

Compact Heavy Duty Unit Heater SKB Series



Model Code:

| | | | | | |
|-----|----|----|---|---|---|
| SKB | 24 | 05 | 1 | T | B |
| A | B | C | D | E | F |

A: Series
 B: 20 - 208V
 24 - 240V
 C: Watts
 D: Single Phase
 E: Thermostat
 F: Bracket



- Spiral finned element
 - Permanently lubricated motor
 - Patented Smart Limit® protection
 - High efficiency aluminum fan blade
- Built-in thermostat
 - Universal mounting bracket
 - Standard color: Gray
 - 3-year limited warranty
- Adjustable louvers
 - Power On & Over-temp caution indicating lights
 - High /Low switch & fan delay*
 - Prewired for remote wall thermostat option



The SKB Compact Heavy Duty Unit Heater

The SKB compact heavy duty unit heater is designed for use as primary or supplemental heat sources in large or exposed areas, including commercial stores, workshops, barns, storage shed and garages to prevent freezing. Spiral finned steel elements and high air volume (CFM) ensure efficient heat exchange producing cooler element operation, prolonging heater life. By combining the highest quality components with a dynamically balanced fan blade, the SKB unit heater will provide years of trouble-free service. Includes both a power on indicating light and a red caution light that comes on if the heater stops due to the over temperature limit tripping. A universal wall/ceiling bracket provides for quick and simple installation. The built-in thermostat turns the heater on and off to maintain the desired room temperature or a remote wall thermostat can be used. The heater is prewired to easily convert from the built-in thermostat to a wall mounted line voltage thermostat. The heater can also be controlled by purchasing a transformer relay to operate a remote 24V wall thermostat. Refer to the installation instructions regarding the amperage requirements for use of both the line voltage thermostats and transformer relays.

*Not available in 5kW Unit

Ordering Information - single phase

| MODEL | UPC | KW | BTUH | PHASE | VOLTS | AMPS | MOTOR HP | CFM | TEMP. RISE | AIR THROW | MAX. MOUNT | WT. (lbs.) |
|---------------|-------|-----|------|-------|---------|-----------|----------|-----|------------|-----------|------------|------------|
| SKB2005-1-T-B | 13413 | 5 | 17 | 1 | 208 | 24 | 9W | 400 | 40° | 16ft. | 8ft. | 30.5 |
| SKB2007-1-T-B | 13414 | 7.5 | 25.6 | 1 | 208 | 36.1 | 16W | 600 | 40° | 20ft. | 9ft. | 45.0 |
| SKB2009-1-T-B | 13415 | 9.2 | 31.4 | 1 | 208 | 44.2 | 25W | 725 | 42° | 24ft. | 10ft. | 45.0 |
| SKB2405-1-T-B | 13410 | 5 | 17 | 1 | 240/208 | 20.8/18 | 9W | 400 | 40° | 16ft. | 8ft. | 30.5 |
| SKB2407-1-T-B | 13411 | 7.5 | 25.6 | 1 | 240/208 | 31.2/27 | 16W | 600 | 40° | 20ft. | 9ft. | 45.0 |
| SKB2410-1-T-B | 13412 | 10 | 34.1 | 1 | 240/208 | 41.6/36.1 | 25W | 725 | 44° | 24ft. | 10ft. | 45.0 |

Engineering Specifications

Contractor shall supply and install SKB Series unit heaters manufactured by King Electrical Mfg. Company. Heaters shall be of the wattage and voltage as indicated on the plans.

Construction: All exterior and interior metal enclosure parts are made from 20 gauge electrogalvanized Steel with a rust inhibiting baked enamel finish. Rounded corners give it an attractive modern appearance.

Adjustable Outlet Louver: Louvers direct air up or down as needed for the heating application.

Rear Intake Screen: Heavy gauge steel screen protects against foreign objects making accidental contact with the rotating fan blade.

Spiral Fin Elements: The metal sheath element is copper brazed with spiral fins then molded into a coil configuration. This combination produces the best heat transfer while eliminating the potential for hot spots by positioning the element in the maximum airflow stream.

Aluminum Fan Blade: Axial flow-type fan mounted directly to the motor shaft for maximum efficiency.

Built-in Thermostat: Single pole factory installed hydraulic capillary tube thermostat for precision heating control. Operating range 40° to 90° F.

Red Over-temp Caution in Light: Only comes on if the high temperature safety limit has tripped.

Yellow Power on Light: Gives visual indication that the heater is turned on.

*** High/Low Switch:** Provided on 7.5kw & 10kw models. Low setting reduces wattage in half. Fan delay keeps fan running after thermostat cycles off to dissipate all the heat from the elements, making the heater more efficient and prolonging the life of the elements.

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Engineering Specifications Continued

Two Pole Contactor: Provided on 7.5kw & 10kw models. Breaks both L1 and L2 of the power supply wires, the control circuit operates at 240V.

