

# INSTALLATION AND MAINTENANCE



## PKB-DT UNIVERSAL

### Ducted Industrial Portable Heater

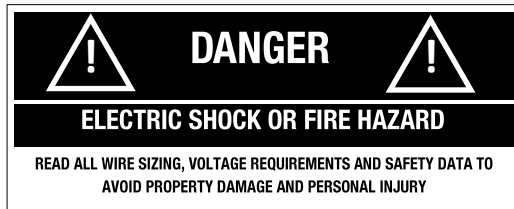


Figure 1



## WARNING



**READ CAREFULLY** - Use the heater only as described in this manual. Any other use is not recommended and could result in fire, electric shock, and personal injury. Following these instructions will prevent difficulties that might occur during the installation and use of the heater. Please study the instructions first, as they may save considerable time and trouble during use addition to providing important safety information. Make sure to save these instructions for future use.

### NEVER LEAVE HEATER UNATTENDED WHILE CONNECTED TO A POWER SOURCE

Read all instructions before using this heater.

1. **WARNING:** This heater is hot when in use. To avoid burns, do not let bare skin touch hot surfaces. Keep combustible materials, such as furniture, pillows, bedding, papers, clothes, etc. and curtains at least 3 feet (0.9 m) from the front of the heater and keep them away from the sides and rear.
2. Extreme caution is necessary when heater is used by or near children or invalids and whenever the heater is left operating and unattended.
3. Always unplug heater when not in use.
4. **WARNING:** Do not operate heater with damaged cord or plug, after it malfunctions, has been dropped, or damaged in any manner. Discard heater or return to authorized service facility for examination and/or repair.
5. **WARNING:** Do not use outdoors.
6. This heater is not intended for use in bathrooms, laundry and similar indoor areas. Never locate heater where it can fall into a bathtub or other water container.
7. **WARNING:** Do not run cord under carpeting. Do not cover cord with throw rugs, runners, or similar coverings. Do not route cord under furniture or appliances. Arrange cord away from traffic area and where it will not be tripped over.
8. To disconnect heater, turn controls to off, then remove plug from outlet.
9. Connect to properly grounded outlets only.
10. **WARNING:** Do not insert or allow foreign objects to enter any ventilation or exhaust opening as this may cause an electric shock or fire, or damage the heater.
11. **WARNING:** To prevent a possible fire, do not block air intakes or exhaust in any manner.
12. **WARNING:** A heater has hot and arcing or sparking parts inside. Do not use it in areas where gasoline, paint, or flammable vapors or liquids are used or stored.
13. 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.
14. A) Use properly rated cords plugs & receptacles for the rated amperage & voltage  
B) Extended power source cords will be rated for the application and provide proper grounding for safety & preventing the user from electrical shock

# ASSEMBLY & SETUP

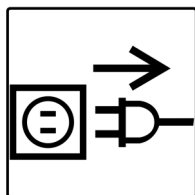


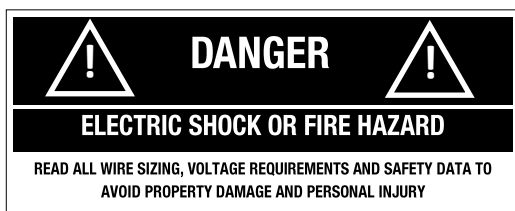
Figure 2

## CAUTION!

Remove power by unplugging the Heater while setting up or placing

Figure 3

## Rating Label Location



King Electrical Mfg. MODEL:KB2005-3MP  
9131 10th ave so. VOLTS:208  
Seattle Wa.98166 WATTS:5 KW 60hz 1 OR 3 PHASE  
UL LISTING #KBS-03MP

MP MODELS ARE FACTORY WIRED 3 PHASE, FOR CHANGE TO 1 PHASE SEE  
WIRING DIAGRAM. INSTALLER MUST INDICATE 1 OR 3 IN PHASE  
BLOCK THERMOSTAT RATING:240VOLTS AC 25AMP RESISTIVE, 2 F.L.A. 40VA  
PILOT DUTY.  
DO NOT INSTALL LESS THAN 6" FROM VERTICAL SIDE WALLS OR 6" ABOVE  
FLOOR. USE COPPER WIRE ONLY.  
NOT SUITABLE FOR RESIDENTIAL OR HOUSEHOLD USE 05/4/13

