

High Air Velocity Unit Heater KFUH ECO2S Series



Model Code:

KFUH	24	10	-1	-2S1	-ECM
A	B	C	D	E	F

A: Series
B: 20 - 208V 24 - 240V
C: Kilowatts
D: 1 or 3-phase
E: 2-Stage heating
F: Energy efficient motor (ECM)

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



- Energy efficient ECM motor
- 2-Stage Energy-Saving Heating*
- Heavy duty open coil element
- Dual inlet industrial blower
- Horizontal or vertical mount
- Direct drive air over type motor
- Adjustable louver hood (sold separately)
- Quiet switching relays
- Replaceable intake filter
- 24 Volt control
- Ductable on intake and outlet
- Fan-only relay
- 3 speeds
- 5-year limited warranty



The KFUH ECO2S High Air Velocity Unit Heater

ENERGY SAVINGS meets MAXIMUM COMFORT with the ECM Motor & 2-Stage Heating*

The KFUH ECO2S Model adds a state of the art electronically controlled motor and 2 heating stages for added comfort and Maximum Energy Savings. 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. Offering 2-stage energy-saving heat output (-2S Models Only) when paired with a 2-stage 24V thermostat (purchased separately). The 3-speed, ECM 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: 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.

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

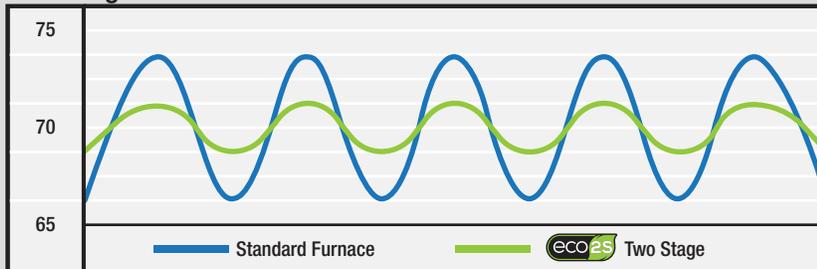
TWO STAGE COMFORT Why 2 Stage is Better

2 Stage controlled Furnaces allow you to use less energy during mild Spring and Fall temperatures. It's like having a smaller furnace installed just for spring and fall, then when winter hits you have the reserve power of the second heating stage to fight off the cold weather. It also has the benefit of creating more even comfort temperatures.

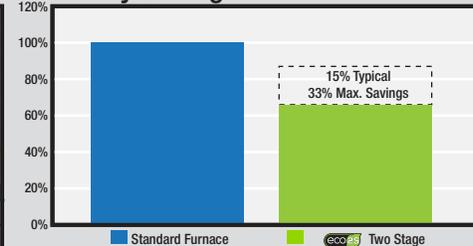
***Note:** 2-stage heat output (-2S Models Only) when paired with a 2-stage 24V thermostat (purchased separately).

The Furnace will run a percentage longer to reach the room temperature so the ECM motors efficiency is key to getting the most out of your Furnace.

Two Stage Comfort

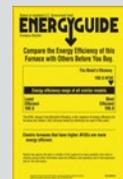
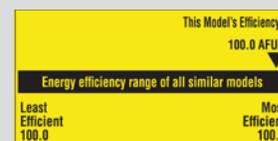


Yearly Savings



The KFUH ECO2S is more efficient and will save you up to 33% more per year versus standard furnace motors

- Designed for extended life
- Energy efficient
- Improved reliability
- Cooler operating temperature
- 3 speeds
- 15% 2 Stage



