

# High Performance U-Tube System

*Higher Operating Temperatures*

*Longer Tube Life*

*Increased Heat Flux*



**Innovators in Composite Radiant Tube Technology**

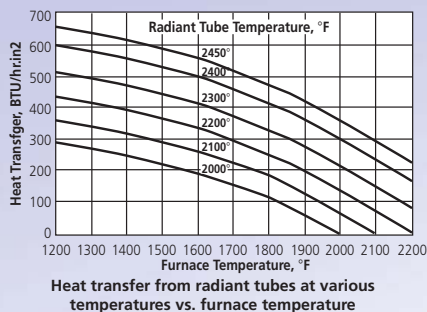
# Look Familiar?

If your back room is beginning to pile up with scrap tubes, you need to talk to the experts. INEX, Inc. is an innovator and leader in the field of Composite Radiant Tubing (CRT's). A unique manufacturing method using silicon carbide in a silicon matrix is applied with our own patented process. Our special composite based system was introduced in 1988 to provide the international heat-treating market with a more efficient heating source than traditional alloy tubing assemblies. Proven time and time again in hundreds of furnaces with thousands of tubes around the world, INEX U-Tubes are now available to suit your unique furnace dimensions.

INEX CRT's maximize transfer of radiant thermal energy for applications in batch and continuous heat-treating furnaces. Our tubes are easy to install in a wide range of configurations for both furnace upgrades and rebuilds.



**Creep test at 2462°F (1350°C)**  
 Schunk-INEX tube on left tested for 360 hours. The alloy tube on right was tested for less than one hour.



## Higher Operating Temperatures

Most alloy tubes give off an average of 60 BTU/hr/in<sup>2</sup> where INEX tubes allow temperatures up to 2450°F (1340°C) with heat flux of 200 BTU/hr/in<sup>2</sup>. Because our tubes can be fired hotter, they provide shorter furnace recovery and reduced cycle times. With this in mind, consider a smaller INEX composite tube to do the job of a larger metal tube for increased performance and savings.

## Longer Tube Life

Traditional metal tubes frequently fail due to creep, oxidation, melt through and carburization. As you can see from the example at left, an INEX composite radiant tube will outlive all other types and literally lower your operating expenses with reductions in furnace down-time, tube replacements and labor.

## Increased Heat Flux

As the chart on the left shows, the increased heat flux in radiant tubes allows faster recovery. Inex composite radiant tubes let you get up to operating temperature faster than traditional metal tubes ensuring increased productivity.

# Our High Performance U-Tube

Based on our proven performance in the CRT market, INEX has now successfully entered the U-Tube market and addressed the need for higher performance and longer tube life creating the most efficient U-Tube furnace system. Our superior composite U-Tubes have been proven in conversions of both commercial and captive heat treating facilities. INEX tubes will withstand the toughest environments.

Whether you upgrade with an INEX U-Tube or completely rebuild, we encourage you to put our tubes to the test — and see what higher performance and longer tube life can do for your production.

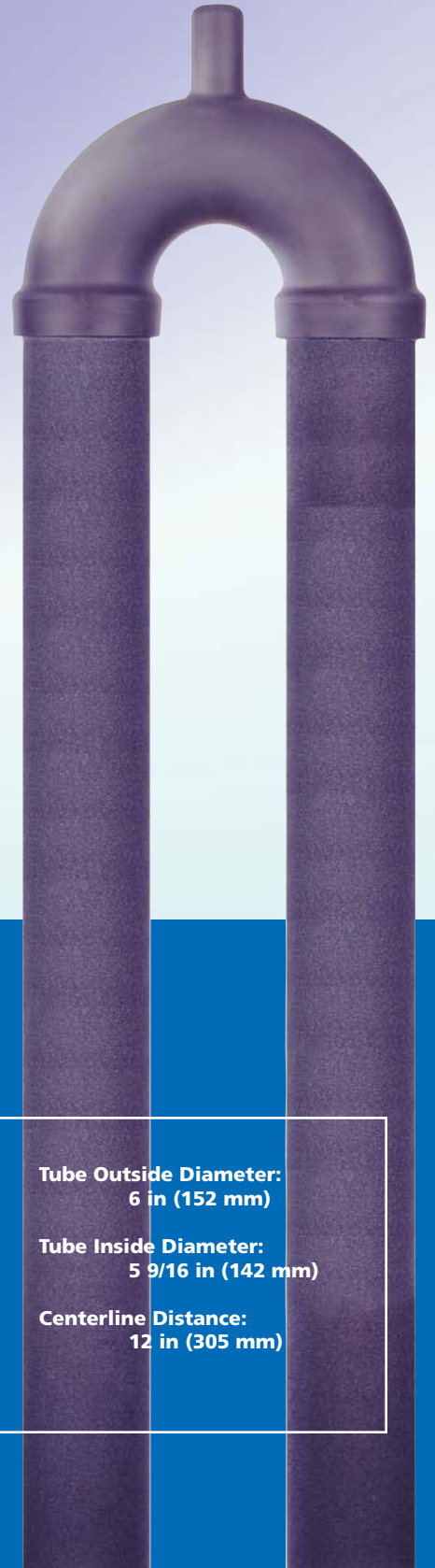
## Applications include:

- Annealing
- Carburizing
- Carbide Solution Treating
- Neutral Hardening
- Carbo-Nitriding
- Ferriticnitrocarburizing

## Atmospheres include:

- Lean and Rich Endothermic
- Carbon Enriched Gasses
- Ammonia Enriched Gasses
- Nitrogen
- Mixed 50/50 Endothermic-Ammonia

INEX U-Tubes are available in three standard sizes. Custom sizes can be tooled upon request. Mounting hardware is available for your needs.



