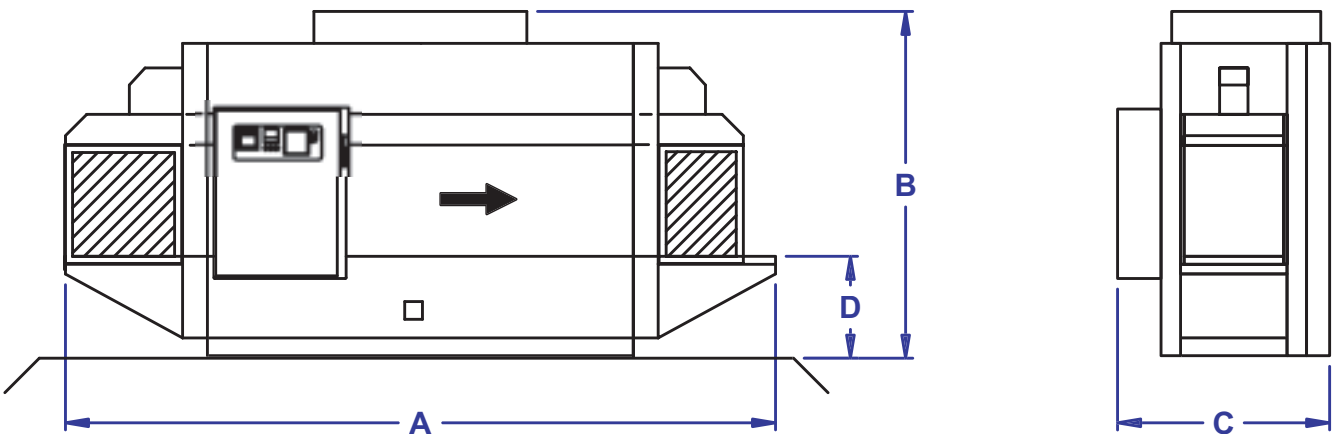


TC SERIES OVENS



Model	TC-120	TC-150	TC-550	TC-150 Special	TC-200	TC-555
Specifications						
Transport	Rack	Rack	Rack	Rack	Slat	Slat
Throughput - panels/hour†	130	160	290	160	160	290
Length of Heated Zone, Meters	2.5	3	5.5	3	3	5.5
Number of Heated Zones	1	1	2	1	1	2
Maximum Temperature	375F - 190C					
Maximum Panel Dimensions (Widthwise)	26" x 30"			26" x 36"	24" x 32"	
	660mm x 762mm			660mm x 914mm	610mm x 813mm	
Panel Thickness	Racking Options from 0.004" to 0.500" (0.010mm to 12.7mm)					0.024" - 0.125" (0.6mm - 3.2mm)
Heater Capacity, kW	36	44	72	52	44	84
Heating Elements, Quantity	Incolly / Six	Incolly / Six	Incolly / Twelve	Incolly / Six	Incolly / Six	Incolly / Twelve
Utilities						
Electrical Service						
480V / 3Φ / 60Hz	80A	90A	150A	100A	90A	200A
380-400-415V / 3Φ / 50Hz	125A	125A	175A	125A	125A	225A
Minimum Exhaust Requirements						
cfm	760	900	1410	900	900	1410
m³ / hr	1291	1291	2396	1291	1291	2396
Number of Exhaust Ducts	Three	Three	Four	Three	Three	Four
Pneumatic	None Required				5 CFM @ 100 psi (9 m³/hr @ 7 bar)	
Dimensions						
A = Length	200" (5080mm)		320" (8128mm)	200" (5080mm)	241" (6108mm)	345" (8763mm)
B = Height	97.5" (2477mm)				102" (2591mm)*	
C = Width	60.5" (1537mm)		76" (1931mm)	60.5" (1537mm)	78" (1969mm)	
D = Minimum Pass Height	28.5" (724mm)			24.5" (622mm)	33" (838mm)**	
	* Add 8" (203mm) for 12" Stabilizers		† Throughput based on 60 minute cycle @ 0.75" (19mm) pitch			
	** Add 5" (127mm) for 12" Stabilizers		Throughput (panels/hour) = (length/pitch) x (60 min. / Cycle Time)			

TC SERIES  
CONVEYORIZED OVENS



CIRCUIT AUTOMATION

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This information is believed to be true and accurate based on our laboratory testing and experience. Since actual use is beyond our control, no warranties, express or implied, exist. Specifications and design are subject to change without notice.