High Air Velocity Unit Heater KFUH ECO2S Series

Ordering Information - single phase

MODEL	kilo WATTS	BTUH (000)	PHASE	VOLTS	AMPS	STAGE 1	STAGE 2	ELEMENTS	THERMOSTAT CONTROL VOLTAGE	MOTOR HP	CFM	TEMP. RISE RANGE	EFFECTIVE AIR THROW	SIZE	WT. (lbs.)
KFUH2004-1-ECM	3.8	12.8	1	208	18.3	4kW	*N/A	1	24	1/3	708-1536	8-18	75ft.	Fig. A	57
KFUH2005-1-ECM	5	17.1	1	208	24	5kW	*N/A	1	24	1/3	708-1536	10-22	75ft.	Fig. A	57
KFUH2008-1-2S1-ECM	8	27.3	1	208	38.5	4.25kW	3.75kW	2	24	1/3	708-1536	16-36	75ft.	Fig. A	57
KFUH2010-1-2S1-ECM	10	34.1	1	208	48.1	5kW	5kW	2	24	1/3	708-1536	21-45	75ft.	Fig. A	65
KFUH2012-1-2S1-ECM	12	41	1	208	57.7	7.5kW	4.5kW	3	24	1/3	708-1536	25-54	75ft.	Fig. A	74
KFUH2015-1-2S1-ECM	15	51.2	1	208	72.1	10kW	5kW	3	24	1/3	708-1536	31-67	75ft.	Fig. A	74
KFUH2018-1-2S1-ECM	17.3	58.9	1	208	83.2	8.65kW	8.65kW	4	24	1/3	708-1536	35-77	75ft.	Fig. B	74
KFUH2020-1-2S1-ECM	20	68.3	1	208	96.2	10kW	10kW	4	24	1/2	1258-1771	36-50	90ft.	Fig. B	76
KFUH2025-1-2S1-ECM	25	85.3	1	208	120.2	15kW	10kW	5	24	1/2	1258-1771	45-63	90ft.	Fig. B	81
KFUH2030-1-2S1-ECM	30	102.4	1	208	144.2	20kW	10kW	6	24	3/4	1592-2142	44-60	110ft.	Fig. B	85
KFUH2404-1-ECM	4	13.7	1	240/208*	16.7 / 12.5*	20kW	4kW	1	24	1/3	708-1536	8-18	75ft.	Fig. A	57
KFUH2405-1-ECM	5	17.1	1	240/208*	20.8 / 15.6*	5kW	*N/A	1	24	1/3	708-1536	10-22	75ft.	Fig. A	57
KFUH2408-1-2S1-ECM	8	27.3	1	240/208*	33.3 / 25*	4kW	4kW	2	24	1/3	708-1536	16-36	75ft.	Fig. A	57
KFUH2410-1-2S1-ECM	10	34.1	1	240/208*	41.7 / 31.3*	5kW	5kW	2	24	1/3	708-1536	21-45	75ft.	Fig. A	65
KFUH2412-1-2S1-ECM	12	41	1	240/208*	50 / 37.5*	5.75kW	5.75kW	2	24	1/3	708-1536	25-54	75ft.	Fig. A	74
KFUH2415-1-2S1-ECM	15	51.2	1	240/208*	62.5 / 46.9*	10kW	5kW	3	24	1/3	708-1536	31-67	75ft.	Fig. A	74
KFUH2418-1-2S1-ECM	17.3	58.9	1	240/208*	72.1 / 54.1*	11.5kW	5.75kW	3	24	1/3	708-1536	35-77	75ft.	Fig. A	74
KFUH2420-1-2S1-ECM	20	68.3	1	240/208*	83.3 / 62.5*	10kW	10kW	4	24	1/2	1258-1771	36-50	90ft.	Fig. B	76
KFUH2425-1-2S1-ECM	25	85.3	1	240/208*	104.2 / 78.1*	15kW	10kW	5	24	1/2	1258-1771	45-63	90ft.	Fig. B	81
KFUH2430-1-2S1-ECM	30	102.4	1	240/208*	125 / 93.8*	20kW	10kW	6	24	3/4	1592-2142	44-60	110ft.	Fig. B	85
KFUH2435-1-2S1-ECM	34.5	117.7	1	240/208*	143.8 / 107.8*	23kW	11.5kW	6	24	3/4	1592-2142	52-69	110ft.	Fig. B	85
KFUH4804-1-ECM	4	13.7	1	480	8.3	4kW	*N/A	1	24	1/3	708-1536	8-18	75ft.	Fig. A	57
KFUH4805-1-ECM	5	17.1	1	480	10.4	5kW	*N/A	1	24	1/3	708-1536	10-22	75ft.	Fig. A	57
KFUH4808-1-2S1-ECM	8	27.3	1	480	16.7	4kW	4kW	2	24	1/3	708-1536	16-36	75ft.	Fig. A	57
KFUH4810-1-2S1-ECM	10	34.1	1	480	20.8	5kW	5kW	2	24	1/3	708-1536	21-45	75ft.	Fig. A	65
KFUH4812-1-2S1-ECM	12	41	1	480	25	8kW	4kW	3	24	1/3	708-1536	25-54	75ft.	Fig. A	74
KFUH4815-1-2S1-ECM	15	51.2	1	480	31.3	10kW	5kW	3	24	1/3	708-1536	31-67	75ft.	Fig. A	74
KFUH4818-1-2S1-ECM	17.3	58.9	1	480	36	11.5kW	5.75kW	3	24	1/3	708-1536	35-77	75ft.	Fig. A	74
KFUH4820-1-2S1-ECM	20	68.3	1	480	41.7	15kW	5kW	4	24	1/2	1258-1771	36-50	90ft.	Fig. B	76
KFUH4825-1-2S1-ECM	25	85.3	1	480	52.1	15kW	10kW	5	24	1/2	1258-1771	45-63	90ft.	Fig. B	81
KFUH4830-1-2S1-ECM	30	102.4	1	480	62.5	20kW	10kW	6	24	3/4	1592-2142	44-60	110ft.	Fig. B	85
KFUH4835-1-2S1-ECM	34.5	117.8	1	480	71.9	23kW	11.5kW	6	24	3/4	1592-2142	52-69	110ft.	Fig. B	85

