# INFRARED EMITTERS

Infrared wavelengths emit their heating by radiation. This technology is characterised by a wave length which implies a high of the temperature of a receptive surface without heating the intermediary atmosphere.
The infrared is divided in three subdivisions which are all used in the industry : short wavelength, medium wavelength and long wavelength. The choice of the emitter is made in accordance with the propriety of the product to absorb the emitted wave.

The short infrared wavelength is placed in the wavelength between 0,76 and 2µm. This technology is characterised by a high power density per meter and a heating wavelength almost instantaneous is notably used in the tunnels on elements where the deep heating is necessary.

The medium infrared wavelength, contained between 2 and 4 µm, is produced by emitters with a weak inertia and with a strong building. Those emitters are characterised by a long life, are fitted with a superficial heating such as the drying of car painting but also in serigraphy, for all the drying application, reactivation of glue, etc.

The long infrared wavelength, which is located between 4 and 10 µm, is the bigger area to work. The ceramic emitters are working with weaker temperature which allows the pre-heating or the heating in superficial surface of the elements. This elements can also be used for the heating of human beings. They can resist to chemical and corrosive atmosphere.

We propose a large range of product available in stock (emitters for the three infrared areas, reflectors, accessories, cables…) but also, possibility of manufacturing products according to your specification.

- **Ceramic emitters.....** Heating by long wave infrared
- **Quartz emitters.....** Heating by medium wavelength
- **Infrared lamps-medium wavelength.** Heating by medium infrared wavelength with weak inertia
- **Infrared lamps-short wavelength.....** Short wavelength infrared

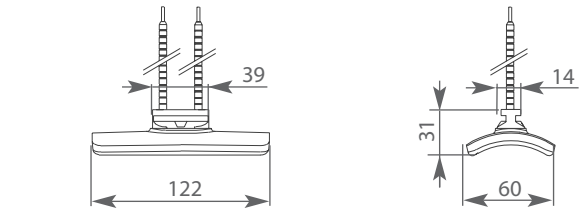
- Range of products available in various shapes :
  - Curved or flat
  - Rectangular or square
- Resistance wire around which is cast a ceramic body. Emitters are glazed to protect them from corrosive aggressions.
- Emitter provided with a mounting element on which we have put a spring and an stainless steel clip to fix the element.
- Two-leads connection protected by ceramic pearls. Length 100 mm ± 10 mm.
- Some emitters are provided with a thermocouple, type J or K, to optimize the temperature of the emitter. Thermocouple with a nickel core wire with fiberglass silk silicone, cast in the ceramic, nearby the emitter plane.
- Voltage : 230 V single phase. Other voltages available on request.
- Approval :UL for all the quoted ceramic emitters.

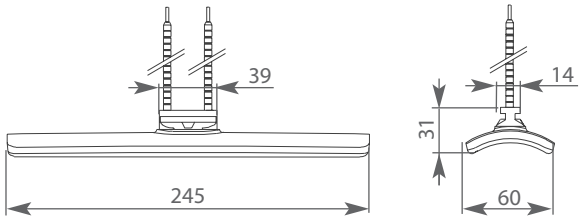
**Using recommandation:**
The emitters can be equiped with reflectors which allow to direct the radiation towards the area to be heated.

**Thermic characterisitics :**

- Average surface temperature at full capacity : from 200°C (125W) to 680°C(1000W) .
- Wavelength : from 2 to 10 µm, with a maximum wavelength situated between 3,8µm (1000W) and 5µm(200W), according to the emitter.

