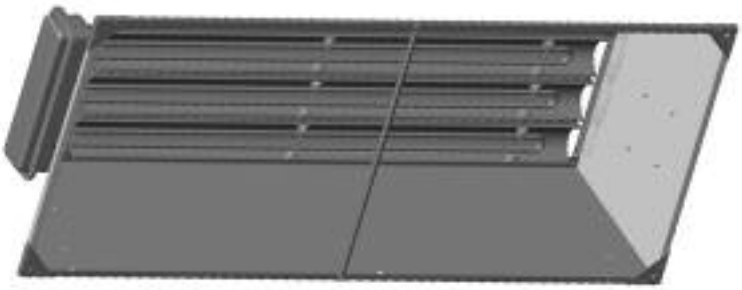
Marley
Engineered Products



M Series
Fixed Overhead Radiant Heaters

Installation & Maintenance Instructions

Dear Owner,

Congratulations! Thank you for purchasing this new heater by Marley Engineered Products. You have made a wise investment selecting the highest quality product in the heating industry. Please carefully read the installation and maintenance instructions shown in this manual. You should enjoy years of efficient heating comfort with this product from Marley Engineered Products… the industry's leader in design, manufacturing, quality and service.

… The Employees of Marley Engineered Products

⚠ WARNING ⚠

Read Carefully - These instructions are written to help you prevent difficulties that might arise during installation of heaters. Studying the instructions first may save you considerable time and money later. Observe the following procedures and cut your installation time to a minimum. Failure to follow these instructions may lead to fire, electric shock, personal injury, property damage or product failure.

1. This radiant heater is a component of the complete heating system. The heating system designer must consider the risks associated with its operation and specify adequate controls and safety devices. Where the consequences of failure could result in personal injury, property damage or fire, back-up controls are essential.
2. Read all instructions before using the heater.
3. Do NOT use this heater as a residential or household heater.
4. This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces. If used as a portable heater, keep combustible materials, such as furniture and papers at least 5 feet from the front of the heater.
5. Always disconnect the heater when not in use.
6. To prevent possible electrical shock, disconnect ALL power coming to heater at main service panel before wiring or servicing.
7. All wiring must be in accordance with the National and Local Electrical Codes and the heater must be grounded as a precaution against possible electrical shock.
8. Verify the power supply voltage coming to the heater matches the ratings printed on the heater nameplate before energizing.
9. This heater is NOT suitable for use in hazardous locations as described by the National Fire Protection Association (NFPA). This heater has hot and arcing or sparking parts inside. DO NOT use in areas where gasoline, paint or other flammable liquids are used or stored.
10. In order to prevent fire, electric shock, injury to persons and equipment damage, protect with a ground fault device (GFCI or GFI) such as Marley Engineered Products WMGF240 for 240V heaters and WMGF480 for 480 volt heaters.
11. This heater is intended for Ceiling Installation ONLY (except as noted below.). The following clearances MUST be maintained:
    a) Top of heater to ceiling - 24" (640 mm)
    b) Bottom of heater to floor - 10' (3048 mm)
    c) Side of heater to wall - 36" (914 mm)
    d) End of heater to wall - 36" (914 mm)
    e) Side of heater to side of adjacent heater - 36" (914 mm)
    f) End of heater to end of adjacent heater - 36" (914 mm)
12. Heater MUST be securely fastened to the building structure to prevent it from falling.
13. DO NOT stack or store combustible materials in the radiation path under the heater, or in the space a distance of 5 feet from any projected edge of the heater.
14. Under special controlled conditions this heater may be converted for use as a movable heater by installation of the optional Portable Cart Kit, Cord Kits, Grille Kit and Tip Over Kits. **Extreme care must be taken when using this heater as a movable unit! The heater operates at very high temperatures and could cause a fire if placed too close to combustible materials. NEVER OPERATE THIS HEATER AS A MOVABLE UNIT WHILE UNATTENDED.** Always maintain at least the minimum clearances as stated above. If the Tip Over Kit is not provided, the heater could cause a fire if it falls over.
15. If used as a cord connected movable heater, always make sure the outlet or power source to which the heater is connected is properly grounded. Use of the heater with an extension cord is not recommended. If one must be used, it must be provided with a grounding conductor and must be rated to handle a load of at least 125% of the maximum heater ampere load. Always inspect the cord for damage before each use and do not use if damaged. Route cord so it is not subject to being damaged during use.
16. 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.