*Not Available in 2-Stage.

Ordering Information - three phase

MODEL	kilo WATTS	BTUH (000)	PHASE	VOLTS	AMPS	STAGE 1	STAGE 2	ELEMENTS	THERMOSTAT CONTROL VOLTAGE	MOTOR HP	CFM	TEMP. RISE RANGE	EFFECTIVE AIR THROW	SIZE	WT. (lbs.)
KFUH2005-3-ECM	5	17.1	3	208	13.9	5kW	*N/A	1	24	1/3	708-1536	8-18	75ft.	Fig. A	57
KFUH2008-3-2S3-ECM	8	27.3	3	208	20.8	4kW	4kW	2	24	1/3	708-1536	8-18	75ft.	Fig. A	57
KFUH2010-3-2S3-ECM	10	34.1	3	208	27.7	5kW	5kW	2	24	1/3	708-1536	8-18	75ft.	Fig. A	65
KFUH2012-3-2S3-ECM	12.4	42.3	3	208	34.4	7.5kW	3.75kW	3	24	1/3	708-1536	8-18	75ft.	Fig. A	74
KFUH2015-3-2S3-ECM	15	51.2	3	208	41.6	10kW	5kW	3	24	1/3	708-1536	8-18	75ft.	Fig. A	74
KFUH2020-3-2S3-ECM	20	68.3	3	208	55.5	15kW	5kW	4	24	1/2	1258-1771	36-50	90ft.	Fig. B	76
KFUH2025-3-2S3-ECM	25	85.3	3	208	69.4	15kW	10kW	5	24	1/2	1258-1771	36-50	90ft.	Fig. B	81
KFUH2030-3-2S3-ECM	30	102.4	3	208	83.2	20kW	10kW	6	24	3/4	1592-2141	44-60	110ft.	Fig. B	85
KFUH2040-3-2S3-ECM	40	136.5	3	208	111	20kW	20kW	8	24	2 x1/2	1258-1771	36-50	90ft.	Fig. C	152
KFUH2050-3-2S3-ECM	50	170.7	3	208	138.7	25kW	25kW	10	24	2 x1/2	1258-1771	36-50	90ft.	Fig. C	162
KFUH2060-3-2S3-ECM	60	204.8	3	208	166.4	30kW	30kW	12	24	2 x3/4	1592-2142	44-60	110ft.	Fig. C	170
KFUH2405-3-ECM	5	17.1	3	240/208*	12 / 9*	5kW	*N/A	1	24	1/3	1258-1771	36-50	90ft.	Fig. A	57
KFUH2410-3-2S3-ECM	10	34.1	3	240/208*	24 / 18*	5kW	5kW	2	24	1/3	1258-1771	36-50	90ft.	Fig. A	65
KFUH2412-3-2S3-ECM	12	41	3	240/208*	28.9 / 21.6*	6kW	6kW	3	24	1/3	1258-1771	36-50	90ft.	Fig. A	74
KFUH2415-3-2S3-ECM	15	51.2	3	240/208*	36.1 / 27*	10kW	5kW	3	24	1/3	1258-1771	36-50	90ft.	Fig. A	74
KFUH2418-3-2S3-ECM	17.3	58.9	3	240/208*	41.6 / 31.2*	17.25kW	*N/A	3	24	1/3	1258-1771	36-50	90ft.	Fig. A	74