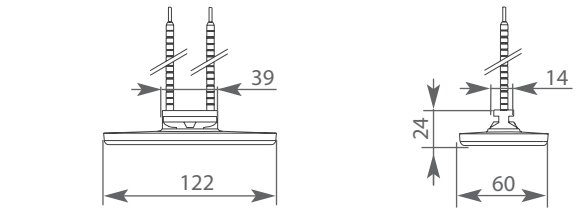
Trough rectangular emitters

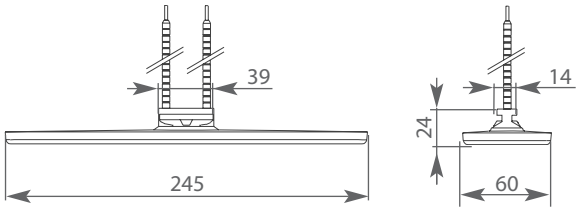



| P (W) | Emitters in stock | Emitters with Tc J in stock | Emitters with TcK in stock |
|---|---|---|---|
| 125 | HTE 125 | HTE/TC/J 125 | HTE/TC/K 125 |
| 200 | HTE 200 | HTE/TC/J 200 | HTE/TC/K 200 |
| 250 | HTE 250 | HTE/TC/J 250 | HTE/TC/K 250 |
| 325 | HTE 325 | HTE/TC/J 325 | HTE/TC/K 325 |
| 500 | HTE 500 | HTE/TC/J 500 | HTE/TC/K 500 |
| 150 | FTE 150 | FTE/TC/J 150 | FTE/TC/K 150 |
| 250 | FTE 250 | FTE/TC/J 250 | FTE/TC/K 250 |
| 400 | FTE 400 | FTE/TC/J 400 | FTE/TC/K 400 |
| 500 | FTE 500 | FTE/TC/J 500 | FTE/TC/K 500 |
| 650 | FTE 650 | FTE/TC/J 650 | FTE/TC/K 650 |
| 750 | FTE 750 | FTE/TC/J 750 | FTE/TC/K 750 |
| 1000 | FTE 1000 | FTE/TC/J 1000 | FTE/TC/K 1000 |

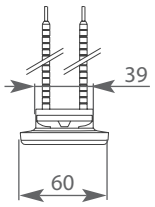
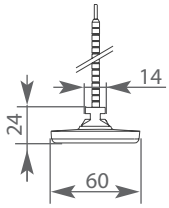
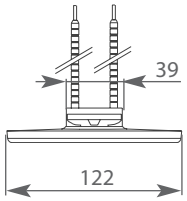
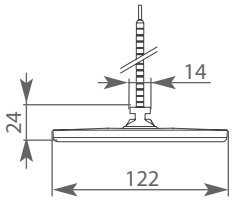
Flat rectangular emitters




| P (W) | Non-stocked emitters | Non-stocked emitters with Tc J | Non-stocked emitters with Tc K |
|---|---|---|---|
| 125 | HFE 125 | HFE/TC/J 125 | HFE/TC/K 125 |
| 200 | HFE 200 | HFE/TC/J 200 | HFE/TC/K 200 |
| 250 | HFE 250 | HFE/TC/J 250 | HFE/TC/K 250 |
| 325 | HFE 325 | HFE/TC/J 325 | HFE/TC/K 325 |
| 500 | HFE 500 | HFE/TC/J 500 | HFE/TC/K 500 |
| 150 | FFE 150 | FFE/TC/J 150 | FFE/TC/K 150 |
| 250 | FFE 250 | FFE/TC/J 250 | FFE/TC/K 250 |
| 400 | FFE 400 | FFE/TC/J 400 | FFE/TC/K 400 |
| 500 | FFE 500 | FFE/TC/J 500 | FFE/TC/K 500 |
| 650 | FFE 650 | FFE/TC/J 650 | FFE/TC/K 650 |
| 750 | FFE 750 | FFE/TC/J 750 | FFE/TC/K 750 |
| 1000 | FFE 1000 | FFE/TC/J 1000 | FFE/TC/K 1000 |

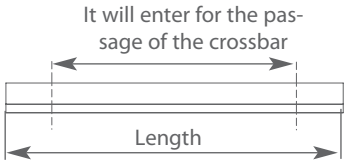
These square flat emitters have the same characteristics than the rectangular flat emitters