SAVE THESE INSTRUCTIONS

INSTALLATION

The Marley Engineered Products radiant heater is shipped fully assembled. The heater can be hung from the ceiling with 4 chains or rigid angle brackets attached to the heater brackets located on the back of the heater, for 2 and 4.5 kW heaters, chains can be attached to the four holes in the corners of the back reflector. Optional hanging chain kits are available for these heaters that will allow for installations 2 to 6 feet from the ceiling. (**Model MHK**) (See Figure 1.) Minimum spacings:

Ceiling to top of heater is 2 feet.

Wall to sides of heater is 3 feet.

Floor to bottom of heater is 10 feet.

NOTE: Installer should consult state and local codes and meet any applicable requirements regarding this installation.

WARNING

FIRE HAZARD. Radiant heaters are capable of developing high temperatures, care should be taken to:
A. Mount heater with the proper clearance between heater and walls, ceiling and floor. B. Mount heater in horizontal position only. Do not mount vertically or tilted in any direction. C. Do not mount heater over combustible surfaces. D. Do not stack or store combustible materials directly below the heater or in the space a distance of 5 feet from any projected edge of the heater. E. Do not operate the heater without Ground Fault Equipment protection. Failure to follow these instructions can result in personal injury and fire.

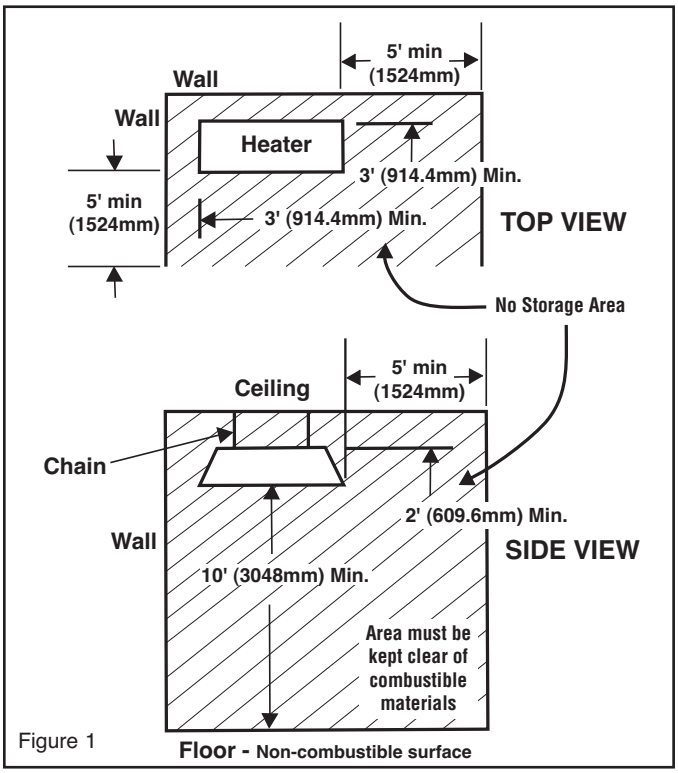


Figure 1

WIRING

WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power before installing or servicing heater. Failure to do so could result in personal injury or property damage. Heater must be effectively grounded in accordance with the National Electrical Code, NFPA 70.
All electrical wiring must be done by a qualified person in accordance with National Electrical Code (NEC) and meet all state and local regulations.

WARNING

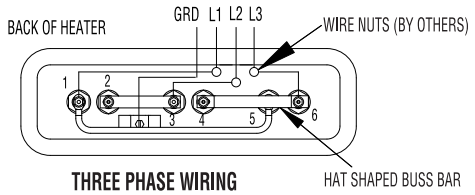
FIRE HAZARD. Electric radiant heaters operate at very high temperaures and many factors determine element life. At end of life a radiant element in many instances will passively open circuit, however it is possible to have an arc failure that will result in molten metal falling from the heater. To prevent personal injury from molten metal, element damage and fire, Ground Fault Equitment Protection must be provided.

1. Use heater only at the voltage specified on the nameplate.
2. Branch circuit wire for connection to heater must be at least 90°C wire. Use copper conductors only.
3. Heater can be wired with rigid or flexible conduit.
4. Refer to Table 1 for proper supply wiring size.
5. The heater connection points are located in the gasketed terminal enclosure. To remove cover, remove 4 screws on the cover. Remove the cover to expose wiring connection points.
6. A green ground terminal is provided in the bottom of the enclosure. The ground wire should be connected before other connections are made.
7. Attach power to pigtail leads L1 and L2 (or L1, L2 & L3 on 3 phase models) using appropriate listed connectors.

