KFSS *Select*

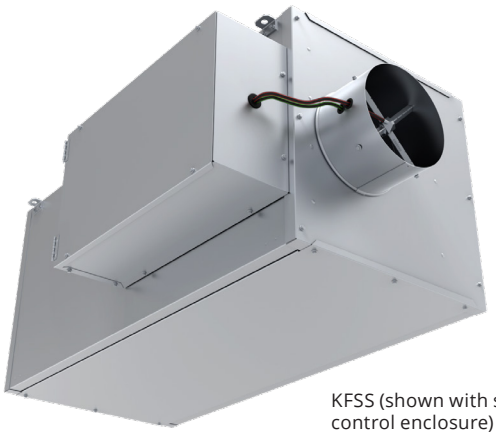
Fan Powered Terminal Unit | Ultra Quiet, Series Flow

KRUEGER

INTRODUCTION

Building designs are adapting and changing to an ever-growing list of demands, including sound performance, energy efficiency, and space constraints. Krueger's KFSS Select, ultra-quiet series fan powered terminal unit, is an excellent solution to address these concerns.

But to understand the importance of this solution, it's best to first understand the overall goal of a series fan powered unit, which is to sustain optimum occupant comfort levels by maintaining an adequate supply of air to the conditioned zone. It works by way of a recirculation fan, which draws cold air from the primary air duct and warm air from the return plenum in proportional amounts to satisfy zone temperature requirements. The warm and cold air then blend in the unit before moving into the discharge plenum.



KFSS (shown with standard control enclosure)

Typically, fan powered unit designs have larger footprints. That's where the KFSS Select is different. Its slim design allows it to fit into tighter ceiling spaces, meaning that it may be placed more often where needed, instead of being constrained to less desirable locations. As a result, this may provide an opportunity to improve occupant comfort by allowing the unit to be placed further away from occupants, which would reduce the noise heard within the space. And to take it a step further, the unit's optional enclosures and field adjustable handing may allow you to better adapt to unforeseen job site limitations, all while maintaining NEC clearance requirements.

The KFSS Select also features a durable, 20 gage galvanized steel construction as well as high efficiency, multi-voltage EC motors. These motors, along with the blower and primary air damper components are easily accessible from the top or bottom of the unit, facilitating maintenance.

And to round it off, all KFSS Select units are ETL listed and AHRI certified. Complete with several types of controls, casing liners, reheat options and other accessories to choose from, we are confident that there is a unit configuration to meet your job specification.

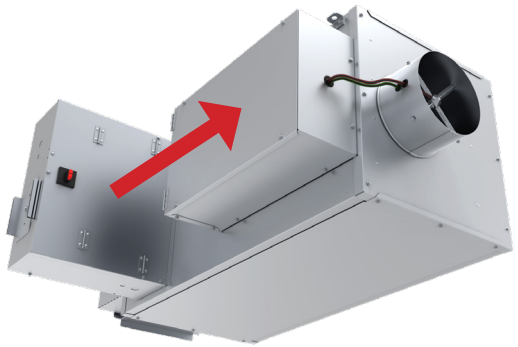
MODEL

KFSS Select -Ultra Quiet, Series Fan Powered Terminal Unit

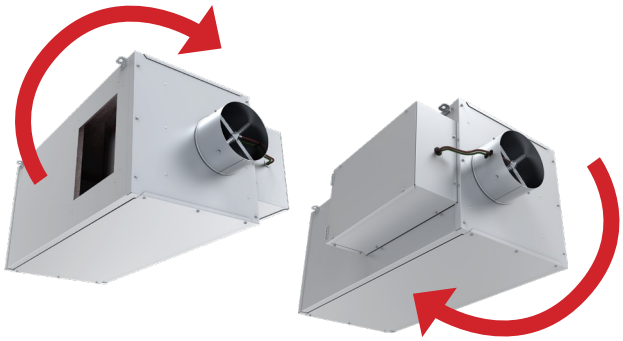
FEATURES

- Ultra quiet operation for critical sound applications
- Airflow capacities up to 3960 CFM, providing airflow control for commercial applications
- 20 gage galvanized steel casing construction provides advantages in acoustics, quality, unit strength, and product durability.
- Several types of casing liner options provide quiet and clean operation
- Round inlet sizes ranging from 6" - 16" diameter are sized to fit standard spiral/flex duct for quick installation
- Each unit size offers multiple primary inlet sizes to allow for flexible system design
- Fully removable top and bottom access panel included with each unit for easy access to internal components for maintenance
- Control enclosure located on left-hand or right-hand side for easier installation
- 90° facing, bottom facing, and remote mounted high voltage enclosure options allow the KFSS to be installed in tight ceiling spaces while maintaining NEC clearance
- Single point electrical connection minimizes the number of ceiling plenum electrical connections
- Multi-voltage EC (electronically commutated) motors are quiet, reliable, and energy efficient
- Electronic manual or analog controlled speed controller allows field adjustable fan airflow
- Various external filter options are available to meet IAQ needs
- Reheat coils offered in a wide range of options, including staged electric, proportional electric, and hot water heat
- Pneumatic, and digital controls may be customized for many building systems; BACnet/BMS compatible digital controls can be provided by Krueger
- LineaHeat solid state electronic proportional control of electric heat is available with or without leaving air temperature control
- AC solid state relays offer silent operation for staged electric heat
- ETL listings under UL 1995 electrical safety
- AHRI listings are certified in accordance with AHRI 880 testing standard
- Find Revit models at www.krueger-hvac.com/revit

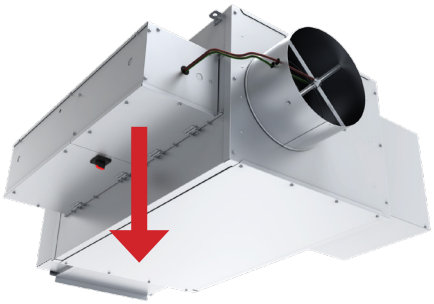
CONSTRUCTION HIGHLIGHTS



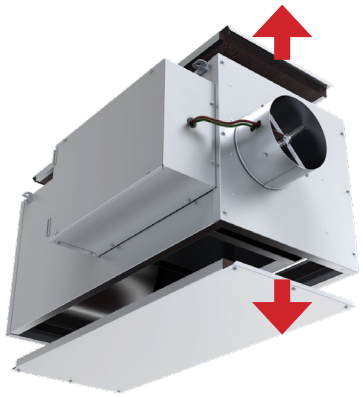
90° FACING CONTROL ENCLOSURE



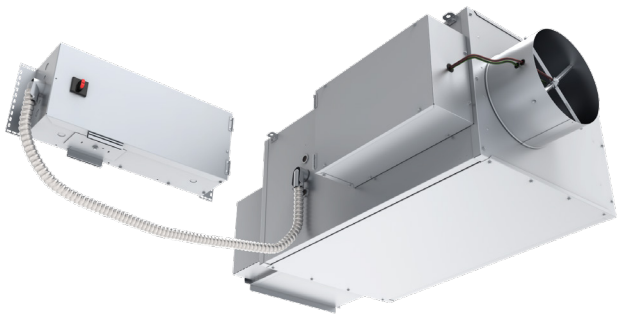
FIELD REVERSIBLE CONTROL HANDING



BOTTOM FACING CONTROL ENCLOSURE



REMOVABLE PANELS (CAM LOCKS OPTIONAL)



4ft REMOTE MOUNTED CONTROL ENCLOSURE

MERV 8 / MERV 13 FILTER OPTIONS

PRODUCT DESCRIPTION

CASING
- All KFSS unit casing panels are constructed of 20 gage galvanized steel.
- Removable top and bottom access panels allow easy access to motor and blower assemblies.

INLET COLLARS
- All round 20 gage inlet collars accommodate standard spiral and flex duct sizes.
- All KFSS units are handing reversible, meaning units can be reoriented between left hand and right hand configurations with minimal impact on primary and discharge ductwork location.

OUTLET CONNECTIONS
- All outlet connections are rectangular and require a flanged duct connection.

DAMPER ASSEMBLY
- All units utilize a round volume control damper with a solid shaft that rotates in self lubricating Delrin® bearings.
- Damper blade incorporates a flexible gasket for tight airflow shutoff and operates over a full 90° rotation.
- The damper position is marked by an arrow embossment on the end of the damper shaft.

INDUCED AIR INLET ATTENUATOR
- Induced air sound attenuator is a available for reducing radiated sound.

INDUCED AIR INLET FILTER
- Induced air inlet filters are available, including construction throwaway, 1" MERV 8, or 2" MERV 13.

CASING LINERS
All liners are attached to the unit casing with both adhesive and weld pins to ensure long term durability (excludes Sterilwall, Perforated Doublewall, and Cellular). The standard liner option is 1" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A.
- **(Optional)** 1/2" Thick Insulation: 1/2" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A.
- **(Optional)** Cellular Insulation: 1/2" or 1" thick, 1 1/2 lb. density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth.
- **(Optional)** Foil Encapsulated Insulation: Foil reinforced, wrapped edges, 1/2" or 1" thick, 1 1/2 lb. density fiberglass insulation that meets UL 181 and NFPA 90A.
- **(Optional)** Sterilwall Insulation: 1" thick, 1 1/2 lb. dual density fiberglass insulation, that meets UL 181 and NFPA 90A, enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.
- **(Optional)** Perforated Doublewall Insulation: 1" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A, enclosed between the unit casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

AIRFLOW SENSOR
- All units are equipped with a factory installed inlet airflow sensor device.
- K4 LineaCross: A four-quadrant, multi-point, center averaging airflow sensor is standard.
- Balancing taps are provided to allow for easy airflow verification.

FAN MOTORS
- High efficiency ECM (electronically commutated motor) fan motor [120, 208/240, or 277 volt, 1-phase].
- Units equipped with [120, 208/240 or 277 volt, 1-phase] electric heat have fan motors wired with the same line voltage. Units with [208 volt, 3-phase, 3-wire] electric heat utilize [208/240 volt] fan motors. Units with [480 volt, 3-phase, 4-wire] heat are equipped with [277 volt, 1-phase] fan motors.
- A motor disconnect switch is available (not available if the unit is equipped with electric heat including the door locking disconnect option).
- Motor fusing is available.

FAN SPEED CONTROL
- All units include either a manual or remote adjustable speed controller. The manual adjustable speed controller features a digital display that alternates between the RPM of the motor and percentage of flow and can be set and adjusted in the field. The remote adjustable speed controller communicates with a DDC controller to remotely set and/or adjust the fan speed using either a 0-10 VDC or 2-10 VDC signal and provides a manual override capability to set and/or adjust the fan speed in the field.

CONTROLS
- Pneumatic or direct digital control types are available. Digital controls can be provided by others or Krueger for factory mounting. A "no control" unit is also available for field mounting of electronic controls.

HOT WATER HEAT
- The hot water coil is factory mounted to the unit discharge.
- 1, 2, 3, or 4-row coils are constructed of 10 or 12 aluminum fins per inch. Left-hand or right- hand coil connections are available. The coil tubing is water leakage tested to 400 PSIG.
- Water coil access door option is available to provide upstream coil access for cleaning coil fins.
- Vent and drain option is available.

PRODUCT DESCRIPTION (CONTINUED)

ELECTRIC HEAT

- Heaters are ETL listed and are constructed of 20 gage galvanized steel.
- Available combinations are [120, 208/240, 277 volt, 1-phase], [208/240 volt, 3-phase, 3-wire], and [480 volt, 3-phase, 4-wire]. See fan motor description for electric heat/fan motor combinations.
- Standard heaters are equipped with automatic reset thermal cutout, magnetic contactors, airflow proving switch, and 80/20 Ni-Cr heating elements.
- Electric heater options include a fused or non-fused door interlocking disconnect switch, fuse-block, manual reset cutout, and dust tight enclosure construction.
- AC solid state relays offer silent operation for staged electric heat.
- LineaHeat solid state electronic proportional control of electric heat is available with or without leaving air temperature control. See Krueger's Terminal Unit Engineering section for additional information.

CONTROL TRANSFORMERS

- Units include a factory supplied, mounted and wired control transformer (24V), mounted inside the control enclosure for electronic control applications.

LABELS

- Label information adhered to each unit includes model name, unit size, configuration code, airflow (CFM), balancing chart, tagging data, electrical ratings, and all required agency listings.

PACKAGING

- Units are palletized. Each pallet of units is banded and stretch wrapped with cellophane.

DAMPER LEAKAGE

INLET SIZE	1.5" WG	3.0" WG	6.0" WG
	CFM	CFM	CFM
6	4	5	7
8	4	5	7
10	4	5	7
12	4	5	7
14	4	6	8
16	5	7	9

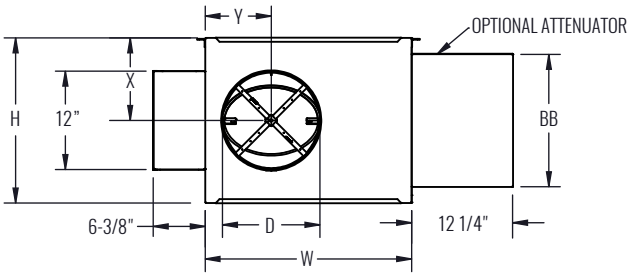
NOTES: Damper leakage is measured with the damper fully closed using an actuator. A precision low flow orifice is used upstream of the unit to measure the leakage rate as a function of the measured upstream static pressure. Leakage testing conducted in accordance with ASHRAE 130-2008.

UNIT CAPACITIES

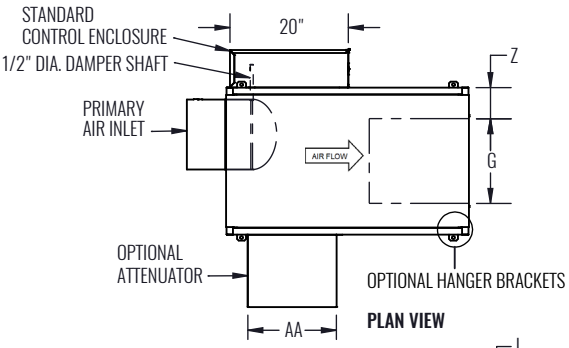
UNIT SIZE	INLET SIZE	PRIMARY AIRFLOW		FAN AIRFLOW		MOTOR HP	MOTOR AMPS		
		MAX	MIN	MAX	MIN		120V	208/240V	277V
3	6	515	52 or 0	949	317	1/3	5	3.3	2.6
	8	920	92 or 0						
	10	949	143 or 0						
4	8	920	92 or 0	1305	205	1/2	7.7	5	4.1
	10	1305	143 or 0						
	12	1305	206 or 0						
5	8	920	92 or 0	1700	591	3/4	9.9	7.9	5.5
	10	1430	143 or 0						
	12	1700	206 or 0						
	14	1700	281 or 0						
6	10	1430	143 or 0	2195	210	1	12.8	10.5	6.9
	12	2060	206 or 0						
	14	2195	281 or 0						
	16	2195	367 or 0						
7	10	1430	143 or 0	3870	684	(2) 3/4	N/A	15.8	11
	12	2060	206 or 0						
	14	2800	281 or 0						
	16	3660	367 or 0						

NOTES: KFSS maximum primary airflow (CFM) is based on 1.00" WG differential pressure signal from inlet airflow sensor until the value reaches maximum fan CFM for that unit size. A properly balanced KFSS unit will be set so the maximum primary CFM is never greater than the fan CFM. Minimum recommended airflow (CFM) is based on 0.01" WG differential pressure of the inlet airflow sensor, or 0 CFM. 0.03" WG is equal to 15%–20% of the nominal flow rating of the terminal. Less than 15%-20% may result in greater than +/-5% control of box flow. Maximum/minimum fan airflow (CFM) is based on 0.25" WG external downstream static pressure. Fan performance shown above is for a cooling only and no filter unit. Adding reheat coils and MERV 8 or MERV 13 filter will affect fan performance. See pages B2-26 and B2-27 and Krueger selection software for complete fan curves.

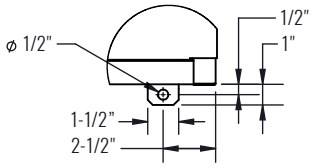
DIMENSIONAL DATA | SIZE 3 - 6 | BASE UNIT



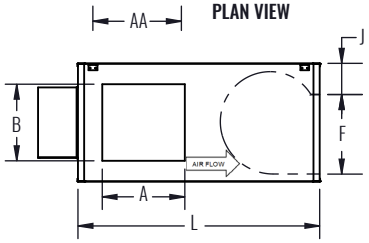
INLET VIEW



PLAN VIEW



OPTIONAL HANGER BRACKETS DETAIL (TYP)



SIDE VIEW

UNIT SIZE	INLET SIZE	ECM HP	L	W	H	INDUCED AIR		AA	BB	D	DISCHARGE		J	X	Y	Z
						A	B				F	G				
3	6	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	5-7/8"	9-3/8"	9-1/4"	6-3/4"	9-1/2"	6"	5"
3	8	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	7-7/8"	9-3/8"	9-1/4"	6-3/4"	9-1/2"	6"	5"
3	10	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	9-7/8"	9-3/8"	9-1/4"	6-3/4"	9-1/2"	7"	5"
4	8	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	7-7/8"	10-3/8"	13-1/8"	7"	9-1/2"	6"	6"
4	10	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	9-7/8"	10-3/8"	13-1/8"	7"	9-1/2"	7"	6"
4	12	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	11-7/8"	10-3/8"	13-1/8"	7"	9-1/2"	8"	6"
5	8	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	7-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	6"	5-3/8"
5	10	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	9-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	7"	5-3/8"
5	12	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	11-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	8"	5-3/8"
5	14	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	13-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	10"	5-3/8"
6	10	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	9-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	7"	7-7/8"
6	12	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	11-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	8"	7-7/8"
6	14	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	13-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	10"	7-7/8"
6	16	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	15-7/8"	12-1/2"	14-3/8"	6-1/4"	10"	10-1/4"	7-7/8"

NOTES: Left-hand mounted controls shown above; right hand units (optional) are inverted, resulting in elevation change of discharge duct.