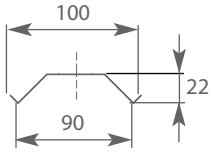
| Square emitters | P (W) | Non-stocked emitters | Non-stocked emitters with TcJ | Non-stocked emitters Tc K |
|---|---|---|---|---|
|   | 125 | SFQ 125 | SFQ/TC/J 125 | SFQ/TC/K 125 |
| | 250 | SFQ 250 | SFQ/TC/J 250 | SFQ/TC/K 250 |
|   | 150 | SFSE 150 | SFSE/ TC/J 150 | SFSE /TC/K 150 |
| | 250 | SFSE 250 | SFSE/TC/J 250 | SFSE /TC/K 250 |
| | 300 | SFSE 300 | SFSE /TC/J 300 | SFSE /TC/K 300 |
| | 350 | SFSE 350 | SFSE/TC/J 350 | SFSE /TC/K 350 |
| | 400 | SFSE 400 | SFSE/TC/J 400 | SFSE /TC/K 400 |
| | 500 | SFSE 500 | SFSE/TC/J 500 | SFSE /TC/K 500 |
| | 650 | SFSE 650 | SFSE/TC/J 650 | SFSE /TC/K 650 |
| | 750 | SFSE 750 | SFSE/TC/J 750 | SFSE /TC/K 750 |

# REFLECTORS AND ACCESSORIES

- In order to have a better efficiency, the emitted energy has to be focused on the charge. Consequently the range offered by Techspan can be integrated on existing ceramic elements : several curved emitters type FTE can be put on only one reflector.

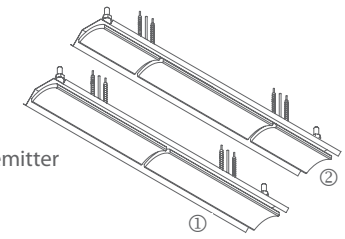
- Reflector in aluminised sheet.
  Cut for the passage of the emitter, boring for the passage of the crossbars and the connection back.
- Reflector provided with a mounting system kit :
  - screws and nuts for the mounting system of the reflector and of the connection,
  - crossbars which allow to not flatten out the leads of the connection leads,
  - ceramic block for the electrical connection.




Example of mounting :

①: reflector WBR/2/A with 2 FTE emitters
②: reflector WBR/2/A with 2 HTE emitters and 1 FTE emitter




| Length (mm) | Gap (mm) | Reflector for : HTE (122 x 60 mm) + FTE (245 x 60 mm) | Code |
|---|---|---|---|
| 125 | 87 | 1 HTE / | WBR/H |
| 254 | 180 | / 1 FTE | WBR/1 |
| | 194 | 2 HTE / | WBR/1/A |
| 504 | 430 | / 2 FTE | WBR/2 |
| | 444 | 2 HTE + 1 FTE | WBR/2/A |
| 629 | 570 | 5 HTE / | WBR/5/H |
| 754 | 570 | / 3 FTE | WBR/3 |
| | | 2 HTE + 2 FTE | WBR/3/A |
| 1004 | 570 | / 4 FTE | WBR/4 |
| | | 2 HTE + 3 FTE | WBR/4/A |

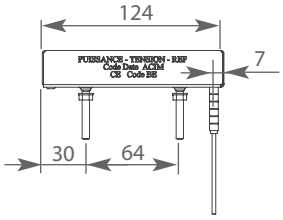
- **Applications :**
  - Emitters particularly used for applications which need fast response such as system with long heater off cycles as they reach operating temperature in few secondes.
  - Reactivation of glue
  - Plastic heating before use
  - Drying of ink or dye
  - Heating of painting on ironwork pieces

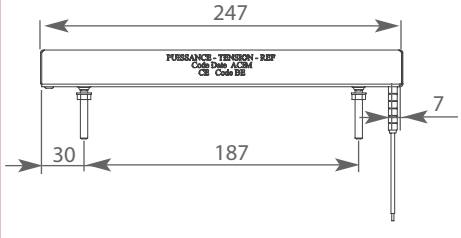
- **Description :**
  - Two available lengths
    124 x 62.5 x 19 mm or 247 x 62.5 x 19 mm.
  - Wound resistance coil run through a series of parallel quartz tubes.
  - Box in aluminium sheet acting as a reflector to gather the heating flow towards the area to heat.
  - Thermic insulation to limit the temperature on the connection on the backside of the emitter.
  - Mounting system of the emitter : by stud bolt or terminals
  - Voltage: 230 V single phase.