*Not Available in 2-Stage.

High Air Velocity Unit Heater KFUH ECO2S Series

Ordering Information- three phase

MODEL	kilo WATTS	BTUH (000)	PHASE	VOLTS	AMPS	STAGE 1	STAGE 2	ELEMENTS	THERMOSTAT CONTROL VOLTAGE	MOTOR HP	CFM	TEMP. RISE RANGE	EFFECTIVE AIR THROW	SIZE	WT. (lbs.)
KFUH2420-3-2S3-ECM	20	68.3	3	240/208*	48.1 / 36.1*	10kW	10kW	4	24	1/2	1258-1771	36-50	90ft.	Fig. B	76
KFUH2425-3-2S3-ECM	25	85.3	3	240/208*	60.1 / 45.1*	15kW	10kW	5	24	1/2	1258-1771	36-50	90ft.	Fig. B	81
KFUH2430-3-2S3-ECM	30	102.4	3	240/208*	72.1 / 54.1*	20kW	10kW	6	24	3/4	1592-2142	44-60	110ft.	Fig. B	85
KFUH2435-3-2S3-ECM	34.5	117.8	3	240/208*	82.9 / 62.2*	17.25kW	17.25kW	6	24	3/4	1592-2142	44-60	110ft.	Fig. B	85
KFUH2440-3-2S3-ECM	40	136.5	3	240/208*	96.2 / 72.1*	20kW	20kW	8	24	2 x 1/2	1258-1771	36-50	90ft.	Fig. C	152
KFUH2450-3-2S3-ECM	50	170.7	3	240/208*	102.2 / 90.2*	25kW	25kW	10	24	2 x 1/2	1258-1771	36-50	90ft.	Fig. C	162
KFUH2460-3-2S3-ECM	60	204.8	3	240/208*	144.3 / 108.2*	30kW	30kW	12	24	2 x 3/4	1592-2142	44-60	110ft.	Fig. C	170
KFUH2470-3-ECM	70	239	3	240/208*	168.3 / 126.2*	70kW	*N/A	12	24	2 x 3/4	1592-2142	44-60	110ft.	Fig. C	170
KFUH4805-3-ECM	6	17.1	3	480	6	5kW	*N/A	1	24	1/3	1258-1771	36-50	90ft.	Fig. A	57
KFUH4810-3-2S3-ECM	12	34.1	3	480	12	5kW	5kW	2	24	1/3	1258-1771	36-50	90ft.	Fig. A	65
KFUH4812-3-ECM	12	41	3	480	14	12kW	*N/A	3	24	1/3	1258-1771	36-50	90ft.	Fig. A	74
KFUH4815-3-2S3-ECM	14.4	51.2	3	480	18	10kW	5kW	3	24	1/3	1258-1771	36-50	90ft.	Fig. A	74
KFUH4818-3-ECM	18	58.9	3	480	21	17.3kW	*N/A	3	24	1/3	1258-1771	36-50	90ft.	Fig. A	74
KFUH4820-3-2S3-ECM	20	68.3	3	480	24	10kW	10kW	4	24	1/2	1258-1771	36-50	90ft.	Fig. B	76
KFUH4825-3-2S3-ECM	25	85.3	3	480	30.1	15kW	10kW	5	24	1/2	1258-1771	36-50	90ft.	Fig. B	81
KFUH4830-3-2S3-ECM	30	102.4	3	480	36.1	20kW	10kW	6	24	3/4	1592-2142	44-60	110ft.	Fig. B	85
KFUH4835-3-2S3-ECM	34.5	117.8	3	480	41.5	17.25kW	17.25kW	6	24	3/4	1592-2142	44-60	110ft.	Fig. B	85
KFUH4840-3-2S3-ECM	40	136.5	3	480	48.1	20kW	20kW	8	24	2 x 1/2	1258-1771	36-50	90ft.	Fig. C	152
KFUH4850-3-2S3-ECM	50	170.7	3	480	60.1	25kW	25kW	10	24	2 x 1/2	1258-1771	36-50	90ft.	Fig. C	162
KFUH4860-3-2S3-ECM	60	204.8	3	480	72.1	30kW	30kW	12	24	2 x 3/4	1592-2142	44-60	110ft.	Fig. C	170
KFUH4870-3-ECM	70	239	3	480	84.1	70kW	*N/A	12	24	2 x 3/4	1592-2142	44-60	110ft.	Fig. C	170