STANDARD FEATURES

- 20 Ga. galvanized steel construction
- NEMA 1 control enclosure for electronic components
- 1" thick dual density fiberglass insulation meeting NFPA 90A and UL 181 safety requirements
- 120V, 8V/240V, 277V EC motor (electronically commutated motor)
- Motor Speed Control: manual control, 0-10Vdc remote control, 2-10Vdc remote control
- Removable top and bottom panels allow easy access to motor, blower and primary air damper assemblies for servicing
- Four quadrant averaging cross flow sensor
- Discharge requires a flanged duct connection by others
- Factory supplied 24 volt control transformer
- ETL listed; adherence to UL1995 and CSA C22.2 No.236.95
- AHRI certified sound ratings

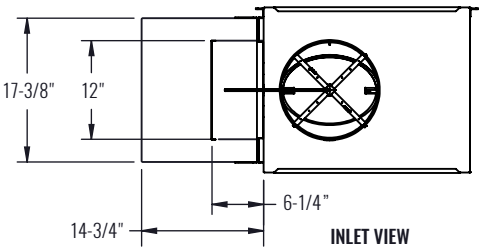
OPTIONAL FEATURES

- Liners: 1/2" dual density fiberglass, 1/2" cellular, 1" cellular, 1/2" foil encapsulated fiberglass, 1" foil encapsulated fiberglass, solid metal liner with 1" dual density fiberglass, perforated metal liner with 1" dual density fiberglass
- Induced air filter: 1" construction, 1" MERV 8, 2" MERV 13
- Induced air attenuator
- Cam lock access doors
- Hanger brackets
- Electrical enclosures: bottom facing, 90° facing, remote mounted
- Motor disconnect switch
- Motor fusing
- Dust tight control enclosure

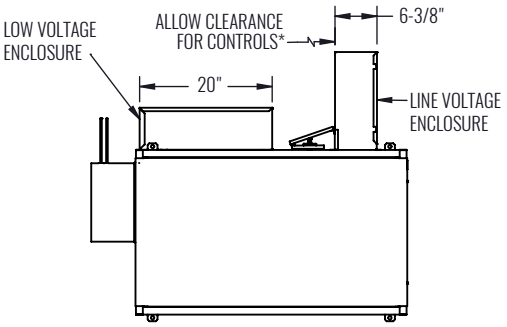
DIMENSIONAL DATA | SIZE 3 - 6 | BASE UNIT CONTROL ENCLOSURE OPTIONS

90° FACING LINE VOLTAGE ENCLOSURE

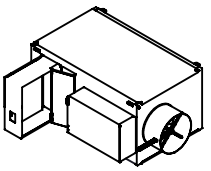
- Line voltage enclosure is mounted to direct NEC clearance requirement parallel to airflow.
- Enables easier placement during design and installation.



INLET VIEW



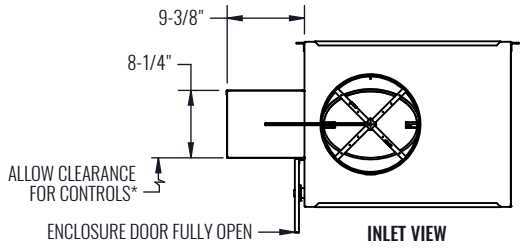
PLAN VIEW



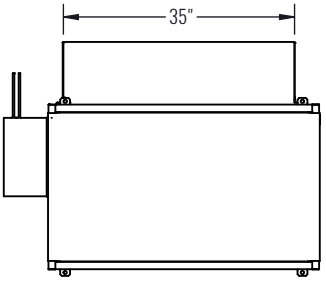
* Check NEC for unit clearance requirements.

BOTTOM FACING ENCLOSURE

- Electrical enclosure door opens downward and is serviceable from underneath the unit.
- Direct NEC clearance requirement below the unit (towards the floor).
- Enables easier placement during design and installation.
- Easier serviceability with hard ceiling installation and limited ceiling access panels



INLET VIEW



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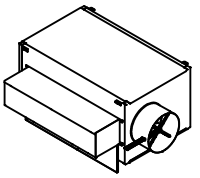
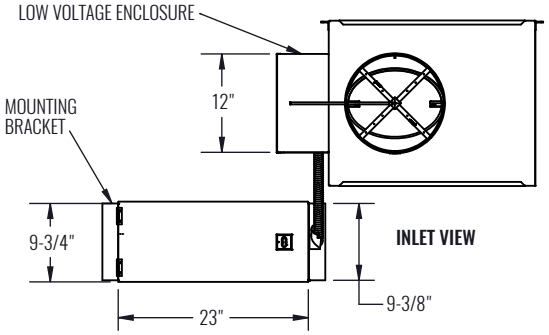


* Check NEC for unit clearance requirements.

REMOTE MOUNTED LINE VOLTAGE ENCLOSURE

- Line voltage enclosure is tethered to the unit by 48" flexible conduit cable and is to be field mounted.
- Provides flexibility for the installer to place the unit in tighter ceiling spaces while maintaining NEC clearance requirement for the line voltage enclosure.



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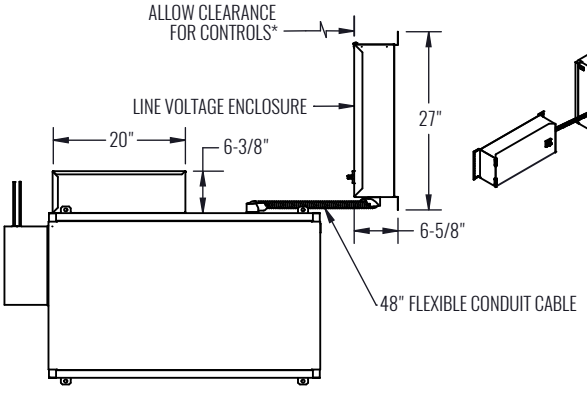

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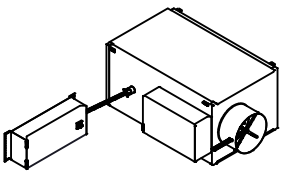
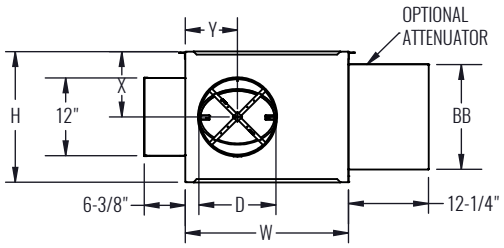
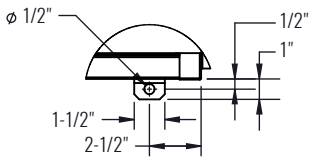


* Check NEC for unit clearance requirements.

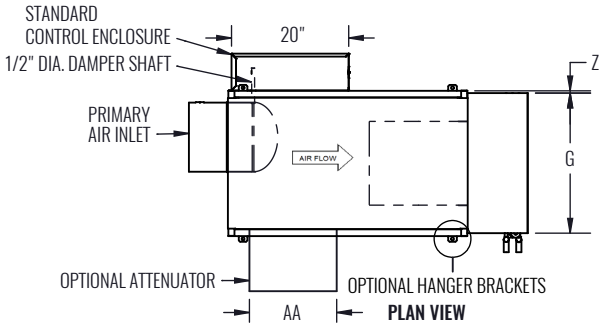
DIMENSIONAL DATA | SIZE 3 - 6 | BASE UNIT WITH HOT WATER HEAT



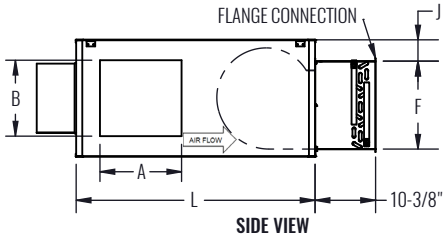
INLET VIEW



OPTIONAL HANGER BRACKETS DETAIL (TYP)



PLAN VIEW



SIDE VIEW

UNIT SIZE	INLET SIZE	ECM HP	L	W	H	INDUCED AIR		AA	BB	D	DISCHARGE		J	X	Y	Z
						A	B				F	G				
3	6	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	5-7/8"	12-1/2"	15"	5"	9-1/2"	6"	1"
3	8	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	7-7/8"	12-1/2"	15"	5"	9-1/2"	6"	1"
3	10	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	9-7/8"	12-1/2"	15"	5"	9-1/2"	7"	1"
4	8	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	7-7/8"	15"	22"	5-1/4"	9-1/2"	6"	2"
4	10	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	9-7/8"	15"	22"	5-1/4"	9-1/2"	7"	2"
4	12	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	11-7/8"	15"	22"	5-1/4"	9-1/2"	8"	2"
5	8	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	7-7/8"	15"	22"	3-1/2"	10"	6"	1/2"
5	10	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	9-7/8"	15"	22"	3-1/2"	10"	7"	1/2"
5	12	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	11-7/8"	15"	22"	3-1/2"	10"	8"	1/2"
5	14	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	13-7/8"	15"	22"	3-1/2"	10"	10"	1/2"
6	10	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	9-7/8"	15"	22"	3-1/2"	10"	7"	3"
6	12	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	11-7/8"	15"	22"	3-1/2"	10"	8"	3"
6	14	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	13-7/8"	15"	22"	3-1/2"	10"	10"	3"
6	16	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	15-7/8"	15"	22"	3-1/2"	10"	10-1/4"	3"

NOTES: Left-hand mounted controls shown above; right hand units (optional) are inverted, resulting in elevation change of discharge duct.

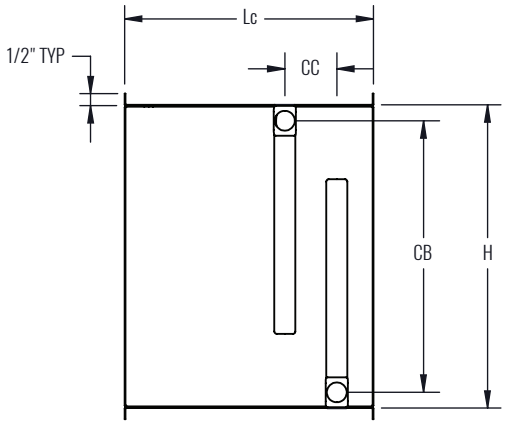
STANDARD FEATURES

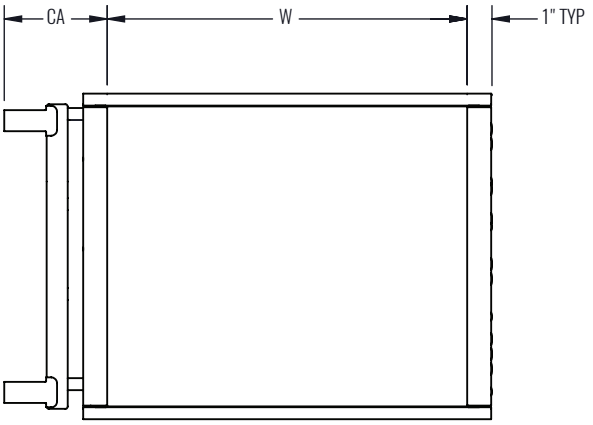
- 20 gage galvanized steel construction
- NEMA 1 control enclosure for electronic components
- 1" thick dual density fiberglass insulation meeting NFPA 90A and UL 181 safety requirements
- 120V, 8V/240V, 277V EC motor (electronically commutated motor)
- Motor Speed Control: manual control, 0-10Vdc remote control, 2-10Vdc remote control
- Removable top and bottom panels allow easy access to motor, blower and primary air damper assemblies for servicing
- Four quadrant averaging cross flow sensor
- Discharge requires a flanged duct connection by others
- Factory supplied 24 volt control transformer
- ETL listed; adherence to UL1995 and CSA C22.2 No.236.95
- AHRI certified sound ratings

OPTIONAL FEATURES

- Liners: 1/2" dual density fiberglass, 1/2" cellular, 1" cellular, 1/2" foil encapsulated fiberglass, 1" foil encapsulated fiberglass, solid metal liner with 1" dual density fiberglass, perforated metal liner with 1" dual density fiberglass
- Induced air filter: 1" construction, 1" MERV 8, 2" MERV 13
- Induced air attenuator
- Cam lock access doors
- Hanger brackets
- Electrical enclosures: bottom facing, 90° facing, remote mounted
- Motor disconnect switch
- Motor fusing
- Dust tight control enclosure

DIMENSIONAL DATA | SIZE 3 - 6 | HEATING WATER COIL





UNIT SIZE	ROWS	H	W	Lc	CA	CB	CC	O.D. WATER CONNECTION
3	1	12-1/2"	15"	8"	3"	11-1/4"	--	5/8"
	2	12-1/2"	15"	9-1/8"	2-5/8"	11-1/4"	--	5/8"
	3	12-1/2"	15"	10-3/8"	4-1/4"	11-3/8"	2-1/4"	7/8"
	4	12-1/2"	15"	11-1/2"	4-1/4"	11-1/4"	3-1/4"	7/8"
4, 5, 6	1	15"	22"	8"	3"	13-3/4"	--	5/8"
	2	15"	22"	9-1/8"	2-5/8"	13-3/4"	--	5/8"
	3	15"	22"	10-3/8"	4-1/4"	13-3/8"	2-1/4"	7/8"
	4	15"	22"	11-1/2"	4-1/4"	13-7/8"	3-1/4"	7/8"

STANDARD FEATURES

- Shipped from the factory attached to the unit discharge
- Coils are leak tested to 400 psi
- 1" flanges for attached discharge ductwork
- Coil section is uninsulated
- Coil Casing - 20 gage galvanized steel
- Connection Tubing - 0.032" thick copper (see O.D. connection diameter in table)
- Coil Tubing - 1/2" diameter x 0.016" thick copper
- Coil Fins - 0.0045" thick aluminum, 10 FPI; mechanically bonded to tubing
- Coils are not for steam application

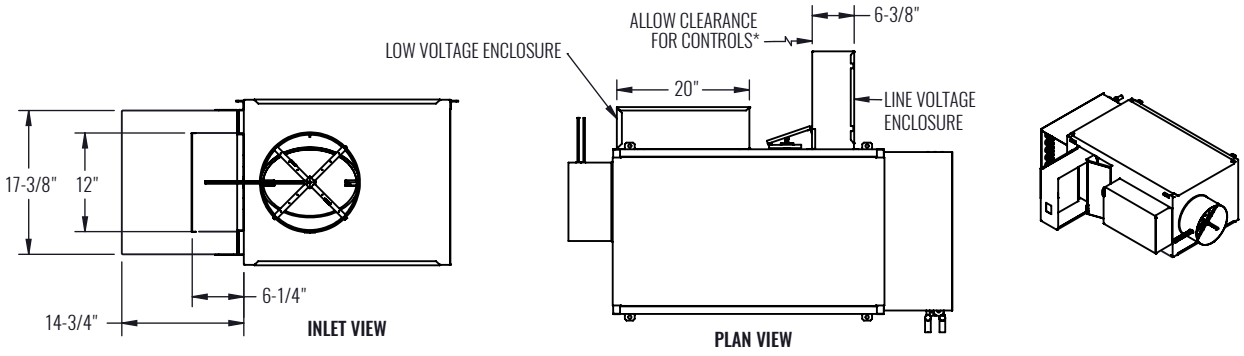
OPTIONAL FEATURES

- 12 FPI, 0.0045" thick aluminum fins, mechanically bonded to tubing
- Access door for cleaning and servicing
- Air vent and drain ports

DIMENSIONAL DATA | SIZE 3 - 6 | BASE UNIT WITH HOT WATER HEAT | CONTROL ENCLOSURE OPTIONS

90° FACING LINE VOLTAGE ENCLOSURE

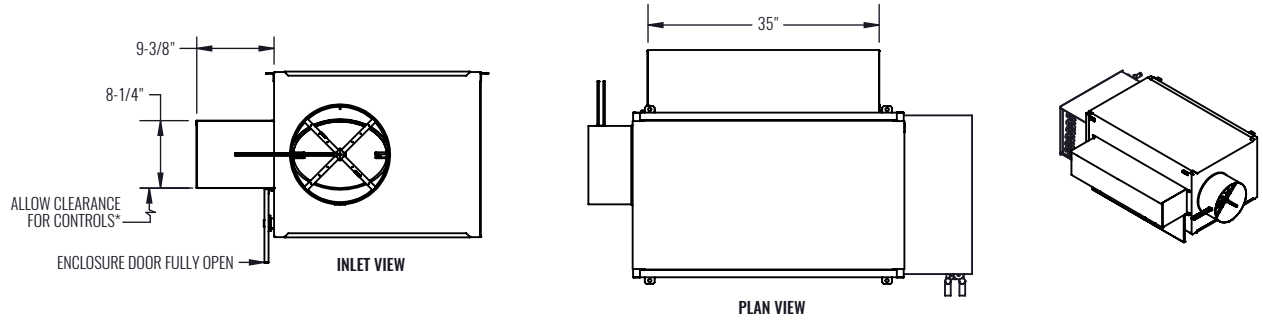
- Line voltage enclosure is mounted to direct NEC clearance requirement parallel to airflow.
- Enables easier placement during design and installation.



* Check NEC for unit clearance requirements.

BOTTOM FACING ENCLOSURE

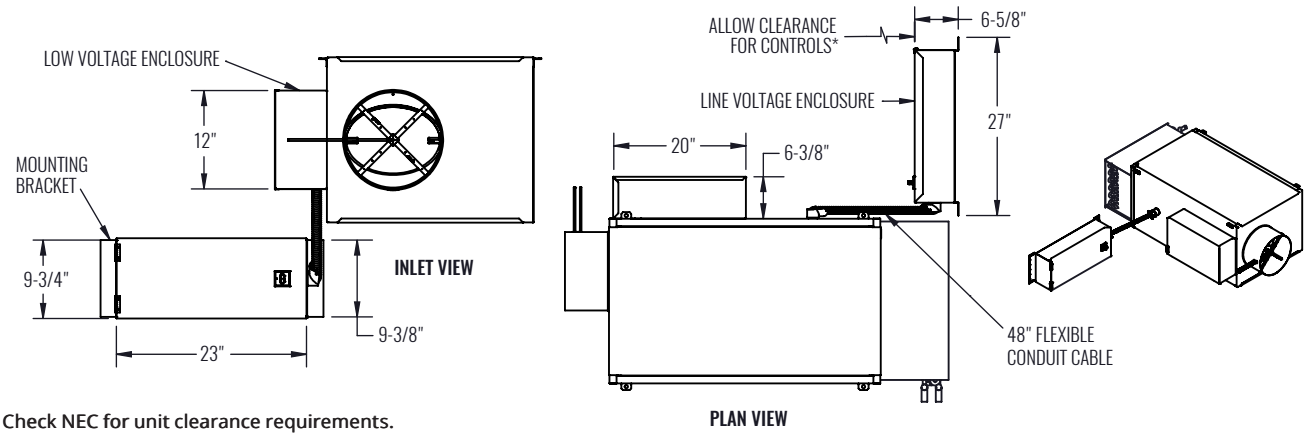
- Electrical enclosure door opens downward and is serviceable from underneath the unit.
- Direct NEC clearance requirement below the unit (towards the floor).
- Enables easier placement during design and installation.
- Easier serviceability with hard ceiling installation and limited ceiling access panels



* Check NEC for unit clearance requirements.

