

INSTALLATION AND MAINTENANCE



KBP Series 2 Compact Unit Heaters



DANGER

ELECTRIC SHOCK OR FIRE HAZARD

READ ALL WIRE SIZING, VOLTAGE REQUIREMENTS AND SAFETY DATA TO
AVOID PROPERTY DAMAGE AND PERSONAL INJURY

Do not install bottom of heater less than 6 ft above the floor 6 inches to side wall, 5 inches to back wall, and 2 inches to ceiling when clearance to ceiling is 2 inches. Do not point heater at ceiling.

KBP Series 2 unit heaters are to be operated at **voltage listed on the rating label**. It is important that you verify the power supply voltage is the same as the nameplate voltage of the heater. Connecting the heater to an improper voltage or failure to follow the procedures as outlined in this manual can result in damage to the heater and void the warranty. This heater is provided with a factory installed thermostat, except for models with “-RT” and “-RT24”. Disconnect all power from the heater at the main service panel before attempting to install or service this unit. All electrical wiring must conform to local electrical codes. Heater circuit must be properly protected.

⚠ 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.

Read all instructions before wiring or using this heater.

- ⚠ WARNING** Heaters outlet grill is very hot when in use. To avoid burns, do not touch hot surfaces with bare skin. Keep combustible materials, including furniture, pillows, bedding, papers, clothes, curtains, and boxes at least 3 feet from the front of the heater and keep them away from the sides and rear.
- ⚠ WARNING** Do not use outdoors.
- ⚠ WARNING** Heater is not intended for use in bathrooms, laundry areas or similar indoor locations. Never locate heater where it may fall into a bathtub or other water container.
- ⚠ WARNING** Do not insert or allow foreign objects to enter any inlet or outlet openings as this may cause an electric shock, fire, or damage to the heater.
- ⚠ WARNING** To prevent a possible of fire, do not block air intakes or exhaust in any manner.
- ⚠ WARNING** Heater has hot surfaces. Internal thermostat and limiting parts can arc or create sparks inside. Do not use this heater in areas where gasoline, paint, or flammable liquids or gases are used or stored.
- ⚠ WARNING** Use this heater only as described in this manual. Any other use is not recommended by the manufacturer and may cause fire, electric shock, explosion or injury to people and or property.
- ⚠ WARNING** If heater shows signs of overheating immediately turn the circuit breaker off to the heater. Remove and inspect for any objects on or adjacent to the heater that may cause the high temperatures. Have a professional inspect the internals until the reason is clear why the heater is overheating. Do not reinstall until it has been professionally serviced.
- ⚠ WARNING** Do not operate heater after it malfunctions. Disconnect heater at service panel and have heater inspected by a reputable electrician before reusing. To disconnect heater, turn controls to off position, and turn off power to heater circuit at main electrical panel or operate internal disconnect switch to off if provided.
- ⚠ WARNING** Extreme caution is necessary when any heater is used by or near children or invalids and whenever the heater is left operating and unattended too.

SAFETY INFORMATION

Warning: Prior to operating, make sure the circuit breaker is of the configuration and capacity appropriate for the heater.

- Minimum installed distance from the heater to the adjoining wall or ceiling surfaces - 5 inches to back wall.
- When clearance to ceiling is 2 inches, Do Not Point Heater At Ceiling.
- Use extreme caution when used near children or people with disabilities.
- Do not use outdoors.
- Not intended for use in bath-rooms, laundry areas or other similar wet locations. Never locate heater where it may have contact with water.
- Do not use heater in wet or moist locations.
- Don't place heater against cardboard or low-density fiberboard surfaces.
- Avoid using an extension cord because the extension cord may overheat and cause a risk of fire.
- Use only the electrical power (voltage and frequency) specified on the model plate of the heater.
- Keep all combustible materials away from this heater.

Chart 2

Minimum Clearance From Combustibles	
Front	18 in.
Top	2 in.
Sides	6 in.
Rear	5 in.
Floor	6 ft.

