



ChipFlo6HT

ChipFlo6 HT is specifically designed to attach solder balls to chip scale package substrates manufactured on strips, magazines or boat assembly processes.

ChipFlo6 HT is ready for next generation processes with 450°C setpoints and multiple atmosphere capabilities.

ChipFlo6 HT uses our exclusive Low Velocity Nitrogen Convection (LVNC) heat transfer method – which delivers heat to the product without blowing solder balls off substrates.

ChipFlo6 HT ovens provide the smallest possible footprint for high-volume backend semiconductor assembly. Our patented no-clean convection method prevents heater cavity flux build-up, eliminating maintenance downtime.

Standard System Features

- No-Clean Heater Cavities
- Low Velocity Nitrogen Convection (LVNC)
- Wire Belt Conveyor
- Built-in Closed Loop Liquid Cooling
- Pentium-Compatible Computer
- Multi-Language StarWin™ Oven Operating Software (32 bit - Windows™)
- Modular Electronics Design Fully Contained in Sliding Drawer
- SMEMA Compatible Interface
- Zone Independent Nitrogen Control
- 107 x 36.5 Inch (272 x 94 cm) Machine Footprint
- Uninterrupted Power Supply (UPS) Processes Remaining Chips in Oven
- Upper and Lower Product Exhaust
- Direct Connect Machine Exhaust with High Temperature Exhaust Hose Kit
- Class 1000 Clean Room Compatible
- Nitrogen Purity < 25 PPM
- Nitrogen Consumption < 950 SCFH

Safety and Quality Features

- Key Activated Motorized Clamshell Cavity Opening
- 4 Color Signal Light Tower
- Redundant Overtemperature Protection
- Emergency Stop Buttons (4)
- Machine operation based on industrial microprocessor controller, not a PC.

Options

(Customized Features Also Available)

- **Nitrogen Idle** – Oven monitors product in process and upstream of process to minimize Nitrogen consumption if production is not running.
- **External Fan Cooling** – 12-inch conveyor extension with fans for additional product cooling.
- **Custom Panel Color** – Customer specified to match assembly line.
- **Oxygen Analyzer** – Monitors PPM levels.
- **Casters** – Allows lift-free transport.
- **Flow Meter Covers** – Key lock protection of nitrogen settings. Prevents unauthorized adjustment.
- **Interlocks** – Power is shut down to the oven if panels are removed for maintenance.

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Model	ChipFlo 6HT
Dimensions	
Overall Length	107 Inches (272 cm)
Overall Width	36.5 Inches (93 cm)
Overall Height	56 Inches (133 cm)
On-Load Length	3 Inches (7.6 cm)
Off-Load Length	3 Inches (7.6 cm)
Net Weight	1530 Pounds (694 kg)
Shipping Weight	1750 Pounds (794 kg)
Crate Dimensions (L x W x H)	120 x 47 x 70 Inches (203 x 114 x 178 cm)
Power Requirements	
Voltage	220V – 3 phase – 50/60 Hz
Maximum Startup Current	30 kVa
Typical Operating Current	8 kVa
Lockable Safety Disconnect	Standard
4 Color Light Tower	Red=Alarm/Yellow=NotReady/Green=Ready/White=Interrupted Power (top to bottom)
Industrial Controller	CPU card, 2 analog I/O cards, 1 digital card
Current Protection	Circuit Breakers
SMEMA Transport Communications	Connectors entrance and exit end meets standard specifications, entrance sensor indicates product presence
Electric Clamshell Lift	Key Activated; Opens heater cavity 12 Inches (31 cm), < 12 seconds
Redundant Overtemperature	Temperature monitoring separate from controller to prevent any machine damage
Oven Interface	
Interface Computer	Laptop (Automatic Uninterrupted Power guarantees no loss of data)
StarWin™ Interface Software	32 bit, true Windows™ interface package
Modem Communications	56.6 modem (minimum) that allows remote control of oven
Starlog™ SPC Software	SPC application to track and record all critical reflow parameters
Thermal Process Chamber Performance	
Heat Transfer Method	LVNC, Low Velocity Nitrogen Convection
Heated Length	72 Inches (183 cm)
Top / Bottom Temperature Control Zones	6 closed loop top / 6 closed loop bottom heating zones, 12 inches (31 cm) each
Edge Heat Temperature Control Zones	6 closed loop left / 6 closed loop right, 12 inches (31 cm) each (temperature setpoint cascaded from upper temperature zones for perfect cross-belt uniformity)
Maximum Setpoint Temperature	450°C
Heating Uniformity	±2.0°C across usable belt width
Heating Repeatability	±2.5°C across usable belt width
Machine to Machine Repeatability	±2.5°C grand average deviation, peak to peak.
Mass Loading Rates	0% to 90%
Inert Atmosphere	
PPM level above source	<25 PPM (5-10 PPM typical)
Nitrogen Consumption	1100 SCFH Maximum (<950 SCFH typical)
Nitrogen Monitoring Ports	Preheat, Reflow, and Cooling
Exhaust Specifications	
Entrance Exhaust Output	~ 25 cfm
Exit Exhaust Output	~ 25 cfm
Direct connect with High Temperature Hose Kit (Included)	100 cfm draw required Surplus draw required for machine cooling and complete insert atmosphere control
Exhaust above and below conveyor	Standard
Flux Exhaust Collectors	Disposable exhaust hose; Replacement time < ½ hour
Conveyor Specifications	
Conveyor Type	Stainless steel wire belt conveyor, 20 Inches (51 cm) wide, 0.125 inch (.32 cm) pitch, 0.050 (.127 cm) wire, entrance and exit sprockets diameter is .75 inch (1.9 cm).
Conveyor Speed Accuracy	±0.5%
Conveyor Height Above Floor	34 – 37 Inches (86 – 94 cm)
Usable Conveyor Width	20 Inches (51 cm)
Product Clearance Above Conveyor	1" Inch (0.95 cm)
Product Clearance Below Primary Conveyor	N/A
Cooling System Specifications	
No-Clean Flux Removal System	CoolClean: Closed loop, water cooled, nitrogen cooling
Cooling System	Built-in CFC free, Recirculated Liquid Cooling Temperature controlled down to 15°C with automatic process alarms
Inert Atmosphere Cooling	2 zones upper / 2 zones lower 24 Inches (62 cm) Nitrogen Cooling Zone;
Flux Condensation Collectors	150°C Maximum temperature; Replacement time < 20 minutes
Final Extended Fan Cooling [Optional]	12" (31 cm) positioned above exit conveyor impinging 20 CFM of ambient air