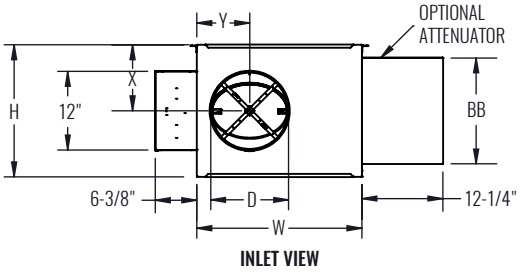
REMOTE MOUNTED LINE VOLTAGE ENCLOSURE

- Line voltage enclosure is tethered to the unit by 48” flexible conduit cable and is to be field mounted.
- Provides flexibility for the installer to place the unit in tighter ceiling spaces while maintaining NEC clearance requirement for the line voltage enclosure.

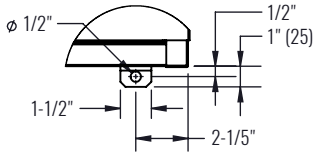


*** Check NEC for unit clearance requirements.**

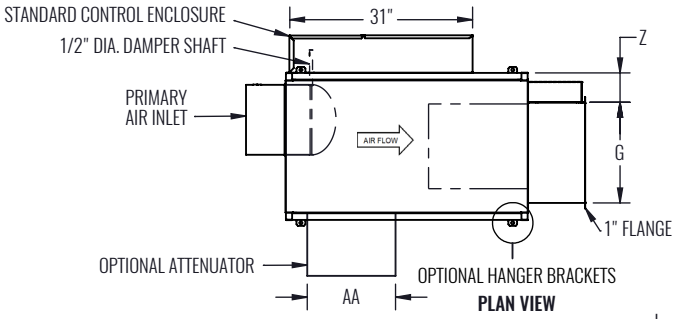
DIMENSIONAL DATA | SIZE 3 - 6 | BASE UNIT WITH ELECTRIC HEAT



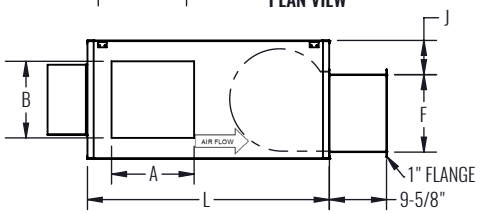
INLET VIEW



OPTIONAL HANGER BRACKETS DETAIL (TYP)



PLAN VIEW



SIDE VIEW

UNI SIZE	INLET SIZE	ECM HP	L	W	H	INDUCED AIR		AA	BB	D	DISCHARGE		J	X	Y	Z
						A	B				F	G				
3	6	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	5-7/8"	12"	11"	4"	9-1/2"	6"	4-1/2"
3	8	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	7-7/8"	12"	11"	4"	9-1/2"	6"	4-1/2"
3	10	1/3	41-1/8"	19"	19"	11"	11"	13-1/8"	13"	9-7/8"	12"	11"	4"	9-1/2"	7"	4-1/2"
4	8	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	7-7/8"	13"	15"	4-1/4"	9-1/2"	6"	5-3/8"
4	10	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	9-7/8"	13"	15"	4-1/4"	9-1/2"	7"	5-3/8"
4	12	1/2	41-1/8"	25"	19"	11"	11"	13-1/8"	13"	11-7/8"	13"	15"	4-1/4"	9-1/2"	8"	5-3/8"
5	8	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	7-7/8"	13-1/8"	17"	5-7/8"	10"	6"	5"
5	10	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	9-7/8"	13-1/8"	17"	5-7/8"	10"	7"	5"
5	12	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	11-7/8"	13-1/8"	17"	5-7/8"	10"	8"	5"
5	14	3/4	41-1/8"	25"	20"	14"	13"	16-1/8"	15"	13-7/8"	13-1/8"	17"	5-7/8"	10"	10"	5"
6	10	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	9-7/8"	13-1/8"	17"	5-7/8"	10"	7"	7-3/8"
6	12	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	11-7/8"	13-1/8"	17"	5-7/8"	10"	8"	7-3/8"
6	14	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	13-7/8"	13-1/8"	17"	5-7/8"	10"	10"	7-3/8"
6	16	1	41-1/8"	30"	20"	15"	15"	17-1/8"	17"	15-7/8"	13-1/8"	17"	5-7/8"	10"	10-1/4"	7-3/8"

NOTES: Left-hand mounted controls shown above; right hand units (optional) are inverted, resulting in elevation change of discharge duct.

STANDARD FEATURES

- 20 gage galvanized steel construction
- NEMA 1 control enclosure for electronic components
- 1" thick dual density fiberglass insulation meeting NFPA 90A and UL 181 safety requirements
- 120V, 8V/240V, 277V EC motor (electronically commutated motor)
- Motor Speed Control: manual control, 0-10Vdc remote control, 2-10Vdc remote control
- Removable top and bottom panels allow easy access to motor, blower and primary air damper assemblies for servicing
- Four quadrant averaging cross flow sensor
- Discharge requires a flanged duct connection by others
- Factory supplied 24 volt control transformer
- ETL listed; adherence to UL1995 and CSA C22.2 No.236.95
- AHRI certified sound ratings

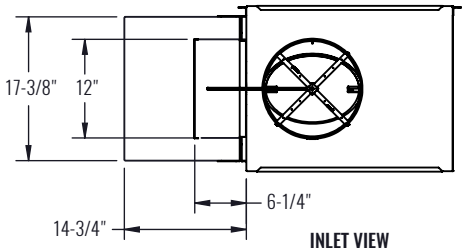
OPTIONAL FEATURES

- Liners: 1/2" dual density fiberglass, 1/2" cellular, 1" cellular, 1/2" foil encapsulated fiberglass, 1" foil encapsulated fiberglass, solid metal liner with 1" dual density fiberglass, perforated metal liner with 1" dual density fiberglass
- Induced Air Filter: 1" construction, 1" MERV 8, 2" MERV 13
- Induced air attenuator
- Cam lock access doors
- Hanger brackets
- Electrical Enclosures: bottom facing, 90° facing, remote mounted
- Door-interlocking disconnect switch: fused or non-fused
- LineaHeat controlled SSR heat
  - Discharge temperature sensor
- 24 VAC solid state relays
- Motor fusing
- Dust tight control enclosure

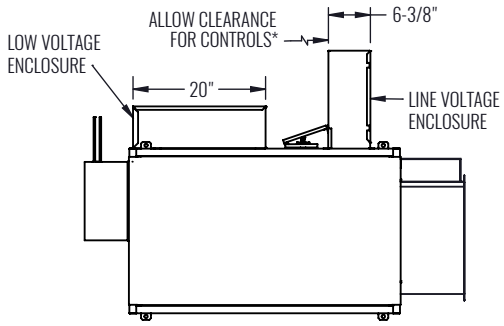
DIMENSIONAL DATA | SIZE 3 - 6 | BASE UNIT WITH ELECTRIC HEAT | CONTROL ENCLOSURE OPTIONS

90° FACING LINE VOLTAGE ENCLOSURE

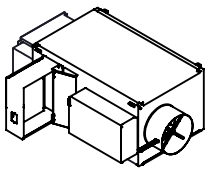
- Line voltage enclosure is mounted to direct NEC clearance requirement parallel to airflow.
- Enables easier placement during design and installation.



INLET VIEW



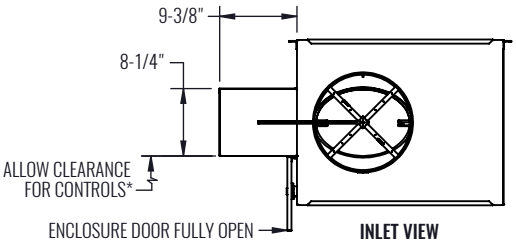
PLAN VIEW



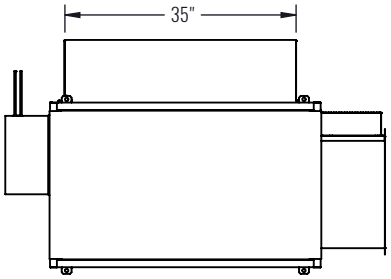
* Check NEC for unit clearance requirements.

BOTTOM FACING ENCLOSURE

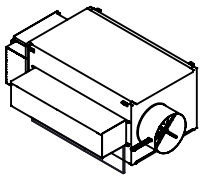
- Electrical enclosure door opens downward and is serviceable from underneath the unit.
- Direct NEC clearance requirement below the unit (towards the floor).
- Enables easier placement during design and installation.
- Easier serviceability with hard ceiling installation and limited ceiling access panels



INLET VIEW



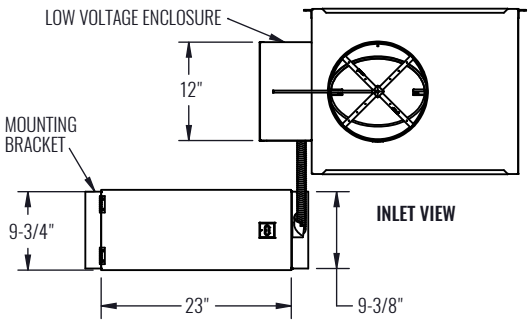
PLAN VIEW



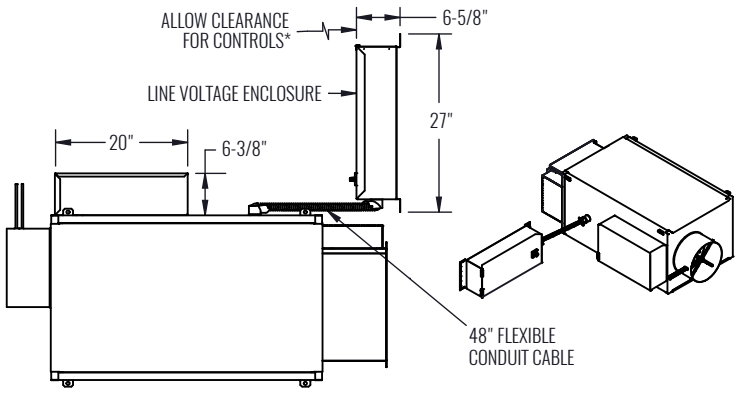
* Check NEC for unit clearance requirements.

REMOTE MOUNTED LINE VOLTAGE ENCLOSURE

- Line voltage enclosure is tethered to the unit by 48" flexible conduit cable and is to be field mounted.
- Provides flexibility for the installer to place the unit in tighter ceiling spaces while maintaining NEC clearance requirement for the line voltage enclosure.



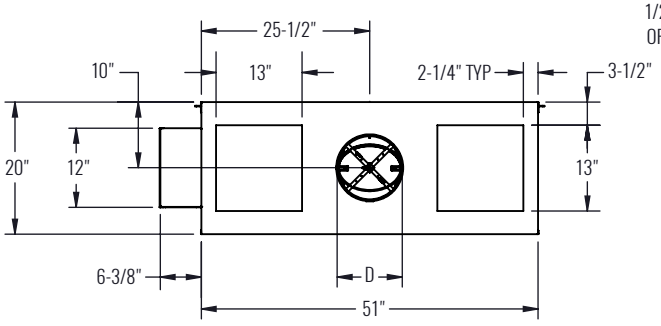
INLET VIEW



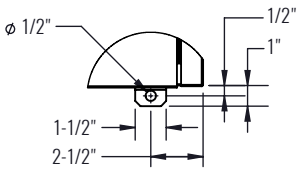
PLAN VIEW

*** Check NEC for unit clearance requirements.**

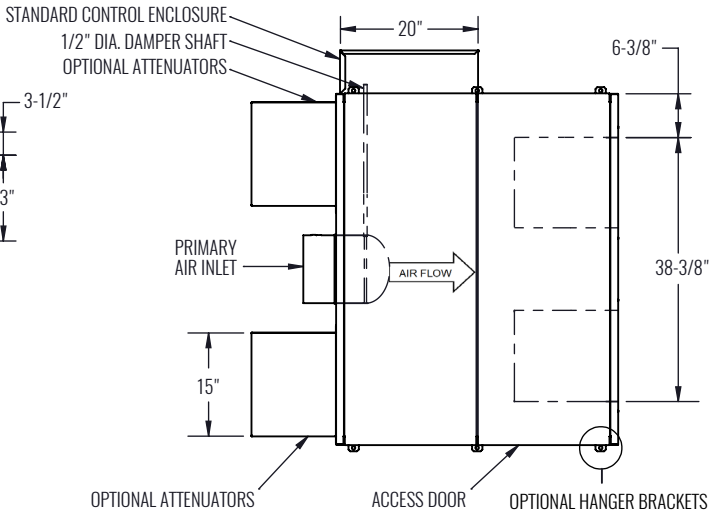
DIMENSIONAL DATA | SIZE 7 | BASE UNIT



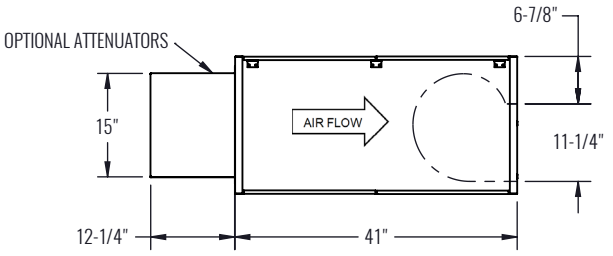
INLET VIEW



OPTIONAL HANGER BRACKETS DETAIL (TYP)



PLAN VIEW



SIDE VIEW

UNIT SIZE	INLET SIZE	ECM HP	D
7	10	(2) 3/4	9-7/8"
	12	(2) 3/4	11-7/8"
	14	(2) 3/4	13-7/8"
	16	(2) 3/4	15-7/8"

NOTES: Left-hand mounted controls shown above; right hand units (optional) are inverted, resulting in elevation change of discharge duct.

STANDARD FEATURES

- 20 gage galvanized steel construction
- NEMA 1 control enclosure for electronic components
- 1" thick dual density fiberglass insulation meeting NFPA 90A and UL 181 safety requirements
- 120V, 8V/240V, 277V EC motor (electronically commutated motor)
- Motor Speed Control: manual control, 0-10Vdc remote control, 2-10Vdc remote control
- Removable top and bottom panels allow easy access to motor, blower and primary air damper assemblies for servicing
- Four quadrant averaging cross flow sensor
- Discharge requires a flanged duct connection by others
- Factory supplied 24 volt control transformer
- ETL listed; adherence to UL1995 and CSA C22.2 No.236.95
- AHRI certified sound ratings

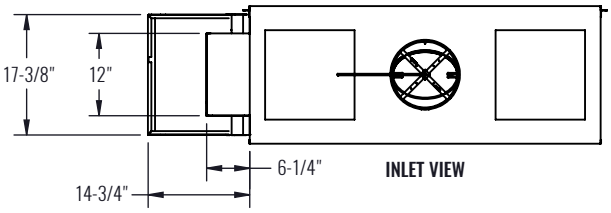
OPTIONAL FEATURES

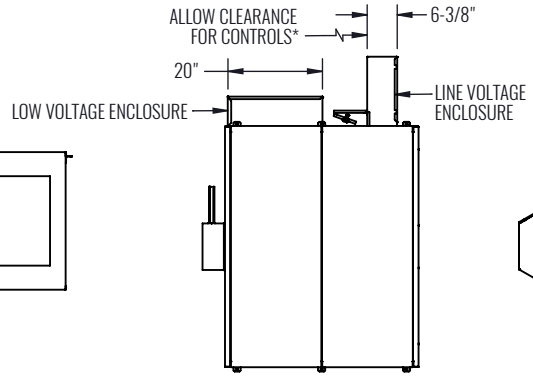
- Liners: 1/2" dual density fiberglass, 1/2" cellular, 1" cellular, 1/2" foil encapsulated fiberglass, 1" foil encapsulated fiberglass, solid metal liner with 1" dual density fiberglass, perforated metal liner with 1" dual density fiberglass
- Induced air filter: 1" construction, 1" MERV 8, 2" MERV 13
- Induced air attenuator
- Cam lock access doors
- Hanger brackets
- Electrical enclosures: bottom facing, 90° facing, remote mounted
- Motor disconnect switch
- Motor fusing
- Dust tight control enclosure

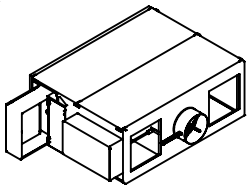
DIMENSIONAL DATA | SIZE 7 | BASE UNIT CONTROL ENCLOSURE OPTIONS

90° FACING LINE VOLTAGE ENCLOSURE

- Line voltage enclosure is mounted to direct NEC clearance requirement parallel to airflow.
- Enables easier placement during design and installation.



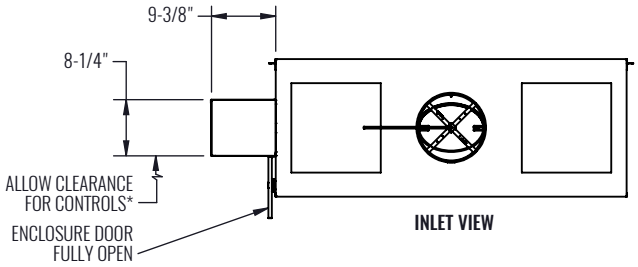


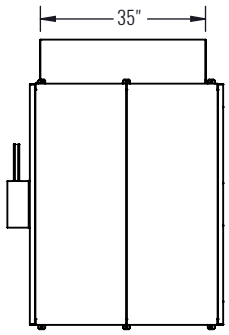


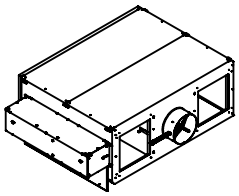
* Check NEC for unit clearance requirements.

