

Infrared Radiant Heaters

OKB, OKD, & OKH Series

Installation, Operation, Maintenance Instructions & Spare Parts
CE Certified



WARNING

WARNING. Failure to follow this Installation & Maintenance Instructions could result in personal injury, death or property damage. Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions, which could result in personal injury or death.



WARNING

HIGH TEMPERATURE, RISK OF FIRE, FIRE/EXPLOSION HAZARD WARNING.

During operation, take precautions to ensure that combustible materials are always kept at a safe distance from the radiant energy, as required by the codes and rules of the jurisdiction of installation. This heater is not intended for use in hazardous areas where flammable vapours, gases or liquids or other combustibles are present. Remember that objects placed under an infrared heater can take a while to reach stabilized temperatures. If you are unsure of the suitability of the heater for the intended application, check with the factory for recommendations. Failure to comply can result in personal injury and/or property damage.

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A. DESCRIPTION

Read all instructions before installing and using the heater.

1. The OKB, OKD & OKH radiant heaters are suitable for comfort heating use in non-hazardous areas protected from rain, snow or splashing, where heating element temperatures in excess of 1382°F (750°C) will not present the risk of fire or explosion. The heater does not present a safety hazard when it is installed, operated and maintained in accordance with these instructions.
2. The heaters are available with metal sheath, quartz lamp or quartz tube heating elements. Use heaters with metal sheathed elements where there is heavy vibration or mechanical shock. Quartz tube or quartz lamp elements are very fragile and require extreme care in handling. Heaters utilizing quartz tubes or quartz lamps are unsuitable for applications in locations where the risk of heavy vibration or mechanical shock exists.
3. A minimum of handling of the quartz sheath is recommended since any type of contamination on the sheath may reduce service life.
4. On CE certified heaters, which are being installed in the EU, the installation of heater shall be in accordance with the Low Voltage Directive 72/23/EEC.

B. INSTALLATION



WARNING. The system designer is responsible for the safety of this equipment and adequate backup controls and safety devices must be installed. Failure to comply could result in personal injury and/or property damage.



CAUTION. Heaters must be installed and wired by qualified personnel in compliance with local codes and rules of the jurisdiction of installation.

1. Verify that the nameplate voltage and wattage are suitable for use on the available electrical power supply. Do not connect the heater to an electrical supply voltage other than shown on the product label.
2. For metal sheathed heaters, proper ground fault protection shall be provided to de-energize all normally ungrounded conductors.
3. Minimum space clearances from combustibles, when heaters are horizontally mounted and installed, as listed in Table 1, page 3.
4. For chain mounting, install eye bolts supplied in the ¼-20 drilled and tapped holes located at the top of the cast aluminum end plates. Use the locking nut to secure the eye bolt in the casting at the preferred location. Fasten the chains to the eye bolts and suspend the fixture from the ceiling ensuring that the minimum clearances shown in Table 1, page 3 are maintained.

Table 1 – Mounting Clearances

	UL OKB, OKD, & OKH		CSA	
	USL	CNL	OKB	OKD & OKH
A From the nearest wall	24" (610 mm)		15" (380 mm)	10" (254 mm)
B From end of heater to wall			12" (305 mm)	39" (1000 mm)
C From the ceiling			15" (380 mm)	
D From the floor	72" (1830 mm)	96" (2400 mm)	—	
E Between heaters	36" (915 mm)			

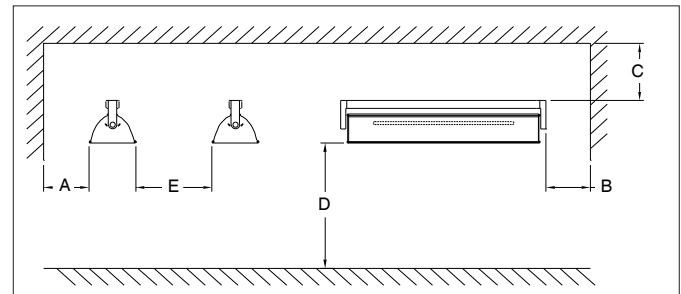


Figure 1 – Mounting Clearances

5. For rod mounting ¼"-20 threaded rods of suitable length are to be installed in place of the eye bolts as in paragraph 3, page 3.
6. If flush mounting on a non-combustible surface, be sure to slot the mounting holes (5/16" x ½" hole) to allow for heater expansion.
7. These heaters are intended to be installed in a maximum 40°C ambient temperature.



WARNING. For metal sheathed heaters, insulation contamination or moisture accumulation can cause fault to the element sheath generating arcing and releasing molten metal. Proper ground fault protection shall be provided to prevent personal injury and/or property damage.

8. The connection boxes at the ends of the heater each have a volume of 56 in³ (917 cm³) for the OKH and OKD and 12 in³ (196 cm³) for the OKB.
9. Supply connectors to the heater must be suitable for 194°F (90°C). A flexible (BX) metal covered wire is recommended for applications protected from outside weather conditions.
10. For short circuit protection, heaters must be installed with proper fast acting fuses or breakers as close as possible to the amperage draw of the unit(s), in compliance with the local electrical codes.



