the system running at approximately 70% of installed power.

According to Pradeep Pais, Operations Manager at Ideal Design: *“The PreGel oven has exceeded all expectations. Beyond increasing line speed, we now achieve more consistent coating because the process is more efficient. Additionally, we expect a longer lifespan for our catalytic oven, as the powder is now fully gelled in the infrared oven and no longer contaminates the catalytic panels.”*



FEATURES

- Powder coating in a conventional oven
- Infrared booster for pre-gelling
- Increase of line speeds by 20-30%
- Retrofit into the vestibule of the existing oven

TECHNICAL DATA

- Medium-wave Infrared emitters
- Twin tube emitters, filaments can be controlled separately
- 70kW with one filament on / 140kW both