BOTTOM FACING ENCLOSURE

- Electrical enclosure door opens downward and is serviceable from underneath the unit.
- Direct NEC clearance requirement below the unit (towards the floor).
- Enables easier placement during design and installation.
- Easier serviceability with hard ceiling installation and limited ceiling access panels



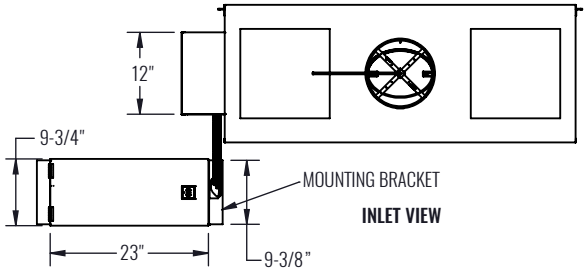


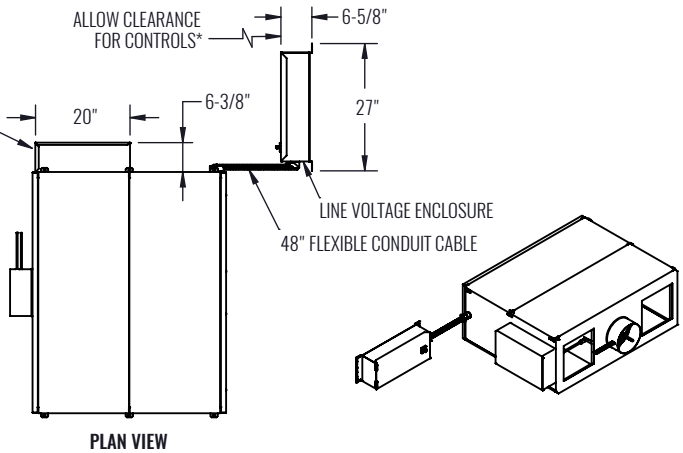


* Check NEC for unit clearance requirements.

REMOTE MOUNTED LINE VOLTAGE ENCLOSURE

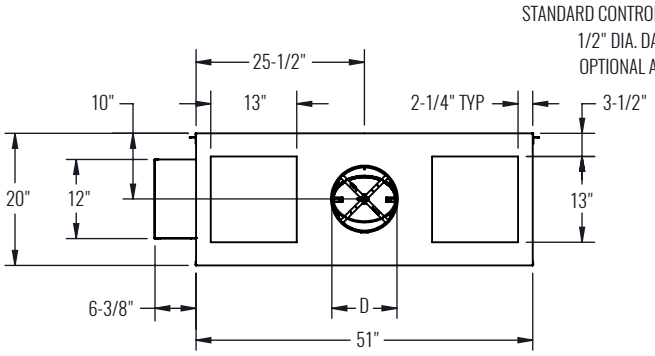
- Line voltage enclosure is tethered to the unit by 48” flexible conduit cable and is to be field mounted.
- Provides flexibility for the installer to place the unit in tighter ceiling spaces while maintaining NEC clearance requirement for the line voltage enclosure.



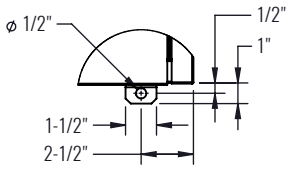


*** Check NEC for unit clearance requirements.**

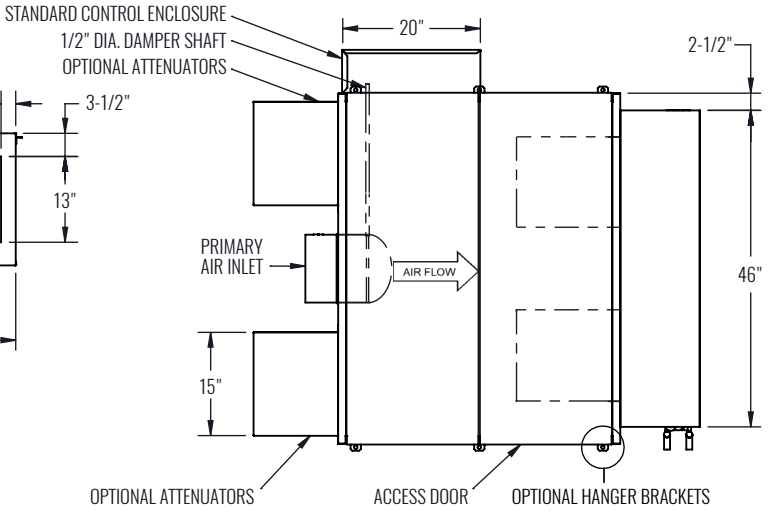
DIMENSIONAL DATA | SIZE 7 | BASE UNIT WITH HOT WATER HEAT



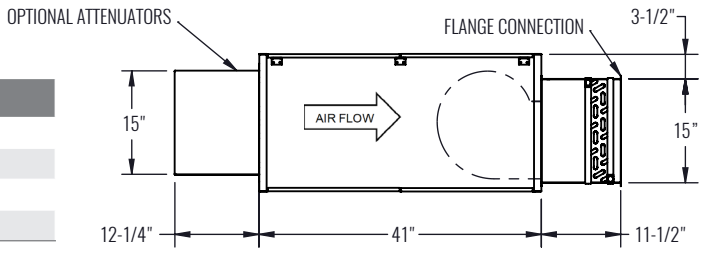
INLET VIEW



OPTIONAL HANGER BRACKETS DETAIL (TYP)



PLAN VIEW



SIDE VIEW

UNIT SIZE	INLET SIZE	ECM HP	D
7	10	(2) 3/4	9-7/8"
	12	(2) 3/4	11-7/8"
	14	(2) 3/4	13-7/8"
	16	(2) 3/4	15-7/8"

NOTES: Left-hand mounted controls shown above; right hand units (optional) are inverted, resulting in elevation change of discharge duct.

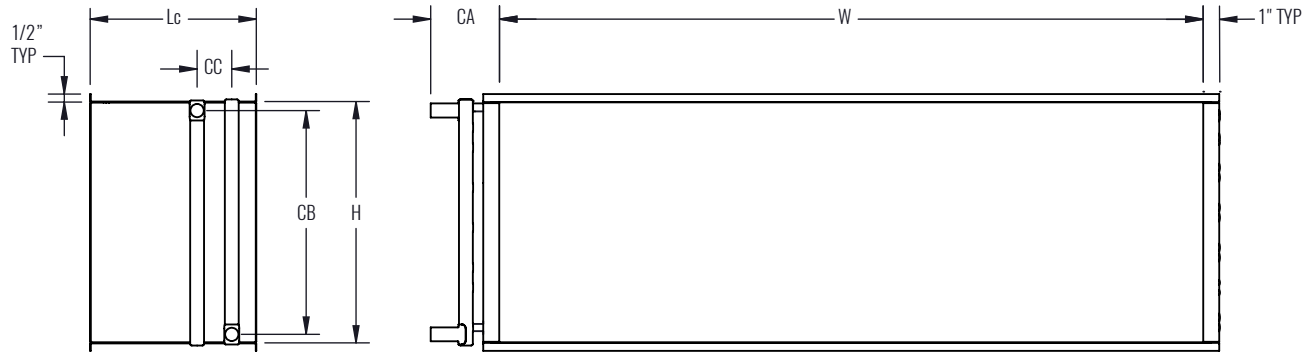
STANDARD FEATURES

- 20 gage galvanized steel construction
- NEMA 1 control enclosure for electronic components
- 1" thick dual density fiberglass insulation meeting NFPA 90A and UL 181 safety requirements
- 120V, 8V/240V, 277V EC motor (electronically commutated motor)
- Motor Speed Control: manual control, 0-10Vdc remote control, 2-10Vdc remote control
- Removable top and bottom panels allow easy access to motor, blower and primary air damper assemblies for servicing
- Four quadrant averaging cross flow sensor
- Discharge requires a flanged duct connection by others
- Factory supplied 24 volt control transformer
- ETL listed; adherence to UL1995 and CSA C22.2 No.236.95
- AHRI certified sound ratings

OPTIONAL FEATURES

- Liners: 1/2" dual density fiberglass, 1/2" cellular, 1" cellular, 1/2" foil encapsulated fiberglass, 1" foil encapsulated fiberglass, solid metal liner with 1" dual density fiberglass, perforated metal liner with 1" dual density fiberglass
- Induced air filter: 1" construction, 1" MERV 8, 2" MERV 13
- Induced air attenuator
- Cam lock access doors
- Hanger brackets
- Electrical enclosures: bottom facing, 90° facing, remote mounted
- Motor disconnect switch
- Motor fusing
- Dust tight control enclosure

DIMENSIONAL DATA | SIZE 7 | HEATING WATER COIL



INLET SIZE	ROWS	H	W	Lc	CA	CB	CC	O.D. WATER CONNECTION
7	1	15"	44"	8"	4-1/4"	13-3/8"	1-1/8"	7/8"
	2	15"	44"	9-1/8"	4-1/4"	14"	1-1/8"	7/8"
	3	15"	44"	10-3/8"	4-1/4"	14"	2-1/8"	7/8"
	4	15"	44"	11-1/2"	4-1/4"	14"	3-1/4"	7/8"

STANDARD FEATURES

- Shipped from the factory attached to the unit discharge
- Coils are leak tested to 400 psi
- 1" flanges for attached discharge ductwork
- Coil section is uninsulated
- Coil Casing - 20 gage galvanized steel
- Connection Tubing - 0.032" thick copper (see O.D. connection diameter in table)
- Coil Tubing - 1/2" diameter x 0.016" thick copper
- Coil Fins - 0.0045" thick aluminum, 10 FPI; mechanically bonded to tubing
- Coils are not for steam application

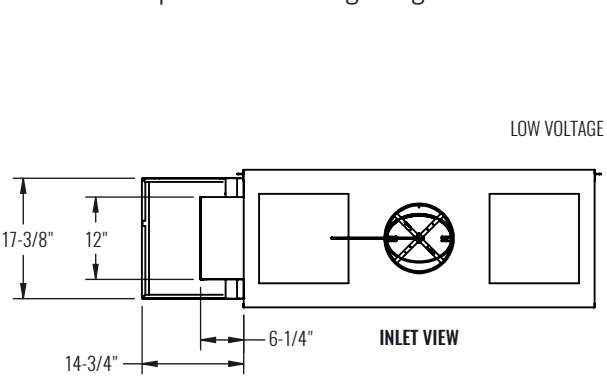
OPTIONAL FEATURES

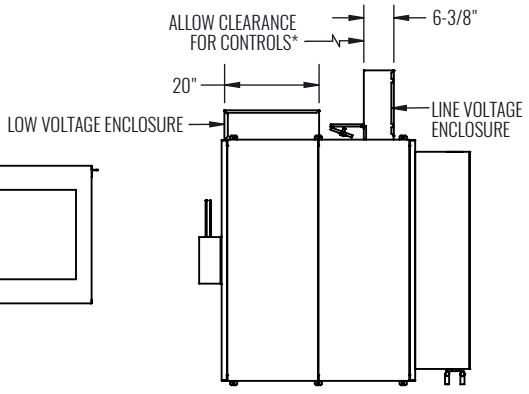
- 12 FPI, 0.0045" thick aluminum fins, mechanically bonded to tubing
- Access door for cleaning and servicing
- Air vent and drain ports

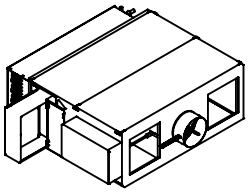
DIMENSIONAL DATA | SIZE 7 | BASE UNIT WITH HOT WATER HEAT | CONTROL ENCLOSURE OPTIONS

90° FACING LINE VOLTAGE ENCLOSURE

- Line voltage enclosure is mounted to direct NEC clearance requirement parallel to airflow.
- Enables easier placement during design and installation.



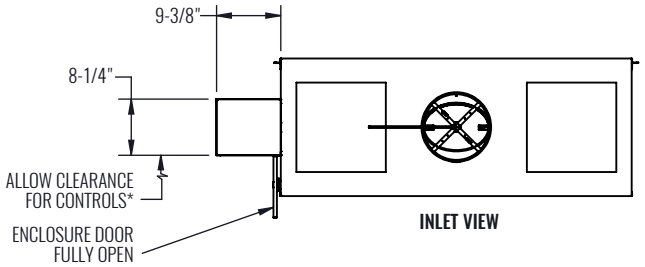


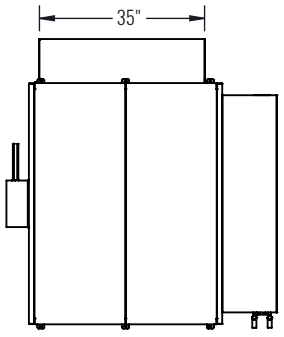


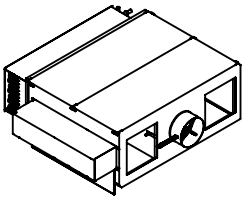
* Check NEC for unit clearance requirements.

BOTTOM FACING ENCLOSURE

- Electrical enclosure door opens downward and is serviceable from underneath the unit.
- Direct NEC clearance requirement below the unit (towards the floor).
- Enables easier placement during design and installation.
- Easier serviceability with hard ceiling installation and limited ceiling access panels



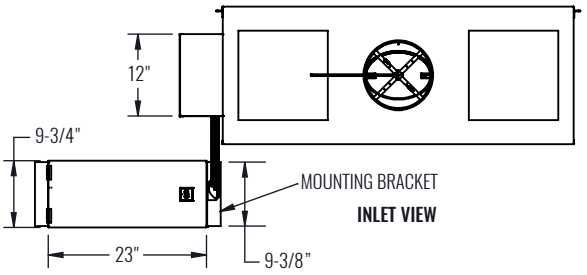


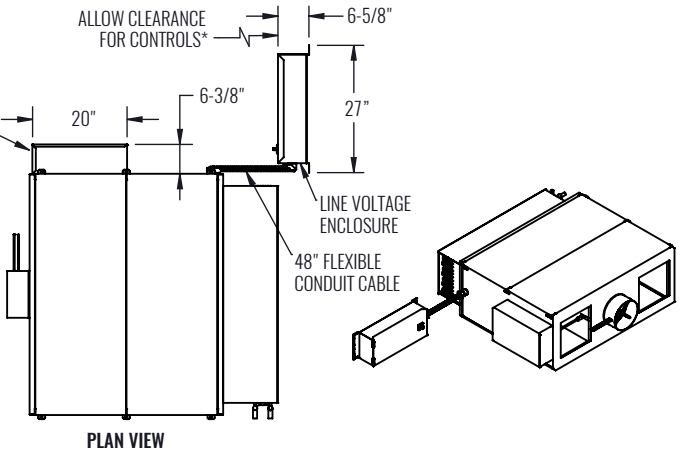


* Check NEC for unit clearance requirements.

REMOTE MOUNTED LINE VOLTAGE ENCLOSURE

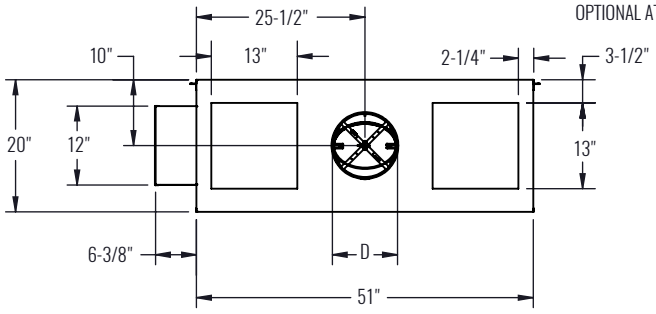
- Line voltage enclosure is tethered to the unit by 48" flexible conduit cable and is to be field mounted.
- Provides flexibility for the installer to place the unit in tighter ceiling spaces while maintaining NEC clearance requirement for the line voltage enclosure.



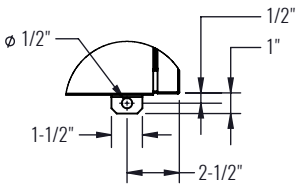


*** Check NEC for unit clearance requirements.**

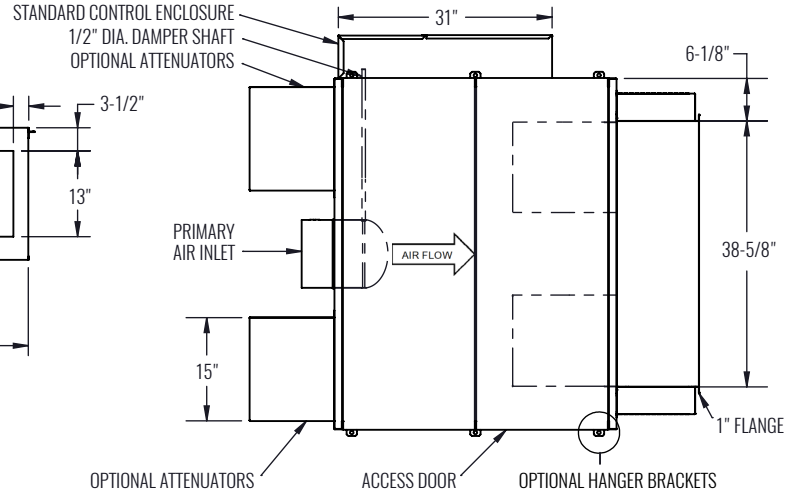
DIMENSIONAL DATA | SIZE 7 | BASE UNIT WITH ELECTRIC HEAT



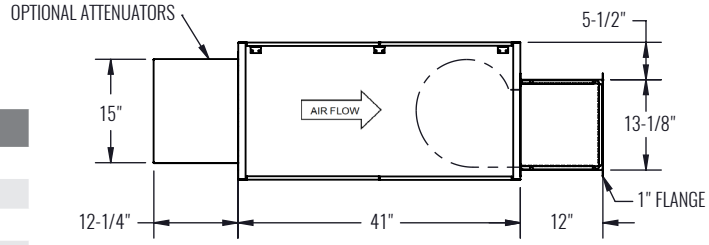
INLET VIEW



OPTIONAL HANGER BRACKETS DETAIL (TYP)



PLAN VIEW



SIDE VIEW

UNIT SIZE	INLET SIZE	ECM HP	D
7	10	(2) 3/4	9-7/8"
	12	(2) 3/4	11-7/8"
	14	(2) 3/4	13-7/8"
	16	(2) 3/4	15-7/8"

NOTES: Left-hand mounted controls shown above; right hand units (optional) are inverted, resulting in elevation change of discharge duct.

