INFRARED

SHORT WAVE INFRARED EMITTERS
High speed and high power

Infrared heating technology
transfers large amounts of energy in a short time. Emitters are available for large surfaces, for three dimensional shapes and for small work pieces. By matching infrared emitters to individual applications, heating and drying processes can be integrated seamlessly into processing operations. In addition, infrared technology can be fitted with little expenditure into existing manufacturing lines.

Infrared emitters allow optimum matching
There are infrared emitters with various spectra. Short wave infrared radiation penetrates more deeply into materials, medium wave radiation is absorbed more strongly at the surface and into thin films. The wavelength at which infrared is emitted significantly influences the efficiency of the heating process. Perfectly matched infrared emitters can allow energy savings of up to 50 %.

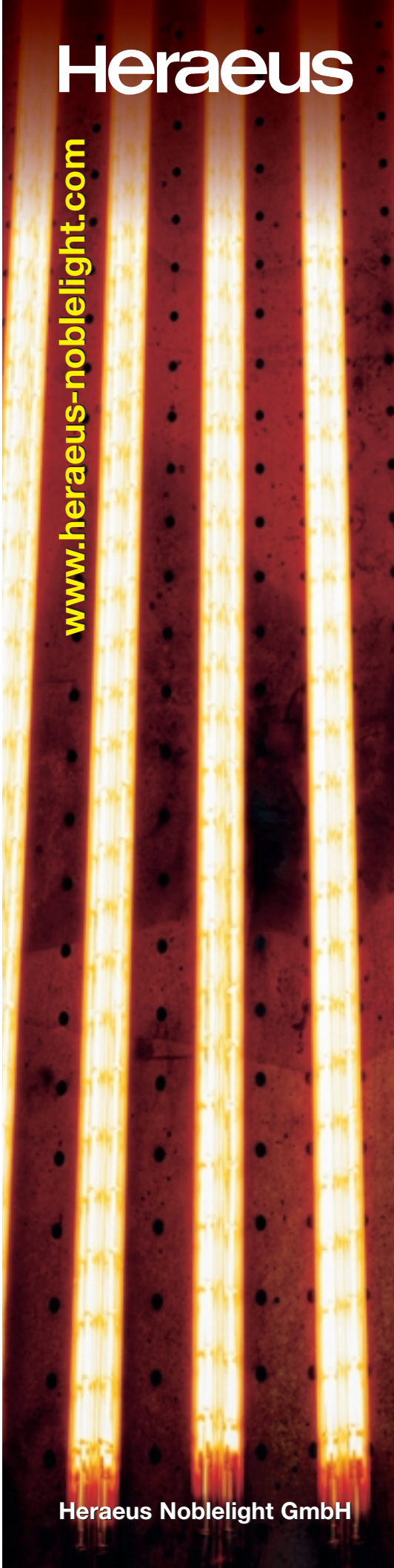
Short wave infrared emitters
Short wave infrared radiation has a particularly high heating power. The radiation penetrates into the object to be heated and provides for very effective heating in the material. Short wave emitters are particularly suited for processes which need to be stopped and started very quickly, as they achieve their full operating efficiency within seconds. Infrared emitters are produced in proven and especially stable twin tube format. Twin tube emitters distinguish themselves with high radiation density and high power intensity. A gold reflector, fitted directly to the emitter, directs the infrared radiation onto the object to be heated. The efficiency compared with plate reflectors is significantly improved. Short wave infrared emitters are manufactured with heated lengths between 8 cm and 2.4 m. Various designs guarantee a flexible matching of the emitter with the manufacturing process.

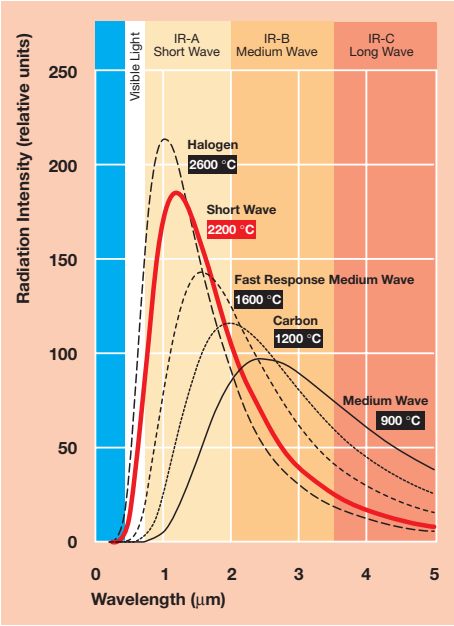
Heraeus
has many years experience in infrared heating technology, provides advice and individual attention and offers the resources of an applications center for testing. Heraeus has the optimum spectrum for each application.