**Advantages :**
Fast response.
- It is able to work at weak distance from the products to treat
- Large wavelength spectrum
- Very weak thermic inertia
- Heating in few seconds.
- Low loss of radiation.

**Connection insulated leads** with fiberglass silk silicone by ceramic pearls on the same side.
Length : 200mm
Length protected under pearls : 30mm

Mounting system of the emitter : stud bolt M5x35mm with provided nuts

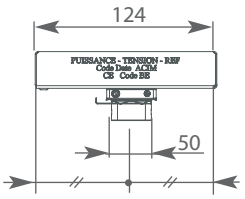


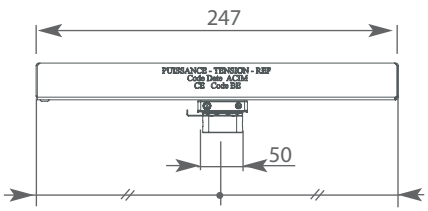




| P (W) | In stock |
|---|---|
| 200 | QHE 200 |
| 250 | QHE 250 |
| 400 | QHE 400 |
| 650 | QHE 650 |
| 1000 | QHE 1000 |
| 200 | QFE 200 |
| 250 | QFE 250 |
| 400 | QFE 400 |
| 650 | QFE 650 |
| 1000 | QFE 1000 |

**Terminal ceramic connection.**

Mounting system of the emitter : thanks to the terminal, by a clip and a spring provided with the emitter.



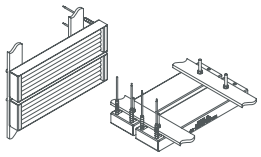

| P (W) | Non stocked |
|---|---|
| 200 | QHEB 200 |
| 250 | QHEB 250 |
| 400 | QHEB 400 |
| 650 | QHEB 650 |
| 1000 | QHEB 1000 |
| 200 | QFEB 200 |
| 250 | QFEB 250 |
| 400 | QFEB 400 |
| 500 | QFEB 500/200* |
| 650 | QFEB 650 |
| 1000 | QFEB 1000 |

*" warning " : emitter QFEB 500/200 : voltage 200V and not 230V*

# QUARTZ EMITTERS-MEDIUM WAVELENGTH

**Thermic characteristics :**

- Average surface temperature at full capacity : from 390°C (200W) to 770°C (1000W).
- Wavelength : from 1.5 to 8 µm,with a maximum wavelength situated between 2µm (1000W) ans 5µm (200W) following the emitter.



**Using recommendation**

- The emitters have to be mounted horizontally.
- Sometimes clean the emitters to prevent them from fouling up and from losing their heating power. For a good productivity, they have to work in an environment called " transparent ".
- Using high : from 100 to 200mm from the product to be heated, according to the characteristics (color, surface treatment, etc.)

**Special manufacturing :**

- ***Manufacturing made to measure***, according to the need of your installation :specific power to obtain a fitted wavelength, specific voltages and dimensions. Seek advice from our sales department
- The emitters, with connections by leads, can be equiped with a ***thermocouple***, type J or K, to regulate your installation

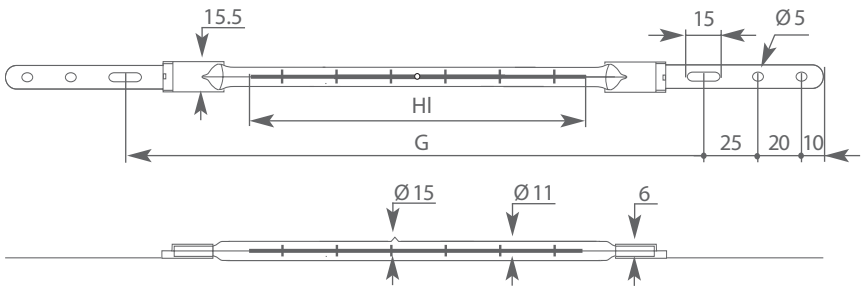
# INFRARED LAMPS - MEDIUM WAVELENGTH

Technology which combines the short infrared lamp with a wavelength in the area of the medium infrared wavelength.