IMPORTANT: Per the National Electrical Code heating circuits are considered a continuous load and therefore must be de-rated by 20%.

For example a 20 amp heating circuit can not have more than 16 amps of connected load.

Chart 1

1 PHASE CIRCUIT SIZING TABLE					
Watts (Max)	BTUH	Volts	Amps 1 Phase	Wire Size	Circuit Protection
950	3242	120	7.9	#14/2	15A-1P
		240	4.0	#14/2	15A-2P
		277	3.4	#14/2	15A-2P
		480	2.0	#14/2	15A-2P
1670	5700	208	8.0	#14/2	15A-2P
1900	6485	120	15.8	#12/2	20A-1P
		240	7.9	#14/2	15A-2P
		277	6.9	#14/2	15A-2P
		480	4.0	#14/2	15A-2P
2620	8942	208	12.6	#12/2	20A-2P
2850	9727	120	23.8	#10/2	30A-1P
		240	11.9	#14/2	15A-2P
		277	10.3	#14/2	15A-2P
		480	5.9	#14/2	15A-2P
3340	11399	208	16.0	#12/2	20A-2P
3800	12969	240	15.8	#12/2	20A-2P
		277	13.7	#14/2	20A-2P
		480	7.9	#14/2	15A-2P
4290	14642	208	20.6	#10/2	30A-2P
4750	16212	240	19.8	#10/2	30A-2P
		277	17.1	#10/2	30A-2P
		480	9.9	#14/2	15A-2P
5010	17065	208	24	#10/2	30A-2P
5700	19454	240	23.7	#10/2	30A-2P
		277	22.6	#10/2	30A-2P
		480	11.9	#14/2	15A-2P
3 PHASE CIRCUIT SIZING TABLE					
Watts (Max)	BTUH	Volts	Amps 3 Phase	Wire Size	Circuit Protection
2850	9727	208	7.9	#14/3	15A-3P
		240	6.9		
		480	3.4		
5010	17065	208	13.9	#12/3	20A-3P
5700	19454	240	13.7		
		480	7.2	#14/3	15A-3P

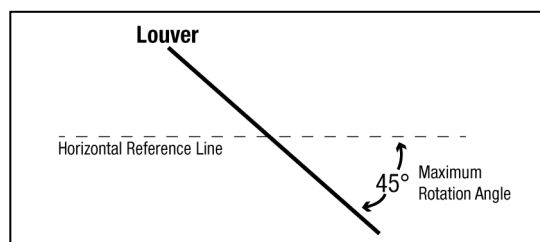
LOUVER ADJUSTMENT TO DIRECT AIRFLOW

The louvers are opened during testing at factory, but may have shifted during shipping. Confirm louvers are rotated less than 45 degrees from horizontal before operation. To adjust the opening angle, grasp the left and right end of louver and twist with two hands to the desired position.

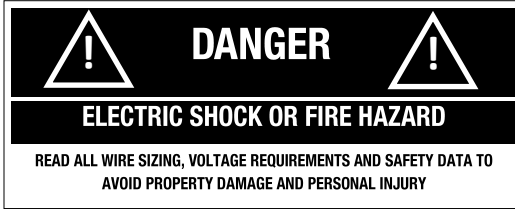
CAUTION: Increasing angle beyond 45° degrees from horizontal may restrict air flow casing over temperature limit to activate & shut off the heater.

