



LENOX APPLICATION SOLUTIONS IN THE STEEL INDUSTRY

HIGH-TEMPERATURE FURNACE CAMERA SYSTEMS

CONTINUOUS GALVANIZING / GALVANNEALING

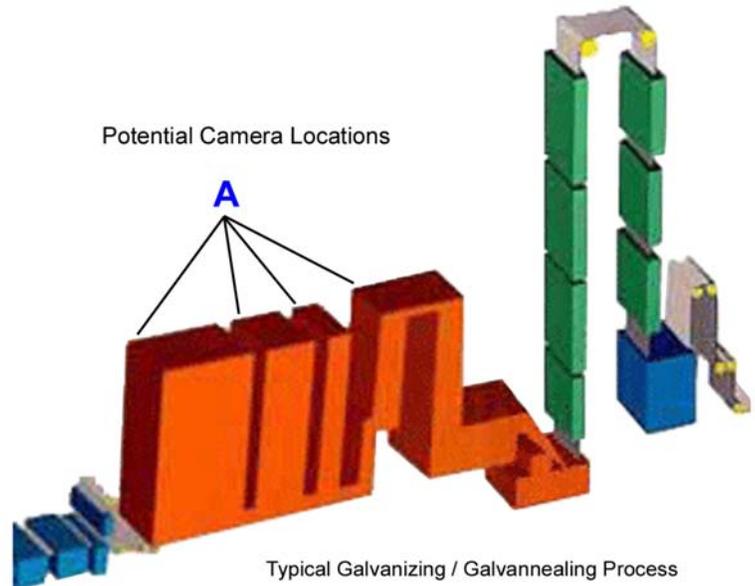
Application Highlights

The function of a continuous galvanizing and galvannealing line is to coat steel with a thin layer of zinc which enhances the corrosion resistance of the final product. A typical process starts with steel coil being fed over rollers into a continuous multi-story vertical annealing furnace passing through multiple heat zones, typically 1650°F (899°C) where an annealing process takes place.

The temperature of the strip is then reduced and passes into a hot-dip zinc coating bath and then is pulled upwards through an air knife arrangement to remove excess zinc.

The strip is then cooled (galvanized) or heated again (galvanneal) and re-coiled to complete the process.

The **Lenox** Furnace Camera HD (see **A**) allows the operator to remotely observe the tracking of the coil edge and its position on the top rollers as the coil passes through the annealing furnace at speeds up to 300 fpm and to quickly identify potential problems like strip oscillation and run-out which can cause the strip to tear or break resulting in damage to the furnace and production downtime.



The water-cooled, stainless steel, Furnace Camera HD allows manufacturers to remove existing site windows, which get dirty, and insert the camera housing through a 3.5 inch (89 mm) opening and then attach with the camera's sealed flange. This installation method eliminates current portholing problems and reduces maintenance. Wide field of view optics provides optimal viewing of multiple production rollers. An integrated, low consumption (3 CFM) nitrogen purge keeps the camera lens clean and doesn't upset the furnace's controlled atmosphere.

Why Use Lenox Furnace Camera Systems?

- Designed to be rugged and durable for the brutal atmosphere of the Steel industry.
- Proven reliable dual cooling system and the highest camera resolution with superior optics.
- Minimal maintenance and operating cost once correctly installed.
- Backed by an industry leading **two year warranty**.
- Flexibility in choice of penetration lengths, viewing angles, and water cooled models that utilize integral, **low consumption** air/gas-purging to prevent fouling of the lens system.
- Lenox know how, expertise and installation/field service.

Serving the Steel Industry Since 1950!



The 1 and only
FURNACE CAMERA SYSTEM
DESIGNED FOR THE STEEL INDUSTRY

with extreme durability, higher resolution, a time-tested cooling system, a longer warranty, and a much lower average cost to operate.



Model 6935SC Series

Lenox Furnace Camera HD high-temperature, video furnace camera systems are designed to be mounted either directly through the wall or flush with the exterior wall of a furnace. The stainless steel camera housing employs a steel triple wall laminar flow for efficient water-cooling of the color CCD camera and the latest optical lens technology to provide clear, real time high-resolution (540 line) images, enabling operation in hostile environments up to 4250°F (2345°C). An integral air-purge prevents fouling of the lens system. The furnace camera is available in lengths of 24" (61cm), 31" (79cm), 36" (92cm) and provides direct viewing with a choice of 30°, 45°, 90° field of view and zoom capabilities up to 5X.

Lenox FireSight furnace camera systems consist of a high-resolution (540 line), color CCD camera and sophisticated light volume control, a Lenox exclusive that allows an operator to remotely adjust the amount of light transmitted to the camera eliminating the flaring / blooming common with other systems. Quartz optics, another **Lenox** exclusive, are used and can withstand temperatures up to 1200°F (649°C) higher than the glass lens used in other systems. In addition, a water-cooled lens jacket and CCTV camera housing provides cooling and protection for the furnace camera and air-purging of the lens system to prevent fouling by deposition. Designed to be mounted directly through the furnace wall these furnace cameras can be used in applications up to 3500°F (1927°C). Available with either a 24" (61cm) or 36" (92cm) lens in either direct (60° or 90°) or right-angle (55°) view configurations. Special lengths up to 126 inches (329cm) are available.



Model 6555FC Series

Please contact us for more information about our products and capabilities and to discuss your specific application.