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Revision 12/07

CIRCUIT AUTOMATION

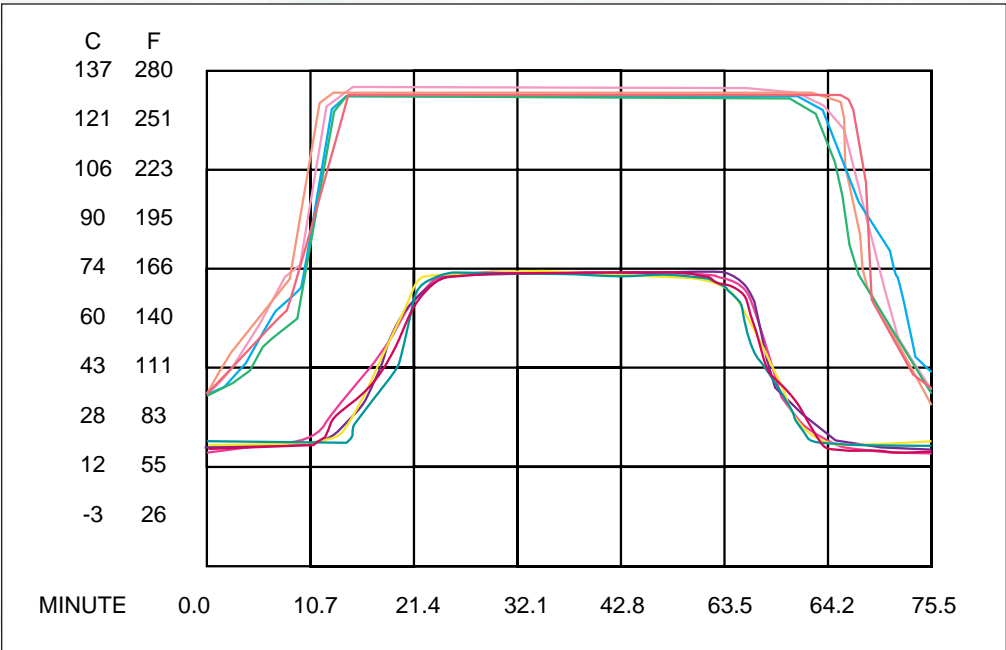


The Expanded Family

The most accurate oven on the market has expanded into a full family offering various panel capacities, transport systems, and heated chamber lengths. Circuit Automation ovens produce the most uniform, accurate temperature profiles available combined with the widest range of transport systems offered. These conveyORIZED ovens improve productivity, decrease variability, and increase yields in liquid photoimageable ink processes such as soldermask, legend ink, primary image, and dielectric. Airflow in the TC Series oven is directed to achieve temperature uniformity unmatched by competitive ovens:  $\pm 1^{\circ}\text{C}$  at tack-dry temperatures and  $\pm 2^{\circ}\text{C}$  at final cure temperatures. Tack-dry is one of the most critical steps in liquid photoimageable soldermask, and the TC Series ovens can make the difference between success and failure. All of the TC-Series ovens may be used for either tack-dry or final cure applications. Our ovens come equipped with an alphanumeric LCD operator interface, annunciator panel, programmable logic controller, and chart recorder

Temperature Uniformity

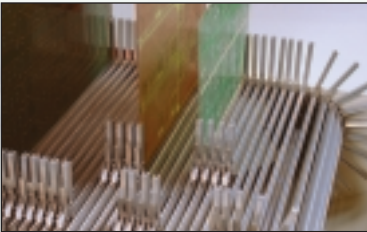
Circuit Automation has developed and patented controls that intermix the airflow from end to end inside the fan plenum and modulate flow via computer controlled dampers. These controls enable the oven to maintain optimum temperature profiles regardless of loading or panel size mix. These patented features, available only on Circuit Automation ovens, result in exceptional temperature uniformity from entrance to exit and across the tunnel cross section:  $\pm 1^{\circ}\text{C}$  at tack-dry temperatures and  $\pm 2^{\circ}\text{C}$  at final cure temperatures. TC-Series ovens ramp up to temperature rapidly and smoothly, and maintain the setpoint temperature throughout the heated chamber. Ovens are calibrated at the factory so that setpoint temperature is the actual panel temperature. SSR controllers sensitive to changes of  $\pm 0.5^{\circ}\text{C}$  maintain oven temperature.



Circuit Automation Temperature Profile: Rapid ramp-up allows full utilization of heated zone to maximize productivity. Temperature uniformity unmatched by competitive ovens:  $\pm 1^{\circ}\text{C}$  at tack-dry temperatures.

Flexible Tooling

TC Ovens are available with a wide variety of material handling systems for virtually any application.



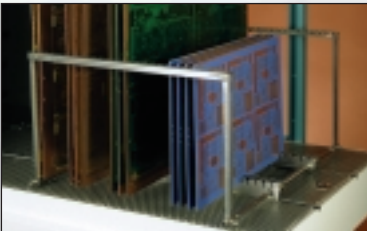
Slotted Conveyors

Slotted Conveyors are available with side supports that are either 4" or 12" high. They adjust easily to accommodate different panel widths. The side supports inhibit warpage and fracturing, especially at final cure temperatures.



PCMCIA Racks

These magazine style racks accommodate panels from 0.015" to 0.024" thick ( 0.38mm – 0.61mm).



Standard Racks

These racks accommodates panels from 0.024" to 0.400" thick (0.6mm – 10mm) and is equipped with adjustable side supports.



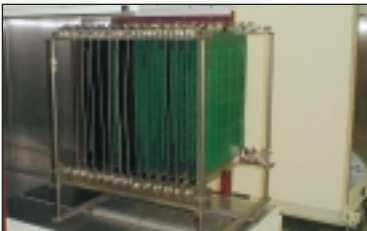
Backpanel Applications

The TC-150 Special has been specially engineered for backpanel production with larger heaters, higher airflow, and a heavy duty conveyor with the ability to accommodate panels as tall as 36" (914mm). A variety of special racks are offered as well to support these heavy panels.



Teflon Lined Slats

The TC200 Special comes equipped with Teflon lined slats for use in curing glass panels used in LCD production.



BGA Racking System

Consisting of support frame and spring clips that are attached to the top and bottom edge of the panel using our HS97A board holding station, the BGA racking system holds panels taut and maintains spacing during curing. BGA racks can be used with panels from 0.004" to 0.030" thick (0.010mm – 0.76mm).