Louver Adjustment

Do Not Adjust While Heater Is Operational



ASSEMBLY INSTRUCTIONS



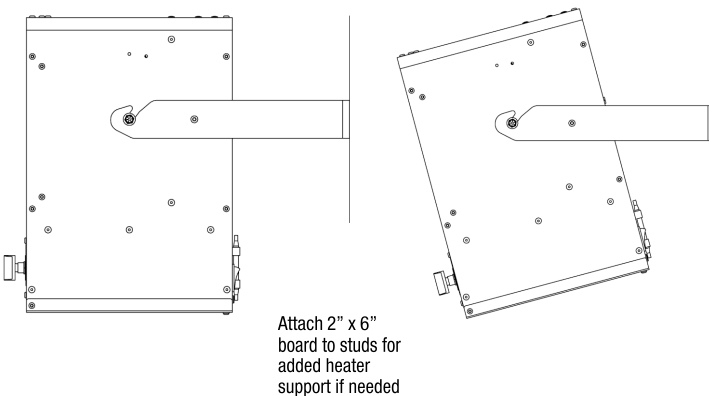
KBP Series 2 Compact Unit Heater

Chart 2

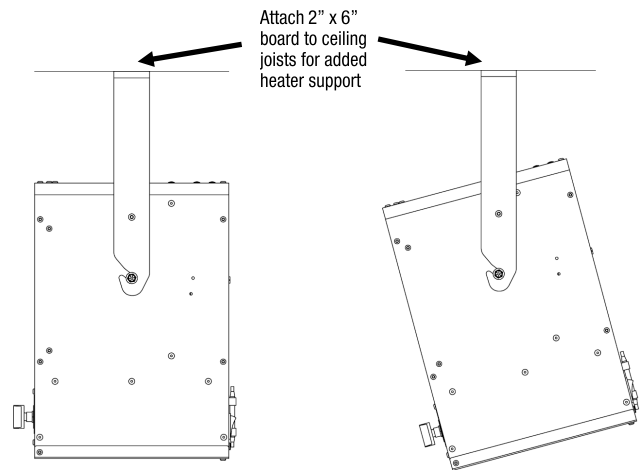
Minimum Clearance From Combustibles	
Front	18 in.
Top	2 in.
Sides	6 in.
Rear	5 in.
Floor	6 ft.

INSTALLATION INSTRUCTIONS

FOR WALL MOUNT APPLICATIONS



FOR CEILING MOUNT APPLICATIONS



TOOLS NEEDED:

- Screwdriver (Phillips & Slotted)
- Wire Cutters
- Pliers
- Adjustable Wrench
- Electric Drill

Remove heater & all packaging materials from the box.

HARDWARE NEEDED:

- Adequate gauge & length of wire for your application
- Proper size fuses or breakers to handle amperage
- Proper wire connectors for your application
- Fasteners appropriate size to mount heater



Tip: Be sure to remove the hardware package from the Styrofoam packaging.

MOUNTING HEIGHT:

When the air flow of the heater is directed vertically or horizontally, the minimum mounting height is 6 feet in the USA and 8 feet in Canada. Mounting heights depend upon building utilization and heater KW capacity.

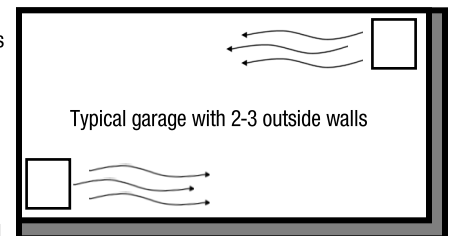
LOCATION OF HEATER:

The heater should be installed 6 feet above floor and according to minimum clearance chart (Chart 2). The direction of airflow should not be restricted by machinery, beams, etc., and the air flow should run with walls, rather than blowing directly at them. When more than one heater is used in an area, the heaters should be arranged so that the air discharge of each heater supports the air flow of the others to provide best circulation of warm air.

MOUNTING HEATER:

Wall stud and ceiling joists are typically wider than our mounting bracket which is 11 inches wide. The heater weighs 14 lbs. and should be mounted onto at least one stud to be properly supported.

Your fasteners penetrating a stud is critical to supporting the weight. A gypsum wall board fastener is not strong enough. But if your ideal location has no solid backing, you can fasten with large screw fasteners a 2" x 6" board to ceiling joists or wall studs. Attach with appropriate lag bolts with proper depth for the 14 lbs. Install the bolt into the outside of the bracket and fasten it into the sides of the heater. Be certain that the mounting bracket bolts are tightened firmly to secure the heater to the swivel bracket.



