

HALCON® HYBRID IR TUNNEL

Technical & Performance Specifications

Curing Performance

- Full cure in **5–10 minutes** (depending on coating type and thickness)
 - Cool-to-touch in approximately **90 seconds**
 - Reaches full operating temperature in **1 second**
 - Eliminates traditional **1–4 day air-drying windows**
 - 5× daily throughput vs traditional gas/convection ovens
 - Designed for continuous, high-output production environments
 - Suitable for most wood, composite, MDF, and coated substrates
 - Capable of handling mixed finishes and varying coating builds
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Hybrid Infrared Technology

- Dual-phase hybrid IR system:
 - **Medium-wave IR** mobilizes solvents and prepares the substrate
 - **Short-wave IR (halogen)** penetrates the coating and cures from the inside out
 - Inside-out curing eliminates solvent entrapment
 - Prevents blistering, bubbling, peeling, and delamination
 - Targeted heat at the coating layer (not ambient air)
 - High-intensity halogen short-wave IR
 - Converts up to **95% of input energy into usable short-wave infrared**
 - Minimal heat impact on the surrounding plant environment
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Energy Efficiency & Power

- 50–70% more energy-efficient than gas convection systems
 - Uses up to **50% less power** than comparable gas ovens
 - Instant on/off capability (no preheat cycle required)
 - No standby heat loss
 - Reduced HVAC load due to targeted heat delivery
 - No combustion fuel requirements
 - No oxygen required for operation (sealed system)
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Environmental & Compliance

- Zero carbon emissions
 - No combustion gases
 - OSHA compliant
 - EPA compliant
 - Eliminates open flame risks
 - No gas lines required
 - Reduced plant heat load vs convection systems
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Construction & Modularity

- Modular design — built in **12-foot increments**
- Custom-configured to production requirements
- Standalone operation or integrated configuration
- Works with:
 - Existing conveyors
 - Prime Heat PowerCart® systems
 - Robotic automation systems
- Compact footprint vs gas/convection ovens
- Shrinks overall finishing footprint by 60–70% (when integrated)

Lamp & Maintenance Specs

- 6,000-hour lamp life expectancy
- Quick lamp replacement (under 1 minute per lamp)
- Minimal moving parts
- Reduced mechanical wear vs convection systems
- No large heat chambers requiring maintenance
- No gas burner maintenance
- No heat exchangers
- Lower lifetime service costs

Quality & Defect Reduction

- 99.9% defect reduction (vs conventional curing systems)
- Crystal-clear, high-clarity finishes
- Eliminates trapped solvent defects
- Eliminates moisture entrapment
- Eliminates surface bubbling from outside-in cure
- Improves adhesion consistency
- Reduces rework and scrap rates
- Repeatable, spec-perfect curing

Control & Automation

- Allen-Bradley PLC programmable control system
- Customizable cure “recipes” by:
 - Coating type
 - Part type
 - Finish thickness

- Repeatable digital control
 - Automated cure sequencing
 - Integration-ready for smart routing systems
 - Compatible with robotic loading/unloading
 - Data-driven, programmable production settings
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Operational Impact

- Eliminates thermal bottleneck in finishing
 - Enables continuous production flow
 - Removes need for large air-dry staging areas
 - Reduces WIP accumulation
 - Frees up warehouse space
 - Increases shipping speed
 - Enables aggressive lead-time quoting
 - ROI typically achieved in **8–12 months (or less)**
 - 30–70% increase in finishing profitability (site dependent)
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Industrial Capability

- Designed for high-volume manufacturing
- Suitable for:
 - Door manufacturers
 - Cabinet manufacturers
 - Millwork producers
 - Wood component manufacturers
 - Powder coating (when configured accordingly)
- Built for multi-shift operation
- Continuous duty design