Pre-Wired For Optional Room Thermostat: Heater shall include a 2-pole terminal block and is prewired to easily convert from the built-in thermostat to a wall mounted line voltage thermostat. The heater can also be controlled by purchasing a transformer relay to operate a remote 24V wall thermostat. Refer to the installation instructions regarding the amperage requirements for use of both the line voltage thermostats and transformer relays. For 240V heaters use transformer relay model 24A01G-3 or RC840T-240/U. For 208V heaters use model 24A05E-1 or RC840T-240/U can be used on 7.5kW/10kW heaters.

Electrically Held Thermal Overload: Heaters shall be equipped with King's patented Smart Limit Protection®, which disconnects the heater when an over temperatures condition occurs. If the Smart Limit trips, it will remain open and will not automatically reset until the thermostat or circuit breaker is turned off for a few minutes. After the overload switch cools the power can be turned back on and the heater will operate again. This keeps the heater from repeatedly cycling allowing the user to

determine the cause of the over temperature condition such as an object being placed in front of heater.

Totally Enclosed Fan Motor: Permanently lubricated long life, unit bearing with 20cc of oil. Epoxy-coated motor with enclosed rotor resists moisture and corrosion for long-lasting, trouble-free operation.

Easy Installation: A quick access panel located on the bottom of the heater allows for quick wiring and easy maintenance for the life of the heater. Includes universal wall/ceiling bracket for simple installation.

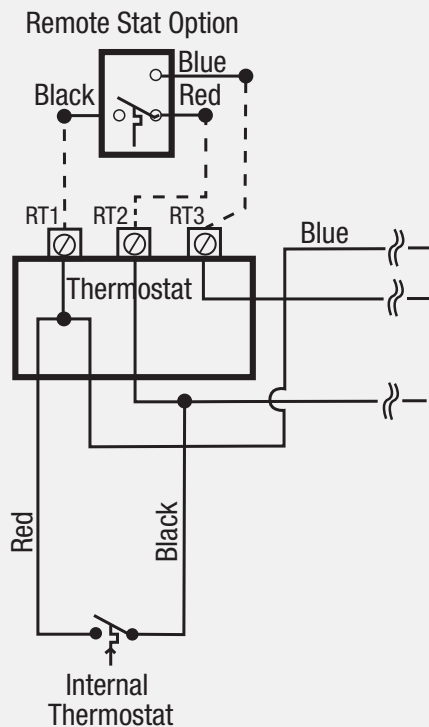
Approvals: cULus (E41422)

• SKB Wall/Ceiling Bracket Included

Unit heater brackets can be used for mounting on ceiling or wall. 3/8" threaded hole on top of unit heater can also be used with threaded rod to drop the unit closer to the floor.

Pre-Wired For Optional Line Voltage Room Thermostat*:

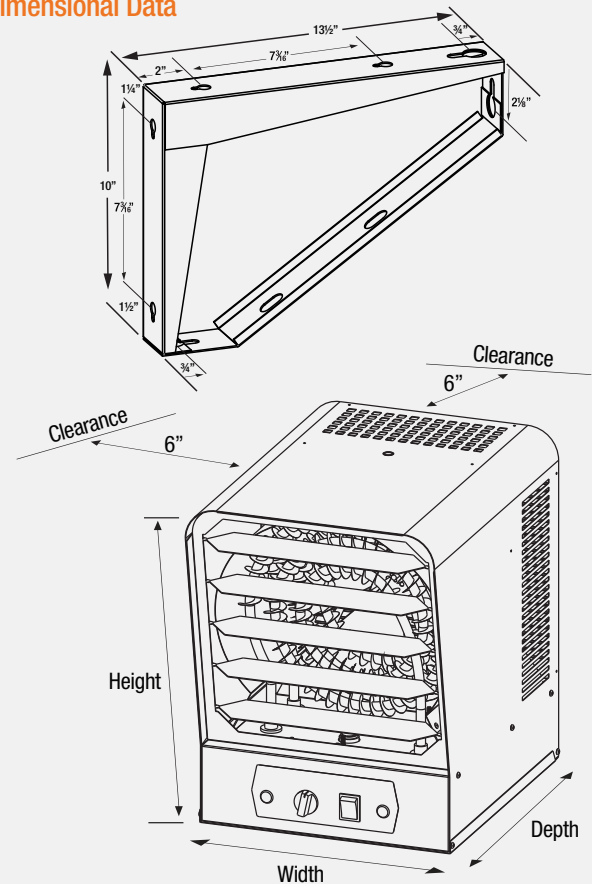
Connect a standard 240V single pole (SP) thermostat as a switch leg or a 3-wire SP electronic thermostat by providing both power legs, (L1 and L2) to drive the electronics.



Note: Do not use a double pole thermostat. The incoming power supply is connected to the heater and is then switched through a contactor, so the thermostat will draw less than 1 amp through the control circuit.

