

# Heating Steel with a Model 5209 High Density Infrared Heater

## Application

A manufacturer of high quality aluminum castings in Sheboygan, WI, heating steel inserts for aluminum castings.

## Problem

**Excessive Cost** - The existing process used induction heaters which cost \$16,000 (1994).

**Custom Fixturing** - Induction heaters required special fixtures for each size of steel insert. The fixtures had to be replaced every 1.5 to 2.5 years at a cost of \$300 to \$800 each (1994).

**Temperature Requirement** - The steel had to be heated to at least the temperature of molten aluminum (1220°F [660°C]) to allow the aluminum to flow properly around the insert and to keep the aluminum from cracking at mounting or stress points as it cooled.

**Time Constraint** - Customer wanted to heat the steel insert to temperature in three minutes.

## Solution

**Heat** - The steel inserts were heated with a Model 5209-10 High Density Infrared Heater.

**Power Control** - A Model 664F Phase Angle SCR Power Controller controlled the High Density Infrared Heater.

## Benefits

**Decreased Cost** - The Model 5209 High Density Infrared Heater and associated lamps, and the Model 664F Phase Angle SCR Power Controller had a total cost of under the cost of induction heaters.

**Standard Fixturing** - The High Density Infrared Heater used a single mounting fixture, eliminating the costs for custom fixturing.

**Heating Capability** - With the capability to heat objects to temperatures in excess of 3000°F (1650°C), the High Density Infrared Heater was able to heat the steel to the required temperature.

**Speed** - The steel was heated to temperature within the customer requirement of three minutes.