Understanding the Basics of Gas Catalytic IR

Catalytic Infrared (IR) technology is a highly efficient way to cure powder or liquid on metal, plastics, and other substrates. By using direct radiant energy instead of heating air, Gas Catalytic IR ovens require less space, less energy, and deliver a superior finish compared to conventional ovens.

What is Infrared Energy?

Infrared radiation (IR) is radiant energy, invisible to the human eye but is a very effective means of heat transfer. Unlike convection, which relies on circulating hot air, IR waves transfer energy directly on the surface.

- Infrared energy is the same warmth we feel from the Sun. On an 80°F day, step into the shade and it feels cooler—even though the air temperature hasn't changed. That's the power of direct infrared.
- Efficient transfer: Heat penetrates the coating, curing it from the surface side outward.
- Direct absorption: Coatings such as powder and liquid paints readily absorb IR waves.

What is Gas Catalytic IR Process?

Gas Catalytic IR harnesses a simple chemical reaction to generate medium- to longwave infrared energy.

1. Natural gas or LPG passes over a platinum-coated pad.
2. A catalytic reaction occurs, producing:
    - Heat (longwave infrared energy)
    - Water vapor
    - CO_2 (with no NOx or unwanted emissions)

This controlled reaction produces a clean, consistent IR output that is easily absorbed by coatings — curing parts faster and with less energy.

Precision Control with TITAN-Catalytic Systems

Our advanced controls manage each heating zone independently, ensuring the ideal curing profile for your parts for every phase of the process. Customizable programs can be stored as recipes, recalled, and adjusted remotely for complete flexibility in your production line.

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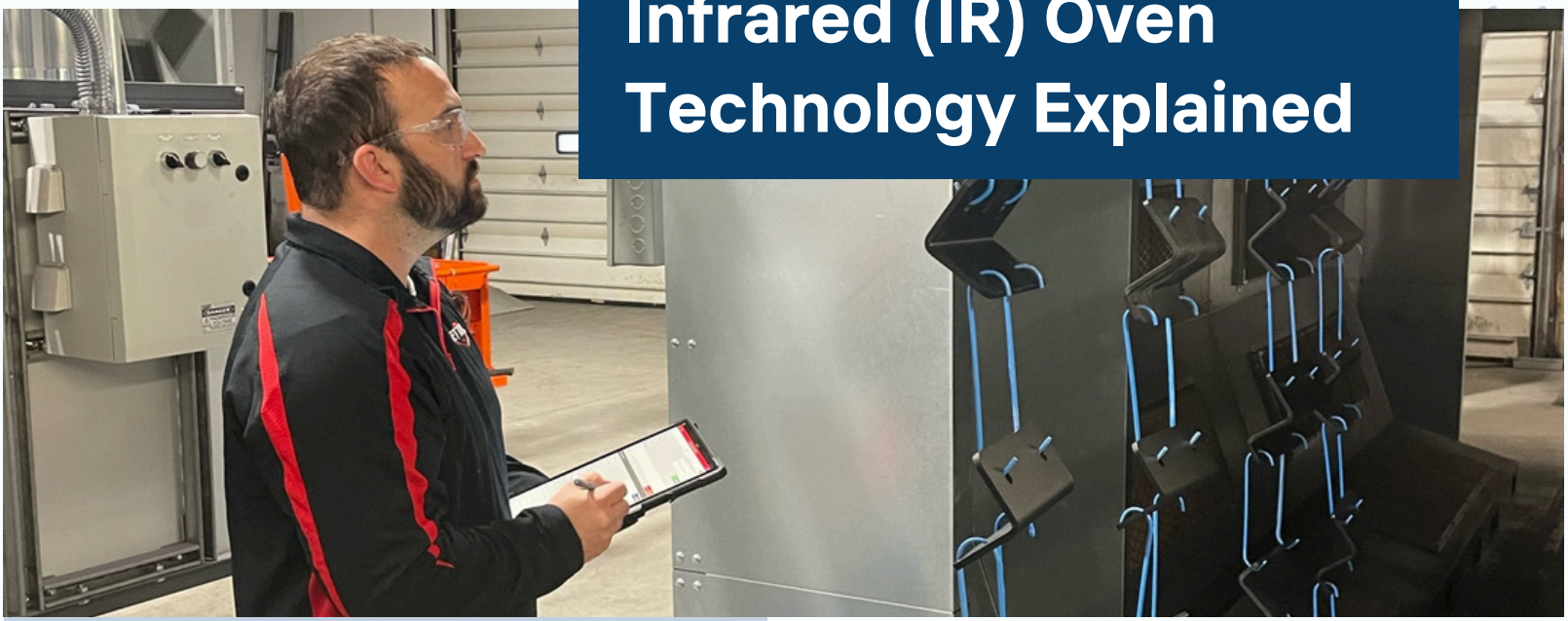
TITAN-Catalytic Gas Infrared (IR) Oven Technology Explained



Advantages of Gas Catalytic IR

Gas Catalytic IR technology delivers consistent, efficient heating that transforms curing processes.

Uniform coverage with proper ray tracing

- Heater faces emit IR in a straight fanning out arch of energy which makes Ray Tracing important. This ensures even heat distribution across the surface of the part.

Faster, More Efficient Curing

- Achieve curing times up to 66% quicker than convection ovens, boosting throughput and reducing energy waste.

Flexible Output Control

- Adjustable heater temperatures from 350°F to 900°F, with turndown from 100% to 30% capacity, let you match heat precisely to your application's needs.

Space-Saving Design

- Compact ovens take up less floor space, making room for more production capacity.

Why Choose TITAN?

With more than 30 years experience in the industry, TITAN-Catalytic leads in Gas Catalytic IR innovation — delivering custom-engineered solutions designed around our client's production needs.

Faster Throughput

- Cut curing cycles dramatically while maintaining high-quality finishes.

Lower Operating Costs

- Save up to 50% in energy costs compared to Electric IR systems.

Cleaner, Greener Technology

- Reduce emissions by 45% or more, supporting sustainability goals with zero NOx emissions.

Reliability You Can Count On

- Proven technology built for long-term performance and repeatable results.

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