NOTE: All 3 element heaters are factory pre-wired for 3-phase delta operation. Some units can be converted to single phase operation by changing the wiring. Refer to Table 1 for those heaters that can be converted to single phase. The appropriate wiring diagram (Figure 2) is also located on the bottom of the enclosure.

INSTRUCTIONS FOR FIELD CONVERSION FOR 3 PHASE TO 1 PHASE

1. Remove nuts from all terminals.
2. Remove all pigtail leads and hat shaped buss bar.
3. Remove end of lead wire on terminal 5 and slip onto terminal 4.
4. Remove lead wire attached to instruction sheet and connect between terminals 4 and 6.
5. Install hat shaped buss bar between terminals 3 and 5.
6. Place pigtail lead marked “L1” on to terminal 2 and pigtail lead marked “L2” on to terminal 6.
7. Install nuts and tighten.
8. Connect entrance wiring to pigtail leads “L1” and “L2”. Connect ground to screw provided.
9. Inspect to make sure wiring is per “Single Phase Wiring” above.



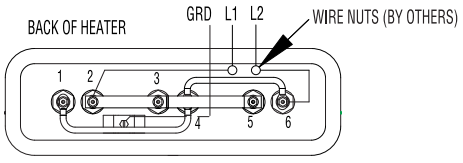


Figure 2

OPTIONAL ACCESSORIES

Marley Engineered Product M series radiant heaters can be field modified by adding optional kits. Refer to Figure 3 to select the proper kit.

Portable Cart Kit

The portable cart kit can be used to convert a fixed overhead unit into a portable heating device where a fixed installation is not required. This kit includes wheels, legs, handle, grill(s), baffle (if req'd) and all of the necessary hardware to complete the modification. See instruction sheet 5200-2648-var. for details.

"CAUTION - Use of this kit presents certain hazards including risks for fire or burns. Extreme care must be taken when use of any Marley Engineered Products heater with this kit. See Warnings in front of this manual for additional details. As an added safety precaution, we strongly recommend the Tip Over Kit and Grille Kit be used in conjunction with the Portable Cart Kit. It will help reduce the risk of fire if the heater and cart happen to fall over or if something happens to fall against the heater."

Grill Kit

The grill kit consists of one (1.5, 2, 4.5 and 6 kW) or 2 grill sections (13.5kW) and hardware to protect personnel from coming into contact with hot radiant heating elements. See instruction sheet 5200-2646-var for details.

Disconnect Kit

The disconnect kit consists of a complete assembly consisting of a disconnect switch (3 Pole), power terminal block and all hardware to complete the installation. This kit can be mounted to both the fixed, overhead heater or the portable heater; see instruction sheet 5200-2652-var for details.

Hanger Kit

Hanger kit model MHK include 24 feet of chain and four S hooks to mount the unit in a fixed overhead position using the universal mounting brackets included on the heater. This kit allows installation distances from the ceiling of 2 feet to 6 feet. See installation diagram Fig. 1 on page 2.

Cord Kits (Portable Only)

Cord kits consist of 25 feet of 90°C cable and a right angle cord fitting which can connect directly to the heater terminal box or disconnect switch (if used). See instruction sheet 5200-2647-var for details

Tip Over and Ground Fault Kits

TOS240 Series Kit attaches to portable heater and de-energizes the heater in the event it is tipped over.

WMGF240 Series Kit mounts to wall that de-energizes heater prior to element failure.

See instruction sheet 5200-2652-var.

Figure 3 – Optional Accessory Selection Guide

Model	Grill Kit	Disconnect Kit	Wall Mount Ground Fault	Portable Cart Kit**
M2081B M2021B M2041B M2061B	WG2	PDS60050	Notify Factory WMGF240 WMGF480 Notify Factory	NA
M4581B M4521B M4541B M4561B	WG45		Notify Factory WMGF240 WMGF480 Notify Factory	M45
M6083B M6023B M6071B M6043B M6063B	WG60		Notify Factory WMGF240 Notify Factory WMGF480 Notify Factory	M60
M13583B M13523B M13571B M13543B M13563B	WG135		Notify Factory WMGF240 Notify Factory WMGF480 Notify Factory	M135

Note: Order model MHK Hanging Kit to mount M Series and N Series infrared heaters. This kit comes complete with chain and hooks.

