CASSO-SOLAR TECHNOLOGIES

PRODUCT BULLETIN P104G
Type Unitube Gold

SPECIAL FEATURE

HORIZONTAL OR VERTICAL OPERATION
The Casso-Solar Infrared Heater Gold Unitube can be configured to operate in the horizontal or vertical position. The vertical burn Gold Unitube Heater will not experience coil sag, and will remain uniform in temperature during operation.

VARIETY OF END TERMINALS
The Gold Unitube Heater is available with a variety of end termination designs, including the snap-in stainless steel end cap. Other end caps are available in ceramic with electrified mounting studs, lead wires, pigtails, etc.

CUSTOM DISPERSION ANGLES
The infrared emission can be dispersed from the Gold Unitube Heater window at standard dispersion angles of 90°, 120° and 180° as well as custom dispersion angles. Casso-Solar can recommend the most efficient IR dispersion angle for your application.

CUSTOM WATTAGE AND VOLTAGES
The Gold Unitube Heater is available in watt densities up to 80 watts per lineal inch, depending on tube diameter, window size and availability of cooling air. Custom operating voltages are also available.

LOW INRUSH CURRENT
The ohm resistance of the Gold Unitube Heater is highly stable during operation or from a cold start. Similar cold and hot ohm resistance means virtually no amperage surges when initially starting the Gold Unitube. Soft-starting is not required with the Gold Unitube Heater.

With new product and process technology under continuous development, production equipment is required to give precise and flexible control over production quality, while operating efficiently with minimum maintenance. With over 50 years of experience, Casso-Solar Technologies has been providing our customers the competitive edge.

NO REFLECTORS REQUIRED

The Casso-Solar Technologies Gold Unitube Infrared Heater contains an integral gold reflector that directs the infrared energy to the product without the need for the typical external reflector. The integral gold reflector is maintenance free. Gold is the most efficient reflector material for all infrared energy, as it will not oxidize like other metallic reflectors.

CONSERVES ENERGY

The Gold Unitube provides energy efficiencies of up to 80%, drastically reducing electrical power consumption over competitive tubular heaters.

Like all Casso Solar Technologlies Infrared Heaters, the Gold Unitube can be tuned to match the peak absorbtion point of the material being heated over the usable wavelength range of 2.4-6.0 microns, with emitter temperatures of up to 1800°F.

Gold Unitubes can be arranged to provide temperature profiling, or can be shut down to conserve energy with narrow width products.

FAST RESPONSE

Rapid warm-up is an important feature of the Gold Unitube. Peak radiant output can be achieved in less than 15 seconds with complete saturation in under one minute. Complete cool down can be within seconds of a line stoppage with the aid of a purge blower, thus protecting valuable product.

STURDY CONSTRUCTION

A heavy walled, 5/8" diameter, quartz tube is used in the Gold Unitube construction, making the heater one of the strongest of its kind.

EASY TO CONTROL

Through the use of fast cycle zero-crossing SCRs, or phase angle firing SCR power controllers for precision applications, the Gold Unitube can maintain product temperature to within ± 2°F across the web. With both control options, a thermocouple located within a quartz thermowell can accurately measure the emitter temperature. Optional optical pyrometers can measure product temperature and automatically control the process.

DESIGN FLEXIBILITY

Gold Unitubes can be mounted together to form banks; prewired into single or multiple zones. Supply and exhaust air systems can be provided for moisture removal or use in solvent environments.

