



THG Tunnel Ovens



TUNNEL OVENS
Indirect Gas Fired
Direct Gas Fired
Hybrid DGF/IDF

WIDTHS AVAILABLE
15' - 6" Wide
13' - 6" Wide

FUEL OPTIONS
Natural Gas
Propane
Thermal Oil

SURFACE OPTIONS
Mesh Belt
Steel Plate Hearth
Grid Hearth
Stone Hearth

LOADERS AND UNLOADERS
Pan Loaders and Unloaders
Hearth Product Loaders
Hearth Product Unloaders
Wing Loaders for Peels
Combination Units

OVEN UPGRADES AND SERVICES
Oven Extensions
DSI Systems
Turbulence Systems
Annual OSHA Oven Inspections
Oven Rebuilds and Repairs
Oven Replacement Parts
Oven Installations and Relocations

800.356.7591



4 TurboTherm
Oven Technology
greener by design



THG Tunnel Ovens

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The Henry Group's Tunnel Ovens are available in Indirect or Direct Gas Fired variations as well as the super efficient E4 Hybrid Turbo Therm Model that offers a variation to the typical DGF oven. All can be powered by Natural Gas, Propane, or Oil fuel sources. Our tunnel ovens are designed for baking a vast variety of products in pans, as well as products baked directly on the hearth. All of our Tunnel Ovens are available with Mesh, Plate, or Grid Hearth baking surfaces.

Indirect Fired Tunnel Oven (IDF)

Automatic natural gas or oil burners fire into a combustion chamber which is completely lined with high quality, high temperature Inconel and 310 stainless steel. The heat exchanger system keeps combustion by-products outside the baking chamber allowing products to bake in heated ambient air. The mesh hearth allows complete air circulation and uniform pattern on bottom of products.

E4 Turbo Therm Tunnel Oven (Hybrid)

The THG hybrid is our most fuel efficient DGF Tunnel Oven option we offer. The Hybrid offers the benefits of the DGF with the efficiency of an IDF oven combined for the best of both worlds. The E4 is equipped with the integrated catalytic oxidizer and an initial IDF first zone. The ethanol from the bake chamber is vented back to the indirect recirculation loop re-heated and used to heat the first zone of the oven as indicated in the E4 diagram below.

Direct Fired Tunnel Oven (DGF)

Air turbulence provides a uniform bake with strong product side walls and shorter bake time. The baking chamber is formed of steel lining sheets with expansion joints for internal expansion without movement of the oven as it is heated.

Multiple thermocouple sensors determine bake chamber tempera-

ture and provide zoned temperature control for complete flexibility. Individually controlled burners are located above and below the hearth for even heat distribution. The mesh hearth allows for air circulation and uniform pattern on the bottom of products. Hearth plates are made of stainless which forms an interlocking, self-supporting level baking surface.

Energy Efficiency Information

Air Recirculation (IDF only)

The recirculation system uses a large volume blower to provide a high level of wiping action inside the radiator tubes and ducts. This facilitates heat transfer of the combustion gases through the radiator walls. The result is that lower recirculation air temperatures are required for heating the bake chamber. This results in lower exhaust stack temperatures (a direct measure of efficiency) and has an additional benefit of greatly reducing "flash heat" caused by breaks in product flow.

Turbulence System (IDF and DGF)

Our turbulence systems utilize heated air in the bake chamber versus having to reheat fresh air. The turbulence system (top & bottom) recirculates the heated bake chamber air and directs it to the product to wipe away the "cold" boundary air layer that surrounds the product. This enables baking at lower temperatures and cutting bake times which results in lower fuel consumption. The IDF has separate upper and lower zoned blowers for maximum control. The turbulence blowers are on VFDs to gain the optimum "wiping" action for bake quality.

Roller Bed Sections (IDF and DGF)

Alternating Roller Bed and Chevrons sections installed throughout the oven baking chamber reduce amps on drives. Metal on metal wear is also reduced which extends oven belt and belt support life. The oven belt returns through the bake chamber and does not loose heat and need to be reheated.

