

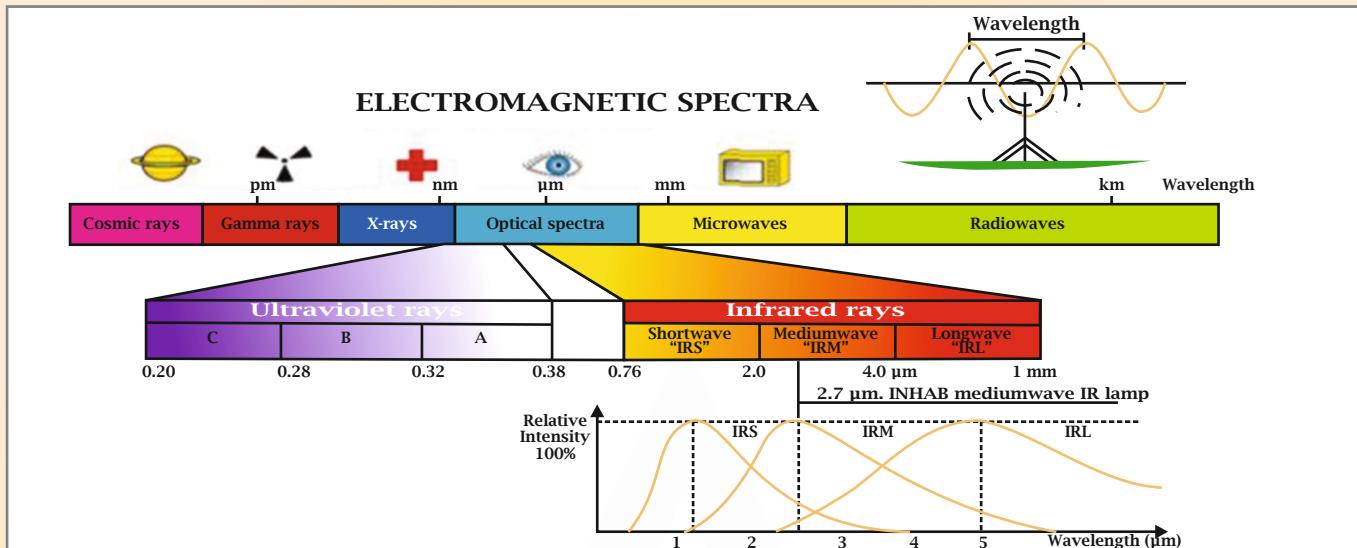


AURA HEAT ENERGY
HEAT UP SYSTEMS



SHORT WAVE INFRARED HEATERS

Basic of Infrared Radiation?



Electromagnetic Spectra

Why Infrared ?

Benefits of short wave infrared radiation lamps compared with other radiating elements

Efficiency : 92% of the energy consumed is transformed into infrared radiation and hence into heat, ability to direct the radiation:

As with light, it is not affected by air currents, there is no loss of energy, and the heat is applied where it is needed.

Versatility : The power input can be adjusted between 0% and 100% without any effect on life span.

Cleanliness and Safety : No noise, dust or smoke.

Compactness : Optimal power density.

IRS-short wave.

IRM-medium wave.

IRL-long wave

	Short Wave Infrared	Medium Wave Infrared	Long Wave Infrared
Typical Source	IR Halogen Lamp	Quartz Heat Source	Resistance
Materials	Tungsten filament welded in a quartz tube	Filament in compound of Fe-Cr-Al in a quartz tube	Filament in compound of Fe-Cr-Al in a steel tube
Radiant Efficiecy	92%	60%	40%
Switch-on/ Switch-off times	1 second	30 seconds	5 mm

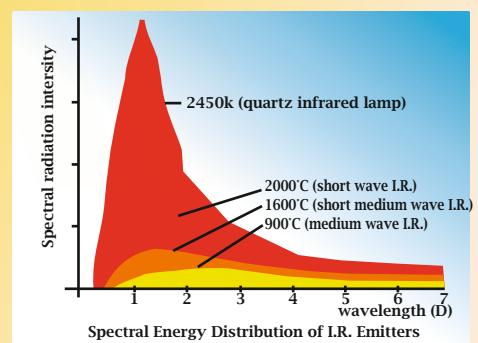
Comparison Table IRS, IRM & IRL

Why Short Wave ?

