

black.infrared - Infrared heat completely re-designed

Extremely homogeneous and efficient for demanding heat processes

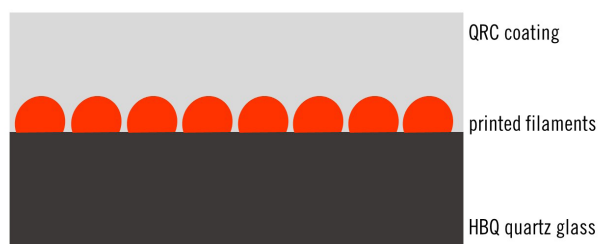
black.infrared stands for infrared emitters with an absolutely novel design. black.infrared combines the latest quartz glass materials with printed electronics and intelligent emitter know-how.

black.infrared - precisely tailored thermal solutions

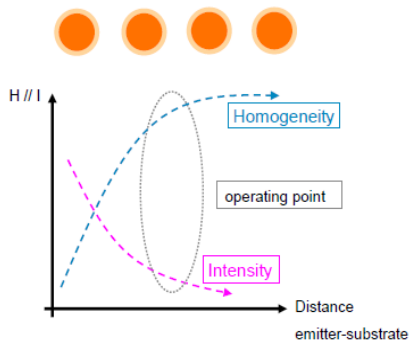
black.infrared emitters are printed metallic filaments, which are located between high-purity quartz glass. The lower plate is made of special HBQ quartz glass; the top is protected by a layer of QRC (quartz reflective coating). The filaments can be adapted flexibly to customer requirements. The infrared radiation is emitted at the highly emissive HBQ side. The entire structure helps to direct the infrared radiation very homogeneously to the product and to achieve a particularly efficient heat process.

The new emitters are flat, surrounded by quartz material. In the process, therefore, only high-purity quartz glass is involved - ideal especially for applications in semiconductor manufacturing or for vacuum processes in photovoltaics.

The structure of the patented emitter:



Infrared quartz tubes



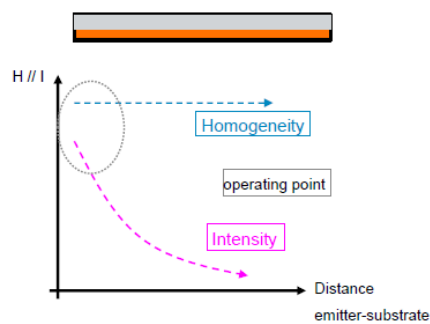
Relationship distance - intensity - homogeneity

- Radiation sources lose intensity as the distance increases.
- In the case of quartz tube emitters, the homogeneity increases with increasing distance.
- The optimum working range is a compromise between intensity and homogeneity.
- black.infrared emitters are designed in such a way that a radiant surface allows the greatest possible homogeneity regardless of the distance.

Heat processes benefit from black.infrared

- Semiconductor
- Clean room applications
- Processes under vacuum conditions
- Photovoltaics
- Glass
- Print
- Coating

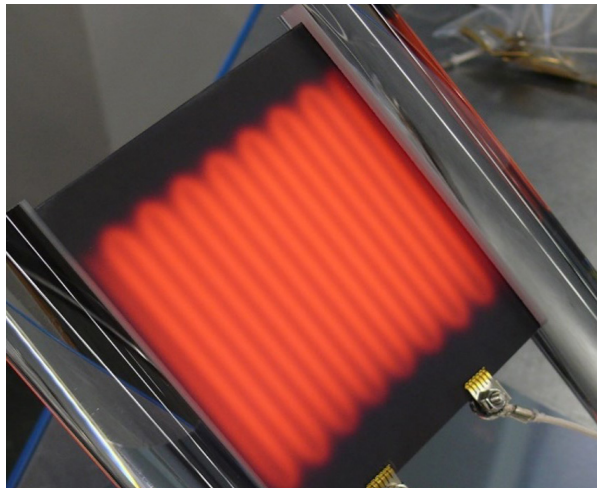
Infrared panels



Energy efficiency through new combination

A black.infrared emitter combines infrared radiation in the medium-wave range at around 2.5 μm with high electrical power. This combination is so far unique.

Infrared radiation in medium wavelengths is particularly suitable for glass, plastics and most coating.



black.infrared sets new standards

- High Power density (up to 200 kW/m²)
- Medium wave spectrum 1000 °C
2-2.5 μm peak temp
- Outstanding infrared homogeneity
- Suitable for vacuum applications,
contact free
- High purity (only silicon & oxygen)
- Fast response time
- Flexible geometries: modular, scalable

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