

Heating Metal with Model 5209 High Density Infrared Heaters

Application

A jet engine repair and refurbishment center heating jet engine guide vanes prior to reforming the air-foil cross-section.

Problem

Temperature Requirement - The guide vane had to be heated to a uniform temperature of 1650°F (899°C).

Time Constraint - The required temperature had to be reached within 90 seconds.

Slow Heat Up Time - The existing furnaces required several hours to reach a stable operating temperature and several minutes to heat the parts to the required temperature.

Limited Production Output - The slow heating times of the existing furnaces delayed the start of each batch of guide vanes processed. Once the heating process began, existing furnaces could not keep up with the speed of the reforming process.

Solution

Heat - Two Model 5209-05 High Density Infrared Heaters heated the guide vanes to the required temperature.

Instant On/Off - The High Density Infrared Heaters were ready to use as soon as they were switched on.

Power Control - A Model 664F Phase Angle SCR Power Controller controlled the power to the High Density Infrared Heaters.

System Integration - The High Density Infrared Heaters were incorporated into a simple housing with a pneumatic actuator. The SCR Power Controller was provided in a separate cabinet with a timer, actuator controller and instrumentation to monitor the power supplied to the High Density Infrared Heaters.

Benefits

Precise Temperatures - The Model 5209 High Density Infrared Heaters could be operated at full power for a fixed time and then automatically reduced to a lower power setting to conserve energy while providing the 1650°F (899°C) temperature required by the repair center.

Decreased Heat Up Time - The High Density Infrared Heaters did not require any heat up time and brought the guide vanes up to temperature in 90 seconds.

Increased Production Output - The responsive High Density Infrared Heaters increased production output to match the speed of the reforming process.