Basically, the shorter the wave, the more easily it travel is through the air. Short wave infrared generates heat by heating the object it meets with, without heating the air around it. Even effective and instant heat without pre-heating. A good example for this mode of action is the effect that occurs when a person walks out of the shade into the sunlight. Although the ambient temperate remains the same, they feel the temperature as considerably warmer under direct solar radiation.

What Are the Advantages ?

- ★ **Immediate heat :** 90% of the heat is available within 1 second.
- ★ **Efficiency :** 92% efficiency in emission of rays. Over 85% of the energy is converted to heat.
- ★ **Convenience :** No pre-heating and no heat dispersion
- ★ **Versatility :** It is possible to heat just part of the surroundings, either inside or outside.
- ★ **Individuality :** intensity adjustable from 0-100%.
- ★ **Reliability :** Lamps last up to 7000 hours even when switched on



Spectral Energy Distribution of I.R. Emitters

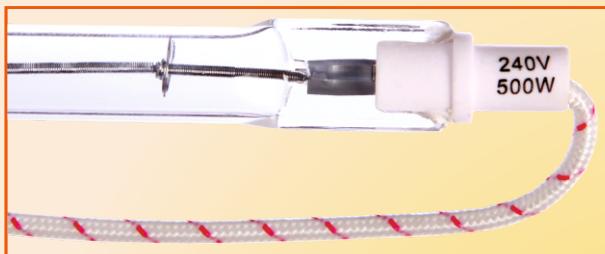
Short Wave Infrared Heaters without Coating



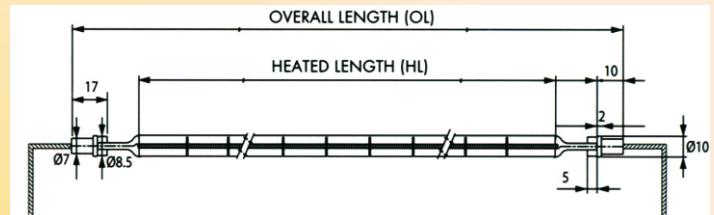
Sr. No.	Heated Length HL (mm)	Overall Length OL (mm)	Wattage (W)	Voltage (V)
1	127	212	500	240
2	153	223	1000	240
3	254	348	1000	240
4	406	500	1600	240
5	406	500	1600	415
6	508	626	2000	240
7	508	626	2000	415
8	635	728	2500	415
9	765	875	3000	415
10	850	950	2000	240
11	1020	1120	2000	240

Standard Sizes Availability

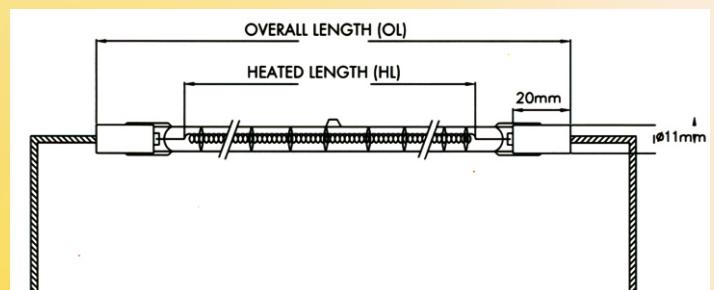
Different Types of Caps for SWIR



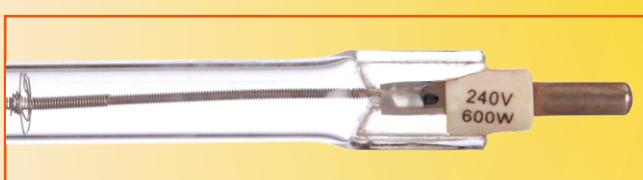
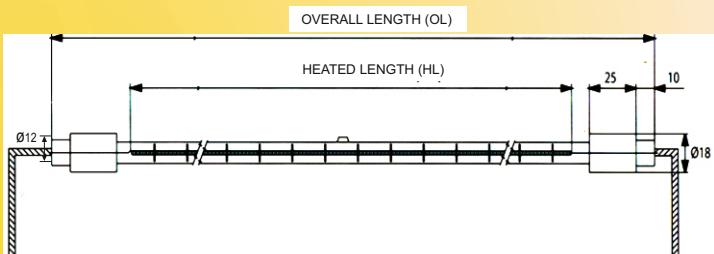
Small Round Ceramic Cap