Oven Insulation (IDF and DGF)

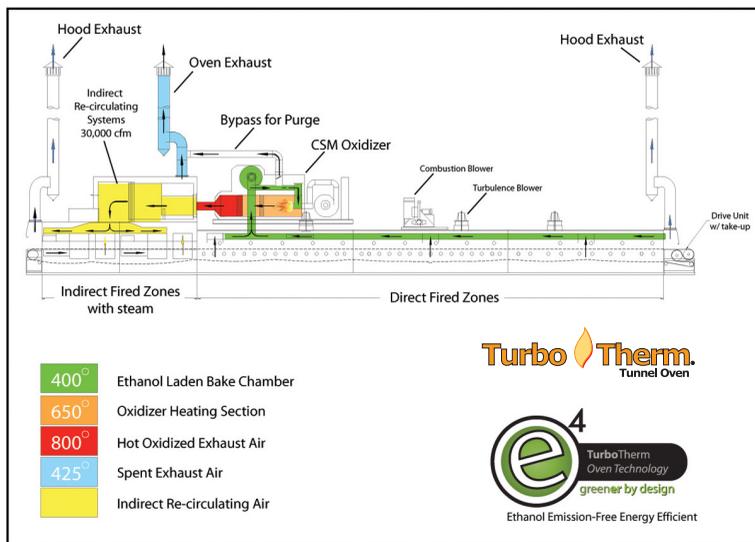
The oven walls and roof are insulated with up to 13" of rock wool insulation. The outside oven panels have an additional 2" of high performance board insulation to provide an extremely low total heat loss.

Radiator System (IDF Only)

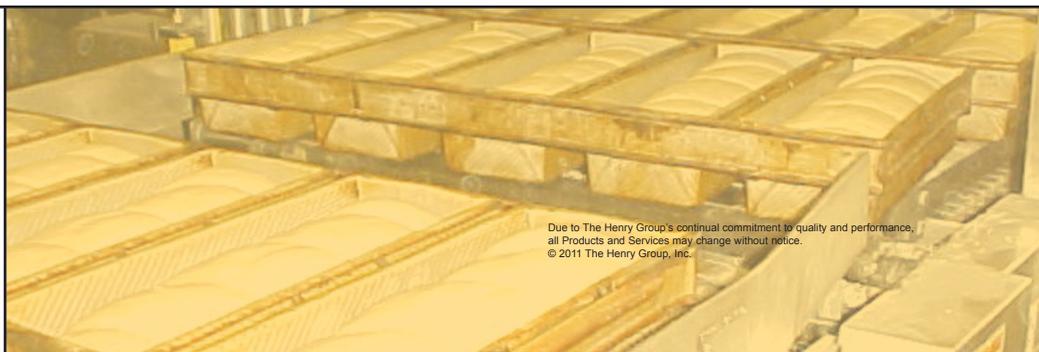
The combustion gases are vented out the tower stacks after the heat from combustion has been transferred to the bake chamber through the oven radiator system. The combustion exhaust volume is in direct proportion to the gas/air mixture consumed by the burners at any given firing rate. The bake chamber exhaust only needs to vent the gases (CO₂, water vapor, ethanol, etc.) that are released by the product ("bake losses"). The bake chamber stacks are gravity stacks and get their flow from the buoyancy of the heated oven atmosphere.

Integrated Catalytic Oxidizer (Optional IDF and Hybrid)

THG offers an integrated catalytic oxidizer that not only provides 96% destruction of VOCs, but also results in lower fuel consumption (up to 17%) because the heat from the combustion of the ethanol given off by the product is vented back into the indirect recirculation loop to provide heat for baking, requiring less heat input from the oven burners. An optional economizer coil can be added to the oven exhaust stack to capture waste heat and create hot water that can be used for heating the final proofer in the line through a closed recirculation loop.



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