- **Applications :**
  Drying of the painting especially car painting, drying of the plastic or textil in areas such as dietary industry , serigraphy…
- **Description :**
  - Coiled heating filament, in tungsten, integrated in a quartz tube full of a special halogen gas. Thanks to this gas, the tube does not lose its quality of wavelength.
  - Filament centered in the tube by spikes on both sides.
  - Connection by metal strip which can be made to be integrated in your installation.
  - Voltage : 400V single phase.

- **Advantages :**
  Weak inertia lamp : lighting and extinction in few seconds.
  High density of power for a small bulk.
  Long-life : 5000h on average.
- **Thermic characteristics :**
  - Wavelength : from 0.9 to 3.2µm.
  - Temperature of the filament and wavelength which are fitted with maximum energy wavelength :

| P (W) | Temperature (°K) | max. wavelength |
|---|---|---|
| 2000 | 1800 | 1.6 µm |




| P (W) | U (V) | Hl (mm) | G (mm) | Non stocked |
|---|---|---|---|---|
| 2000 | 400 | 410 | 508 | - |

Legend : Hl: Heating length G: gap

**Using recommendation :**

- Those lamps can be set up in universal position.
- Prevent them from projections
- You must provide an electrical installation : the appeal current can be two or three times bigger than the nominal intensity.
- Do not touch or maintain the tube in your hands.
- Do not mount the blocked infrared lamps : strips must absorb the expansion of the different components of the lamp

- **Advantages :**
  Instantaneous heating : maximum power one second after the lighting.
  High density for a small bulk.
  Long-life : about 5000h on average

- **Applications :**
  Drying of painting,serigraphy, thermoforage…

- **Description :**
  - Coiled heating filament, integrated in a quartz tube and which is lying in a complex halogen gas. Thanks to this gas the tube does not lose its quality of emission.
  - Quartz which is very resisting from thermic shock.
  - Heating filament perfectly centered thanks to spikes on both sides.
  - Connections : two models :
    - Metallic strips which can be mounted to be integrated in your installation.
    - Isulated FEP leads (Tmax :200°C) mounted on ceramic blocks, provided with cable lug.
  - Tension : 235 V ou 400 V mono, selon modèle. (Voir tableau).

***Nota*** : according to models, some lamps can only be set up horizontally and other in all the positions. See the table " emitter incline angle ".

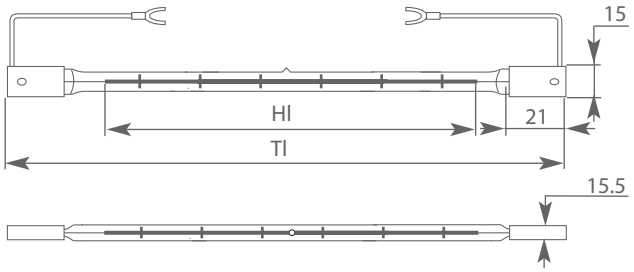
- Some lamps are provided from a reflector on the tube which allows to limit the radiation on the back and to direct towards the piece to heat. (see the table)


- **Thermic characteristics :**
  - wavelength range : from 0.6 to 2.8µm.
  - temperature of filament and wavelength which fits with the maximum energy wavelength :

| P (W) | Temperature (°K) | max.wavelength | % P emited |
|---|---|---|---|
| 500 | 2400 - 2500 | 1.1 to 1.2 µm | 89 to 94% |
| 1000 | 2400 | 1.2 µm | 89% |
| 2000 - 3000 | 2400 - 2700 | 1 to 1.2 µm | 89 to 100% |