## Sizes Available

**Tube Outside Diameter:**  
4 1/2 in (114 mm)

**Tube Inside Diameter:**  
4 1/8 in (105 mm)

**Centerline Distance:**  
9 in (229 mm)

**Tube Outside Diameter:**  
6 in (152 mm)

**Tube Inside Diameter:**  
5 9/16 in (142 mm)

**Centerline Distance:**  
9 in (229 mm)

**Tube Outside Diameter:**  
6 in (152 mm)

**Tube Inside Diameter:**  
5 9/16 in (142 mm)

**Centerline Distance:**  
12 in (305 mm)

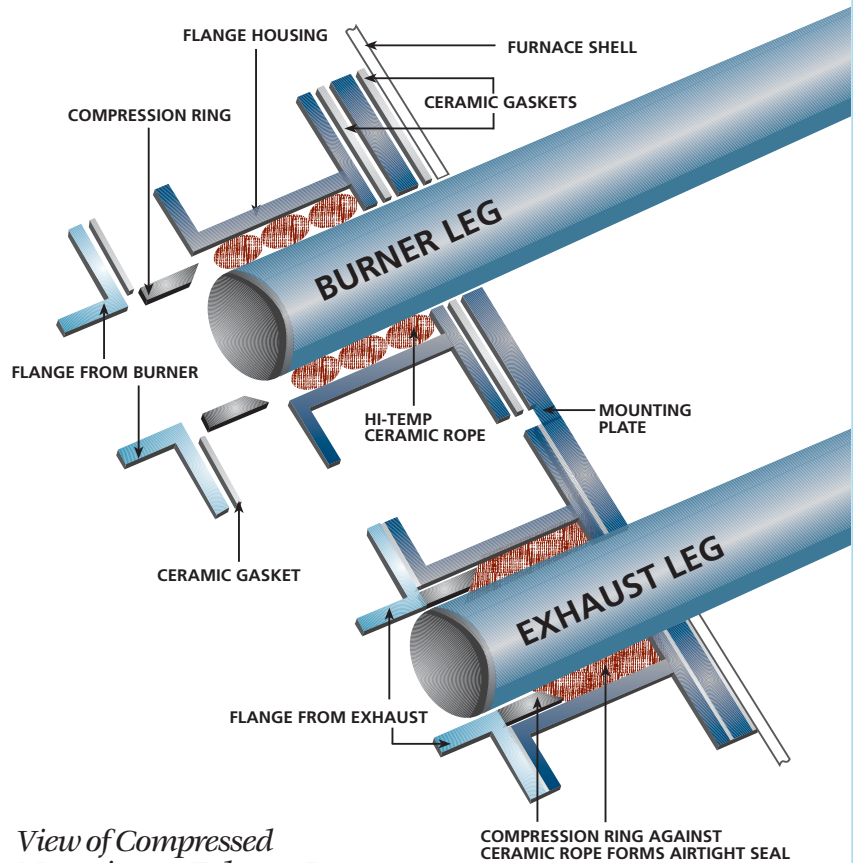
## U-Tube Mounting Installation

The proven mounting technique assures atmosphere control and secure mounting of the burner, U-tube and exhaust/recuperator.

The mounting hardware can be locally procured or supplied by INEX. The mounting flanges are manufactured to accommodate the particular burner and exhaust/recuperator arrangement.

Our experienced support team can assist you in mounting and securing your new U-Tube. Whatever your configuration needs may be, our commitment at INEX has always been to see that we do everything possible to assure our customers reach the maximum benefit of this new technology.

### Expanded View of Mounting on Burner Leg

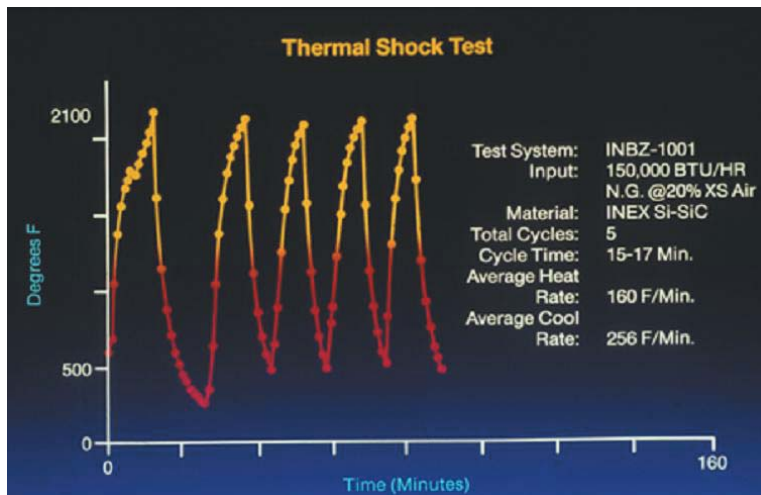


### View of Compressed Mounting on Exhaust Leg

*Drawing not to scale.*

### • Ceramic

Mullite Ceramic Tubes often fail due to Thermal Shock:



Mullite Tubes failed in the first cycle of this test.



**INEX, Inc.**

9229 Olean Road  
 Holland, New York 14080

Phone: 716.537.2270

Fax: 716.537.3218

Email: [INEX@INEXinc.net](mailto:INEX@INEXinc.net)

[www.INEXinc.net](http://www.INEXinc.net)