STANDARD FEATURES

- 20 gage galvanized steel construction
- NEMA 1 control enclosure for electronic components
- 1" thick dual density fiberglass insulation meeting NFPA 90A and UL 181 safety requirements
- 120V, 8V/240V, 277V EC motor (electronically commutated motor)
- Motor Speed Control: manual control, 0-10Vdc remote control, 2-10Vdc remote control
- Removable top and bottom panels allow easy access to motor, blower and primary air damper assemblies for servicing
- Four quadrant averaging cross flow sensor
- Discharge requires a flanged duct connection by others
- Factory supplied 24 volt control transformer
- ETL listed; adherence to UL1995 and CSA C22.2 No.236.95
- AHRI certified sound ratings

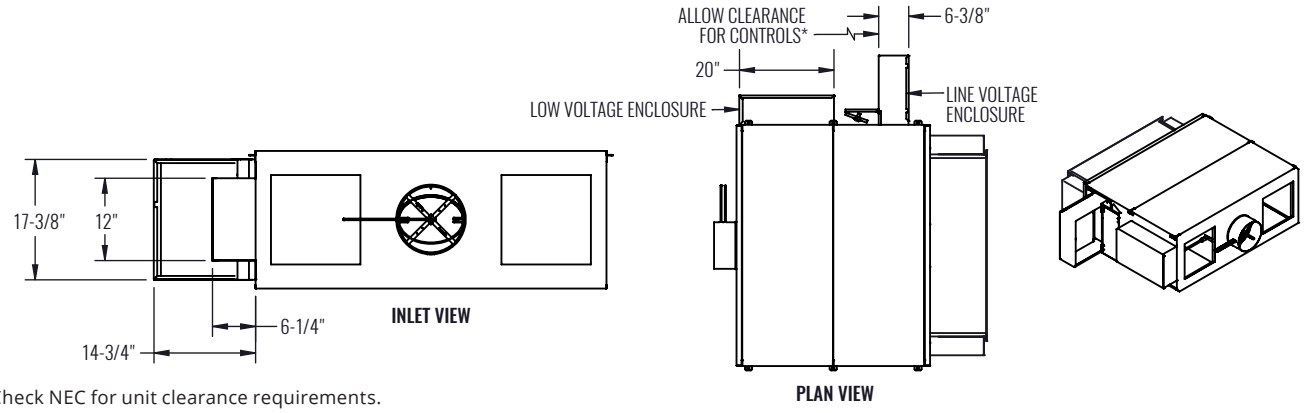
OPTIONAL FEATURES

- Liners: 1/2" dual density fiberglass, 1/2" cellular, 1" cellular, 1/2" foil encapsulated fiberglass, 1" foil encapsulated fiberglass, solid metal liner with 1" dual density fiberglass, perforated metal liner with 1" dual density fiberglass
- Induced Air Filter: 1" construction, 1" MERV 8, 2" MERV 13
- Induced air attenuator
- Cam lock access doors
- Hanger brackets
- Electrical Enclosures: bottom facing, 90° facing, remote mounted
- Door-interlocking disconnect switch: fused or non-fused
- LineaHeat controlled SSR heat
  - Discharge temperature sensor
- 24 VAC solid state relays
- Motor fusing
- Dust tight control enclosure

DIMENSIONAL DATA | SIZE 7 | BASE UNIT WITH ELECTRIC HEAT | CONTROL ENCLOSURE OPTIONS

90° FACING LINE VOLTAGE ENCLOSURE

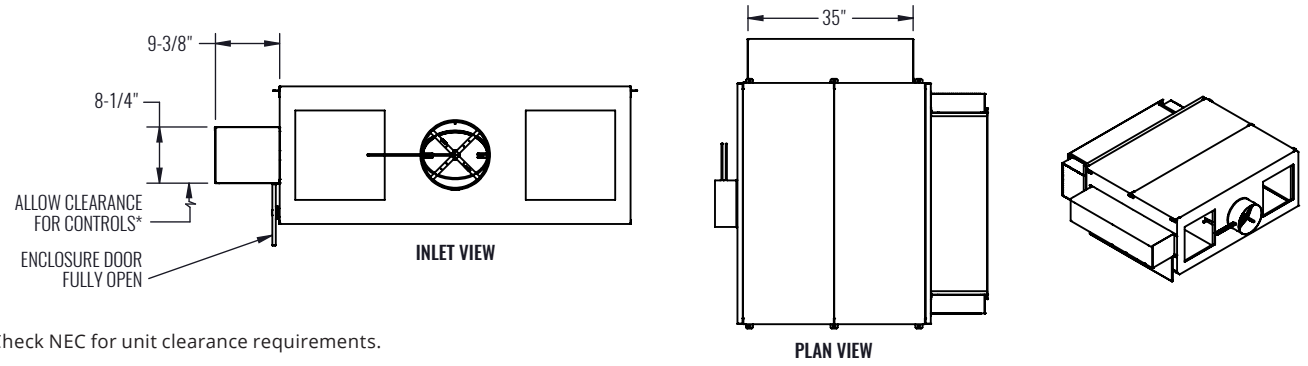
- Line voltage enclosure is mounted to direct NEC clearance requirement parallel to airflow.
- Enables easier placement during design and installation.



* Check NEC for unit clearance requirements.

BOTTOM FACING ENCLOSURE

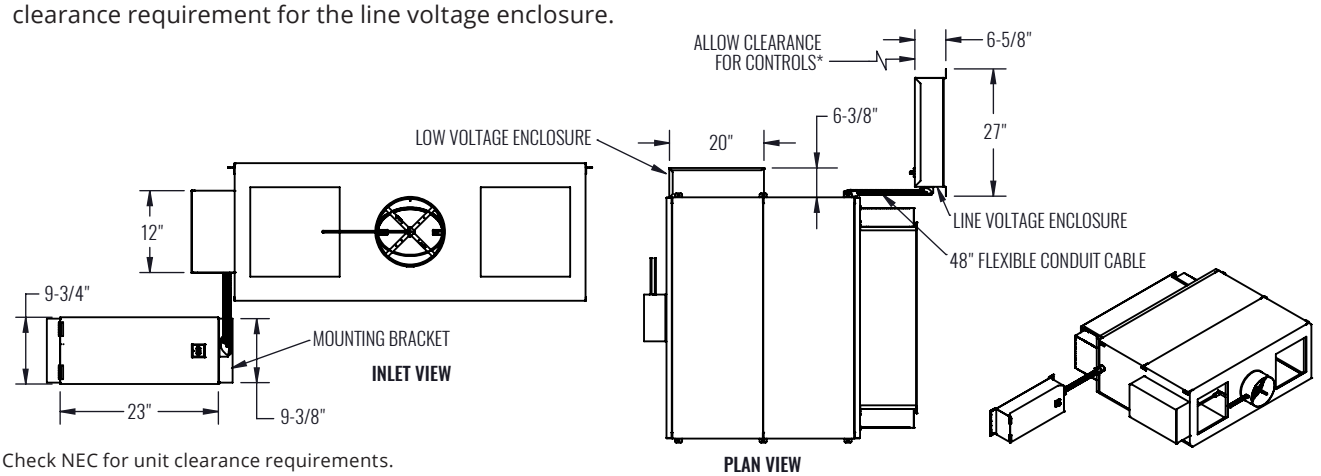
- Electrical enclosure door opens downward and is serviceable from underneath the unit.
- Direct NEC clearance requirement below the unit (towards the floor).
- Enables easier placement during design and installation.
- Easier serviceability with hard ceiling installation and limited ceiling access panels



* Check NEC for unit clearance requirements.

REMOTE MOUNTED LINE VOLTAGE ENCLOSURE

- Line voltage enclosure is tethered to the unit by 48" flexible conduit cable and is to be field mounted.
- Provides flexibility for the installer to place the unit in tighter ceiling spaces while maintaining NEC clearance requirement for the line voltage enclosure.



* Check NEC for unit clearance requirements.

ELECTRIC HEAT FEATURES & CAPACITIES

The kW charts below indicates the maximum and minimum safe limit capacities for each of the KFSS units and has been specifically designed for Krueger fan powered terminals. For safe operation, the electric heater controls are interlocked with the airflow proving switch to allow the heater to energize only after the fan is running. Each terminal unit has been tested by ETL in accordance with UL standards.

ELECTRIC HEAT STANDARD FEATURES

- 20 gage zinc coated steel construction.
- Line voltage combinations:
  [120, 208/240, or 277 volt, 1-phase]
  [208 volt, 3-phase, 3-wire] [480 volt, 3-phase, 4-wire]
- Control transformer for direct digital controls.
- NEMA 1 electric heat control enclosure.
- Flanged discharge for field duct connection.
- Single point connection between the heater and the fan motor (see combinations below).
- 80/20 Ni-Cr heating elements.
- Automatic reset thermal cutout.
- Magnetic contactors.
- Positive pressure airflow switch.

NOTE: A minimum of 0.1" w.g. downstream static pressure is required in the duct to ensure proper heater operation.

OPTIONAL HEATER CONTROL

- LineaHeat solid state electronic proportional control of electric heat is available with or without leaving air temperature control. See Krueger's Terminal Unit Engineering section for additional information.
- AC solid state relays offer silent operation for staged electric heat.

SINGLE POINT CONNECTION COMBINATIONS ELECTRIC HEATER/FAN MOTOR

- [120, 208/240 or 277 volt, 1-phase] electric heat includes fan motor wired with same line voltage.
- [208 volt, 3-phase, 3-wire] electric heat utilizes a 208/240 volt, 1-phase fan motor.
- [480 volt, 3-phase, 4-wire] electric heat is equipped with 277 volt, 1-phase fan motor.

$$kW = \frac{CFM \times \Delta T\ (°F)}{3160}$$

CALCULATING ELECTRIC HEATER AMPERES

$$\text{1-Phase Amperes} = \frac{\text{Watts}}{\text{Line Voltage}}$$

$$\text{3-Phase Amperes} = \frac{\text{Watts}}{\text{Line Voltage} \times 1.73}$$

NOTES: When selecting electric heaters, do not exceed 120°F discharge air temperature, per NEC. The ASHRAE Handbook of Fundamentals states that discharge temperatures in excess of 90°F are likely to result in objectionable air temperature stratification in the space. Also, ventilation short circuiting may occur. ASHRAE Standard 62 now limits discharge temperatures to 90°F or increasing the ventilation rate when heating from the ceiling.

MINIMUM kW

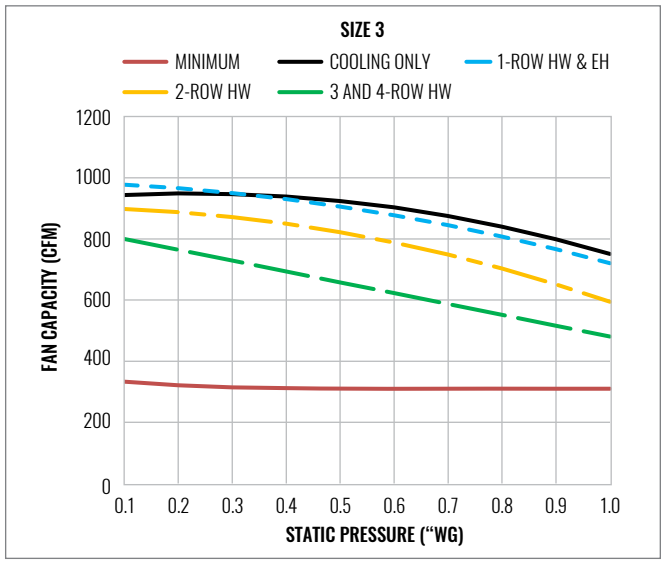
UNIT SIZE	ALL VOLTAGES
3	1.5
4	1.5
5	1.5
6	1.5
7	3.0

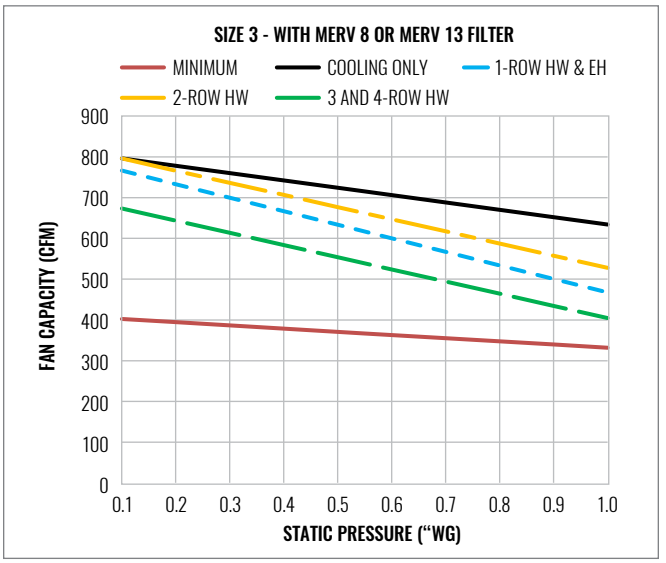
MAXIMUM kW

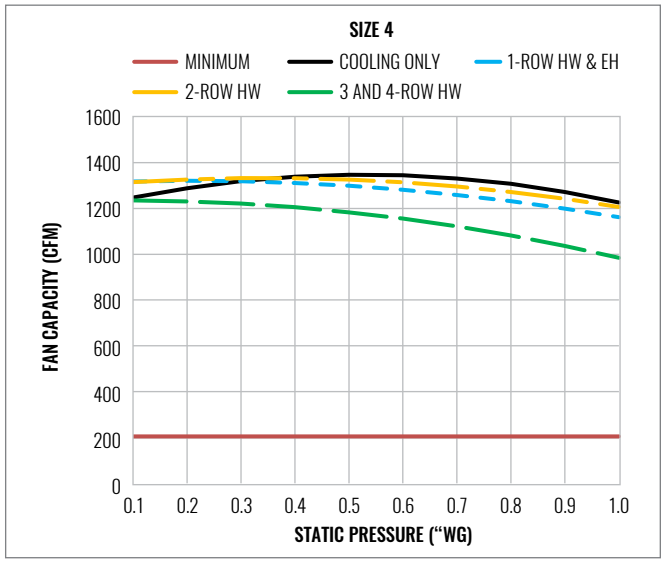
UNIT SIZE	1-PHASE				3-PHASE	
	120 VOLT	208 VOLT	240 VOLT	277 VOLT	208 VOLT	480 VOLT
3	5.0	8.0	8.0	8.0	8.0	8.0
4	4.5	8.5	10.0	11.5	11.5	11.5
5	4.5	8.0	9.5	11.5	14.0	15.0
6	4.0	7.5	9.0	11.0	13.5	23.0
7	-	6.5	7.5	10.0	11.5	30.5

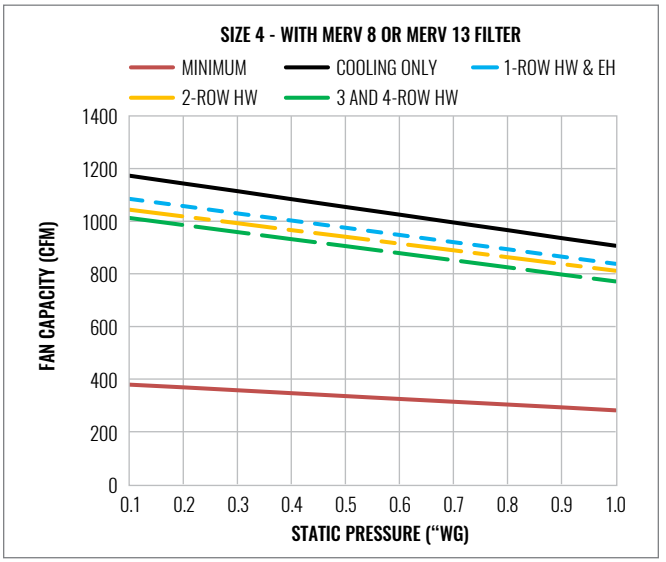
NOTES: Dash indicates not available. Minimum and maximum values apply to staged heaters only.
Contact your local Krueger representative for LineaHeat limits.