# HEATER SETUP

1. Unpack and inspect your heater for any damage. Any damage discard heater or return to authorized service facility immediately.
2. Place heater at least 6" (15cm) away from vertical surfaces and keep the intake clear of obstructions. Keep all combustible materials, such as furniture, papers, clothes, drapes, and curtains at least 3 feet (0.9 m) from the front of the heater and keep them away from the sides and rear.
3. Route power cord away from traffic areas to avoid tripping. NEVER rout power cord under carpets, rugs, drops furniture or other equipment.
4. Plug power cord into a grounded receptacle or power cord only.
5. Wiring diagram located in wiring housing.
6. Attach the Proper size Duct to the outside of the Duct collar only. This unit shall not be used without Ducting attached, unless there is a screen that protects the user from directly accessing the hot heating elements.
7. **WARNING:** This heater is for floor use ONLY and should not be tipped on side, placed upside down, mounted on or inserted into a wall. A tip-over auto disconnect switch will activate when tipped more than 30°.
8. **DO NOT** use heater in areas where gasoline, paint, or other flammable liquids are used. **DO NOT** use heater outdoors or in wet or moist indoor areas such as bath or laundry rooms.
10. Store unplugged and in a dry indoor location.
11. This heater is intended to be used with the nameplate voltage only. Any other voltage may cause damage to the product

# PKB PLUG SELECTION

Check rating label on heater (See Figure 2) and verify the proper voltage and SO cord type. PCKW Series requires the below rated plug and receptacle per the amperage requirement (Not provided). No adapter is available for this blade configuration.

**HUBBELL®**  
Wiring Device-Kellems



## Dual-Certified IEC Pin & Sleeve Devices

KW	PHASE	VOLTS	AMPS	SOOW CORD GAUGE
5	1	208	24	12/3
7.5	1	208	36.1	8/3
10	1	208	48.1	6/3
15	1	208	72.1	2/3
5/3.7	1	240/208	20.8/18.0	12/3
7.5/5.6	1	240/208	31.3/26.9	8/3
10/7.5	1	240/208	41.7/36.1	6/3
12.5/9.4	1	240/208	52.1/45.1	6/3
15/11.25	1	240/208	62.5/54.1	4/3
5	1	480	10.4	14/3
7.5	1	480	15.6	14/3
10	1	480	20.8	12/3
12.5	1	480	26	10/3
15	1	480	31.3	8/3
5	3	208	13.9	14/4
7.5	3	208	20.8	10/4
10	3	208	27.7	8/4
15	3	208	41.6	6/4
20	3	208	55.5	6/4
5/3.75	3	240/208	12.0/10.3	14/4
7.5/5.6	3	240/208	18.0/15.6	12/4
10/7.5	3	240/208	24.1/20.8	10/4
12.5/9.4	3	240/208	30.1/26.1	14/4
15/11.25	3	240/208	36.1/54.1	6/4
20/ 15	3	240/208	48.1/41.6	6/4
5	3	480	6	14/4
7.5	3	480	9	14/4
10	3	480	12	14/4
12.5	3	480	15.1	12/4
15	3	480	18.1	12/4
20	3	480	24	12/4

Rating					Watertight Devices	
Amps	Poles/ Wires	Configuration Recep./Conn.	Plug/Inlet	AC Voltage	Receptacle	Plug
60/63	2P 3W			220-240V 250V	HBL360R6W	HBL360P6W
60/63	2P 3W			220-240V 250V	HBL360R6W	HBL360P6W
60/63	2P 3W			220-240V 250V	HBL360R6W	HBL360P6W
100	2P 3W			250V	HBL3100R6W	HBL3100P6W
60/63	2P 3W			220-240V 250V	HBL360R6W	HBL360P6W
60/63	2P 3W			220-240V 250V	HBL360R6W	HBL360P6W
60/63	2P 3W			220-240V 250V	HBL360R6W	HBL360P6W
60/63	2P 3W			220-240V 250V	HBL360R6W	HBL360P6W
100	2P 3W			250V	HBL3100R6W	HBL3100P6W
60	2P 3W			480V	HBL360R7W	HBL360P7W
60	2P 3W			480V	HBL360R7W	HBL360P7W
60	2P 3W			480V	HBL360R7W	HBL360P7W
60	2P 3W			480V	HBL360R7W	HBL360P7W
60	2P 3W			480V	HBL360R7W	HBL360P7W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	4P 5W			3ØY 120/208V	HBL560R9W	HBL560P9W
60/63	3P 4W			3Ø 480V	HBL460R7W	HBL460P7W
60/63	3P 4W			3Ø 480V	HBL460R7W	HBL460P7W
60	3P 4W			3Ø 480V	HBL460R7W	HBL460P7W
60	3P 4W			3Ø 480V	HBL460R7W	HBL460P7W
60	3P 4W			3Ø 480V	HBL460R7W	HBL460P7W
60	3P 4W			3Ø 480V	HBL460R7W	HBL460P7W

# OPERATION AND ADJUSTING THERMOSTAT

This heater must be properly placed before it is used.  
DO NOT tamper with or change the operating of this heater.  
All service should be preformed by a authorized service representative. Only replace components with King approved replacement parts.

## Operation:

1. After the electric heater has been completely placed, the thermostats should be turned to LOW or NO HEAT position.
2. Plug unit into grounded outlet.
3. Turn thermostats to highest position and wait 3 to 5 minutes. Check to see that all heaters are operating. Should any not be operating, disconnect power and check wiring.
4. For Initial start up only, Power up heater near an outside door or large open space and run heater for minimum of 30 minutes continuously as this will burn off any manufacturing oils or residue before moving it to a more confined heating space. Some smoking and oil burning smell is normal and will diminish with time.