WARNING. Heaters with quartz tube or quartz lamp type heating elements are suitable for horizontal mounting only. Heaters with metal sheathed heating elements can be mounted in any desired position.

11. For wiring (all units except the Type R unit), first remove the top channel to install the conduit connector fitting and then connect the supply and ground wires to the pigtail leads. Re-install the channel and leave it in place unless removal is required for servicing. The Type R unit has a moisture proof housing enclosing the terminals of a "U" shaped metal sheathed element. Use rigid conduit (½") to ensure moisture protection.



WARNING. When making wiring connections to the heater DO NOT pull power connection wires from end cover. Pulling the wires could eliminate the expansion wire loop at the element end connection and may result in damage to wire insulation.



WARNING. Quartz tube and quartz lamp elements are very fragile and should be handled with extreme care. Quartz elements should be inspected for cracks or damage prior to use. Damaged elements should be replaced.

12. Follow this procedure and Figure 2, page 4 when installing the tube or lamp:
 - 12.1 Disconnect power at source.
 - 12.2 Remove the terminal covers at each end of the heater.

- 12.3 Remove the keeper screw on one retainer bracket and slide the ceramic element holder aside.
- 12.4 Feed the element lead wire through the hole in the ceramic holder at the fixed end first. Slide the ceramic holder removed in 12.3 over the element so that the element is captured in both ceramic holders and then reinstall the keeper screw.
- 12.5 Loosen the electrical terminal nut on the ceramic blocks to permit connection of the power and lead wires.
- 12.6 To connect the element lead wires, slide the ceramic holders as far as possible toward the centre of the fixture and loop the element wire over the electrical terminal leaving very little slack in the wire. Note that the ceramic blocks are designed to slide freely with element thermal expansion and the taut lead wires help to secure the element in place. Ensure ceramic blocks are able to move freely once element is installed.
- 12.7 Connect the power wires to the electrical terminals and install terminal covers.
- 12.8 Before energizing, wipe the quartz sheath and reflector with cloth or paper towel dampened with alcohol.

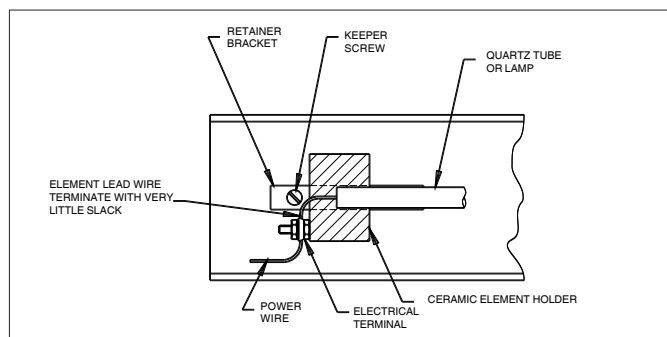


Figure 2 – Typical wiring attachment of quartz heater

13. Wire guard (if required) to be installed per Figure 3, page 4. When installed, the wire guard should move freely on the reflector.

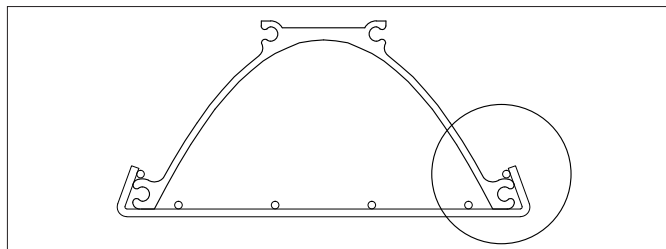


Figure 3 – Correctly installed wire guard

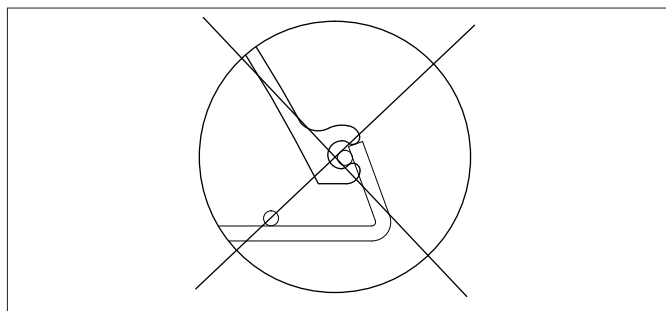


Figure 4 – Incorrectly installed wire guard

C. OPERATION



WARNING. For metal sheathed heaters, prior to operation an insulation resistance check must be performed. Heater with values less than 1 MΩ should follow a drying process. Please contact factory for details on procedure if heater is under 1 MΩ.



WARNING. Use this heater only as described in this manual. Any other use not recommended by the manufacturer may cause fire, electric shock, or injury to persons.