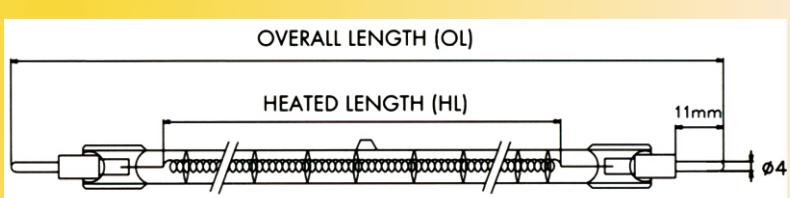
Big Round Ceramic Cap



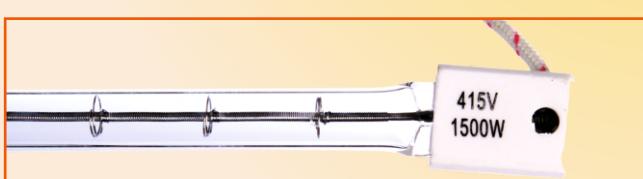
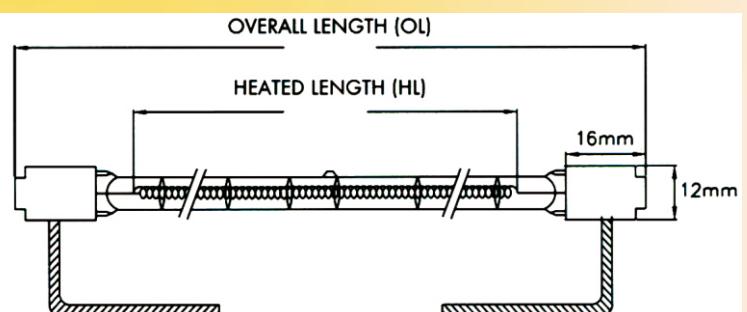
Double Round Ceramic Cap



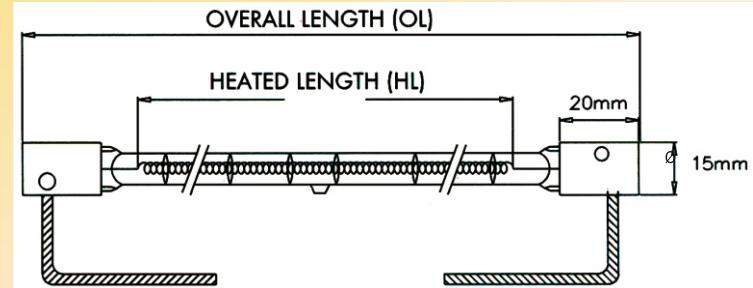
Metal Rod Type Holder



Metal Cap Bare Nickel Lead Wires



Rectangular Ceramic Cap without Coating



Sr. No.	Heated Length	Total Length	Wattage	Voltage
1.	153	223	1000	240
2.	254	348	1000	240
3.	508	626	2000	240
4.	635	728	2500	415



Ruby Red Colour Infrared Heater

Standard Sizes Availability

Ruby Lamps emits warm red light and could be widely used in outdoor or indoor heating device. Ruby lamp delivers the heat to product fast and directly without heating the surroundings air due to the nature of radiation.

It has no dust or pollution during operation. Thus, it is not only an energy - efficiency system but also a clean and environmental friendly heating solutions.

Short Wave Infrared Heaters with Coating



Short Wave Infrared Heaters with Coating (Reflectors)

All of our Emitters can be coated with a layer of Gold or Ceramic as reflectors. The Gold/Ceramic coating can concentrate the heat, increasing the effectiveness of the heat output. The emitters with coating are highly economical, converting practically all the consumed electrical power into heat. For the emitters with high watt density or the surface temperature of the tube above 800°C, we suggest to use ceramic coating as reflector because the temperature resistance is up to 1000°C. In addition to 180° (half-tube) coating, we also manufacture 270° coating or other customer specified degrees. Reflector : The Reflector are used to better efficiency and target on material through all transmission rays energy emitted by Infrared Lamp.