## Selecting desired temperature on the thermostat:

To adjust the temperature to your requirements, turn the dial on the thermostat clockwise all the way to turn heater on. When the room reaches the desired temperature, turn the thermostat knob counter clockwise until you hear the click. Leave in this position to maintain the room temperature at this setting. For additional heat, turn clockwise until you the click and the heater will turn on.



A safety limit control is provided to turn off the heater automatically if it is blocked or otherwise overheats due to an abnormal condition.

DO NOT bypass or remove this safety device from the electrical circuit. During normal use, this safety control should not operate. If you find that this control is operating, make sure the heater is not being blocked. If it continues to cycle the heater off, disconnect power to heater and have it checked and repaired by a qualified electrician.

# CLEANING INSTRUCTIONS

Before cleaning this heater, heating element must be cool.

1. Before removing front ducted housing, turn the electrical power OFF by unplugging it. If not, electricity may still be flowing to the heater. If you are uncomfortable working with electrical appliances consult a qualified electrician. Once power is off completely, proceed to the next step.
2. Remove 4 x 1/4-20 screws located on the sides of the ducted housing. Wipe housing with soft cloth or brush.
3. Using a hair dryer or vacuum on blow cycle, blow debris back through the element. Do not touch element. Vacuum lose debris without touching the elements.
4. Replace ducted housing and secure with screws.
5. To clean the fan and motor remove the safety grill from the rear of the heater. This provides access to the fan and motor. Wash Grill with hot soapy water and dry immediately
6. Wipe the fan and motor with a soft cloth or brush.
7. Replace safety grill & plug the unit back in.





# TROUBLESHOOTING

## Troubleshooting Chart for Electric Heaters

SYMPTOM	PROBLEM	SOLUTION
Breaker Trips	<ol style="list-style-type: none"> <li>1. Short Circuit</li> <li>2. Overloaded Circuit</li> <li>3. Improper Voltage</li> </ol>	<ol style="list-style-type: none"> <li>1. Find source of short. Trace heater circuit and verify the heater is wire properly.</li> <li>2. Reduce wattage in circuit. Refer to circuit sizing table for maximum wattage.</li> <li>3. Verify the heater voltage matches the supply voltage.</li> </ol>
Heater not working	<ol style="list-style-type: none"> <li>1. No Power</li> <li>2. Loose Connections</li> <li>3. Defective Limit</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn Breaker ON, turn thermostat ON, check that the breaker is position properly on panel bus-bar. A 2-Pole breaker must be connected to both bus-bars (A&amp;B phase) to produce 240V power.</li> <li>2. Tighten wire connections.</li> <li>3. By-pass the limit to test. If heater works, replace the limit.</li> </ol>
Heater Smokes	<ol style="list-style-type: none"> <li>1. Oil on Element</li> <li>2. Needs Cleaning</li> </ol>	<ol style="list-style-type: none"> <li>1. It is normal for the element to burn off some light finishing oil used in the manufacturing process when first energized. Open windows and allow room to vent until it stops, usually within a few minutes.</li> <li>2. Remove any dust or dirt accumulations.</li> </ol>
Room Temperature does not match thermostat setting	<ol style="list-style-type: none"> <li>1. Thermostat affected by another heat source.</li> <li>2. Improper calibration</li> </ol>	<ol style="list-style-type: none"> <li>1. Sunlight or other heat sources can affect the thermostat. Move the thermostat to another location or remove the heat source.</li> <li>2. Remove cover and adjust calibration screw.</li> </ol>
Room Temperature swings from too hot to too cold	<ol style="list-style-type: none"> <li>1. Defective or low quality thermostat</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace with a better quality thermostat. Anticipated thermostats are fairly accurate; an electronic thermostat is best.</li> </ol>

## SMART LIMIT PROTECTION AND MAINTENANCE



### Heater Safety Limit Tripped?

This heater is equipped with a thermal overload Smart Limit Protection which disconnects elements and motor in the event normal operating temperatures are exceeded. If thermal overload

trips due to abnormal operating temperatures, thermal overload shall remain open until manually reset by turning the heater OFF for fifteen minutes. Inspect for any objects on or adjacent to the heater that may cause high temperatures. After inspecting the heater, keep the power to the heater off for 15 minutes to reset the SLP thermal protector. If the SLP thermal protector shuts the heater off again, immediately turn the heater OFF at the circuit breaker and inspect the heater for possible fan motor failure or dirt and lint on the heating element. Repeat the starting procedure.

**DO NOT TAMPER OR REMOVE THIS THIS DEVICE**

### Maintenance

With proper care your electric heater should last a lifetime, however, seasonal cleaning is recommended to maintain the efficiency of the heater. Keep heating element, fan and motor free of debris. Use compressed air to blow out any debris.



Smart Heating Solutions