*Above diagram reflects wiring for 7.5kW & 10kW heaters only. For 24V or line voltage remote thermostat wiring of 5kW units, refer to installation manual for details

Dimensional Data



| HEATER MODEL | HEIGHT | DEPTH | WIDTH |
|--------------|--------|-------|-------|
| 5kW | 15.5" | 12" | 12.5" |
| 7.5kW | 16.25" | 16.5" | 12.5" |
| 10kW | 16.25" | 16.5" | 12.5" |

Field Mount Accessories

| MODEL | DESCRIPTION | WT. (lbs.) |
|--------------|---|------------|
| 24A01G-3 | Electric Heat Relay For 240V | 0.5 |
| 24A05E-1 | Electric Heat Relay For 208V | 0.5 |
| RC840T-240/U | Electric Heat Relay With a 24V-208/240V Transformer | 0.5 |

Selecting The Proper Unit Heater

To obtain the best performance from King unit heaters use this chart for proper heater selection. To determine which type of unit is best note the ceiling height and room size. In addition to the air throw capabilities of each type of unit heater, wall and ceiling insulation must be considered when determining wattage requirements. The most common error of unit heater selection is installing a unit designed for low ceiling application on a high ceiling. In this application heat is unable to circulate properly to the floor – the result: unsatisfactory comfort or performance level. Following this guide allows correct unit heater selection for the determined space and environment. With correct selection and placement this King unit heater will provide years of high performance heating.

Application Tips

First, calculate heating loads in the conventional way using the N.E.M.A. handbook or ASHRAE guide. Next, determine quantity and size of heaters to be used. In instances where large groups of people are normally settled in the same location use a large number of smaller kW heaters (Example: people on a production line or skilled machine operations). By utilizing heaters in this manner one can best distribute uniform heat, prevent hot drafts, reduce potential noise levels and balance the electrical operating demand. When considering warehouse areas or storage rooms where heat distribution and constant temperatures are less important, use fewer heaters of higher capacity. To maintain uniform heat and reduce stratified air it is recommended that the total CFM of the units turn the air over approximately 3 times per hour.

Horizontal Mount

Smaller rooms can be heated by one unit heater. Where two walls are exposed heaters should be mounted as shown below. In larger rooms, units should be located so air streams wipe exposed walls without blowing at them. Units should be located so the airstream of one supports that of another thus setting up a circulatory air movement. (Distance between units to be approximately 1 times published air throw). Units should not be mounted horizontally in areas having ceiling heights in excess of 10 to 12 feet.

Vertical Mount

Units should be mounted vertically in high bay areas where they may not otherwise interfere with assorted material or handling equipment. Heaters should be situated to provide free air circulation. Size and selection of units should be based on recommended mounting height. Unit heaters are frequently used to combat cold air inrush when loading dock doors are opened. For such applications, one or more units should be arranged to blow warm air vertically in front of opening.

Dual Mounting

Where square footage is large and comfort essential, both horizontal and vertical installations may best serve your requirements.

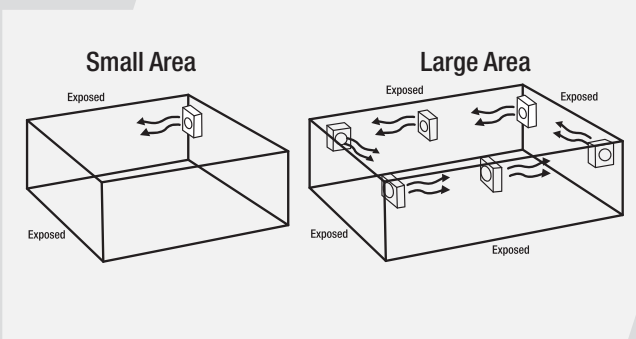
Mounting Limitations

Unit heaters should not be used in potentially explosive atmospheres. The finish is not intended for direct salt spray exposure in marine applications or the highly corrosive atmospheres of swimming pools, chemical storage bins, etc. Please refer to the factory for explosion proof or marine application heater information. Do not install unit heaters above recommended maximum mounting height. See chart for height information. Obstructions must not block unit heater air inlet or discharge. To prevent possible injury heaters must be mounted at least 6 feet above the floor to prevent accidental contact with heating element or fan blade.

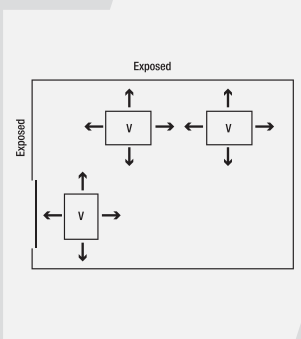
Selection

| CEILING HEIGHT | UNDER 8 FEET | 10 FEET | 12 FEET | 13 FEET AND OVER |
|----------------|--------------|----------|-----------|------------------|
| 250 Sq. Ft. | N/A | KBP | KBP | KFUH |
| 1000 Sq. Ft. | KBP | KBP | KBP / KB | KFUH |
| 2000 Sq. Ft. | KBP / KB | KBP / KB | KB / KFUH | KFUH |
| 3000 Sq. Ft. | KB | KB | KFUH | KFUH |
| 5000 Sq. Ft. | KB | KFUH | KFUH | KFUH |
| 10,000 Sq. Ft. | KB | KFUH | KFUH | KFUH |

Horizontal



Vertical



Dual