The High Efficient Reflector are as following:

- 1.Gold Reflector :** It is a Layer of Gold which is deposited on the layer of Infrared Glass Tube able to reflect more than 90% of IR radiation. to achieve the maximum working temperature of about 600°C.
- 2.White Reflector:** It is a Ceramic layer fixed on the Infrared Glass tube to reflect, emits reflects about 70 % of radiation as compared to gold it is less effective to the material. It can withstand up to 900°C.
- 3.Ruby Reflector:** it is use mitigate the Infrared Radiation intensity of the filament. It is fixed all over the SW IR lamp in combination with another reflector.

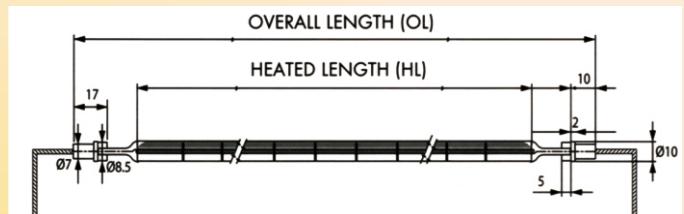
Advantages:

- 1.Improved energy transmission on material
- 2.Reliable heating
- 3.Possible to obtain an additional distance irradiated energy.

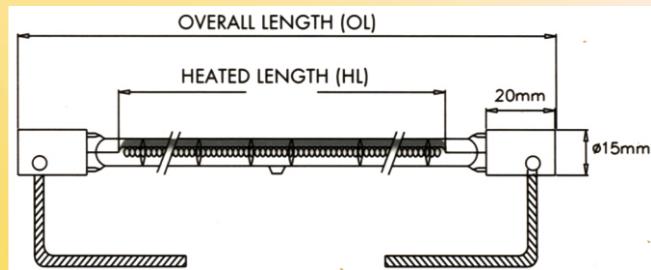
Different Types Of End Caps For With Coating Swir



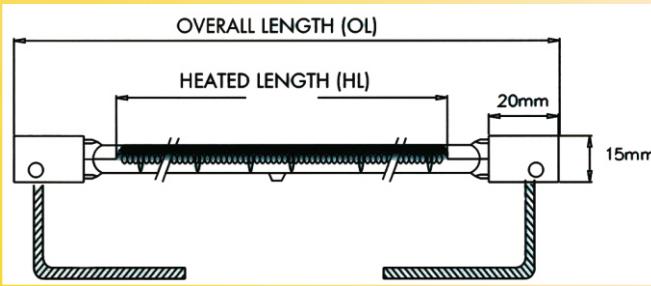
Gold Coated Small Round Ceramic Cap



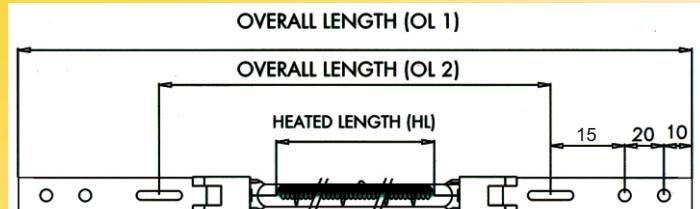
White Coated Rectangular Ceramic Cap



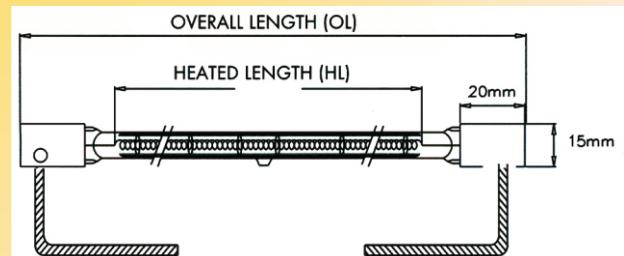
Gold Coated Rectangular Ceramic Cap



White Coated Metal Clip Type Holder



Double Gold Coated with Rectangular Cap



Note: Other than above types we can also supply Short Wave Infrared heaters in different shapes

like Round, C Shape, U shape etc. as per customer requirement.

Short Wave Infrared Heating Modules

Infrared modules are the ideal solution in the application of infrared heat technology. They save the user design costs and time, but are substantially less expensive than complete infrared systems.

