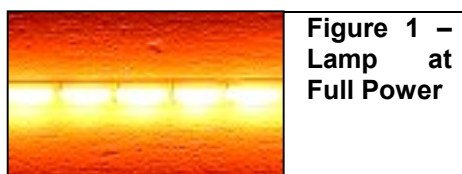


## Soneko Product Spotlight Quartz Halogen Lamps

### Background

Quartz halogen infrared (IR) lamp systems are successfully used in many industrial-heating requirements including the preheating of PET preforms and the curing of adhesives and coatings. These systems possess the ability to focus heat, turn heat instantly on and off, and heat rapidly. Users of this type of system realize many benefits including higher line speeds, reduced floor space requirements, lower energy consumption, and reduced cooling requirements.



Quartz halogen lamps were originally designed for lighting applications. Of the energy emitted when a lamp is at full power (2500 °K), less than 5 % of the energy is in the visible spectrum, which is the energy used in lighting applications. Over 95% of the energy is emitted in the IR range of the spectrum, which has a useful purpose in industrial heating. Of particular note is the amount of IR available in the short wavelength range. This energy has the tendency to partially transmit through many materials such as PET, water based coatings and adhesives. This allows for a more uniform heating of the material, as some of the thermal energy is absorbed internally, instead of merely at the surface.

### Description

The short wave filament is a helically wound tungsten filament encased in a quartz envelope (see Figure 4). The short wave element has a maximum heating rate of 200 watts/inch.

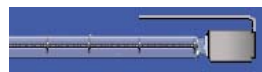


Figure 2 – Short wave filament

The filament allows fast heat-up times of 1 – 2 seconds. The filament produces mostly short to medium wavelength IR (refer to Figure 3). The typical filament temperature range is 1641 to 2227 °C (1914 to 2500 °K). Short wave filaments require a phase angle fired power control with soft start capability.

The quartz envelope allows transmission of the IR energy, while protecting the filament from convective cooling and corrosion. The quartz is evacuated and filled with inert gases. A small amount of halogen gas is added to promote long life of the emitter. Rated life for most T3 lamps is 5000 hours. Actual life will depend upon the application and environment and may be greater or less than rated.

A ruby colored quartz envelope is available for filtering out most of the visible light. Refer to the Product Spotlight brochure for the Ruby Red Quartz Lamps.

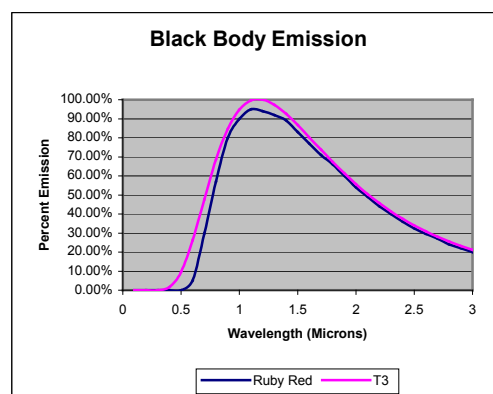


Figure 3 - Emission of T3 Lamp with and without Ruby Filter

## Quartz Halogen Lamps by Soneko IR

### Reflectors

The quartz halogen lamps are available with a white ceramic reflector coating on the back of the lamp. These coatings help improve the lamp efficiency and reduce the needs for cooling external reflectors.








### Product Availability

The quartz halogen lamp can be made in custom sizes, and is available in the following standard configurations, including those shown in Table 1.

Lamp	OAL (inches)	Heated Length (inches)	Volts
500	8.8	5.0	120
1000	8.8	5.0	120
1000	13.8	10.0	240
2000	13.8	10.0	240
1600	19.8	16.0	240
3200	19.8	16.0	240
2500	28.8	25.0	480
3800	41.8	38.0	480

**Table 1 - Lamp Configurations**



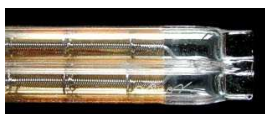

Table 2 shows the typical configurations, which are the same as what is commercially available for the T3 lamps.

	D – Metal Band
	E – Modified Metal Band
	F – Banana Plug
	G – Ceramic with Lead
	H – Steel sleeve and Lead
	M – R7
	N – R7 with Lead

**Table 2 – End Configurations**

### Other lamps by Soneko, IR

Soneko, IR produces a full line of infrared emitters in short and medium wavelength emissions. Refer to Table 3.

	Rapido™ 100 watt/inch, medium wave lamp
	IQH 50 watt/inch, medium wave
	Twin Tube Emitters with either IQH or Short Wave Filaments
	Ruby Red short wave IR lamp

**Table 3- Other Lamps by Soneko, IR**

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