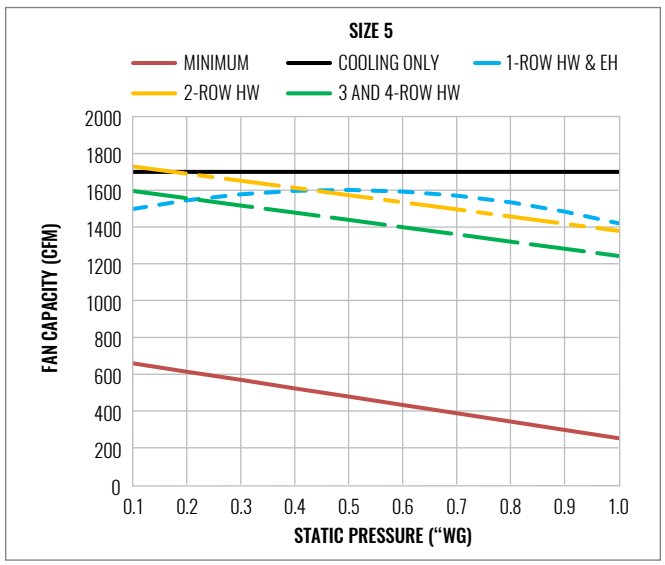
FAN CURVES | ECM

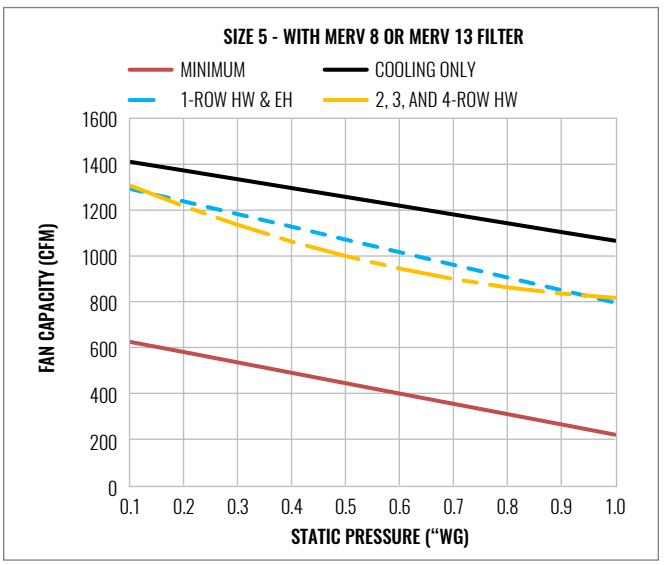




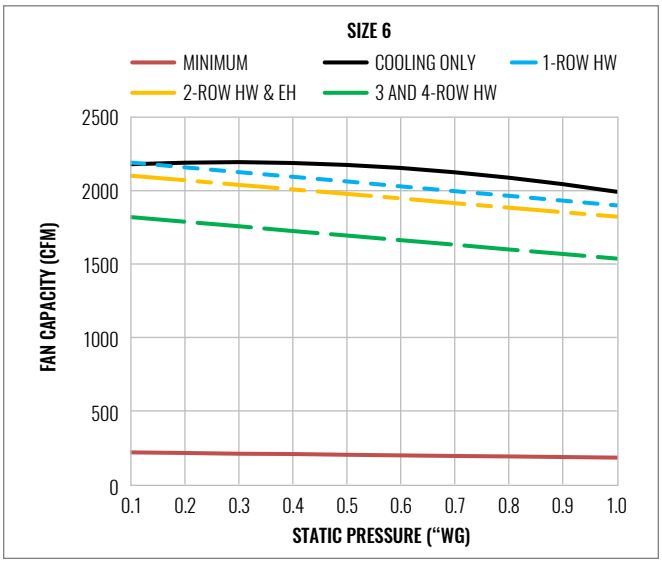


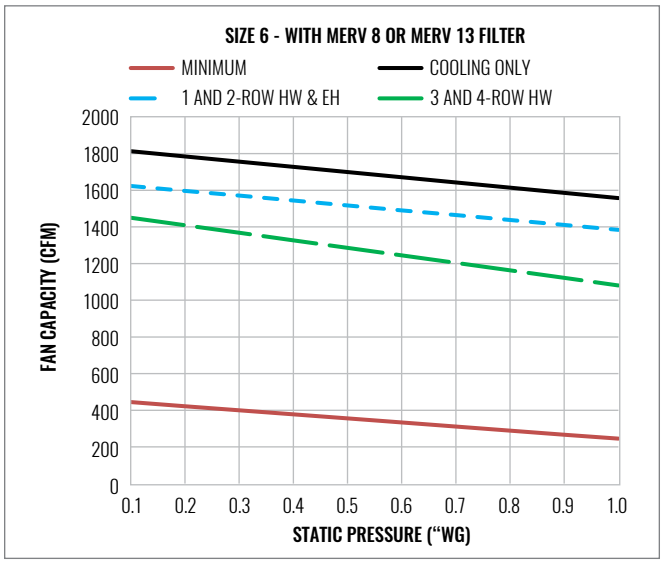


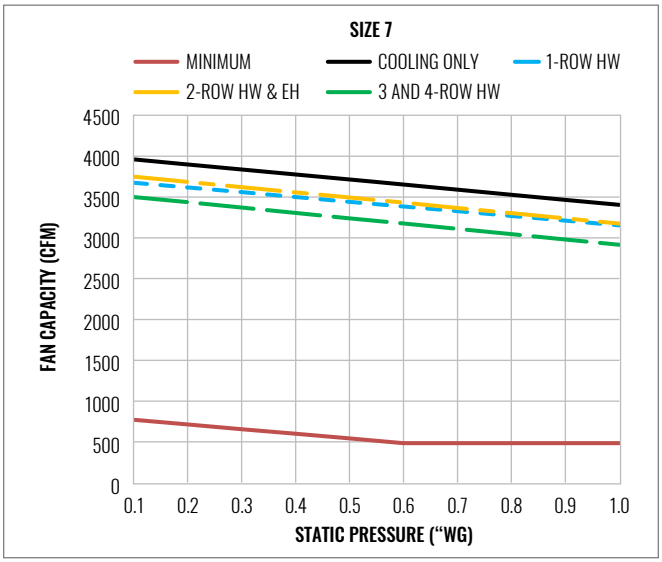


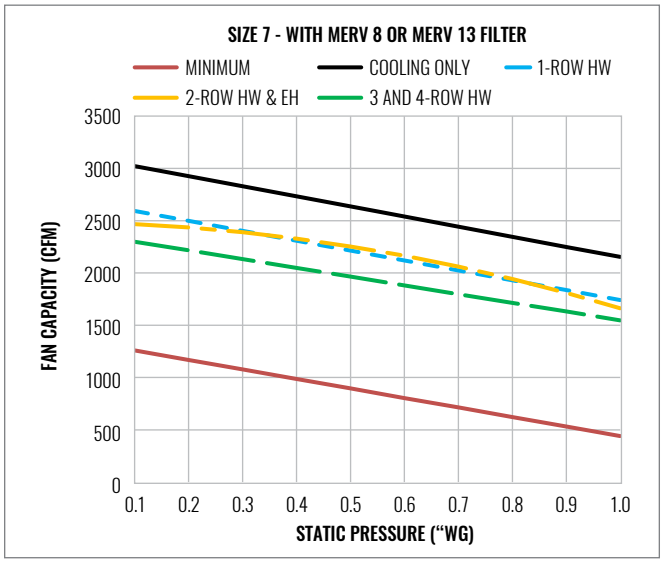


FAN CURVES | ECM (CONTINUED)









NOTES: Fan curves above indicate the airflows of a KFSS product with or without hot water coils, electric reheat, and/or MERV 8 or MERV 13 filters. Minimum airflows might be lower than shown when reheat coils are selected. See Krueger's selection software for complete fan curves. Manual or remote adjustable speed controller is standard with each unit. See Product Description section on page B2-8 for definitions of manual and remote adjustable speed controllers. Units must be selected to operate within the airflow and external static pressure ranges shown.

AHRI CERTIFIED PERFORMANCE DATA | SERIES UNITS

KFSS*

UNIT SIZE	INLET SIZE	PRIMARY CFM	MIN INLET Ps	FAN		DISCHARGE DATA						RADIATED DATA											
						FAN ONLY SOUND POWER, Lw						FAN ONLY SOUND POWER, Lw						FAN + PRIMARY @ 1.5" INLET Ps					
				CFM	Watts	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7
3	8"	700	0.28	700	240	68	64	63	64	60	56	64	60	56	52	46	42	68	64	58	53	50	47
4	10"	1100	0.19	1100	300	65	65	61	61	58	53	65	61	55	51	46	40	69	66	57	52	50	48
5	10"	1100	0.31	1100	250	63	60	57	57	54	49	61	57	53	49	43	37	70	66	59	53	51	51
6	12"	1600	0.35	1600	480	67	66	62	64	61	57	69	66	58	55	51	48	70	67	59	54	52	52
7	16"	2800	0.25	2800	660	80	75	72	72	70	69	74	69	62	59	53	49	75	71	66	60	56	54

QFC

UNIT SIZE	INLET SIZE	PRIMARY CFM	MIN. Ps	FAN		DISCHARGE DATA						RADIATED DATA											
						FAN ONLY SOUND POWER, Lw						FAN ONLY SOUND POWER, Lw						FAN + PRIMARY @ 1.5" INLET Ps					
				CFM	Watts	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7
2	6	400	0.100	450	200	65	65	66	62	58	57	65	64	57	54	46	42	70	71	65	57	52	49
3	8	700	0.100	850	380	67	68	68	67	65	66	69	67	61	57	50	48	74	75	67	61	55	52
4	10	1100	0.100	1350	555	67	67	70	68	65	61	69	67	61	57	53	49	75	73	67	61	56	53
5	12	1600	0.100	2050	950	74	74	73	75	73	73	75	70	66	62	57	57	79	76	69	64	60	57
6	14	2100	0.100	2400	1150	76	74	76	76	74	73	72	69	66	65	63	61	78	77	70	67	65	61
7	16	2800	0.100	3600	2750	79	78	76	76	72	72	78	75	70	67	63	62	83	79	74	70	66	64

KLPS

UNIT SIZE	INLET SIZE	PRIMARY CFM	MIN. Ps	FAN		DISCHARGE DATA						RADIATED DATA											
						FAN ONLY SOUND POWER, Lw						FAN ONLY SOUND POWER, Lw						FAN + PRIMARY @ 1.5" INLET Ps					
				CFM	Watts	2	3	4	5	6	7	2	3	4	5	6	7	2	3	4	5	6	7
1	6	400	0.100	400	70	71	67	67	64	61	58	62	56	53	49	43	39	66	63	62	56	51	47
2	8	700	0.100	700	150	79	76	76	75	74	73	70	64	60	57	51	48	75	73	70	64	59	55
3	8	700	0.100	1000	460	78	69	67	67	65	63	69	60	58	56	51	44	69	62	60	56	51	46
4	8x14	1400	0.100	1500	665	81	64	63	61	62	60	73	65	62	60	53	44	77	74	69	66	58	52
5	12	1600	0.100	1700	680	78	73	72	73	70	69	68	60	57	53	48	42	68	65	61	56	55	58

NOTES: All sound data is based on tests conducted in accordance with AHRI 880-11. Sound power levels are in dB, re 10^{-12} Watts. Discharge sound power is the sound emitted from the unit discharge. Discharge sound power has been corrected for end reflection. Radiated sound power is the sound transmitted through the casing walls. 1/2" dual density liner shown*. See Krueger's selection program for specific sound data for optional liners. See Krueger's Terminal Unit Engineering section for reductions and definitions.

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* KFSS data is shown using an EC motor and 1" dual density insulation.

PERFORMANCE DATA | DISCHARGE SOUND

UNIT SIZE	INLET SIZE	FLOW RATE		MIN INLET Ps		FAN ONLY							FAN + PRIMARY @ 0.75" INLET Ps							FAN + PRIMARY @ 1.5" INLET Ps						
						OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp
		CFM	(L/s)	"WG	(Pa)	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
3	6	325	(153)	0.07	(18.25)	53	50	50	47	42	35	-	53	50	50	47	42	35	-	56	50	50	47	42	35	-
		350	(165)	0.09	(21.17)	55	52	51	49	44	37	-	55	52	51	49	44	37	-	57	52	51	49	44	37	-
		400	(189)	0.11	(27.65)	57	54	53	52	47	41	-	57	54	53	52	47	41	-	59	54	53	52	47	41	-
		450	(212)	0.14	(34.99)	59	56	55	54	50	44	-	59	56	55	54	50	44	-	61	56	55	54	50	44	-
		500	(236)	0.17	(43.20)	61	58	57	56	52	47	-	61	58	57	56	52	47	-	63	58	57	56	52	47	-
3	8	325	(153)	0.06	(14.97)	53	50	50	47	42	35	-	53	50	50	47	42	35	-	56	50	50	47	42	35	-
		450	(212)	0.12	(28.70)	59	56	55	54	50	44	-	59	56	55	54	50	44	-	61	56	55	54	50	44	-
		600	(283)	0.21	(51.03)	65	61	60	60	57	52	-	65	61	60	60	57	52	-	65	61	60	60	57	52	-
		700	(330)	**0.28**	(69.45)	**68**	**64**	**63**	**64**	**60**	**56**	**22**	68	64	63	64	60	56	**22**	68	64	63	64	60	56	**22**
		900	(425)	0.46	(114.81)	72	68	68	69	66	62	**27**	72	68	68	69	66	62	**27**	72	68	68	69	66	62	**27**
3	10	325	(153)	0.05	(13.41)	53	50	50	47	42	35	-	53	50	50	47	42	35	-	56	50	50	47	42	35	-
		450	(212)	0.10	(25.71)	59	56	55	54	50	44	-	59	56	55	54	50	44	-	61	56	55	54	50	44	-
		600	(283)	0.18	(45.71)	65	61	60	60	57	52	-	65	61	60	60	57	52	-	65	61	60	60	57	52	-
		750	(354)	0.29	(71.41)	69	65	64	65	62	58	**23**	69	65	64	65	62	58	**23**	69	65	64	65	62	58	**23**
		900	(425)	0.41	(102.84)	72	68	68	69	66	62	**27**	72	68	68	69	66	62	**27**	72	68	68	69	66	62	**27**
4	8	325	(153)	0.02	(5.96)	42	43	40	38	31	20	-	48	47	40	38	31	20	-	51	49	40	38	31	20	-
		450	(212)	0.05	(11.43)	48	49	46	44	38	29	-	53	52	46	44	38	29	-	56	53	46	44	38	29	-
		600	(283)	0.08	(20.31)	54	54	51	50	45	37	-	57	56	51	50	45	37	-	60	58	51	50	45	37	-
		750	(354)	0.13	(31.74)	58	58	54	54	50	43	-	61	60	54	54	50	43	-	63	61	54	54	50	43	-
		900	(425)	0.18	(45.71)	61	61	57	57	54	48	-	63	61	57	57	54	48	-	66	64	57	57	54	48	**22**
4	10	400	(189)	0.03	(6.37)	46	47	44	42	36	26	-	51	50	44	42	36	26	-	54	52	44	42	36	26	-
		600	(283)	0.06	(14.33)	54	54	51	50	45	37	-	57	56	51	50	45	37	-	60	58	51	50	45	37	-
		800	(378)	0.10	(25.48)	59	59	55	55	51	45	-	62	59	55	55	51	45	-	64	62	55	55	51	45	**20**
		1000	(472)	0.16	(39.81)	63	63	59	59	56	51	**21**	65	63	59	59	56	51	**21**	67	66	59	59	56	51	**24**
		1100	(519)	**0.19**	(48.18)	**65**	**65**	**61**	**61**	**58**	**53**	**23**	67	65	61	61	58	53	**23**	69	67	61	61	58	53	**26**
4	12	400	(189)	0.02	(5.89)	46	47	44	42	36	26	-	51	50	44	42	36	26	-	54	52	44	42	36	26	-
		600	(283)	0.05	(13.25)	54	54	51	50	45	37	-	57	56	51	50	45	37	-	60	58	51	50	45	37	-
		800	(378)	0.10	(23.56)	59	59	55	55	51	45	-	62	59	55	55	51	45	-	64	62	55	55	51	45	**20**
		1000	(472)	0.15	(36.81)	63	63	59	59	56	51	**21**	65	63	59	59	56	51	**21**	67	66	59	59	56	51	**24**
		1200	(566)	0.21	(53.01)	66	66	62	63	60	56	**25**	66	66	62	63	60	56	**25**	70	69	62	63	60	56	**28**
5	8	700	(330)	0.15	(37.63)	58	55	52	52	47	40	-	60	55	52	52	47	40	-	62	58	52	52	47	40	-
		750	(354)	0.17	(43.20)	59	56	52	52	48	42	-	61	56	52	52	48	42	-	63	58	52	52	48	42	-
		800	(378)	0.20	(49.15)	60	57	53	53	49	43	-	62	57	53	53	49	43	-	64	59	53	53	49	43	-
		850	(401)	0.22	(55.49)	60	57	54	54	50	44	-	63	57	54	54	50	44	-	65	60	54	54	50	44	-
		900	(425)	0.25	(62.21)	61	58	54	55	51	45	-	63	58	54	55	51	45	-	65	61	54	55	51	45	-
5	10	600	(283)	0.09	(22.62)	57	54	50	49	45	37	-	59	54	50	49	45	37	-	61	56	50	49	45	37	-
		800	(378)	0.16	(40.22)	60	57	53	53	49	43	-	62	57	53	53	49	43	-	64	59	53	53	49	43	-
		1000	(472)	0.25	(62.84)	62	59	56	56	52	47	-	65	61	56	56	52	47	-	67	62	56	56	52	47	-
		1100	(519)	**0.31**	(76.03)	**63**	**60**	**57**	**57**	**54**	**49**	-	66	62	57	57	54	49	-	68	63	57	57	54	49	**21**
		1300	(614)	0.43	(106.19)	65	62	59	60	56	52	-	68	64	61	62	58	54	**22**	70	65	61	60	56	52	**23**
5	12	900	(425)	0.17	(41.64)	61	58	54	55	51	45	-	63	58	54	55	51	45	-	65	61	54	55	51	45	-
		1100	(519)	0.25	(62.21)	63	60	57	57	54	49	-	66	62	57	57	54	49	-	68	63	57	57	54	49	**21**
		1300	(614)	0.35	(86.89)	65	62	59	60	56	52	-	68	64	61	62	58	54	**22**	70	65	61	60	56	52	**23**
		1500	(708)	0.47	(115.68)	67	63	60	62	58	54	**21**	69	66	63	64	61	57	**24**	72	67	63	64	60	56	**26**
		1700	(802)	0.60	(148.58)	68	64	62	63	60	57	**23**	71	67	65	66	63	60	**26**	73	68	65	66	63	59	**27**
5	14	900	(425)	0.14	(34.99)	61	58	54	55	51	45	-	63	58	54	55	51	45	-	65	61	54	55	51	45	-
		1100	(519)	0.21	(52.27)	63	60	57	57	54	49	-	66	62	57	57	54	49	-	68	63	57	57	54	49	**21**
		1300	(614)	0.29	(73.01)	65	62	59	60	56	52	-	68	64	61	62	58	54	**22**	70	65	61	60	56	52	**23**
		1500	(708)	0.39	(97.20)	67	63	60	62	58	54	**21**	69	66	63	64	61	57	**24**	72	67	63	64	60	56	**26**
		1700	(802)	0.50	(124.85)	68	64	62	63	60	57	**23**	71	67	65	66	63	60	**26**	73	68	65	66	63	59	**27**

NOTES: See notes on next page.

