

Quartz Halogen Emitters

Short wave emitters

Dear Customer,

we would like to use this opportunity to thank you for buying this product from Friedr. Freek GmbH.

Please read this document carefully before installing the heater in order to learn important facts regarding the product's safety and use.

More information about our products you can find on our website: freek-heaters.com.

Content:

Introduction 2

Safety 2

General Remarks & Handling..... 3



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Introduction

With infrared radiation from our infrared emitters, a wide variety of materials can be heated without contact. The energy transfer from the emitter to the product takes place almost immediately when the unit is switched on. Heat radiation as electromagnetic radiation is as fast as light and does not depend on "slow" transport media. Infrared heaters can therefore be used both in a vacuum and in an ambient atmosphere. The various designs and infrared wavelengths allow them to be used in a wide variety of applications.

Short-wave quartz radiators are the infrared radiators with the highest radiation intensity (up to 20 W/cm²). They consist of a coiled tungsten wire in a hermetically sealed quartz glass filled with inert gas. Depending on the desired emission spectrum, differently coiled heating wires are used. R7s-connections are used as standard as they are also common for halogen spotlights as light sources. Alternatively, we offer various other fastenings and connections.

The heating and cooling times are only a few seconds, which makes them ideal for applications with short cycle times that have to start quickly or cool down quickly, for example when the conveyor belt is at a standstill.

Safety

As a manufacturer of heating elements, Freek is not responsible for the conditions in which its heating elements are installed and connected in the various customer-specific applications in which they are used, nor is it responsible for how the heating elements are controlled there. Rather, it is the customer's responsibility to be aware of and observe good engineering practice as it is recognised in the application and business markets in question. For example, many machines and their equipment are subject to the standard EN 60204 "Safety of machinery – Electrical equipment of machines".

Additionally, the customer is responsible for ensuring that electrical heating elements are only ever connected under the responsibility of a qualified electrician. This is because only a qualified electrician will know the risks associated with electrical heating elements, such as fire, explosion, combustion or electric shock, and – even more importantly – will know the safety measures that need to be put in place in order to prevent such events from occurring, even if the heating elements malfunction. Examples of these safety measures include protection against contact, thermal insulation, electrical insulation, temperature control, overtemperature prevention, earthing, residual current operated circuit breakers, overcurrent circuit breakers and miniature circuit breakers.

General Remarks & Handling

- The body of the heater is a sealed quartz glass tube. Like all glass products, these heaters should be handled with care. Excessive mechanical or physical force during handling or installation could break or damage the glass tube. Broken glass may be hazardous to personnel and also the heating process.
- Ensure the heater is not exposed to vibration during operation as this will also reduce operating life.
- Gloves should be worn while handling the heater. Finger prints can affect the optical properties of the glass tube and may reduce the operating life of the heater. Clean any dirt, oil or lint from the heater with alcohol and a lint free cloth or tissue.
- Always turn the electrical power off before inserting, removing or cleaning the heater.
- Quartz halogen/tungsten heaters are high intensity infrared heaters. Care should be taken to ensure that personnel cannot touch the heater during operation and that a safe distance from the heater is always maintained to ensure there is no risk of burning due to the radiant output of the heater.
- Quartz halogen heaters can produce high intensity white light which could cause damage to human eyes. Care should be taken to ensure that personnel cannot look directly at the heaters during operation. If necessary, a filter to reduce the glare or protective glasses should be provided. In such cases, personnel should be warned of the danger using suitable signage.
- The temperature of the glass tube may exceed 600°C. As with all high temperature heat sources, care should be taken to ensure that the atmosphere within which the heater is operating is free of potentially explosive gases which could be ignited by contact with the glass tube. In all cases, the user is responsible for ensuring that the heater is suitable for use in the environment in which it is installed.
- Ensure the temperature of the glass tube does not exceed 800°C.
- Ensure heaters do not radiate directly on to nearby heaters as this will increase operating temperature and reduce operating life.
- The heater should be installed by a qualified person ensuring all relevant electrical safety standards are adhered to.
- Ensure the heater is connected to an electrical supply corresponding to the rated voltage of the heater. Excessive voltage will reduce the operating life of the heater.
- The heater is designed for horizontal operation only unless clearly specified for vertical operation.
- The pinch seal section of the heater (the flattened glass section at the ends) should not be exposed to temperatures exceeding 350°C. Temperatures exceeding this value may cause gas leakage and reduce the operating life of the heater.
- Quartz halogen/tungsten heaters may take up to 10 times the normal operating current when operated from cold (normal room temperature). Ensure that fuses or other protective devices are correctly specified to handle high starting currents.
- The heaters should only be used in approved fixtures designed for quartz halogen/tungsten heaters.
- Ensure the heaters are operated at a safe distance from combustible materials.

No warranty claims can be derived from these user instructions.