1. Tighten set screw in end casting (one end only) after installing fixture and setting angle of horizontal tilt. This screw must be tight even if the fixture is not tilted.

2. Energize the heater at the voltage shown on the nameplate and visually check the element to ensure that it slides freely on expansion. A small sag is normal, especially on longer heaters.
3. Heaters with metal sheathed elements which have not been energized for a prolonged period shall be restarted under close supervision for the first thirty minutes of operation.
4. Do not operate any heater after it malfunctions. Disconnect power at service panel and have heater inspected by a qualified electrician before reusing.
5. Do not use outdoors unless heater is designed and manufactured for outdoor use.

D. MAINTENANCE



WARNING. Disconnect all power before installing or servicing the heater. Failure to do so could result in personal injury and/or property damage. All maintenance and installation should be done by qualified personnel in compliance with local codes and rules of the jurisdiction of installation.

1. As a safety precaution and to avoid non-scheduled downtimes, replace the heating element if a pronounced hot spot (area of the element that glows brighter) is visible along its heated section.
2. To disconnect heater, turn controls to “OFF” and turn off power to heater circuit at main disconnect panel.



WARNING. For metal sheathed heaters, prior to operation an insulation resistance check must be performed. Heater with values less than 1 MΩ should follow a drying process. Please contact factory for details on procedure if heater is under 1 MΩ.

3. Reflectors should be visually inspected for accumulation of dust, and cleaned as necessary using a mild soap and water solution. Take care to ensure that no water or moisture is allowed to contact the ends of the element sheath or wiring connections.
4. For heaters with quartz tube or quartz lamp type heating elements, ensure the ceramic blocks at each end are able to move freely. Also, inspect the quartz sheath for any damage prior to energizing. If any damage is found, replace the quartz tube or quartz lamp.



PLEASE ADHERE TO INSTRUCTIONS IN THIS MANUAL
Failure to do so may be dangerous and may void certain provisions of your warranty.

For further assistance, please call 24-hr hotline: 1-877-325-3473 (U.S.A. and Canada)
Please have model and serial numbers available before calling.

WARRANTY: Under normal use the Company warrants to the purchaser that defects in material or workmanship will be repaired or replaced without charge for a period of 18 months from date of shipment, or 12 months from the start date of operation, whichever expires first. Any claim for warranty must be reported to the sales office where the product was purchased for authorized repair or replacement within the terms of this warranty.

Subject to State or Provincial law to the contrary, the Company will not be responsible for any expense for installation, removal from service, transportation, or damages of any type whatsoever, including damages arising from lack of use, business interruptions, or incidental or consequential damages.

The Company cannot anticipate or control the conditions of product usage and therefore accepts no responsibility for the safe application and suitability of its products when used alone or in combination with other products. Tests for the safe application and suitability of the products are the sole responsibility of the user.

This warranty will be void if, in the judgment of the Company, the damage, failure or defect is the result of:

- Vibration, radiation, erosion, corrosion, process contamination, abnormal process conditions, temperature and pressures, unusual surges or pulsation, fouling, ordinary wear and tear, lack of maintenance, incorrectly applied utilities such as voltage, air, gas, water, and others or any combination of the aforementioned causes not specifically allowed for in the design conditions or,
- Any act or omission by the Purchaser, its agents, servants or independent contractors which for greater certainty, but not so as to limit the generality of the foregoing, includes physical, chemical or mechanical abuse, accident, improper installation of the product, improper storage and handling of the product, improper application or the misalignment of parts.

No warranty applies to paint finishes except for manufacturing defects apparent within 30 days from the date of installation.

The Company neither assumes nor authorizes any person to assume for it any other obligation or liability in connection with the product(s).

The Purchaser agrees that all warranty work required after the initial commissioning of the product will be provided only if the Company has been paid by the Purchaser in full accordance with the terms and conditions of the contract.

The Purchaser agrees that the Company makes no warranty or guarantee, express, implied or statutory, (including any warranty of merchantability or warranty of fitness for a particular purpose) written or oral, of the Article or incidental labour, except as is expressed or contained in the agreement herein.

LIABILITY: Technical data contained in the catalog or on the website is subject to change without notice. The Company reserves the right to make dimensional and other design changes as required. The Purchaser acknowledges the Company shall not be obligated to modify those articles manufactured before the formulation of the changes in design or improvements of the products by the Company.

The Company shall not be liable to compensate or indemnify the Purchaser, end user or any other party against any actions, claims, liabilities, injury, loss, loss of use, loss of business, damages, indirect or consequential damages, demands, penalties, fines, expenses (including legal expenses), costs, obligations and causes of action of any kind arising wholly or partly from negligence or omission of the user or the misuse, incorrect application, unsafe application, incorrect storage and handling, incorrect installation, lack of maintenance, improper maintenance or improper operation of products furnished by the Company.

Visit www.thermon.com to contact a Thermon representative near you.

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