PERFORMANCE DATA | DISCHARGE SOUND (CONTINUED)

UNIT SIZE	INLET SIZE	FLOW RATE		MIN INLET Ps		FAN ONLY							FAN + PRIMARY @ 0.75" INLET Ps							FAN + PRIMARY @ 1.5" INLET Ps						
						OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp
		CFM	(L/s)	"WG	(Pa)	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
6	10	600	(283)	0.05	(13.25)	47	46	43	42	37	29	-	65	64	61	61	59	54	**22**	66	65	61	62	60	55	**23**
		800	(378)	0.10	(23.56)	53	52	49	48	44	37	-	66	65	62	62	60	55	**24**	67	66	62	63	61	56	**24**
		1000	(472)	0.15	(36.81)	57	56	53	53	49	43	-	67	66	63	63	61	57	**25**	68	67	63	64	62	57	**25**
		1200	(566)	0.21	(53.01)	61	60	57	57	54	49	-	68	67	64	64	62	58	**26**	69	68	64	65	63	59	**27**
		1400	(661)	0.29	(72.15)	64	63	60	61	58	53	**21**	70	68	65	66	64	59	**27**	70	69	65	66	64	60	**28**
6	12	800	(378)	0.09	(21.85)	53	52	49	48	44	37	-	66	65	62	62	60	55	**24**	67	66	62	63	61	56	**24**
		1100	(519)	0.17	(41.30)	59	58	55	55	52	46	-	68	67	63	64	62	57	**25**	69	67	63	64	62	58	**26**
		1400	(661)	0.27	(66.90)	64	63	60	61	58	53	**21**	70	68	65	66	64	59	**27**	70	69	65	66	64	60	**28**
		1600	(755)	**0.35**	(87.38)	**67**	**66**	**62**	**64**	**61**	**57**	**24**	71	70	66	67	65	61	**29**	72	70	66	67	65	61	**29**
		1800	(849)	0.44	(110.60)	69	68	65	66	64	60	**27**	72	71	67	69	67	63	**30**	73	71	67	69	67	63	**31**
6	14	900	(425)	0.10	(25.71)	55	54	51	51	47	40	-	67	66	62	63	61	56	**24**	68	66	63	63	61	57	**25**
		1200	(566)	0.18	(45.71)	61	60	57	57	54	49	-	68	67	64	64	62	58	**26**	69	68	64	65	63	59	**27**
		1500	(708)	0.29	(71.41)	66	64	61	62	59	55	**23**	70	69	65	66	64	60	**28**	71	70	66	67	65	61	**29**
		1800	(849)	0.41	(102.84)	69	68	65	66	64	60	**27**	72	71	67	69	67	63	**30**	73	71	67	69	67	63	**31**
		2100	(991)	0.56	(139.97)	72	71	68	70	68	65	**31**	74	71	68	70	68	65	**31**	75	73	69	70	68	65	**33**
6	16	900	(425)	0.10	(23.97)	55	54	51	51	47	40	-	67	66	62	63	61	56	**24**	68	66	63	63	61	57	**25**
		1200	(566)	0.17	(42.61)	61	60	57	57	54	49	-	68	67	64	64	62	58	**26**	69	68	64	65	63	59	**27**
		1500	(708)	0.27	(66.57)	66	64	61	62	59	55	**23**	70	69	65	66	64	60	**28**	71	70	66	67	65	61	**29**
		1800	(849)	0.39	(95.87)	69	68	65	66	64	60	**27**	72	71	67	69	67	63	**30**	73	71	67	69	67	63	**31**
		2100	(991)	0.52	(130.49)	72	71	68	70	68	65	**31**	74	71	68	70	68	65	**31**	75	73	69	70	68	65	**33**
7	10	800	(378)	0.04	(9.95)	67	58	56	53	50	45	-	67	58	56	53	50	45	-	67	58	56	53	50	45	-
		950	(448)	0.06	(14.04)	69	60	58	55	52	49	**22**	69	60	58	55	52	49	**22**	69	60	58	55	52	49	**22**
		1100	(519)	0.08	(18.82)	70	62	60	58	55	51	**24**	70	62	60	58	55	51	**24**	70	62	60	58	55	51	**24**
		1250	(590)	0.10	(24.30)	71	64	62	60	57	54	**25**	71	64	62	60	57	54	**25**	71	64	62	60	57	54	**25**
		1400	(661)	0.12	(30.48)	73	65	63	61	59	56	**27**	73	65	63	61	59	56	**27**	74	65	63	61	59	56	**29**
7	12	800	(378)	0.03	(7.86)	67	58	56	53	50	45	-	67	58	56	53	50	45	-	67	58	56	53	50	45	-
		1100	(519)	0.06	(14.87)	70	62	60	58	55	51	**24**	70	62	60	58	55	51	**24**	70	62	60	58	55	51	**24**
		1400	(661)	0.10	(24.09)	73	65	63	61	59	56	**27**	73	65	63	61	59	56	**27**	74	65	63	61	59	56	**29**
		1700	(802)	0.14	(35.51)	75	68	66	64	62	60	**29**	75	68	66	64	62	60	**29**	77	70	66	64	62	60	**32**
		2000	(944)	0.20	(49.15)	76	70	68	67	64	63	**31**	78	70	68	67	64	63	**34**	79	72	68	67	64	63	**35**
7	14	1600	(755)	0.10	(25.48)	74	67	65	63	61	59	**28**	74	67	65	63	61	59	**28**	76	69	65	63	61	59	**31**
		1900	(897)	0.14	(35.93)	76	69	67	66	64	62	**31**	76	69	67	66	64	62	**31**	78	71	67	66	64	62	**34**
		2200	(1038)	0.19	(48.18)	77	71	69	68	66	65	**33**	79	73	69	68	66	65	**35**	80	74	71	68	66	65	**36**
		2500	(1180)	0.25	(62.21)	78	73	71	70	68	67	**34**	81	75	73	72	70	67	**37**	81	76	73	72	70	67	**38**
		2800	(1321)	0.31	(78.04)	80	75	72	72	70	69	**36**	82	77	74	74	72	71	**39**	83	77	74	74	72	71	**40**
7	16	2000	(944)	0.13	(31.74)	76	70	68	67	64	63	**31**	78	70	68	67	64	63	**34**	79	72	68	67	64	63	**35**
		2400	(1133)	0.18	(45.71)	78	72	70	70	67	66	**34**	80	74	72	71	67	66	**36**	81	75	72	72	69	66	**37**
		2800	(1321)	**0.25**	(62.21)	**80**	**75**	**72**	**72**	**70**	**69**	**36**	82	77	74	74	72	71	**39**	83	77	74	74	72	71	**40**
		3200	(1510)	0.33	(81.25)	81	76	74	74	72	72	**38**	84	79	76	77	75	74	**41**	85	79	77	77	75	74	**42**
		3600	(1699)	0.41	(102.84)	82	78	75	76	74	74	**39**	85	81	78	79	77	77	**43**	86	81	78	79	77	77	**44**

NOTES: Discharge sound power is the sound emitted from the unit discharge. All sound data is based on tests conducted in accordance with AHRI 880-11 and corrected for end reflection. Sound power levels are in dB, re 10^{-12} Watts. NC application data is from AHRI Standard 885-08 Appendix E, as a function of flow rate shown. AHRI certification points are shown in bold, white font. For a complete list of AHRI certified data, see pages B2-4 and B2-5. All other data points listed are application ratings outside the scope of the Certification Program. See Krueger's selection program for specific sound data for optional liners; 1", dual density liner shown. Dash indicates a NC is less than 20. See Krueger's Terminal Unit Engineering section for reductions and definitions.

PERFORMANCE DATA | RADIATED SOUND

UNIT SIZE	INLET SIZE	FLOW RATE		MIN INLET Ps		FAN ONLY							FAN + PRIMARY @ 0.75" INLET Ps							FAN + PRIMARY @ 1.5" INLET Ps						
						OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp
		CFM	(L/s)	"WG	(Pa)	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
3	6	325	(153)	0.07	(18.25)	55	50	46	40	33	28	-	58	53	48	42	38	35	22	59	55	49	43	40	38	23
		350	(165)	0.09	(21.17)	56	51	47	42	34	30	20	58	54	49	43	39	36	23	60	56	50	44	41	39	24
		400	(189)	0.11	(27.65)	57	53	48	44	37	32	22	60	55	50	45	41	38	24	61	57	52	46	42	41	26
		450	(212)	0.14	(34.99)	59	54	50	45	39	34	24	61	57	52	46	42	39	26	63	59	53	47	44	42	28
		500	(236)	0.17	(43.20)	60	56	51	47	41	36	26	62	58	53	48	43	40	27	64	60	54	49	45	43	30
3	8	325	(153)	0.06	(14.97)	55	50	46	40	33	28	-	58	53	48	42	38	35	22	59	55	49	43	40	38	23
		450	(212)	0.12	(28.70)	59	54	50	45	39	34	24	61	57	52	46	42	39	26	63	59	53	47	44	42	28
		600	(283)	0.21	(51.03)	62	58	54	50	44	40	28	64	60	55	50	46	43	30	66	62	56	51	48	45	32
		700	(330)	**0.28**	(69.45)	**64**	**60**	**56**	**52**	**46**	**42**	31	66	62	57	52	48	44	32	**68**	**64**	**58**	**53**	**50**	**47**	35
		900	(425)	0.46	(114.81)	67	63	59	56	51	47	34	69	65	60	56	51	47	36	71	67	61	57	53	50	38
3	10	325	(153)	0.05	(13.41)	55	50	46	40	33	28	-	58	53	48	42	38	35	22	59	55	49	43	40	38	23
		450	(212)	0.10	(25.71)	59	54	50	45	39	34	24	61	57	52	46	42	39	26	63	59	53	47	44	42	28
		600	(283)	0.18	(45.71)	62	58	54	50	44	40	28	64	60	55	50	46	43	30	66	62	56	51	48	45	32
		750	(354)	0.29	(71.41)	65	61	57	53	48	44	32	67	63	58	53	49	45	33	69	65	59	54	51	48	36
		900	(425)	0.41	(102.84)	67	63	59	56	51	47	34	69	65	60	56	51	47	36	71	67	61	57	53	50	38
4	8	325	(153)	0.02	(5.96)	51	48	41	35	28	22	-	54	49	42	37	34	32	-	56	51	44	39	37	36	-
		450	(212)	0.05	(11.43)	54	51	45	39	33	27	-	57	52	45	41	38	35	21	59	55	47	42	40	40	24
		600	(283)	0.08	(20.31)	58	55	48	43	37	31	23	60	56	49	44	41	38	25	63	58	50	45	43	42	28
		750	(354)	0.13	(31.74)	60	57	50	46	40	35	26	63	58	51	46	43	40	28	65	61	53	48	46	45	31
		900	(425)	0.18	(45.71)	62	59	52	48	43	37	29	65	61	53	48	45	42	30	67	63	55	50	48	46	33
4	10	400	(189)	0.03	(6.37)	53	50	43	38	31	25	-	56	51	44	39	37	34	-	58	54	46	41	39	38	22
		600	(283)	0.06	(14.33)	58	55	48	43	37	31	23	60	56	49	44	41	38	25	63	58	50	45	43	42	28
		800	(378)	0.10	(25.48)	61	58	51	47	41	36	27	63	59	52	47	44	41	29	66	62	54	49	46	45	32
		1000	(472)	0.16	(39.81)	64	60	54	49	44	39	30	66	62	54	50	46	43	32	68	64	56	51	49	47	35
		1100	(519)	**0.19**	(48.18)	**65**	**61**	**55**	**51**	**46**	**40**	31	67	63	55	51	47	44	33	**69**	**66**	**57**	**52**	**50**	**48**	36
4	12	400	(189)	0.02	(5.89)	53	50	43	38	31	25	-	56	51	44	39	37	34	-	58	54	46	41	39	38	22
		600	(283)	0.05	(13.25)	58	55	48	43	37	31	23	60	56	49	44	41	38	25	63	58	50	45	43	42	28
		800	(378)	0.10	(23.56)	61	58	51	47	41	36	27	63	59	52	47	44	41	29	66	62	54	49	46	45	32
		1000	(472)	0.15	(36.81)	64	60	54	49	44	39	30	66	62	54	50	46	43	32	68	64	56	51	49	47	35
		1200	(566)	0.21	(53.01)	66	62	56	52	47	42	32	68	64	56	52	48	45	34	70	67	58	53	51	49	37
5	8	700	(330)	0.15	(37.63)	60	55	51	47	41	35	25	64	59	52	47	45	43	28	67	63	54	48	47	47	33
		750	(354)	0.17	(43.20)	60	55	51	47	42	36	26	64	60	53	47	45	44	29	67	63	55	49	48	48	33
		800	(378)	0.20	(49.15)	61	56	51	47	42	36	26	65	60	54	48	46	44	30	68	64	56	49	48	48	34
		850	(401)	0.22	(55.49)	61	56	52	47	42	36	26	65	61	54	49	47	45	30	68	64	56	50	49	49	34
		900	(425)	0.25	(62.21)	61	56	52	48	42	37	26	65	61	55	49	47	45	31	69	65	57	51	49	49	35
5	10	600	(283)	0.09	(22.62)	60	55	50	46	41	35	25	63	58	51	45	43	41	27	66	61	53	46	46	46	31
		800	(378)	0.16	(40.22)	61	56	51	47	42	36	26	65	60	54	48	46	44	30	68	64	56	49	48	48	34
		1000	(472)	0.25	(62.84)	61	56	52	48	43	37	27	66	62	56	50	48	46	32	69	66	58	52	50	50	36
		1100	(519)	**0.31**	(76.03)	**61**	**57**	**53**	**49**	**43**	**37**	27	67	63	57	51	49	47	33	**70**	**66**	**59**	**53**	**51**	**51**	37
		1300	(614)	0.43	(106.19)	62	57	53	49	44	38	28	68	64	59	53	51	49	34	71	68	61	54	53	53	39
5	12	900	(425)	0.17	(41.64)	61	56	52	48	42	37	26	65	61	55	49	47	45	31	69	65	57	51	49	49	35
		1100	(519)	0.25	(62.21)	61	57	53	49	43	37	27	67	63	57	51	49	47	33	70	66	59	53	51	51	37
		1300	(614)	0.35	(86.89)	62	57	53	49	44	38	28	68	64	59	53	51	49	34	71	68	61	54	53	53	39
		1500	(708)	0.47	(115.68)	62	58	54	50	45	39	28	69	65	60	54	52	50	36	72	69	62	56	54	54	40
		1700	(802)	0.60	(148.58)	63	58	54	51	45	39	29	70	66	62	56	53	51	37	73	70	64	57	55	55	41
5	14	900	(425)	0.14	(34.99)	61	56	52	48	42	37	26	65	61	55	49	47	45	31	69	65	57	51	49	49	35
		1100	(519)	0.21	(52.27)	61	57	53	49	43	37	27	67	63	57	51	49	47	33	70	66	59	53	51	51	37
		1300	(614)	0.29	(73.01)	62	57	53	49	44	38	28	68	64	59	53	51	49	34	71	68	61	54	53	53	39
		1500	(708)	0.39	(97.20)	62	58	54	50	45	39	28	69	65	60	54	52	50	36	72	69	62	56	54	54	40
		1700	(802)	0.50	(124.85)	63	58	54	51	45	39	29	70	66	62	56	53	51	37	73	70	64	57	55	55	41

NOTES: See notes on next page.

PERFORMANCE DATA | RADIATED SOUND (CONTINUED)

UNIT SIZE	INLET SIZE	FLOW RATE		MIN INLET Ps		FAN ONLY							FAN + PRIMARY @ 0.75" INLET Ps							FAN + PRIMARY @ 1.5" INLET Ps						
						OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp	OCTAVE BAND SOUND POWER, Lw						Lp
		CFM	(L/s)	"WG	(Pa)	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
6	10	600	(283)	0.05	(13.25)	52	49	42	37	32	27	-	56	51	45	39	37	38	-	57	53	46	40	38	41	21
		800	(378)	0.10	(23.56)	57	54	46	42	38	33	23	59	55	48	43	41	42	24	61	57	50	44	42	44	26
		1000	(472)	0.15	(36.81)	61	58	50	46	42	38	27	62	58	51	46	44	44	28	64	60	53	47	45	47	30
		1200	(566)	0.21	(53.01)	64	61	53	50	46	42	31	64	61	54	49	47	46	31	66	63	55	50	48	49	33
		1400	(661)	0.29	(72.15)	67	64	56	52	48	45	34	66	63	56	51	49	48	33	68	65	57	52	50	51	35
6	12	800	(378)	0.09	(21.85)	57	54	46	42	38	33	23	59	55	48	43	41	42	24	61	57	50	44	42	44	26
		1100	(519)	0.17	(41.30)	63	60	52	48	44	40	29	63	60	53	48	45	45	29	65	62	54	48	47	48	31
		1400	(661)	0.27	(66.90)	67	64	56	52	48	45	34	66	63	56	51	49	48	33	68	65	57	52	50	51	35
		1600	(755)	**0.35**	(87.38)	**69**	**66**	**58**	**55**	**51**	**48**	37	68	65	57	53	51	50	35	**70**	**67**	**59**	**54**	**52**	**52**	37
		1800	(849)	0.44	(110.60)	71	68	60	57	53	51	39	69	66	59	55	52	51	37	71	68	60	55	54	54	39
6	14	900	(425)	0.10	(25.71)	59	56	48	44	40	35	25	61	57	50	45	42	43	26	62	59	51	46	44	46	28
		1200	(566)	0.18	(45.71)	64	61	53	50	46	42	31	64	61	54	49	47	46	31	66	63	55	50	48	49	33
		1500	(708)	0.29	(71.41)	68	65	57	54	50	47	35	67	64	57	52	50	49	34	69	66	58	53	51	52	36
		1800	(849)	0.41	(102.84)	71	68	60	57	53	51	39	69	66	59	55	52	51	37	71	68	60	55	54	54	39
		2100	(991)	0.56	(139.97)	73	71	62	60	56	54	42	71	69	61	57	54	53	40	73	70	62	58	56	56	42
6	16	900	(425)	0.10	(23.97)	59	56	48	44	40	35	25	61	57	50	45	42	43	26	62	59	51	46	44	46	28
		1200	(566)	0.17	(42.61)	64	61	53	50	46	42	31	64	61	54	49	47	46	31	66	63	55	50	48	49	33
		1500	(708)	0.27	(66.57)	68	65	57	54	50	47	35	67	64	57	52	50	49	34	69	66	58	53	51	52	36
		1800	(849)	0.39	(95.87)	71	68	60	57	53	51	39	69	66	59	55	52	51	37	71	68	60	55	54	54	39
		2100	(991)	0.52	(130.49)	73	71	62	60	56	54	42	71	69	61	57	54	53	40	73	70	62	58	56	56	42
7	10	800	(378)	0.04	(9.95)	54	46	41	34	27	20	-	62	56	52	45	42	40	26	63	58	54	46	43	42	29
		950	(448)	0.06	(14.04)	56	49	44	38	31	24	-	64	58	53	47	44	42	28	65	59	56	48	45	44	30
		1100	(519)	0.08	(18.82)	59	52	47	40	34	27	21	65	60	55	49	45	43	29	66	61	57	50	46	45	32
		1250	(590)	0.10	(24.30)	61	54	49	43	36	30	23	66	61	56	50	46	44	31	67	62	58	51	48	46	33
		1400	(661)	0.12	(30.48)	63	56	51	45	39	33	26	67	63	57	51	47	45	32	68	64	59	53	49	47	34
7	12	800	(378)	0.03	(7.86)	54	46	41	34	27	20	-	62	56	52	45	42	40	26	63	58	54	46	43	42	29
		1100	(519)	0.06	(14.87)	59	52	47	40	34	27	21	65	60	55	49	45	43	29	66	61	57	50	46	45	32
		1400	(661)	0.10	(24.09)	63	56	51	45	39	33	26	67	63	57	51	47	45	32	68	64	59	53	49	47	34
		1700	(802)	0.14	(35.51)	66	60	54	49	43	38	30	69	65	59	53	49	47	35	70	66	61	55	51	49	36
		2000	(944)	0.20	(49.15)	68	63	57	52	46	41	33	71	66	60	55	51	49	37	72	68	62	57	52	51	38
7	14	1600	(755)	0.10	(25.48)	65	59	53	48	41	36	28	69	64	58	53	49	47	34	70	65	60	54	50	49	36
		1900	(897)	0.14	(35.93)	68	62	56	51	45	40	32	70	66	60	55	50	48	36	71	67	62	56	52	50	38
		2200	(1038)	0.19	(48.18)	70	65	58	54	48	44	35	72	67	61	56	52	50	38	73	69	63	58	53	52	40
		2500	(1180)	0.25	(62.21)	72	67	60	56	51	47	38	73	69	62	58	53	51	40	74	70	64	59	55	53	41
		2800	(1321)	0.31	(78.04)	74	69	62	59	53	49	41	74	70	63	59	54	52	41	75	71	66	60	56	54	43
7	16	2000	(944)	0.13	(31.74)	68	63	57	52	46	41	33	71	66	60	55	51	49	37	72	68	62	57	52	51	38
		2400	(1133)	0.18	(45.71)	71	67	60	56	50	46	37	72	68	62	57	53	50	39	74	70	64	59	54	53	41
		2800	(1321)	**0.25**	(62.21)	**74**	**69**	**62**	**59**	**53**	**49**	41	74	70	63	59	54	52	41	**75**	**71**	**66**	**60**	**56**	**54**	43
		3200	(1510)	0.33	(81.25)	76	72	65	61	56	52	44	75	72	65	60	56	53	43	76	73	67	62	57	55	44
		3600	(1699)	0.41	(102.84)	78	74	66	64	58	55	46	76	73	66	62	57	54	45	77	74	68	63	58	56	46