*Not Available in 2-Stage.

Factory Installed Options

ADD SUFFIX	DESCRIPTION	WEIGHT (lbs.)
-T	Factory Installed Stat (SPST). Temperature range 40°F to 100°F	N/A
-2TS	Factory Installed Stat (DPST). Temperature range 40°F to 100°F	N/A
-SF	Factory Installed Summer Fan Switch	N/A
-DS32	Factory Installed 32 Amp, 3-Pole Non-Fused Locking Disconnect Switch	N/A
-DS63	Factory Installed 63 Amp, 3-Pole Non-Fused Locking Disconnect Switch	NA
-DS80	Factory Installed 80 Amp, 3-Pole Non-Fused Locking Disconnect Switch	N/A
-DS100	Factory Installed 100 Amp, 3-Pole Non-Fused Locking Disconnect Switch	N/A

Accessories

MODEL	UPC	DESCRIPTION	WEIGHT (lbs.)
KFUH-DIFFUSER	15741	Standard KFUH Air Diffuser	5.0
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
1E30N-910	55379	Thermostat 24V Mercury Free-Vertical 45°-90°F	1.0
1F85U-22PR	19054	2-Stage, 24V 7 Day Programmable Thermostat 44F-95F (For use with 2-stage heaters)	1.0
1F85U-22NP	19044	2-Stage, 24V Non-Programmable Thermostat 44F-95F (For use with 2-stage heaters)	1.0
1E30N-910	55379	1-Stage, 24V Thermostat Mercury Free-Vertical 45F-90F (For use with 1-stage heaters)	1.0

High Air Velocity Unit Heater KFUH ECO2S Series

Air Flow Chart

(For 4 to 17.3kW Units with 1/3HP ECM Motor)

MODEL	KW	TORQUE	CFM	RISE (F)
KFUH**04	4	(2) 6.8	708	18
		9.4	919	14
		12.0	1,085	12
		17.0	1,320	10
		20.0	1,536	8
KFUH**05	5	(2) 6.8	708	22
		9.4	919	17
		12.0	1,085	15
		17.0	1,320	12
		20.0	1,536	10
KFUH**08	8	(1) 6.8	708	36
		(2) 9.4	919	27
		12.0	1,085	23
		17.0	1,320	19
		20.0	1,536	16
KFUH**10	10	(1) 6.8	708	45
		(2) 9.4	919	34
		12.0	1,085	29
		17.0	1,320	24
		20.0	1,536	21
KFUH**12	12	6.8	708	54
		(1) 9.4	919	41
		(2) 12.0	1,085	35
		17.0	1,320	29
		20.0	1,536	25
KFUH**15	15	6.8	708	67
		(1) 9.4	919	52
		(2) 12.0	1,085	44
		17.0	1,320	36
		20.0	1,536	31
KFUH**18	17.3	6.8	708	77
		(1) 9.4	919	59
		12.0	1,085	50
		x(2) 17.0	1,320	41
		20.0	1,536	35