Sales & Technical Information

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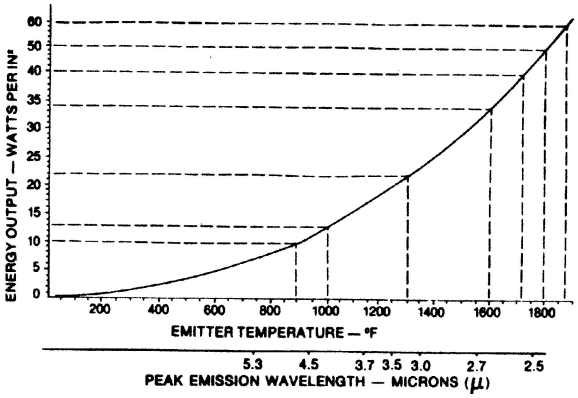
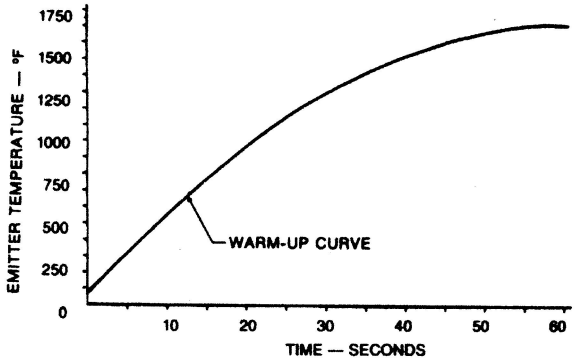


EMISSION OUTPUT CURVE

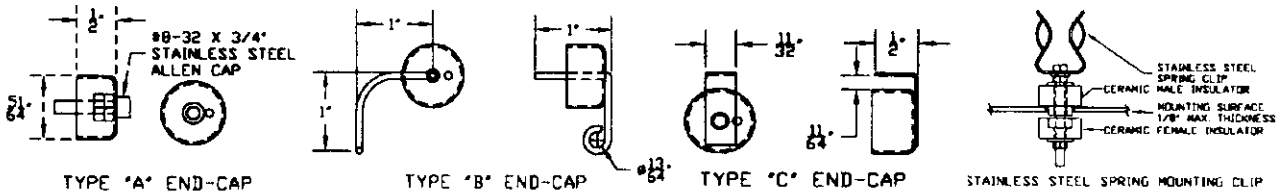
The emission output curve at the left shows emitter temperature versus watt density and the corresponding wavelength emitted for a specific emitter temperature. For example, an emitter temperature of 1300°F would correspond to a peak wavelength of 3.2 microns with a free air watt density of 22 watts per square inch. The key to efficiency is to select the emitter wavelength that best matches the peak absorption of the product to be processed.

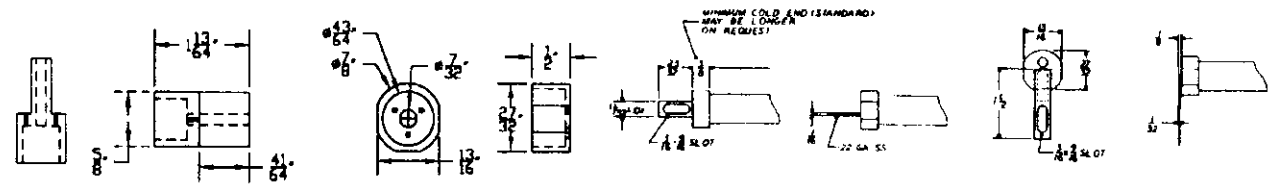
WARM-UP CURVE

The warm-up curve at right shows the response time of the Gold Unitube, as measured by the thermocouple, from a cold start to a maximum temperature, for a 50 watt per lineal inch heater. Changes in temperature, or partial warm-up, will be along this characteristic curve.



AVAILABLE END-CAP TYPES





SPECIFICATIONS:

WATT DENSITIES:	Up to 80 watts per lineal inch (32 watts per centimeter) generating watt densities up to 80 watts per square inch (12.6 watts/cm²).
VOLTAGES:	Up to 600 volts.
SIZES:	All heaters are custom built. Available heated lengths from 3" (8 cm) to 144" (365 cm). Nominal size range: 12" (31 cm) to 96" (244 cm). All tubes 5/8" diameter (1.6 cm). Clear quartz.
WAVELENGTH EMISSION:	2.5 - 6.0 microns, peak adjustable by emitter temperature.
TEMPERATURE RANGE:	Up to1800°F(980°C).

THERMOCOUPLE: (OPTIONAL) Tubular quartz thermowell to accept a 1/16" diameter, type "K", thermocouple.

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