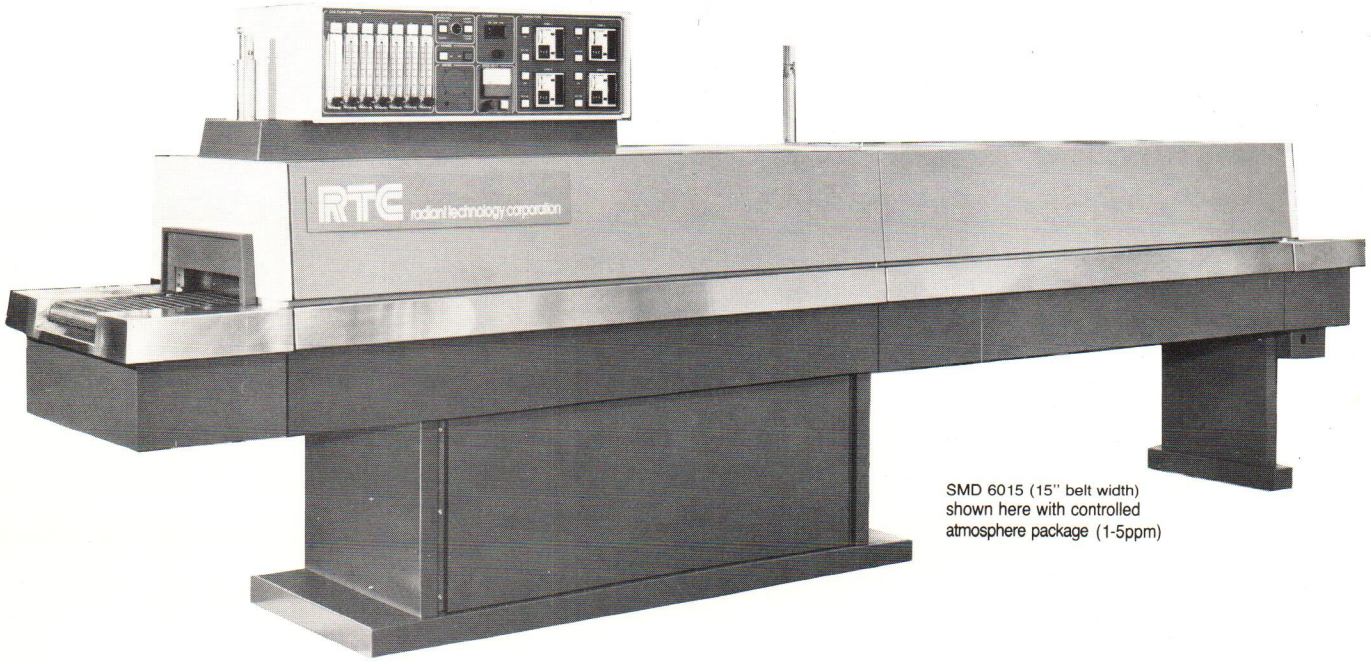
infrared furnace

SMD 6000

High Production Infrared Solder Reflow System for the attachment of Surface Mounted Devices



SMD 6015 (15" belt width) shown here with controlled atmosphere package (1-5ppm)

An efficient, flexible system

The SMD 6000 Series Infrared Solder Reflow System is designed for rapid, clean, efficient reflowing of solder paste in the attachment of Surface Mount Devices to polymeric or ceramic substrates in high production, with close control of process conditions. The system uses clean radiant energy transferred by non-focused infrared lamps. Heat can be selectively applied to one surface or the other (or both). Double-sided assemblies can therefore be reflowed on only one side at a time, if desired. During the reflow stage device temperature remains substantially below reflow temperature. The precision controlled heating rates coupled with the high penetrating characteristics of near infrared enable solder paste preheating in the first stage insuring programmed flux activation and volatile removal. As reflow occurs in the following stage, spattering, and solder balling, are virtually eliminated.

Advantages over vapor phase systems

The SMD Series affords many advantages over vapor phase systems. Operating costs are only a fraction of that of a vapor phase system. There are no expensive fluids required and there is virtually no ongoing maintenance. High temperature soldering or low temperature soldering merely requires dialing in the appropriate temperature settings. Compare this to the inconvenience of changing fluids, to say nothing of the expense of maintaining additional fluids in inventory. The high installation costs of water chillers, filtration, and exhaust treatment associated with in-line vapor phase systems are also eliminated.

Controlled atmosphere

A variety of atmosphere control packages is available - air, nitrogen (150PPM o_2), nitrogen (1-5PPM O_2), forming gas or pure hydrogen. Inert atmospheres help reduce or eliminate charred flux, eliminate oxidation to facilitate subsequent soldering steps, and extend the acceptable temperature range to which the epoxy-glass laminate can be exposed by 20 to 30°C. Hydrogen bearing atmospheres inhibit flux from flowing into hard-to-reach areas to make cleaning easier.

RTC radiant technology corporation

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SMD 6000

SPECIFICATIONS

Electrical	9½" Belt, 18.5KW Peak, 208/240V, 3 ph. 15" Belt, 28.9KW Peak, 208/240V, 3 ph. 24" Belt, 47.4KW Peak, 208/240V, 3 ph. Typical operating power is less than 40% of peak at full load.
Conveyor	Width: 9½, 15, or 24 inches Material: Stainless steel close weave balanced spiral. Speed: Variable 4 to 90 ipm digital display motor control with light-sensed, closed loop feedback.
Exhaust	Process– Venturi assisted exhaust with removable catch tray. Machine–Machine and process cooling accomplished by fans totalling– 9½" Belt 1400 cfm 15" Belt 2200 cfm 24" Belt 3000 cfm
Atmosphere	Atmosphere is introduced into the chamber through porous refractory, allowing gas flow to be maintained at a high volume with no disturbance of the temperature profile. Atmosphere capability is 150 ppm furnace induced gaseous contaminants (optional hermetically sealed chamber provides 1-5 ppm furnace induced gaseous contaminants)
Heat Control	Four zones controlled by solid state, digital temperature controllers and type 'K' thermocouples located within the process chamber. Edge heat trimmers allow a uniformity of ± 2°C across the belt to be maintained. Lamps are driven by phase angle fired SCR's.
Weight	9½" Belt 1500 lbs.; 15" Belt 1650 lbs.; 24" Belt 1850 lbs. (crated weight)
Temperature Capacity	600°C maximum
Lamp Life	Average life in excess of five years. Two year warranty.
Cooling Section	Turbulent filtered air is utilized for final cooling, length of cooling chamber is 60"
Heating Section	56 tungsten filament quartz lamps are located above and below the belt along the 60" long heated chamber.

OPTIONS

- Hydrogen operation package
- Profiling accessories
- Gas analyzer
- Lamp monitor (indicates and shows location of all operating heating lamps)

Conveyor extensions

- Additional cooling modules
- Conveyor material and weave
- Computer monitor interface
- Other voltages
- Reversible conveyor
- Maintenance contract
- Circuit breaker
- Infrared Sections (additional)
- Belt cleaner (Ultrasonic or Brush Type)
- Micro Processor Central Control System
- Controlled Atmosphere Package (1-5 ppm)