Air Flow Chart

(For 20 to 25kW Units with 1/2HP ECM Motor)

MODEL	KW	TORQUE	CFM	RISE (F)
KF/KFS**20	20	(1) 15.5	1,258	50
		(2) 19.0	1,466	43
		22.5	1,575	40
		26.0	1,690	37
		30.0	1,771	36
KF/KFS**25	25	15.5	1,258	63
		19.0	1,466	54
		(1) 22.5	1,575	50
		(2) 26.0	1,690	47
		30.0	1,771	45

Air Flow Chart

(For 20 to 35kW Units with 3/4HP ECM Motor)

MODEL	KW	TORQUE	CFM	RISE (F)
KF/KFS**20 (Optional) 3/4 HP	20	(1) 26.0	1,592	40
		30.0	1,789	35
		(2) 35.0	1,814	35
		40.5	2,080	30
		45.0	2,142	30
KF/KFS**25 (Optional) 3/4 HP	25	(1) 26.0	1,592	50
		30.0	1,789	44
		(2) 35.0	1,814	44
		40.5	2,080	38
		45.0	2,142	37
KF/KFS**30	30	(1) 26.0	1,592	60
		30.0	1,789	53
		35.0	1,814	52
		(2) 40.5	2,080	46
		45.0	2,142	44
KF/KFS**35	35	26.0	1,592	69
		(1) 30.0	1,789	62
		35.0	1,814	61
		(2) 40.5	2,080	53
		45.0	2,142	52



- (A) ** Represents the voltage, 20=208V, 24=240V, 48=480V. Voltage of the KF/KFS unit does not affect the data in this table.
 (B) NR= Not Recommended, Temperature Rise is above maximum design parameter.
 (C) The highlighted cells are the factory default torque setting for each model. The ECM motor has 5 field adjustable torque settings, allowing for a wide range of design choices.
 (D) (1)= Stage 1 Torque Settings (2) = Stage 2 Torque Settings / (2) = Default for Single Stage KFUH
 (E) Blower: 10" diameter, 8" wide

Engineering Specifications

Contractor shall supply and install KFUH ECO2S 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.

2-Stage Heating: 2-stage energy-saving heat output (-2S Models Only) when paired with a 2-stage 24V thermostat (purchased separately).

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: Energy Saving, Long life, thermally protected, permanently lubricated, direct drive ECM motor—no belts to adjust or slip.

This low noise, 3 speed motor is designed for use with air conditioning capability as well as heating. Very quiet operating. 60 second fan delay.

Overcurrent Protection: 208 & 240 volt KFUH ECO2S models have 60 amp circuit breakers with single strike terminal block. Units over 48 amps have 60 amp fusing.

