



MicriFlo 8

Controlled Atmosphere Convection SMT Solder Reflow System

MicriFlo 8 provides the cleanest nitrogen or air atmosphere for high purity SMT reflow or curing applications. **MicriFlo 8** maintains gas purity using a patented convection flow circulation pattern which automatically purges flux from the heater cavity. These **no-clean heater cavities** do not require disassembly for flux removal maintenance – preventing unnecessary downtime. CoolClean™ reusable flux condensation plates are removable from the liquid cooling section in minutes.

Our exclusive **MicriFlo** laminar flow convection heat transfer design provides complete zone isolation and profile control. Research International's 90-day **TOTAL PERFORMANCE GUARANTEE** and **LIFETIME WARRANTY** (recirculation fans, heaters, and the conveyor assembly) are standard on **MicriFlo** ovens.

Standard System Features

- No-Clean Heater Cavity
- Configured for High Purity Nitrogen or Air Atmosphere (Computerized PPM Control)
- Liquid Cooling with CoolClean™ Flux Condensation Plates
- 96-inch (244 cm) Heated Length; 6 Vertical Heat Zones
- Dual Edge and Wire Belt Conveyor
- Pentium™-Compatible Computer and SVGA Color Monitor with Computer Arm
- Multi-Language StarWin™ Oven Operating Software (32 bit - Windows 95™)
- StarLog™ SPC Software
- Upper and Lower Product Exhaust
- Final Product Fan Cooling
- SMEMA Interface with Board Count Sensor
- Board Fall Detection
- Power Clamshell
- Remote Communications Package
- Direct Couple Exhaust Flux Management

Safety and Quality Features

- Common European (CE) Safety Certification
- 3 Color Signal Light Tower
- Redundant Overtemperature Protection
- Emergency Stop Buttons (4)
- Manufactured per Research, Inc. ISO 9001 Certification Standards

Base and Lifetime Warranty

Research International has a standard two year full machine warranty. The heaters, recirculation fans and conveyor assembly have lifetime warranties.

Options (Customized Features Also Available)

- **Air/Nitrogen Switchover** – Recipe controlled input gas selection.
- **Battery Back-Up** – In the event of a power failure, conveyor runs for 10-20 minutes to exit the boards from the oven.
- **Computerized Conveyor Width Adjust** – Software controlled motorized edge conveyor width adjustment.
- **Motorized Conveyor Width Adjust** – Switch activated motor driven rail width adjustment.
- **Direct Couple Exhaust** – Allows direct facilities exhaust connection to the oven.
- **Flow Meter Covers** – Lockable strip covering flow meters to prevent unauthorized adjustment.
- **Manual Underboard Support** – Full-length support with manual location positioning
- **Oxygen Analyzer** – Monitors PPM levels.
- **Custom Panel Color** – Customer specified to match assembly line.

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Model	MicriFlo 8			
Dimensions				
Overall Length	205 Inches (521 cm)			
Overall Width	43 Inches (109 cm)			
Overall Height	52 Inches (132 cm)			
On-Load Length	18 Inches (46 cm)			
Off-Load Length	18 Inches (46 cm)			
Net Weight	3400 Pounds (1542 kg)			
Shipping Weight	4000 Pounds (1814 kg)			
Crate Dimensions (L x W x H)	213 x 50 x 70 Inches (541 x 127 x 178 cm)			
Power Requirements and Safety Standards				
Voltage	480VAC, 50/60 Hz	415VAC, 50/60 Hz	380VAC, 50/60 Hz	220VAC, 50/60 Hz
Maximum Startup Current	45.0 kVa	45.7 kVa	39.1 kVa	38.7 kVa
Typical Operating Current	11.3 kVa	11.4 kVa	9.8 kVa	9.7 kVa
Primary Fuses	58 Amps	75 Amps	71 Amps	110 Amps
Lockable Safety Disconnect	Standard			
3 Color Light Tower	Red=Alarm/Yellow=Not Ready/Green=Ready (top to bottom)			
Industrial Dimension Controller	CPU card, 3 analog I/O cards, oven interface board			
SMEMA Transport Communications	Connectors entrance and exit end meets standard specifications, entrance sensor indicates product presence			
Electric Clamshell Lift	Switch Activated; Opens heater cavity 12 Inches (30 cm) < 60 seconds			
CE Certification	Standard			
Redundant Overtemperature Protection	Temperature monitoring separate from controller to prevent any machine damage			
Oven Interface				
Interface Computer	Compaq™ 133 MHz Pentium™ (min) Processor, 8 meg RAM, 1.2 gig hard drive, Windows 95™, 3.5" floppy drive, serial port			
StarWin™ Interface Software	32 bit, true Windows 95™ interface package			
Modem Communications	28.8 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	High Purity Controlled Atmosphere Convection; Nitrogen or Air Process Gas			
Heated Length	96 Inches (244 cm)			
Independent Temperature Control Zones	6 closed loop top zones and 6 closed loop bottom zones			
Edge Conveyor Heat Control	2 zones – one per rail			
Maximum Setpoint Temperature	325°C			
Mass Loading Rates	0% to 90%			
Input Gas Requirements				
Pressurized Air or Nitrogen Source	3000 SCFH (845 m ³ /hour) recommended capacity with 100 PSIG (7 bars) of Pressure			
Flow Rates	Typically 1200 to 2500 SCFH (34.3 to 71.4 m ³ /hour)			
Oxygen PPM Range	Typically 10-20 PPM above source; Oxygen analyzer [optional]			
Exhaust Specifications				
Entrance Exhaust Output	~ 400 cubic feet/minute (12 cubic meters/minute)			
Exit Exhaust Output	~ 300 cubic feet/minute (9 cubic meters/minute)			
Witches hat indirect connection on each	Standard; Direct Couple Exhaust			
Exhaust above and below conveyor	Standard			
Conveyor Specifications – Lifetime Warranty				
Conveyor Type	Dual stainless steel wire belt and roller chain edge conveyor on patented tensioned stainless steel rail. Tension keeps rail straight as heat causes rail expansion.			
Edge Conveyor Pin Length	0.17 Inches (0.43 cm) Standard			
Conveyor Speed Range	10 – 100 Inches/minute (25 – 250 cm/min)			
Conveyor Speed Accuracy	±0.5% to setpoint			
Conveyor Parallelism	±0.020 Inches (±0.05 cm)			
Product Flow Direction	Left-to-Right [standard] or Right-to-Left [optional]; Front or Rear Rail Fixed			
Conveyor Height Above Floor	34¼ – 37 3/8 Inches (87 cm – 95 cm); SMEMA Standard			
Usable Conveyor Width	18 Inches (46 cm)			
Usable Conveyor Width with Edge Conveyor	Motorized width control, adjustable 2 – 18 Inches (5 – 46 cm)			
Product Clearance Above Conveyor	1 Inch (2.5 cm)			
Product Clearance Below Primary Conveyor	1¼ Inches (32 mm) with installed Edge Conveyor			
Cooling System Specifications				
Cooling Section Length	67 Inches (170 cm) including liquid cooling and fan product cooling zone lengths			
Cooling Method	Closed loop chilled water, above and below board cooling with laminar flow air curtain			
Internal Cooling Unit Capacity	12,000 BTU at 20°C (70°F) ambient			
CoolClean™ Flux Condensation Collectors	Maximum temperature NTE 150°C; Collector plates replaceable < 20 minutes			