Laser Curing for Powder Coatings

A smarter curing approach for high-performance manufacturing

In today's manufacturing environment, staying competitive means producing more – faster, more efficiently, and with greater control. PhotoniCURE™, a laser-based curing system developed by IPG Photonics for powder coating applications, offers a practical alternative to traditional curing methods. In partnership with IPG Photonics, we bring this technology to powder coating line, replacing large ovens and infrared systems with targeted laser energy applied directly to the coating layer. The result is faster curing, lower energy consumption, and improved consistency across every coated part.

Using laser light in the near-infrared range, powder coatings are melted and cured exactly where they are applied – directly on the surface. The powder flows and chemically crosslinks to create durable, high-quality finishes in smooth, fine, or coarse textures, while curing times are reduced from 15–20 minutes to just minutes. Faster curing enables higher throughput, shorter production lines, and greater responsiveness to changing production demands.

Laser curing supports modern, automated manufacturing through compact system design, inline integration, and precise process control. It allows manufacturers to simplify production layouts, increase output without expanding floor space, and adapt to new products or coating requirements, making it a future-ready solution for high-performance powder coating operations.

Leading benefits

Optimized curing process
Laser curing rapidly cures powder coatings in just a few minutes by selectively heating only the applied coating. This 'cold oven' approach reduces production time, eliminates wasted heat, enables instant on and off operation and supports fast, inline automation with precise temperature control. Because there is no need for thick oven walls or extended cool-down zones, laser curing allows for a significantly shorter production line, making inline automation faster to deploy and easier to integrate into space-constrained manufacturing environments.

Lower cost of ownership
Reduced energy consumption, compact equipment, and minimal maintenance requirements contribute to significantly lower operating and capital costs. In high-volume production environments, replacing conventional curing ovens with laser systems can substantially reduce both energy use and factory footprint, while simplifying overall line infrastructure.

Smarter factory integration
Compact, modular laser curing systems integrate into automated production lines, freeing up valuable floor space and removing the need for large ovens, cooling zones, or extensive HVAC infrastructure. The modular design allows production capacity to be expanded at a later stage as demand grows, without major line redesign. Laser curing systems can be configured for stop-and-go or continuous conveyor operation, and are available as fixed installations or flexible robotic solutions, allowing the system to be tailored to your production flow and automation strategy.

Sustainability gains
By dramatically reducing energy consumption, reducing production times and eliminating unnecessary heat emissions, laser curing supports the transition from gas to electricity and renewable energy, overall lowering carbon footprint without compromising productivity.

Join the powder revolution

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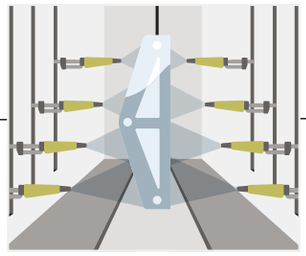
Smarter curing line integration

Laser curing integrates directly after powder application. PhotoniCURE™ is designed for integration into modern automated production lines, replacing long curing ovens and cooling zones with a compact laser station. Its modular architecture supports both continuous conveyor and stop-and-go production, creating a shorter, more efficient line layout with scalable production capacity.



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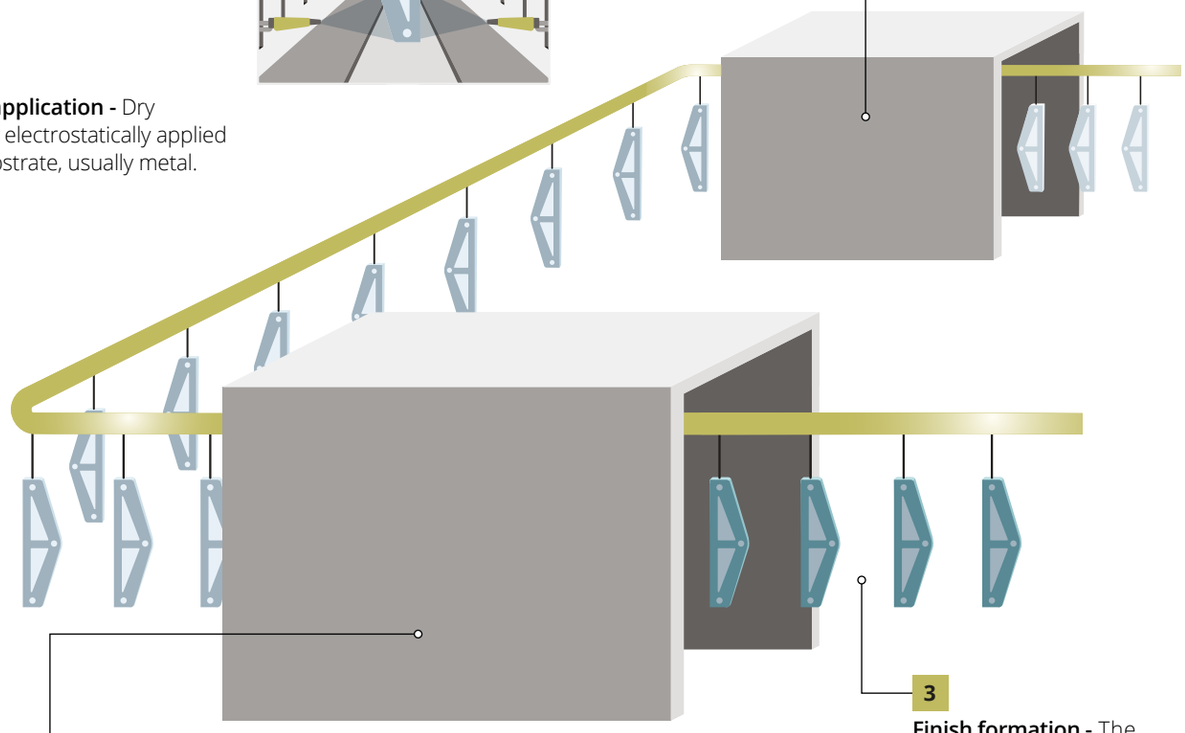
Powder application - Dry powder is electrostatically applied to the substrate, usually metal.



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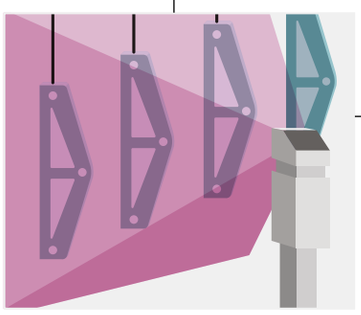
Finish formation - The cured powder provides excellent durability in smooth, fine or textured finishes.



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Laser curing - A high-power diode laser scans the coated surface, with the laser energy absorbed by the powder, curing in as little as a few minutes.

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Contact your sales representative or contact **interpon.info@akzonobel.com** to learn more about Laser Curing.

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