- InfraLight – Halogen infrared emitters
- Twin tube infrared emitters in all conventional wavelengths
- MagicHeat Carbon emitters
- IR modules and control systems for industrial applications
- Emitters for targeted heating in manufacturing processes and for complex surface geometry

Infrared heating technology offers important advantages:
Heating only where it is required, with the optimum wavelength for the product to be heated and in harmony with the process.

INFRARED – FOR INNOVATIVE SOLUTIONS

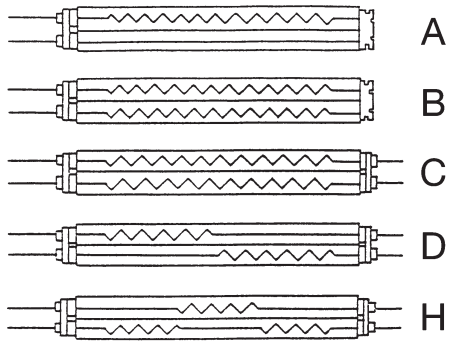




Spectrum of the short wave infrared emitter compared with other Heraeus infrared emitters – taken at the same electrical power for all emitter types.

Radiation field of short wave infrared emitters. As well as emitters and emitter fields, Heraeus also offers SYS series electronic controllers and Heratron power controllers.

Standard designs for infrared twin tube emitters, with one-side (A,B) or two-side (C,D,H) connections.



SHORT WAVE INFRARED EMITTERS

- Twin tube emitters, tube format 23 x 11 mm
- Filament temperature 1800 – 2200 °C
- Peak wavelengths 1.2 – 1.4 µm
- Mean power density 60 W/cm
- Maximum surface power 150 kW/m^2
- Standard emitters are designed for horizontal operation. The emitters are modified for vertical operation.
- Emitters are available in different designs and can be one-side or two-side connected.
- A gold coating of the emitter ensures that the effective radiation is virtually doubled.

SHORT WAVE STANDARD EMITTERS

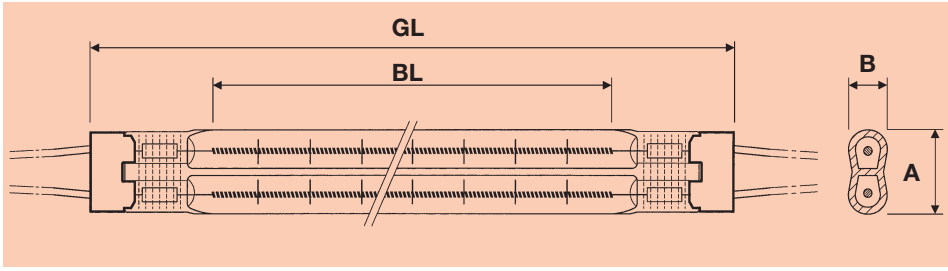
Emitter one-side connection, design B

Total Length GL [mm]	Heated Length BL [mm]	Voltage [V]	Mean power density [W/cm]	Power output at 12,5 A [W]	Max. surface power [kW/m^2]
145 – 285	80 – 220	115	60	400 – 1400	150
165 – 465	100 – 400	230	60	900 – 3000	150
265 – 765	200 – 700	400	60	1400 – 5100	150
265 – 965	200 – 900	480	60	1400 – 6100	150

Emitter two-side connection, design C

Total Length GL [mm]	Heated Length BL [mm]	Voltage [V]	Mean power density [W/cm]	Power output at 12,5 A [W]	Max. surface power [kW/m^2]
170 – 480	90 – 400	115	60	700 – 3000	150
280 – 880	200 – 800	230	60	1400 – 6000	150
480 – 1580	400 – 1500	400	60	2400 – 10400	150
480 – 1880	400 – 1800	480	60	2900 – 12500	150

Heraeus manufactures short wave emitters in other designs, lengths, voltages and power intensities to meet the individual requirements of your manufacturing process.



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