

# Cu-900

## CONTROLLED ATMOSPHERE FURNACE FOR THICK FILM FIRING AND/OR PACKAGE SEALING



### PACKAGE SEALING

The RTC Cu-900 Series is suited for gold/tin sealing, brazing, flip chip reflow attachment and other packaging operations that require exacting temperature profiles and extremely close control of furnace atmosphere. The Cu-900 allows high production; for example, final lid sealing on CERDIP's can be accomplished at rates as high as 12,000 per hour. Capable of temperatures of 1000°C, the Cu-900 utilizes high level near infrared radiation to rapidly heat the product and accomplish the process. The high heating rates achievable in this equipment expose the device to a minimum time/temperature product, improving yields. Atmospheric integrity is extremely high, and typical levels of 1-3 ppm furnace induced gaseous contaminants can be consistently maintained. The furnace can be further equipped to safely contain explosive (H<sub>2</sub>) atmospheres.

### THICK FILM FIRING

Cu-900 is also perfect for the volume production of thick film products in air or nitrogen. Near infrared radiation rapidly and accurately fires resistors, conductors and dielectrics in a tightly controlled atmosphere. Typical resistor production rates of 23,000 square inches per hour (16 ipm) can be achieved, with substantially higher rates (up to 24 ipm) for conductors and dielectrics. The energy-rich, radiant environment of the furnace allows all thick film materials to be processed very rapidly. Resistors are processed at total profile times of 8-12 minutes, while conductors and dielectrics can be fired in 5-9 minutes. This environment affords tighter distribution of resistors and also gives the processor the ability to co-fire multilayers up to 300um thick.

The Cu-900 affords many economic advantages over conventional equipment. The furnace is designed to be cycled on a daily or more frequent basis, allowing it to be turned off when not in use. It can be heated or cooled at an arbitrary rate; the furnace will stabilize at 1000°C in under 20 minutes. Major profile changes can be accomplished in minutes, allowing the furnace to be used for a variety of processes. The furnace uses far less energy than a conventional furnace of the same capacity, while consuming less floor space.

Bulletin No.  
Cu-900-83

INFRARED FURNACE

# Cu-900

## SPECIFICATIONS

|                             |   |
|-----------------------------|---|
| <b>Electrical</b>           | 9½" Belt, 28.3KW Peak, 208V, 3 ph.<br>15" Belt, 44.6KW Peak, 208V, 3 ph.<br>24" Belt, 67.0KW Peak, 480V, 3 ph.<br>Typical operating power is less than 40% of peak at full load and 22 ipm.   |
| <b>Conveyor</b>             | Width: 9½, 15 or 24 inches<br>Material: Low mass, stabilized Nichrome V, balanced spiral.<br>Speed: Variable 3.0 to 36 ipm digital display motor control with light-sensed, closed loop feedback.   |
| <b>Exhaust</b>              | Process – Venturi assisted burnout exhaust with removable catch tray.<br>Machine – Machine and process cooling accomplished by fans totalling –<br>9½" Belt 1000 cfm<br>15" or 24" Belt 2000 cfm  |
| <b>Atmosphere</b>           | Atmosphere introduced into chamber through porous refractory, allowing gas flow to be maintained at a high volume with no disturbance of the temperature profile. Atmosphere capability 1-3 ppm furnace induced gaseous contaminants.                             |
| <b>Heat Control</b>         | 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 ±1°C across the belt to be maintained. Lamps are driven by phase angle fired SCR's. |
| <b>Weight</b>               | 9½" Belt 1600 lbs.; 15" Belt 1900 lbs.; 24" Belt 2500 lbs. (crated weight)  |
| <b>Temperature Capacity</b> | 1000°C maximum  |
| <b>Lamp Life</b>            | Average life in excess of two years. One year warranty.   |
| <b>Cooling Section</b>      | Process cooling is accomplished in a controlled atmosphere through the use of a 60" air cooled heat exchanger.  |
| <b>Heating Section</b>      | 56 tungsten filament quartz lamps are located above and below the belt along the 60" long heated chamber.   |

## OPTIONS

- Cerdip Carrier Boats
- 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
- Additional sample tubes to individually monitor atmosphere in separate furnace zones
- Circuit breaker
- Infrared dryer sections
- Belt cleaner
- Profiling accessories
- Maintenance contract
- Gas Analyzers
- Hydrogen Operation