Wider Modules IRW type is available in above specification with same lengths of 145 mm (width) x 80 mm (depth).



Type-IRN (Narrow)

Module Code	Overall Dimensions (mm)			Heater Specification			
	Length	Width	Depth	Heater Used	Heated Length	Watts	Volt
IRN 500	310	80	55	SW 500	127	500	240
IRN 1000	460	80	55	SW 1000	254	1000	240
IRN 1600 S	610	80	55	SW 1600 S	406	1600	240
IRN 1600 D	610	80	55	SW 1600 D	406	1600	415
IRN 2000 S	725	80	55	SW 2000 S	508	2000	240
IRN 2000 D	725	80	55	SW 2000 D	508	2000	415
IRN 2500 D	825	80	55	SW 2500 D	635	2500	415
IRN 3000 D	975	80	55	SW 3000 D	765	3000	415

Standard sizes availability for Short Wave Infrared Modules



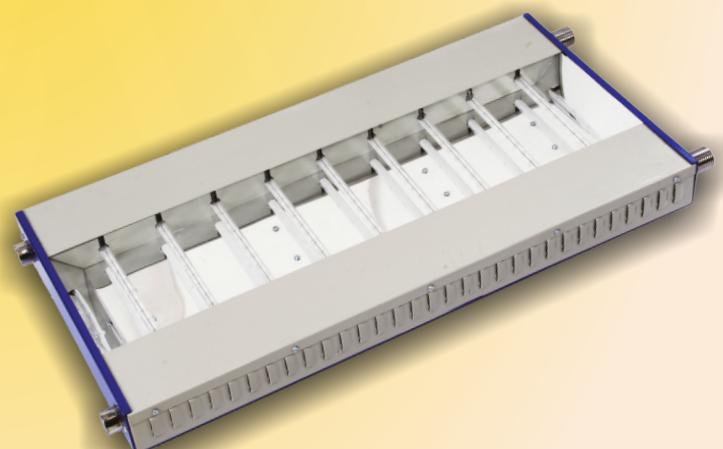
Type-IRW (Wider)

Module Code	Overall Dimensions (mm)			Heater Specification			
	Length	Width	Depth	Heater Used	Heated Length	Watts	Volt
IRW 500	310	145	80	SW 500	127	500	240
IRW 1000	460	145	80	SW 1000	254	1000	240
IRW 1600 S	610	145	80	SW 1600 S	406	1600	240
IRW 1600 D	610	145	80	SW 1600 D	406	1600	415
IRW 2000 S	725	145	80	SW 2000 S	508	2000	240
IRW 2000 D	725	145	80	SW 2000 D	508	2000	415
IRW 2500 D	825	145	80	SW 2500 D	635	2500	415
IRW 3000 D	975	145	80	SW 3000 D	765	3000	415

Short Wave Infrared Modules



Short Wave Infrared Heating Modules with Mesh



Short Wave Infrared Heating Modules with Multiple Heaters



Short Wave Infrared Carbon Heaters

Sr. No.	Heated Length	Total Length	Wattage	Voltage
1.	127	212	500	240
2.	254	348	1000	240
3.	406	500	1200	240
4.	508	626	2000	240
5.	635	728	2500	240
6.	635	728	2500	415

Standard Sizes Availability



Twin Tube Gold Coated Short Wave Infrared Heaters

This is made up of 8-shape High-Purity clear quartz twin tube, each tube has Heating Coil of Tungsten material which runs in U shape in the tube which is filled with halogen gas.

