

Industrial Hot Air Circulation Drying Oven Forced Air Thermal Processing Chamber

Item Number: KT-GZX



Introduction

Engineered for demanding industrial thermal processing, this hot air circulation drying oven delivers precision PID control up to 300°C with dual horizontal ducts. Maximize component preheating and batch drying efficiency with rapid heating, automated ventilation, exceptional chamber uniformity, and durability.

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Application	Description	Key Benefit
Precision Machined Parts Dehydration	Evaporates residual cutting fluids, industrial washing solvents, and rinse water from intricate internal channels and blind tapped holes in CNC-machined metal components.	Eliminates oxidation risks and prevents post-process corrosion while drastically accelerating cycle times between machining and assembly.
Electrical Motor and Stator Varnish Baking	Cures insulating resins, solventless varnishes, and potting compounds applied to electric motor windings, stator cores, and transformer coils up to 300°C.	Promotes complete cross-linking and void-free dielectric encapsulation with ±1°C thermal stability, preventing electrical breakdown under load.
Industrial Coating and Paint Polymerization	Accelerates elevated-temperature baking and cross-linking of solvent-borne paints, specialized primers, and protective anti-corrosion finishes on fabricated stampings.	Vents released solvent volatiles through automated top exhaust while horizontal laminar flow prevents surface blistering and orange peel defects.
Engineering Polymer and Composite Preheating	Conditions thermoplastic sheets, carbon-fiber prepregs, and structural elastomers prior to vacuum forming, hot stamping, or compression molding operations.	Imparts consistent through-thickness heat to soften stock uniformly, minimizing molding internal stress concentrations and reducing scrap rates.
Electronic Component and PCB Dehumidification	Bakes moisture-sensitive surface-mount devices (SMDs), multi-layer printed circuit boards, and integrated circuit packages prior to reflow soldering.	Prevents delamination, micro-cracking, and popcorn packaging failures by desorbing trapped atmospheric moisture under uniform convective heating.
Metallurgy Stress-Relief Heat Treatment	Delivers low-temperature soaking for cold-drawn springs, stamped alloy components, and welded bracketry to alleviate internal mechanical stresses.	Stabilizes dimensional tolerances and restores ductile mechanical properties without altering base microstructure or causing surface decarb.

Specification Parameter	Detail / Engineering Value
Product Item Number	KT-GZX
Primary Equipment Function	Industrial Hot Air Circulation Drying Oven
Exterior Chamber Dimensions	1550 mm (Depth) × 1900 mm (Width) × 1700 mm (Height)
Operating Temperature Range	50°C to 300°C
Temperature Uniformity	±4°C (Tested during no-load commissioning)
Temperature Control Accuracy	±1°C
Heating Rate	Ambient to 100°C ≤ 20 minutes (No-load conditions)
Total Heating Power Rating	24 kW
Air Circulation Fan Configuration	Dual industrial blowers (750W × 2, total 1.5 kW motor power)
Internal Air Circulation Method	Dual-duct horizontal supply with symmetric balanced return

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Ventilation and Air Exchange	Automated ventilation with roof-mounted intake and exhaust ports
Heating Device Design	High-efficiency finned tubular heating elements (mounted in lateral ducts)
Temperature Sensor Specification	Industrial K-type thermocouple
Temperature Sensor Location	Top air duct plenum
Power Regulation Device	High-capacity Solid State Relay (SSR) module
Primary Temperature Controller	Intelligent dual-display digital LED controller with automated PID autotuning
Process Monitoring Interface	Digital instrument panel display (Optional paperless data recorder supported)
Integrated Timer Setting Range	0 to 9999 minutes (Selectable second/minute resolution)
Process Completion Warning	Time relay integrated buzzer with audible acoustic alarm
Outer Enclosure Fabrication	1.0 mm premium cold-rolled steel sheet, precision welded construction
Exterior Protective Finish	Smooth, corrosion-resistant white hammer-tone rustproof industrial paint
Internal Chamber Material	1.0 mm SUS201 stainless steel sheet with smooth welded seams
Internal Air Duct Plenum Material	1.0 mm SUS201 stainless steel
Structural Fabrication Process	Fully welded rigid assembly
Thermal and Acoustic Insulation	50 mm industrial fireproof and sound-dampening insulation board
Internal Shelf Configuration	2-tier internal layout; 50 kg load capacity per tier (100 kg total payload)
Access Door Architecture	Single-side double-opening doors
Door Hinge Assembly	Heavy-duty multi-point stainless steel industrial hinges per door
Control Cabinet Location	Integrated control cabinet mounted on the left exterior housing
Dedicated Control Switchgear	Independent main power switch, blower fan switch, and heating circuit switch
Internal Electrical Switchgear	High-reliability industrial automation components (Chint, Delixi, or equivalent)
Electrical Power Requirements	380V AC, 3-Phase, 50/60 Hz