INSTALLATION INSTRUCTIONS

⚠ WARNING Before proceeding further with the installation of this heater, turn off the power and lock the supply line for the heater at the main service box.

WIRING HEATER:

1. Remove wiring compartment cover.
2. Remove one of the knock outs from the back of the unit. It is not necessary to remove the grill cover.
3. Size service wire to adequately handle amp load of the heater. Refer to the Circuit Sizing Table for proper wire size and circuit protection. (See **Chart 1**)
4. Connect supply wire to L1 & L2 & L3 as applicable as shown in the wiring diagrams.
5. Secure power supply cable with cable clamp.
6. Connect ground wire to the ground lug.
7. Adjust the heater to the desired position.

Note: Power must land at heater uninterrupted by switches or thermostat due to thermal fan delay

SMART LIMIT PROTECTION



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.

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.

We're Here to Help!

For any difficulties installing or operating this product

Call Us Toll Free at:

1-800-603-5464

7:00 am -3:30 pm PST Mon-Fri

Visit king-electric.com

or email us at tech@king-electric.com

Field-Adjustable Wattages

Pic-A-Watt® Heating Element

The exclusive King multi-tap element allows field adjustment to several wattages at the time of installation.

Reference the wiring diagram when adjusting the wattage. The below tables should be used as a supplement to your wiring diagram.

king KBP1230-1-S2-MB-T / KBP1203-1-S2-MB-RT24						
REMOVE ELEMENT POSITION	ELEMENT WIRE COLOR	WATTAGE REDUCTION	120V - 2850W	ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	SELECTABLE WATTAGES	
ELEMENT 1 - 120V - 1425W						
A	RED	712				
B	BLUE	475				
C	RED	238				
<u>ATTENTION: DO NOT REMOVE BLACK E1 COM OR E2 COM WIRES ATTACHED TO BUSBAR ON EACH ELEMENT</u>						
ELEMENT 2 -120V -1425W						
D	YELLOW	712				
E	ORANGE	475				
F	RED	238				
					NONE	2850
					C	2612
					C & F	2375
					A	2138
					A & F	1900
					A & E	1662
					A & D	1425
					A+C+E+F	1188
					A+C+D+F	950

king KBP2005-1-S2-MB-T / KBP2005-1-S2-MB-RT24						
REMOVE ELEMENT POSITION	ELEMENT WIRE COLOR	WATTAGE REDUCTION	208V - 5010W	ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	SELECTABLE WATTAGES	
ELEMENT 1 - 208V - 2850W						
A	RED	950			NONE	5010
B	BLUE	950			D	4290
C	RED	950			A	4060
ATTENTION: DO NOT REMOVE BLACK E1 COM OR E2 COM WIRES ATTACHED TO BUSBAR ON EACH ELEMENT					A & D	3340
ELEMENT 2 - 240V - 2850W [2250W @ 208V]					B & D & F	2620
D	YELLOW	720			A & C & E	2390
E	ORANGE	720			A & C & D & F	1670
F	RED	720				

king KBP4806-1MP-S2-MB-T / KBP4806-1MP-S2-MB-RT24*						
REMOVE ELEMENT POSITION	ELEMENT WIRE COLOR	WATTAGE REDUCTION	480V - 5700W - 3MP 1-PH	ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	SELECTABLE WATTAGES	
ELEMENT 1 - 480V - 2850W						
A	RED	950				
B	BLUE	950				
C	RED	950				
ELEMENT 2 - 480V - 2850W						
D	YELLOW	950				
E	ORANGE	950				
F	RED	950				
					NONE	5700
					A	4750
					A & F	3800
					B & D & F	2850
					A & C & D & F	1900
				*THIS IS THE CONVERTED TO 1-PH VERSIONS OF THESE MULTIPHASE MODELS		