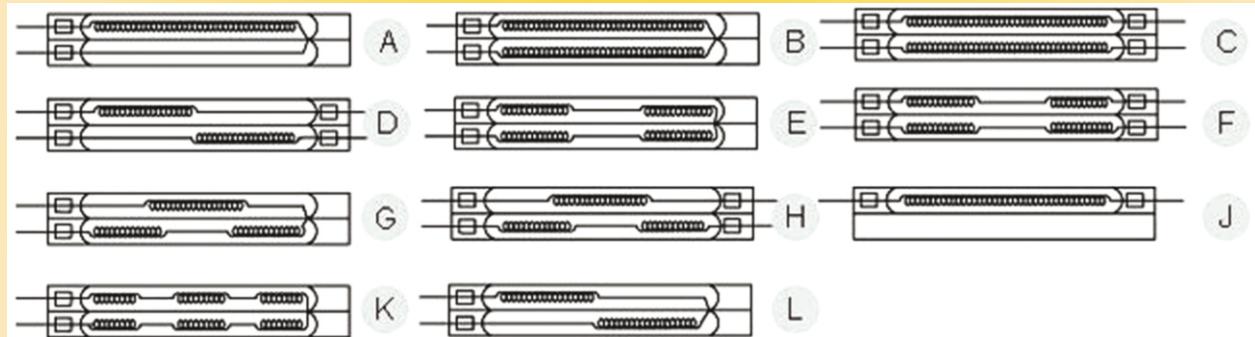
- Power Density up to 150KW/m² is achieved. Heating up and cooling down time is approximately one second
- These heaters are available with Gold reflector and without reflector
- Reflector is in the form of Gold Coating on outer rear side of the tube

Due to reflector heat loss from backside is prevented and thus power saving is achieved

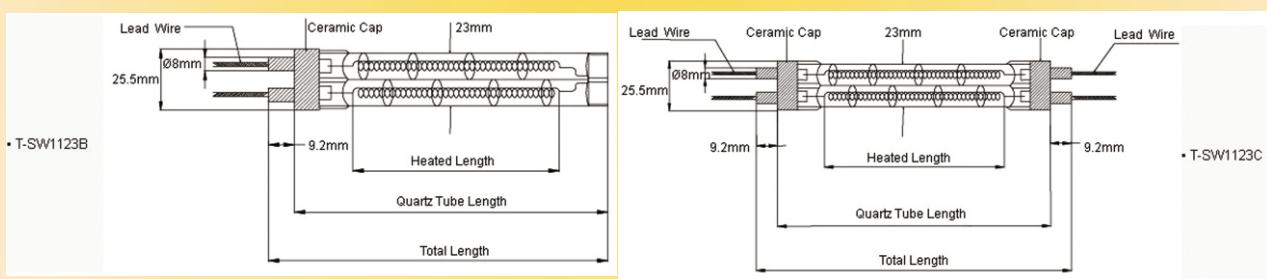
- This also results in making surrounding work area cooler
- This also increases the efficiency and directionality of the heater
- There are two standard sizes 11 mm x 23 mm and 15 mm x 32 mm in cross section.

Maximum length available is 2000 mm

Twin Tube Wave Infrared Emitters



Various Design of Filament



Various Design of Filament

- Color temperature 2400~2500°K
- IR wavelength between 1 to 2 μ
- Using tungsten wire as filament
- Response time around 1~2 seconds
- Average working life 5000 hours

- Gold or Ceramic Coating at rear side as reflectors
- Dimensions 11 x 23mm
- Max. overall length up to 3M
- Vertical and Horizontal Emitters are available

Auto Mobile Paint Curing SWIR Portable Trolley



We are manufacturer of infra red heating system for "paint touch up" applications for auto-mobile industries. Infra red heating is very effective for paint touch up and produces excellent surface finish due to its controlled and quick heating. The module has **SHORTWAVE INFRARED HEATER** designed by our engineer and it is mounted on the trolley which is either overhead or ground type. Vertical up down movement of the module is controlled by special "gas spring" actuator and angular movement of IR module around its axis is controlled by self locking arrangement. This enables to move module to any position simply by hand and does not require any tools or spanner. Our system is user friendly and gives only soft glow which is easy on eyes. Short wave IR module gives out bright glow which may disturbing to the operator. If required by the customer we will provide non contact type pyrometric temperature of object. This signal is given to temperature controller which displays the temperature value and issues command to raise/lower power to infra red module so as to maintain the temperature at the set value. Independent process timer can be provided to switch off the IR module when preset time elapses. Our Quartz Heater helps to precisely align the module with the touch up area..

Shortwave Infrared Heater Ovens With Control Panel



Infrared radiant heat energy contains many properties of the electromagnetic wave energy. These wave energies travel across a straight line and are absorbed by matter around them. They can also be dispersed, focused or reflected by means of lenses or prism. The infrared waves flood an area with radiant energy increasing temperature. Different substances have inherent properties in absorption of radiant waves; thus leading to several applications where infrared heating can be used against other forms of heating. They are available in short, medium and long wavelengths and are best suited for three-dimensional objections as radiation absorption raises the temperature uniformly.

