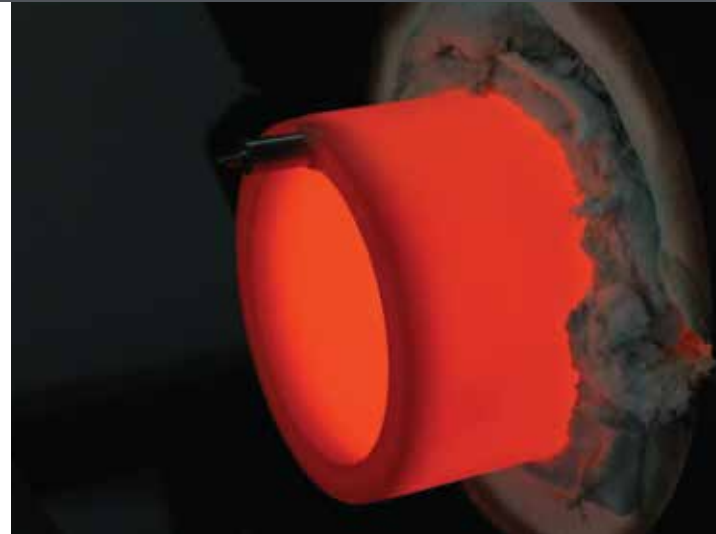




ISOTHERMAL FURNACE LINERS

Overview

An Isothermal Furnace Liner (IFL) is a unique, annular heat pipe that redistributes heat within a furnace to provide a stable, highly uniform temperature profile. In most applications, temperature uniformity of within 0.1°C is attainable over the entire length of the liner. This uniformity simplifies thermal control and stability, providing a precise set point with a single thermocouple and controller. Temperature adjustment is a simple one-step process, therefore, frequent profile measurements are not necessary. IFLs save energy and increase productivity by extending the usable work zone beyond the original furnace heater length and by eliminating temperature drops associated with end effects. Two or more liners may be used in series to create multiple, individually controlled zones for special effects like step changes in the temperature profile.



Isothermal Furnace Liner (IFL)

| BENEFITS

- Flat temperature profile (isothermal)
- Simplified temperature control
- Rapid temperature recovery
- Increased productivity
- Energy savings
- Improved temperature stability

| APPLICATIONS

- Precision Temperature Metrology
- Isothermal Materials Processing
- Vapor Deposition

| PRODUCTS

- Heat pipes ranging in temperature from -60°C to 1100°C for use in:
 - Isothermal Furnace Liners
 - Pressure Controlled Systems available for temperature stability better than 5mK
 - Fixed Point Cell Liners
 - Heat Pipe Black Body Sources
 - Custom Turnkey Furnace Systems

| DESIGN OPTIONS

- Hemispherical or Conical end cap designs
- Thru-Cavity Designs
- Flanged Ends
- Temperature probe insertion wells
- Horizontal or vertical oriented cavities
- Inconel, Stainless Steel and Monel standard envelope materials
 - Haynes available for extended life at higher temperatures

| CAPABILITIES

Production Manufacturing | Custom Designs | Prototyping | Advanced R&D and Thermal Analysis