MAINTENANCE

WARNING

ELECTRIC SHOCK HAZARD. Disconnect all power before servicing or replacing heating elements.

The heater requires no special maintenance other than occasional cleaning to prevent excess accumulation of dust and lint on surfaces. It is important for the reflectors to be kept clean to obtain the maximum radiant output. If used as a movable unit, the cart and cord should be checked periodically to make sure the hardware remains tight and cart and cord are not damaged. Do not continue to use the heater if damaged.

Element Replacement

1. Remove Terminal Box Cover.
2. Disconnect lead wires from heater terminals.
3. Remove safety grills (if installed).
4. Remove retainer screw located on the reflector at the terminal end.
5. Loosen (2), 3/8" nuts from the terminal box bracket located on the back of the heater and slide the entire heating element assembly out of the reflector assembly.
6. Remove wires and jumper straps as required to replace the failed heating element(s).
7. Remove bulkhead fitting nuts and washers.
8. Remove failed element and replace with a new element. Replace only with genuine "Arctic End" elements. Use of other elements will cause excess temperatures inside terminal box.
9. Place gasket on the bulkhead fitting and insert terminals and fittings into the element holes in the terminal box.
10. Place washers and nuts on bulkhead fittings and tighten.
11. Replace wiring and jumper straps.
12. Reassemble by following the reverse procedures (steps 5 through 1).

Table 1 – HEATER SELECTION CHART

Model	Watts	Volts	Phase	Reflector Angle	Element Type	Ship Wt.	Avail.	Wire Ga. (Min.) 1 Ph	Wire Ga. (Min.) 3 Ph
M2081B	2000	208	1	90° Symm	Metal Sheath	18 lbs.	NS	14	NA
M2021B		240					S	14	NA
M2041B		480					NS	14	NA
M2061B		600					NS	14	NA
M4581B	4500	208	1			18 lbs.	NS	12	NA
M4521B		240					S	12	NA
M4541B		480					S	14	NA
M4561B		600					NS	14	NA
M6083B	6000	208	1 & 3			25 lbs.	NS	10	12
M6023B		240	1 & 3				S	10	12
M6071B		240	1				NS	10	-
M6043B		480	1 & 3				S	12	12
M6063B		600	1 & 3				NS	12	12
M13583B	13500	208	3			55 lbs.	NS	NR	10
M13523B		240	3				S	NR	10
M13571B		277	1				NS	8	-
M13543B		480	1 & 3				S	12	12
M13563B		600	1 & 3				NS	12	12