**Lamp with ceramic cap**

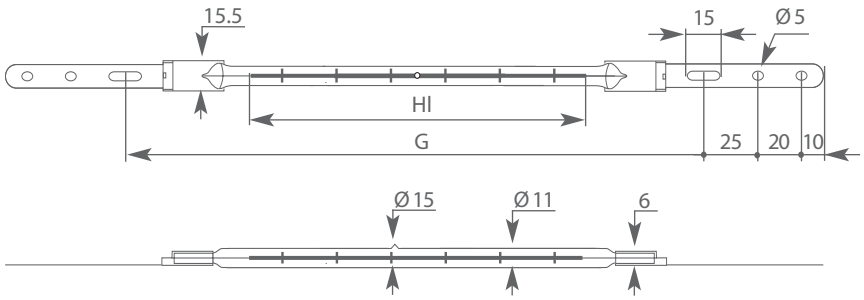
Leads : 210 ± 10 mm




Legend : Hl : Heating length Tl: Total length

| P (W) | U (V) | Hl (mm) | Tl (mm) | Reflect. | In stock |
|---|---|---|---|---|---|
| 500 | 235 | 165 | 226 | with | AJ3169Z/98 |
| 1000 | 235 | 272 | 352 | with | AJ13713Z/98 |
| | | | | with | AJ3195Z/98 |
| 2000 | 235 | 280 | 352 | with | AJ3168Z/98 |

**Lamp with metal strips**



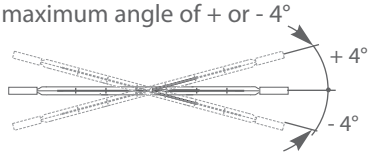

Legend : Hl : Heating length G : Gap

| P (W) | U (V) | Hl (mm) | G (mm) | Reflect. | In stock |
|---|---|---|---|---|---|
| 1000 | 235 | 272 | 370 | no | AJ3195X |
| | | | | yes | AJ3195X/98 |
| 2000 | 235 | 280 | 370 | no | AJ3168X |
| | 400 | 410 | 508 | yes | AJ3765X |
| | | | | no | AJ3765X/98 |
| | | | | yes | AJ3245X/98 |
| 3000 | 400 | 700 | 798 | no | AJ3230X |
| | | | | yes | AJ3230X/98 |

**Emitter incline angle :**

-according to the model, the lamps can be set up either : horizontal/ universal ( see table)

- horizontal position allows a maximum angle of + or - 4°




| Horizontal | Universal |
|---|---|
| AJ3169Z/98 | AJ3168X |
| AJ3195X | AJ3765X |
| AJ3195X/98 | AJ3765X/98 |
| AJ3195Z/98 | AJ3230X |
| AJ3245X/98 | AJ3230X/98 |
| (see sketch) | AJ3713Z/98 |
| | AJ3168Z/98 |

**Using recommendation**

- Do not touch or maintain the tube in your hands. Risk that the tube explodes during the lighting of the lamp.
- Prevent the lamps from all types of projection which imply irreversible damages.
- You must provide the electric installation : the appeal current is particularly important during the lighting. The current can be 13 or 17 times bigger than the nominal intensity.

# OTHER DOCUMENTATION AVAILABLE ON REQUEST

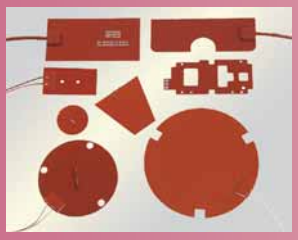
TECHSPAN®
PLASTICS & PRINTING TECHNOLOGIES

SYSTEM CERTIFICATION ISO 9001:2000 SGS
FR04/0136QU

Temperature control
Regulation

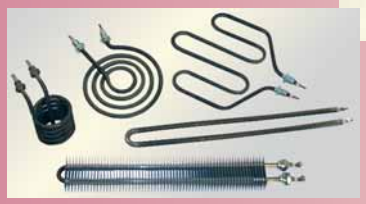
Band heaters

Fan heaters



Flexible heaters

Immersion heaters



Tubular elements

Cartridge
heaters

Formable coil heaters

Infrared emitters

Flat (plate) heaters

Ovens

Barrel heating

Cast in heaters

Cables, sheath and accessories


TECHSPAN®
PLASTICS & PRINTING TECHNOLOGIES

**Australia:**
Ph. 1-800 148 791
E. info@techspan.com.au
W. www.techspan.com.au

**New Zealand:**
Ph. (09) 827 6567
E. info@techspan.co.nz
W. www.techspan.co.nz