



# High Air Velocity Unit Heater KFUH Series



### Model Code:

KFUH	48	10	-3
A	B	C	D
A: Series			
B: 20 - 208V 24 - 240V 48 - 480V			
C: Kilowatts			
D: 1 or 3-phase			



Shown with KFUH DIFFUSER.  
KFUH DIFFUSER required for  
this heater and is sold separately

- Heavy duty open coil element
- Direct drive air over type motor
- Dual inlet industrial blower
- Horizontal or Vertical Mount
- Adjustable louver hood (sold separately)
- 22 gauge steel
- Quiet switching relays
- Replaceable intake filter
- Can be ducted on intake and outlet
- 24 Volt control
- Fan-only relay
- ECM Motor (optional)



- 5-year limited warranty

## The KFUH High Air Velocity Unit Heater

The KFUH series commercial unit heater is an efficient, dependable unit heater perfectly suited for high ceiling applications such as warehouses, parking garages and docks. The 3-speed, high-capacity motor and blower quietly delivers large volumes of air ranging from 775 to 1540 CFM minimum. With welded mounting channels on the unit, the heater may be mounted at any angle. Safety screens are provided at both the air intake and discharge aperture. The intake filter is replaceable. Thermostat may be ordered separately.

**FIELD WIRING:** 208 and 240 volt unit heaters are equipped with circuit breakers to provide internal circuit protection when heater exceeds 48 amps. 480 Volt unit heaters do not have circuit breakers but are fused when internal protection is required over 48 Amps. Terminal blocks are supplied for field wiring on all units. Consult the National Electric Code for proper wire size and service circuit breaker protection.

**CONTROL WIRING:** Connect low voltage thermostat to terminals R and W on the low voltage terminal block. For fan only operation connect terminals R and G with a switch or thermostat fan switch.

Unit shown with standard diffuser model # KFUH DIFFUSER ordered separately. Additional diffusers are located on the 3rd page of this specification sheet.

## Engineering Specifications

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

**Transformer:** Each unit is equipped with a heavy duty low voltage (24 Volt) transformer for the thermostat control circuit.

**Heating Elements:** Quick heating, long life Ni-Chrome elements are sized to provide proper watt density for maximum heat dissipation by fan-forced air convection currents.

**Terminal Block:** For single strike field wiring.

**Low Voltage Terminal Block:** For 24 Volt control.

**Air Filter:** Convenient access for replacement of standard 16" x 20" x 1" filter.

**Motor:** Long life, 48 frame capacitor run, thermally protected, permanently lubricated, direct drive motor (no belts to adjust or slip). This low noise, up to 3-speed motor is designed for maintenance-free operation.

**Overcurrent Protection:** 208 and 240 volt KFUH models have 60 amp circuit breakers with single strike terminal block. 480 volt models have single strike terminal block. Units over 48 amps have 60 amp fusing.

**Limit Control:** Integral automatic high temperature limit control in each heating element bank prevents the delivery of air at unsafe temperatures. 20-35 kW use a manual reset limit control to completely shut the unit heater off should overtemperature occur.