DIMENSIONS

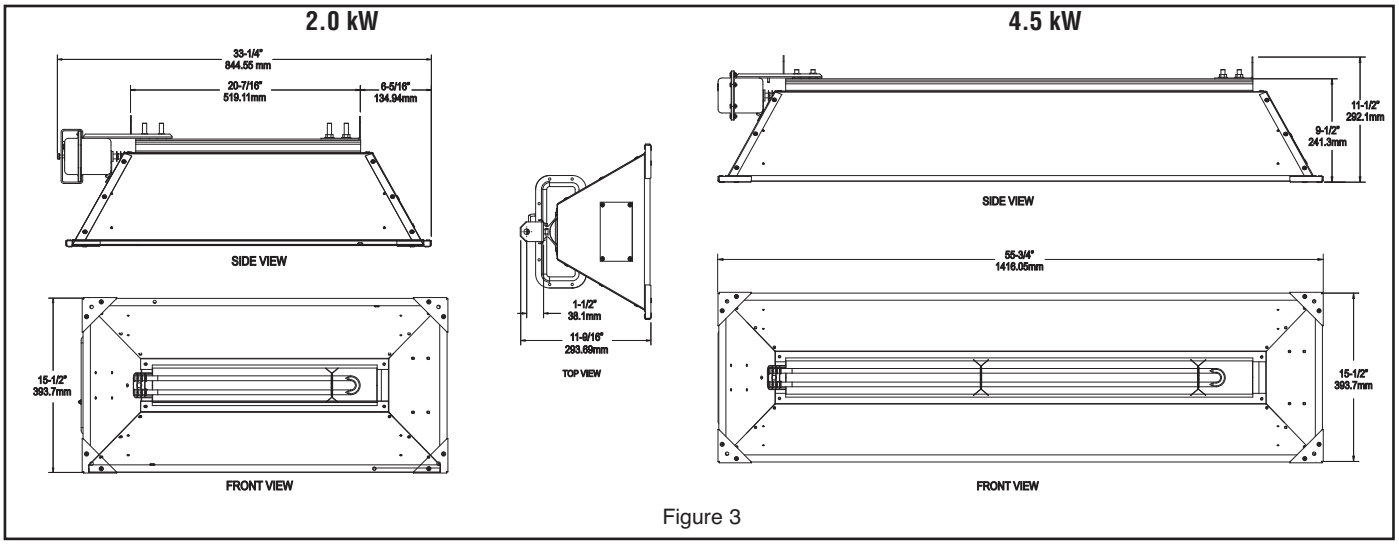


Figure 3

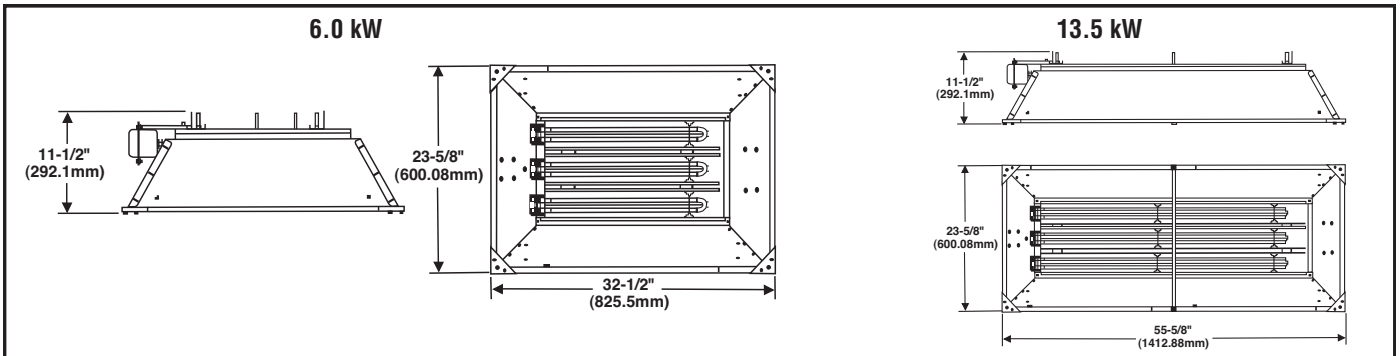


Figure 4

LIMITED WARRANTY

All products manufactured by Marley Engineered Products are warranted against defects in workmanship and materials for one year from date of installation. This warranty does not apply to damage from accident, misuse, or alteration; nor where the connected voltage is more than 5% above the nameplate voltage; nor to equipment improperly installed or wired or maintained in violation of the product's installation instructions. All claims for warranty work must be accompanied by proof of the date of installation.

The customer shall be responsible for all costs incurred in the removal or reinstallation of products, including labor costs, and shipping costs incurred to return products to Marley Engineered Products Service Center. Within the limitations of this warranty, inoperative units should be returned to the nearest Marley authorized service center or the Marley Engineered Products Service Center, and we will repair or replace, at our option, at no charge to you with return freight paid by Marley. It is agreed that such repair or replacement is the exclusive remedy available from Marley Engineered Products.

THE ABOVE WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED, AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED THE AFORESAID EXPRESSED WARRANTIES ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS AGREEMENT. MARLEY ENGINEERED PRODUCTS SHALL NOT BE LIABLE FOR CONSEQUENTIAL DAMAGES ARISING WITH RESPECT TO THE PRODUCT, WHETHER BASED UPON NEGLIGENCE, TORT, STRICT LIABILITY, OR CONTRACT.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For the address of your nearest authorized service center, contact Marley Engineered Products in Bennettsville, SC, at 1-800-642-4328. Merchandise returned to the factory must be accompanied by a return authorization and service identification tag, both available from Marley Engineered Products. When requesting return authorization, include all catalog numbers shown on the products.

HOW TO OBTAIN WARRANTY SERVICE AND WARRANTY PARTS PLUS GENERAL INFORMATION

1. Warranty Service or Parts **1-800-642-4328**
2. Purchase Replacement Parts **1-800-654-3545**
3. General Product Information **www.marleymep.com**

Note: When obtaining service always have the following:
1. Model number of the product
2. Date of manufacture
3. Part number or description

Marley Engineered Products

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