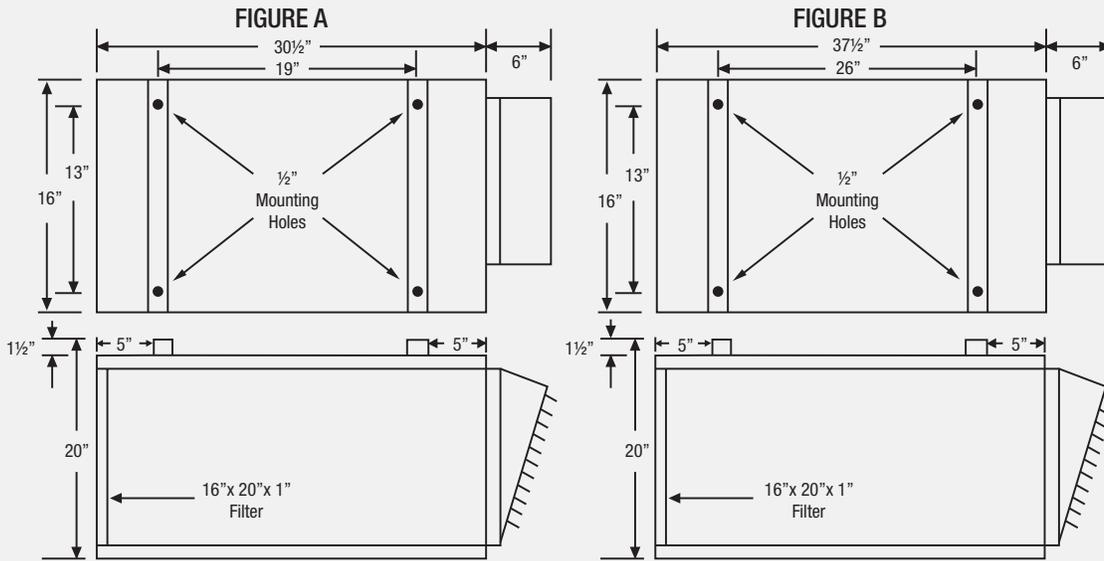
Limit Control: Integral automatic high temperature limit control in each heating element bank prevents the delivery of air at unsafe temperatures. 20-35 kW use a manual reset limit control to completely shut the unit heater off should overtemperature occur.

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

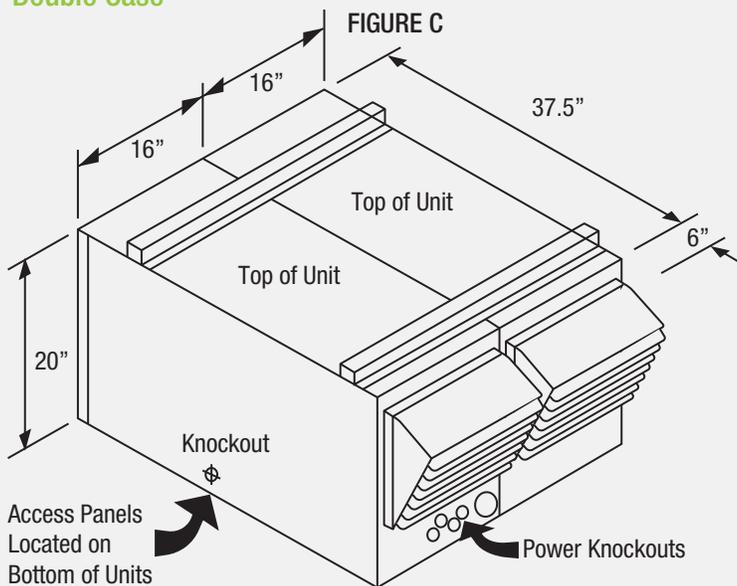
Approvals: UL (E41422)

High Air Velocity Unit Heater KFUH EC02S Series

Dimensional Data

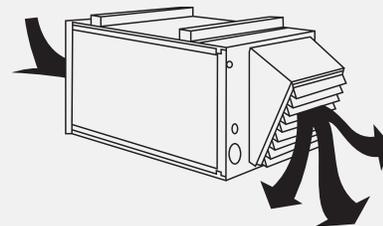


Double Case

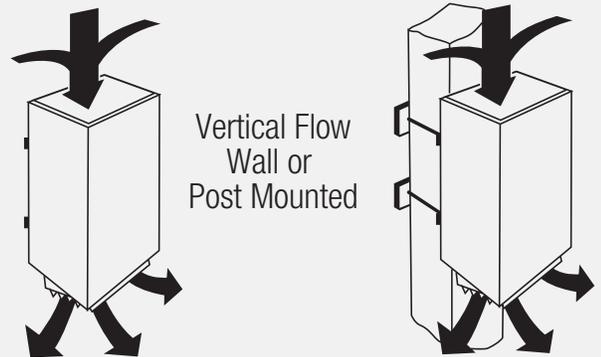


Mounting

Horizontal Flow
Ceiling Mounted



Vertical Flow
Wall or
Post Mounted



Diffusers



KFUH-90RD



KFUH-90D