**Fan Relay:** Heavy duty fan relay standard with summer fan operation.

**Approvals:** UL (E41422)

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## Ordering Information

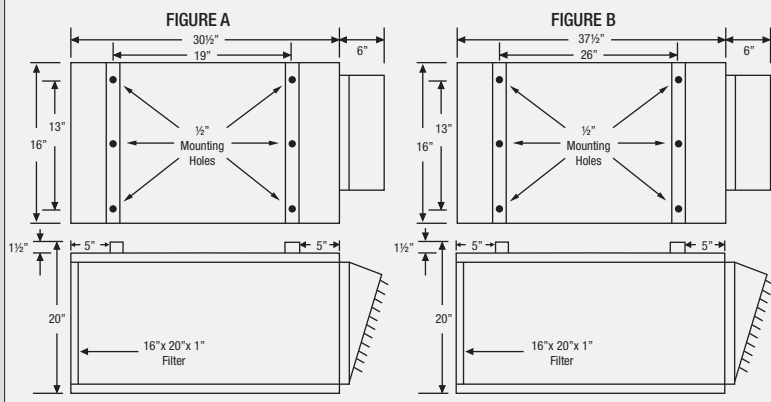
MODEL	VOLTS	kilo watts	BTUH	AMPS	# of ELEMENTS	MOTOR HP	TEMPERATURE RISE (° F)			SIZE	WT. (lbs)
							LOW	MED	HIGH		
KFUH2003-1	208	3	10.2	14.4	1	1/5	12°	11°	9°	Fig. A	57
KFUH2404-1	240	4	13.6	16.7	1	1/5	16°	15°	13°	Fig. A	57
KFUH2005-1	208	5	17.1	24	1	1/5	20°	18°	16°	Fig. A	57
KFUH2405-1	240	5	17.1	20.8	1	1/5	20°	18°	16°	Fig. A	57
KFUH4805-1	480	5	17.1	10.4	1	1/5	20°	18°	16°	Fig. A	57
KFUH2006-1	208	6	20.5	25	2	1/5	24°	22°	19°	Fig. A	57
KFUH2408-1	240	8	26.9	33.3	2	1/5	33°	29°	25°	Fig. A	65
KFUH2010-1	208	10	34.1	48	2	1/5	41°	37°	32°	Fig. A	65
KFUH2410-1	240	10	34.1	41.7	2	1/5	41°	37°	32°	Fig. A	65
KFUH4810-1	480	10	34.1	20.8	2	1/5	41°	37°	32°	Fig. A	65
KFUH2412-1	240	11.5	39.2	47.9	2	1/5	47°	42°	36°	Fig. A	65
KFUH4812-1	480	11.5	39.2	23.9	2	1/5	47°	42°	36°	Fig. A	65
KFUH2015-1	208	15	51.2	72.1	3	1/5	61°	55°	47°	Fig. A	74
KFUH2415-1	240	15	51.2	62.5	3	1/5	61°	55°	47°	Fig. A	74
KFUH4815-1	480	15	51.2	31.2	3	1/5	61°	55°	47°	Fig. A	74
KFUH2418-1	240	17.25	58.8	82.9	3	1/5	70°	63°	55°	Fig. A	74
KFUH4818-1	480	17.25	58.8	35.9	3	1/5	70°	63°	55°	Fig. A	74
KFUH2020-1	208	20	68.3	96.2	4	1/3	57°	51°	41°	Fig. B	76
KFUH2420-1	240	20	68.3	83.3	4	1/3	57°	51°	41°	Fig. B	76
KFUH4820-1	480	20	68.3	41.7	4	1/3	57°	51°	41°	Fig. B	76
KFUH2025-1	208	25	85.3	120.2	5	1/3	72°	63°	51°	Fig. B	81
KFUH2425-1	240	25	85.3	104.2	5	1/3	72°	63°	51°	Fig. B	81
KFUH4825-1	480	25	85.3	52.1	5	1/3	72°	63°	51°	Fig. B	81
KFUH2030-1	208	30	102.4	144.2	6	1/3	86°	76°	62°	Fig. B	85
KFUH2430-1	240	30	102.4	125	6	1/3	86°	76°	62°	Fig. B	85
KFUH4830-1	480	30	102.4	62.5	6	1/3	86°	76°	62°	Fig. B	85
KFUH2435-1	240	34.5	117.7	143.7	6	1/3	99°	87°	71°	Fig. B	85
KFUH4835-1	480	34.5	117.7	71.8	6	1/3	99°	87°	71°	Fig. B	85

