Frequently Asked Questions

Radiant Optics, Inc.

What is infrared (IR) radiation?

Infrared radiation is safe, invisible electromagnetic radiation that transmits energy from a hot object to a cooler object at the speed of light. When infrared radiation is absorbed by the surface of an object, the radiation warms the object by increasing molecular movement.

What technology has Radiant Optics developed?

Radiant Optics has developed a revolutionary series of high intensity infrared heaters called **HotZONE™** heaters that produce and focus infrared radiation using a patented **IRLens™**. Radiant Optics' **HotZONE™** heaters are the only heaters that truly focus infrared radiation and can perform spot heating.

What are the components of a HotZONE™ heater?

There are two major components. The first is a high efficiency gas or electric infrared generator that converts a high percentage of its input energy into infrared radiation. The second is the **IRLens™**, which focuses the infrared radiation into a beam or a spot.

How do the heat patterns differ between infrared heaters with and without a lens?

An **IRLens™** increases the amount of infrared energy in the central beam of a **HotZONE™** heater by 3x to 5x that of a conventional heater by capturing the energy from the shoulders of the radiation pattern. As a consequence, there is a sharp cutoff between the center and the shoulders of the beam.

Others claim to have reflectors that direct heat - why is the IRLens™ different?

Conventional reflectors are too small relative to the size of the infrared source to do a good job focusing the infrared energy. The **IRLens™** cleverly collapses a large reflector down into a low profile grid that does a much better job focusing the infrared energy.

Why does a heater with an IRLens™ work better than a heater without a lens?

The **IRLens™** concentrates and directs a greater portion of the infrared energy to the spot that needs to be heated. As a result, the heater can be mounted a greater distance from the spot to be heated. The difference between an infrared heater with and without a lens is similar to the difference between a light bulb and a spot light. A traditional infrared heater is like a light bulb. The heat generated by the heater goes in all directions. With an **IRLens™,** the heat is focused in a specific direction resulting in sharp edges between heated and unheated areas and a much greater percentage of the heat being delivered to the intended target. It should be noted that not all applications need spot heat, but all spot heat applications benefit from the application of an **IRLens™.**

What are the advantages of a sharp cutoff between heated and unheated areas?

The greatest advantage of a sharp cutoff between heated and unheated areas is efficiency. With a focused beam a high percentage of the radiant energy is delivered to the target.

Several applications benefit from a sharp cutoff of delivered energy. Workers along the conveyor of a frozen food plant and spectators in the seating area around an ice skating rink are two examples where it is beneficial for the people to be heated, without heating surrounding areas. In paint and composite curing areas there is great benefit to having the employees much cooler than the heated object.

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