The selection of wavelength depends on job requirement, curing time and temperature needed.

Infrared ovens are used widely for different applications such as ink drying, paint finishing, plastic and powder coating, besides audio accessories, stationery and other areas. Here, the infrared emitter is selected based on factors like application and wavelength. Rapid heating of product at low energy cost is managed with infrared emitter options like ceramic emitters, reflector heat lamp and quartz tube etc. In addition, glass panel processing oven, control and cooler systems help in implementing heating elements are recirculation blowers for a combination of convection and infrared heating.

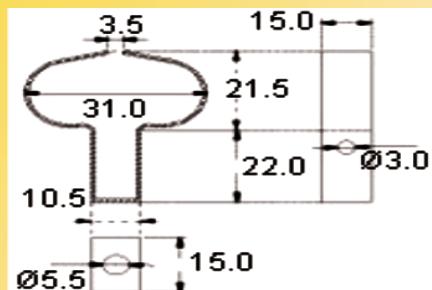
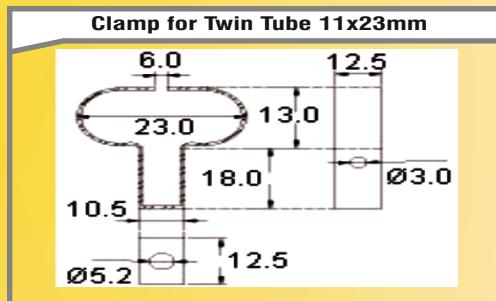
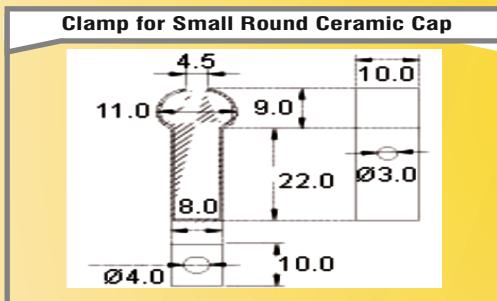
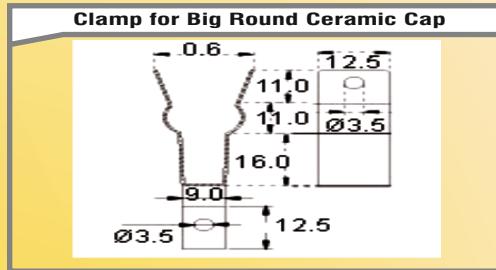
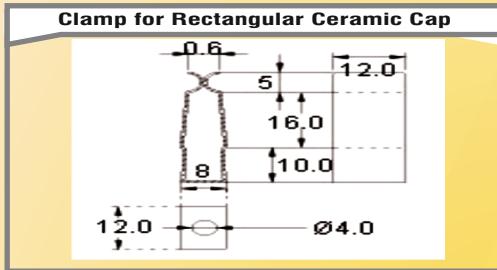
The new revolutionary design in ovens is the Infrared Oven which is fast catching up with industry. A cost viable alternative to regular ovens, infrared ovens are coming to the industry with several features like a compact design, multiple function and digitally controlled mechanisms.

The infrared technology is relatively new and as always has invited plenty of enthusiasm and equally amount of skepticism – the prime area of discussion is the infrared radiation and whether it is harmful or safe. While the larger advice given is not to look at the oven for long periods of time when it is in use, reflectors and shields can be considered as options for safety and convenience in handling.

Convection Combined with infrared technology, it provides a faster and safer solution to food industry.

Accessories

Mounting Clamps For Infrared Heaters



Clamp for Twin Tube 15x33mm

Ordering Information

Overall Length	Wattage	Type of Ceramic End Cap	Type of Coating - Gold / White
Heated Length	Voltage	Lead Wire Length	Single Quartz Tube / Twin Tube

Application:

- ❖ PET preform heating in stretch blow molding machines
- ❖ Printing ink drying in offset machines
- ❖ Paper coating drying
- ❖ Pre – heating prior to embossing
- ❖ Screen printing curing on T – shirts
- ❖ Textiles and much more



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