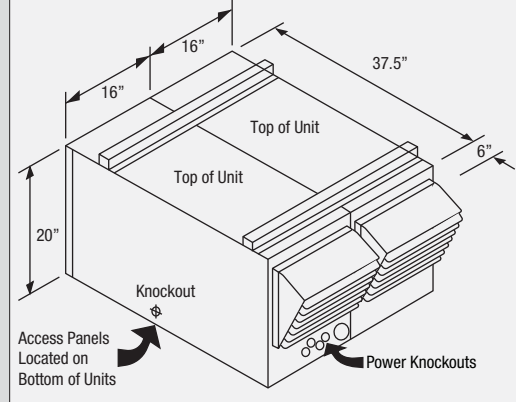
MODEL	VOLTS	kilo watts	BTUH	AMPS	# of ELEMENTS	MOTOR HP	TEMPERATURE RISE (° F)			SIZE	WT. (lbs)
							LOW	MED	HIGH		
KFUH2405-3	240	5	17.1	13	3	1/5	30°	25°	20°	Fig. A	74
KFUH4805-3	480	5	17.1	7	3	1/5	30°	25°	20°	Fig. A	74
KFUH2009-3	208	9	30.7	21.6	3	1/5	37°	33°	28°	Fig. A	74
KFUH2410-3	240	10	34.1	24.1	3	1/5	41°	37°	32°	Fig. A	74
KFUH4810-3	480	10	34.1	12	3	1/5	41°	37°	32°	Fig. A	74
KFUH2012-3	208	11.25	38.4	31.2	3	1/5	46°	41°	35°	Fig. A	74
KFUH2412-3	240	12	40.9	28.9	3	1/5	49°	44°	38°	Fig. A	74
KFUH4812-3	480	12	40.9	14.4	3	1/5	49°	44°	38°	Fig. A	74
KFUH2015-3	208	15	51.2	41.6	3	1/5	61°	55°	47°	Fig. A	74
KFUH2415-3	240	15	51.2	36.1	3	1/5	61°	55°	47°	Fig. A	74
KFUH4815-3	480	15	51.2	18.1	3	1/5	61°	55°	47°	Fig. A	74
KFUH2418-3	240	17.25	58.8	43.3	3	1/5	70°	63°	55°	Fig. A	74
KFUH4818-3	480	17.25	58.8	20.7	3	1/5	70°	63°	55°	Fig. A	74
KFUH2420-3	240	20	68.3	48	4	1/5	57°	51°	41°	Fig. B	85
KFUH4820-3	480	20	68.3	24	4	1/5	57°	51°	41°	Fig. B	85
KFUH2022-3	208	22.5	76.8	62.5	6	1/3	64°	56°	46°	Fig. B	85
KFUH2424-3	240	24	81.6	57.7	6	1/3	69°	61°	49°	Fig. B	85
KFUH4824-3	480	24	81.6	28.8	6	1/3	69°	61°	49°	Fig. B	85
KFUH2030-3	208	30	102.4	83.3	6	1/3	86°	76°	62°	Fig. B	85
KFUH2430-3	240	30	102.4	72.2	6	1/3	86°	76°	62°	Fig. B	85
KFUH4830-3	480	30	102.4	36.1	6	1/3	86°	76°	62°	Fig. B	85
KFUH2435-3	240	34.5	117.7	82.9	6	1/3	99°	87°	71°	Fig. B	85
KFUH4835-3	480	34.5	117.7	41.5	6	1/3	99°	87°	71°	Fig. B	85

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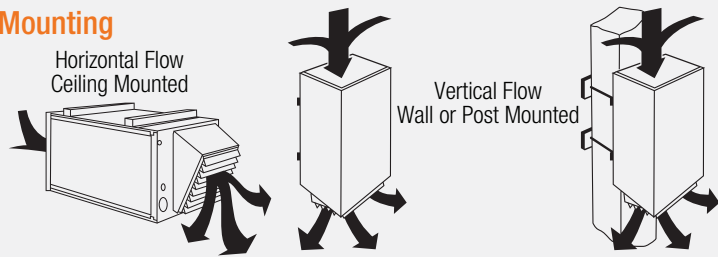
## Dimensional Data



## Dual Mounting



## Mounting



## Diffusers



## Options

ADD SUFFIX:	DESCRIPTION
-2S1	2 Stage Control 1-Phase models
-2S3	2 Stage Control 3-Phase models (5 kW increments only)
-DS40	40 Amp, 3-Pole Non-Fused Locking Disconnect Switch
-DS60	60 Amp, 3-Pole Non-Fused Locking Disconnect Switch
-DS80	80 Amp, 3-Pole Non-Fused Locking Disconnect Switch
-DS100	100 Amp, 3-Pole Non-Fused Locking Disconnect Switch
-T	1-Pole Thermostat