king KBP4806-3MP-S2-MB-T / KBP4806-3MP-S2-MB-RT24					
REMOVE ELEMENT POSITION	ELEMENT WIRE COLOR	WATTAGE REDUCTION	480V - 5700W - 3MP 3-PH	ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	SELECTABLE WATTAGES
ELEMENT 1 - 480V - 2850W					
A	YELLOW	950			
B	ORANGE	950			
C	RED	950			
ELEMENT 2 - 480V - 2850W					
D	YELLOW	950			
E	ORANGE	950			
F	RED	950			
				NONE	5700
				A & C & E	2850

king KBP2406-1-S2-MB-T / KBP2406-1-S2-MB-RT24 & KBP2706-1-S2-MB-T / KBP2706-1-S2-MB-RT24						
REMOVE ELEMENT POSITION	ELEMENT WIRE COLOR	WATTAGE REDUCTION	240V & 277V - 5700W	ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	SELECTABLE WATTAGES	
ELEMENT 1 - 240V & 277V - 2850W						
A	RED	950				
B	BLUE	950				
C	RED	950				
<u>ATTENTION: DO NOT REMOVE BLACK E1 COM OR E2 COM WIRES ATTACHED TO BUSBAR ON EACH ELEMENT</u>						
ELEMENT 2 - 240V & 277 - 2850W						
D	YELLOW	950				
E	ORANGE	950				
F	RED	950				
					NONE	5700
					A	4750
					A & F	3800
					B & D & F	2850
					B & D & F	1900

king KBP2406-3MP-S2-MB-T / KBP2406-3MP-S2-MB-RT24						
REMOVE ELEMENT POSITION	ELEMENT WIRE COLOR	WATTAGE REDUCTION	240V - 5700W - 3MP 3-PH	ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	SELECTABLE WATTAGES	
ELEMENT 1 - 480V - 2850W						
A	YELLOW	950				
B	ORANGE	950				
C	RED	950				
ELEMENT 2 - 480V - 2850W						
D	YELLOW	950				
E	ORANGE	950				
F	RED	950				
				NONE	5700	
				A & C & E	2850	

king KBP2406-1MP-S2-MB-T / KBP2406-1MP-S2-MB-RT24*						
REMOVE ELEMENT POSITION	ELEMENT WIRE COLOR	WATTAGE REDUCTION	240V - 5700W - 3MP 1-PH	ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	SELECTABLE WATTAGES	
ELEMENT 1 - 480V - 2850W						
A	RED	950				
B	BLUE	950				
C	RED	950				
ELEMENT 2 - 480V - 2850W						
D	YELLOW	950				
E	ORANGE	950				
F	RED	950				
					NONE	5700
					A	4750
					A & F	3800
					B & D & F	2850
					A & C & D & F	1900
				*THIS IS THE CONVERTED TO 1-PH VERSIONS OF THESE MULTIPHASE MODELS		

king KBP2406-1-MB-T-HFD-HLS							
REMOVE ELEMENT POSITION	HEAT HI / LO	ELEMENT WIRE COLOR	WATTAGE REDUCTION	240V - 5700W	STAGE 1 ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	LO SELECTABLE WATTAGES	
ELEMENT 1 - 240V - 2850W							
A	LO	RED	950			NONE	3800
B	LO	BLUE	950			F	2850
C	HI	RED	950			A & F	1900
						A & B & F	950
ATTENTION : DO NOT REMOVE BLACK E1.COM OR E2 COM WIRES ATTACHED TO BUSBAR ON EACH ELEMENT							
ELEMENT 2 - 240V - 2850W						STAGE 2 ELEMENT LEADS REMOVED TO GET SELECTABLE WATTAGES	HI SELECTABLE WATTAGES
D	HI	YELLOW	720				
E	LO	ORANGE	720			NONE	1900
F	LO	RED	720		C	950	