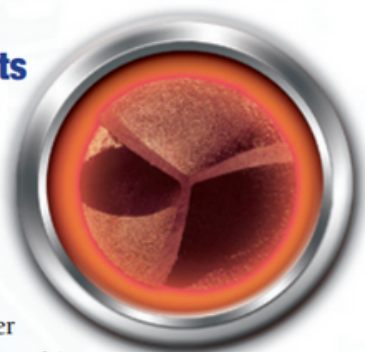


# Save energy, time, and money with **SpyroCor™**

## SILICON-CARBIDE INSERTS for Radiant Tubes

**High emissivity inserts transfer heat as effectively as the highly luminous burner leg.**



- 5%—20% fuel savings
- Productivity increases
- Uniformity improvements
- CO<sub>2</sub> and NO<sub>x</sub> reduction
- U-Tubes and Tri-Tubes
- More cost-effective than recuperators
- "Hot" installation
- Less than 1-year payback

**Spinworks** is the exclusive producer of radiant tube inserts made of Silicon-Graphite.

The patented twisted "Y" design delivers the highest rate of uniform transfer possible by improving the radiation and convection heat transfer rates. Fuel savings are documented at H&S Heat Treating in continuous furnaces. Productivity improvements are demonstrated at Modern Heat Treat & Forge in a batch furnace.

H&S Heat Treating:  
14 Tri-Tube Continuous Furnace: 24%

Fuel Reduction:  
\$45,000 (US) Annual Savings

Sold exclusively by:  
**AVION MANUFACTURING**

Tel: 330.220.2779 • Fax: 330.220.3709  
[www.spin-works.com](http://www.spin-works.com)

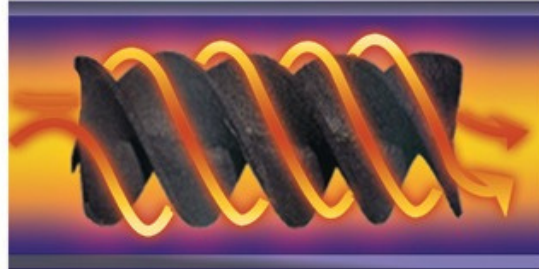
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*Celebrating Over*  
**30** *Years of Excellence*

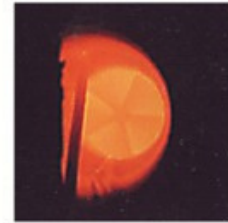
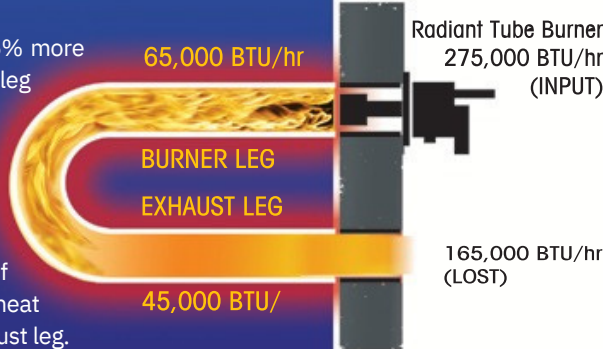
# SpyroCor™

## How it works



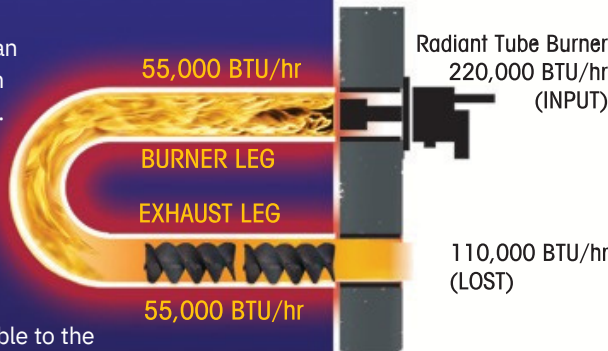
Heat transfer is driven by temperature and is limited by heat transfer surface area. The patented multi-fin twist design of the SpyroCor™ doubles the amount of surface area available.

In a traditional radiant tube, 45% more energy is released in the burner leg than the exhaust leg due to the highly luminous flame. Both radiation and convection heat transfer are present in the burner leg. The hot gases in the exhaust leg have an emissivity of less than .05. Thus, convection heat transfer is dominant in the exhaust leg.



Hot gases transfer heat to the high surface area SpyroCor™ by convection. This energy is then transferred from the high emissivity SpyroCor™ to the radiant tube via radiation. The overall heat transfer of the radiant tube is improved and efficiency increases.

To save fuel, SpyroCors™, with an emissivity of .95, are installed in the last 2/3's of the exhaust leg. Radiation and convection heat transfer are now present. The exhaust leg and burner leg are now balanced from a heat transfer standpoint. Input into the radiant tube burner is reduced by 20%. Energy available to the load is maintained.



This picture demonstrates the impact of a single SpyroCor™. The temperature in the circled area matches that of the burner leg operating with a highly luminous flame.

To increase productivity, the input into the radiant tube burner is only slightly reduced from the original value. The SpyroCors™ in the exhaust leg balance the heat transfer but at an elevated level. 18% more energy is available to the load being heated.