## Air Flow Delivery Chart

MOTOR HP	MOTOR SPEED					
	MOTOR LOAD		LOW	MED	HIGH	
	VOLTS	AMPS	CFM	FPM	CFM	FPM
1/5	230 <sup>3</sup>	3.4	775	570	860	630
	380 / 460 <sup>1</sup>	1.7				
1/3	230 <sup>3</sup>	3.2	1100 <sup>2</sup>	810	1250	920
	380 / 460 <sup>2</sup>	1.7				
1/2	230 <sup>3</sup>	3.8	1250	920	1540	1130
	380 / 460 <sup>1</sup>	1.9				
Motor Wire Color			RED	BLUE	BLACK	

\*Air Volume=Ft.<sup>3</sup> Per Minute (CFM) \*Air Velocity=Ft. Per Minute (FPM)  
<sup>1</sup>Single speed (high), <sup>2</sup>Two speed (High/Low), <sup>3</sup>Three speed (Low/Med/High)

## KFUH DIFFUSER OPTIONS

MODEL	UPC	DESCRIPTION	WEIGHT (lbs.)
KFUH-DIFFUSER	15741	Standard KFUH Air Diffuser	5.0
KFUH-ND	15725	No Diffuser, 1" duct collar only discharge side for connection to 14" x 14" duct	N/A
KFUH-RD	15743	Radial diffuser for wide pattern heat dispersion	4.0
KFUH-90D	15728	Right angle elbow (90°) diffuser with adjustable louvers	15.0
KFUH-90RD	15729	Right angle elbow (90°) with radial diffuser	14.0

## KFUH FACTORY INSTALLED OPTIONS

MODEL	UPC	DESCRIPTION	WEIGHT (lbs.)
KFUH-1/3HP	NA	Upgrade to 1/3 HP Motor & Blower for 3-18KW units	N/A
KFUH-1/2HP	NA	Upgrade to 1/2 HP Motor & Blower for 20-35KW units	N/A
KFUH-ECM	NA	Upgrade to ECM Motor 1/3 HP	N/A
KFUH-T	15747	Factory Installed Stat (SPST). Temperature range 40°F to 100°F	N/A
KFUH-2TS	15707	Factory Installed Stat (DPST). Temperature range 40°F to 100°F	N/A
KFUH-SF	15708	Factory Installed Summer Fan Switch	N/A
KFUH-2S1	15714	Control Relays & Contactor for 2-Stage Element Control, 1-Phase heaters. Available on certain models.	N/A
KFUH-2S3	15716	Control Relays & Contactor for 2-Stage Element Control, 3-Phase heaters. Available on certain models.	N/A
K-DS40	NA	Factory Installed 40 Amp, 3-Pole Non-Fused Locking Disconnect Switch	N/A
K-DS60	NA	Factory Installed 60 Amp, 3-Pole Non-Fused Locking Disconnect Switch	NA
K-DS80	NA	Factory Installed 80 Amp, 3-Pole Non-Fused Locking Disconnect Switch	N/A
K-DS100	NA	Factory Installed 100 Amp, 3-Pole Non-Fused Locking Disconnect Switch	N/A
1E30-910	19000	Wall mount thermostat, 24V, range 50°- 90°	1.0
KFUH-PTBL	17216	Kit to make KFUH Portable. Includes casters and mounting bracket (No Cord)	N/A

# 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.

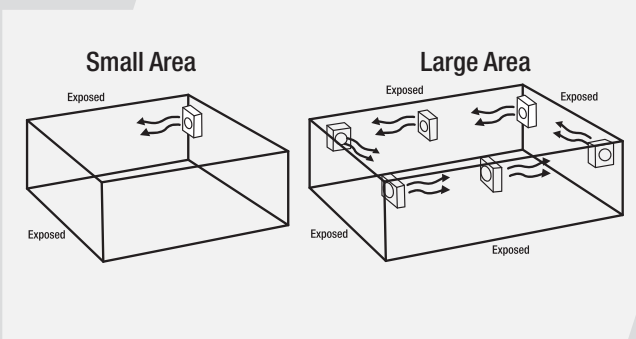
## Mounting Limitations

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.

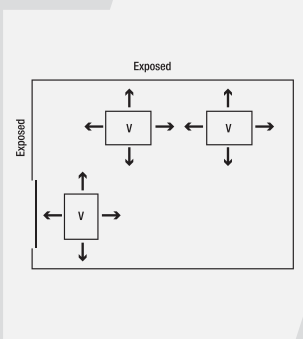
## Selection

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