NOTES: Radiated sound power is the sound transmitted through the casing walls. All sound data is based on tests conducted in accordance with AHRI 880-11. Sound power levels are in dB, re 10^{-12} Watts. NC application data is from AHRI Standard 885-08 Appendix E. AHRI certification points are shown in bold, white font. For a complete list of AHRI certified data, see pages B2-4 and B2-5. All other data points listed are application ratings outside the scope of the Certification Program. See Krueger's selection program for specific sound data for optional liners; 1", dual density liner shown. Dash indicates a NC is less than 20. See Krueger's Terminal Unit Engineering section for reductions and definitions.

CONTROL INFORMATION

SEQUENCE OF OPERATION

The standard KFSS sequence of operation has the induced airflow fan operating continuously, providing a constant volume of discharge air to the conditioned space.

HEATING MODE

When the zone is at maximum heating demand, the primary air damper maintains a minimum flow and the fan runs constantly, inducing the maximum amount of warm ceiling plenum air. Electric or hot water heat, if supplied, operates at maximum capacity.

As the zone temperature rises, the optional heat, if supplied, cycles off. The fan continues to induce a maximum amount of ceiling plenum air. As the zone temperature rises above the thermostat setpoint, the KFSS unit enters the cooling mode.

COOLING MODE

As the zone temperature rises above setpoint, the primary air damper begins to modulate toward the full open damper position. As the amount of conditioned primary air increases, the amount of induced ceiling plenum air decreases proportionally.

When the conditioned zone is at maximum cooling demand, the primary air damper will maintain a constant maximum flow setting. With pressure independent controls, the damper will maintain the maximum flow setting regardless of system pressure fluctuations. The fan will discharge virtually 100% primary air if installed and balanced properly.

NIGHT SETBACK

One of the most popular KFSS control arrangements is the night setback feature. With this control arrangement, the KFSS induced air fan will operate whenever central system pressure is sensed (day mode). When the central system is off (night mode), the KFSS fan motor and optional heat will cycle on in response to thermostat demand.

CONTROL OPTIONS

- **Pneumatic Controls**: Pressure independent control packages are available with or without hot water or electric heat, night shutdown and/or unoccupied heating. All control arrangements include an inlet flow sensor and fan speed controller.
- **Direct Digital Controls**: Smart Equipment control packages are provided and programmed by the factory for in-house mounting, piping, and wiring.
  - BACnet Compatible: 7601-7609
  - Standalone: 6601-6609

  Other digital control packages can be supplied to the factory for mounting, piping, and wiring.

  Contact your Krueger representative for a complete list of direct digital control arrangements.
- **No Control Unit**: Units are factory supplied without controls, assuming that the unit is being used for field mounting of direct digital control equipment. This arrangement includes an inlet flow sensor, control enclosure, fan speed controller, transformer to 24 volts, and fan relay.

NOTES: Visit Krueger's website at www.krueger-hvac.com or contact your local Krueger representative for a complete list of direct digital control arrangements.

To prevent the blower from spinning backwards, the simplest solution is to require that the building control system energize the series box fans prior to starting the central system air handler. Some DDC controls for series boxes have a start-up procedure that closes the damper, de-energizes the fan, (resets to zero on the pressure transducer while the damper is closed) and then returns control to the unit. Most manufacturers' Series Fan boxes are designed to maximize starting torque to overcome this backward rotation. If, however, the primary airflow is available for long enough, and the fan speed control is set at a low enough value, any series fan terminal can be expected to start and operate backward. This will not damage the unit, and it will deliver approximately 60% of designed airflow. Until the space load exceeds 60% of the design load, it is probable that no one will notice the unit is running backward. When the thermostat calls for more than 60% of the design load the excess primary will spill into the plenum and the likely result will be cold plenum air 'falling' from return grilles onto room occupants. No manufacturer offers a mechanical device to prevent backward rotation. Krueger can supply a special sequence that employs a pressure sensor installed in the high-pressure side of the inlet sensor to detect any airflow in the primary duct and energize the fan if the building's control system cannot be properly configured to avoid this problem.

CONTROL INFORMATION (CONTINUED)

The following list shows the standard control arrangements available with the KFSS product offering. Each control approach offers a variety of pressure independent operating functions; combinations of control functions are identified by the Krueger control package number.

PNEUMATIC CONTROL ARRANGEMENTS

1306 - Multi-function Controller; DA-NO with or without Hot Water or Electric Heat
1307 - Multi-function Controller; DA-NO with or without Hot Water or Electric Heat and with Night Shutdown
1308 - Multi-function Controller; DA-NO with or without Hot Water or Electric Heat, with Night Shutdown and Unoccupied Heating
1309 - Multi-function Controller; DA-NC with or without Hot Water or Electric Heat
1310 - Multi-function Controller; DA-NC with or without Hot Water or Electric Heat and with Night Shutdown
1311 - Multi-function Controller; DA-NC with or without Hot Water or Electric Heat, with Night Shutdown and Unoccupied Heating
1312 - Multi-function Controller; RA-NC with or without Hot Water or Electric Heat
1313 - Multi-function Controller; RA-NC with or without Hot Water or Electric Heat and with Night Shutdown
1314 - Multi-function Controller; RA-NC with or without Hot Water or Electric Heat, with Night Shutdown and Unoccupied Heating
1315 - Multi-function Controller; RA-NO with or without Hot Water or Electric Heat
1316 - Multi-function Controller; RA-NO with or without Hot Water or Electric Heat and with Night Shutdown
1317 - Multi-function Controller; RA-NO with or without Hot Water or Electric Heat, with Night Shutdown and Unoccupied Heating

Pneumatic Control Legend:

DA - Direct Acting Thermostat
RA - Reverse Acting Thermostat
NO - Normally Open Damper Position
NC - Normally Closed Damper Position
Multi-function Controller - Capable of Providing DA-NO, DA-NC,RA-NC or RA-NO Functions

DIRECT DIGITAL CONTROL ARRANGEMENTS

Visit Krueger's website at www.krueger-hvac.com or contact your Krueger representative for a complete list of factory mounted direct digital control arrangements.

CONTROL INFORMATION (CONTINUED)

DIRECT DIGITAL CONTROL ARRANGEMENTS

Smart Equipment control packages are provided and programmed by the factory for in-house mounting, piping, and wiring.

- BACnet Compatible: 7601-7609
- Standalone: 6601-6609

Standard Features

- Single Duct, Series Fan, and Parallel Fan Terminal Units
- Occupied, Unoccupied, and Standby modes
- Plug and Play connection with the Smart Equipment system
- BACnet compatible for ease of communication with building automation systems
- Standalone option available for non-communicating systems
- Factory programming tailored to customer specified airflow values and control sequence
- Control sequences for warm supply air are available

Optional Features

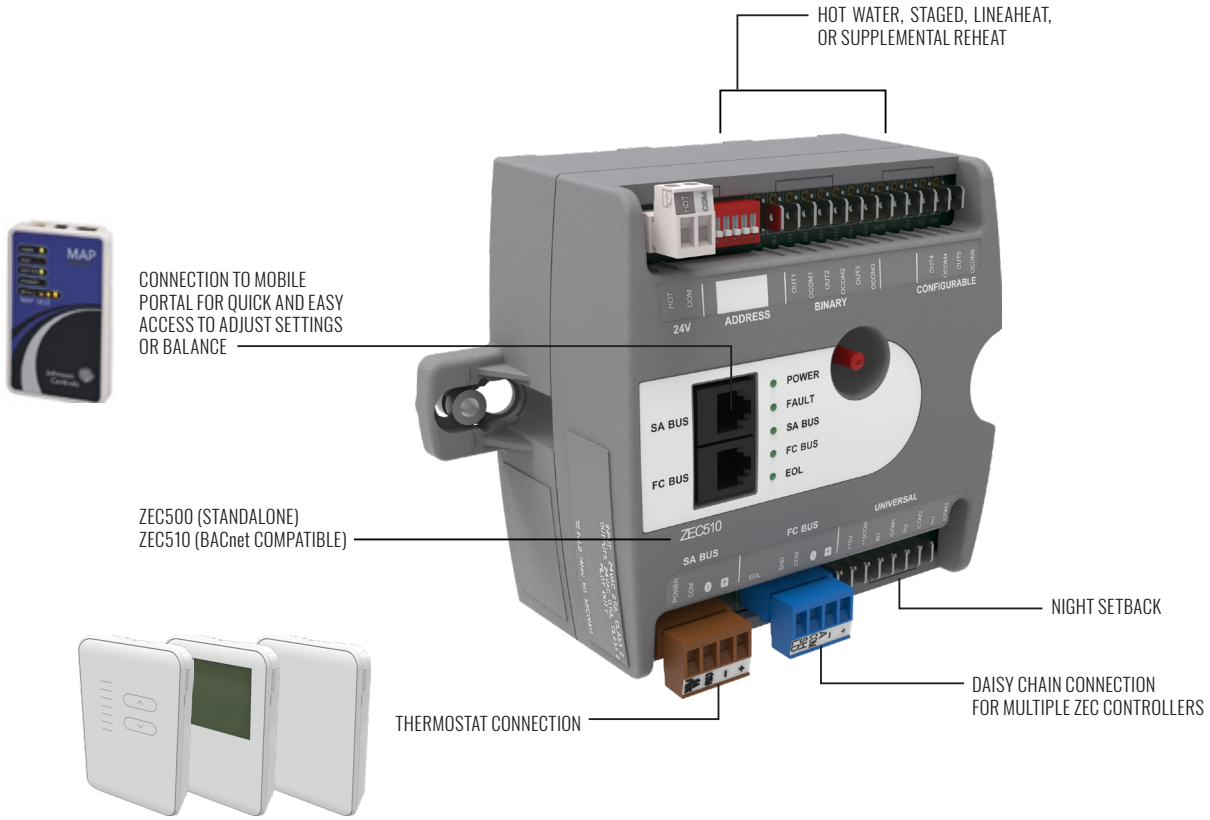
- LCD Display Thermostat
- Warmer/Cooler Interface Thermostat
- No Display Thermostat
- Supply or Discharge Air Temperature Sensors
- Night Setback Mode
- Mobile Access Portal with RJ12 connections for easy settings adjustments
- Balancing tool with RJ12 connection for ease of balancing either at controller or thermostat

Other Digital Control packages can be supplied to the factory for mounting, piping, and wiring.

All DDC control arrangements include an inlet airflow sensor and control enclosure and are available with an optional 24-volt transformer mounted and wired inside the control enclosure.

Contact your Krueger representative for a complete list of direct digital control arrangements.

SMART EQUIPMENT CONTROLLER DETAIL



SUGGESTED SPECIFICATION & CONFIGURATION

KFSS UNIT

Fan powered terminal unit shall be designed to provide low sound levels. Unit shall be completely factory assembled and wired with motor, blower, mixing plenum and primary air damper contained in a single unit housing. Unit shall be Krueger model KFSS.

The fan shall operate continuously during central system operation. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (direct digital) (pneumatic) pressure independent velocity controller maintains the minimum primary airflow setting by modulating the damper. The electric heating coil or hot water coil, if supplied, is energized (activated). As room temperature begins to rise, the heating coil is de-energized (deactivated). As room temperature rises above the setpoint, the primary air damper will modulate to maintain room temperature. When the room temperature calls for maximum cooling, the velocity controller maintains the maximum primary airflow setting.

To prevent the fan/motor from running in the backward direction, the unit induced air fan shall be field wired so that it is electrically or pneumatically interlocked with the central system fan.

Terminals shall be certified by use of the AHRI Standard 880 Certification Program and carry the AHRI seal.

The terminal unit shall be ETL listed as a complete assembly. All electrical components shall be UL listed and installed in accordance with the National Electric Code. All electrical components shall be mounted in sheet metal control enclosures. Electrical connection shall be single point.

Unit casing shall be constructed of not less than 20 gage galvanized steel. All primary air inlet collars shall accommodate standard flex duct sizes. Unit discharge shall be rectangular, suitable for flanged duct connections.

Unit labels shall be adhered to each unit including model, size, airflow (CFM), balancing chart, electrical information, and tagging data.

KFSS unit shall be equipped with a factory installed airflow sensing device. Provide a K4 LineaCross, four quadrant, multi-point center averaging sensor with an amplified signal. Provide balancing taps to allow for easy airflow verification.

The primary air damper assembly shall be constructed of heavy gage galvanized steel with 1/2" solid shaft rotating in self lubricating Delrin® bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blade shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90° rotation.

Fan motor and all interior components must be accessible through a removable bottom access panel.

Fan shall be of the forward curve, centrifugal type. The fan motor shall be [120, 208/240, or 277 volt, 1-phase] ECM (electronically commutated motor) fan motors including either a manual or remote adjustable speed controller. The manual adjustable speed controller is field set adjustable with digital display alternating between RPM and percentage full flow. The remote adjustable speed controller provides a means to remotely set and/or adjust the fan speed.

The radiated and discharge attenuation factors for the specified NC levels shall be based on attenuation factors from AHRI Standard 885-08 Appendix E, which includes room absorption, environmental adjustment factor, duct insertion, end reflection and duct branching.

CASING LINERS

Unit casing shall be lined with 1" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.

- **(Optional)** 1/2" Thick Insulation: Unit casing shall be lined with 1/2" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.
- **(Optional)** Cellular Insulation: Unit casing shall be lined with 1/2" or 1" thick, 1 1/2 lb. density, smooth surface, polyolefin, closed-cell foam insulation for fiber free application. Cellular insulation meets UL 181 and NFPA 90A and does not support mold or bacteria growth. Insulation shall be attached to the unit casing by adhesive.
- **(Optional)** Foil Encapsulated Insulation: Unit casing shall be lined with foil reinforced, wrapped edges, 1/2" or 1" thick, 1 1/2 lb. density fiberglass insulation that meets UL 181 and NFPA 90A. Insulation shall be attached to the unit casing by adhesive and weld pins.
- **(Optional)** Sterilwall Insulation: Unit casing shall be lined with 1" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A, enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.
- **(Optional)** Perforated Doublewall Insulation: Unit casing shall be lined with 1" thick, 1 1/2 lb. dual density fiberglass insulation that meets UL 181 and NFPA 90A, enclosed between the unit casing and a perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

SUGGESTED SPECIFICATION & CONFIGURATION (CONTINUED)

ELECTRIC HEATING COILS

Electric coils shall be supplied by the terminal unit manufacturer and shall be ETL listed in accordance with UL standards. Construct coil casing with minimum of 20 gage galvanized steel. Elements shall be 80/20 Ni-Cr and supported by ceramic insulators. The integral control panel shall be housed in a NEMA 1 enclosure with access to all controls and safety devices.

Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow.

- **(Optional)** Electric coils shall include fused or non-fused door interlocking disconnect switch, AC solid state relay, fuse-block, manual reset cutout, and/or dust tight enclosure construction.
- **(Optional)** LineaHeat solid state electronic proportional control of electric heat shall meet the requirements of ASHRAE Standard 62, Addenda N.
- **(Optional)** LineaHeat solid state electronic controlled heater with control of the leaving air temperature limiting the unit discharge temperature to a set value.

HOT WATER COILS

Hot water coil casing shall be constructed with minimum 20 gage galvanized steel with flanged discharge for attachment to downstream ductwork. Coils shall be factory installed on the terminal unit. Fins shall be rippled and corrugated heavy gage aluminum, mechanically bonded to tubes. Tubes shall be copper with minimum wall thickness of 0.016" and with male solder header connections. Coils shall be leak tested to 400 psi. Number of coil rows and circuits shall be selected to provide performance as required by the plans. Coil performance data shall be based on tests run in accordance with AHRI Standard 410.

1. SERIES: (XXXXXX)
KFSS - Quiet Fan Powered Terminal Unit

2. SENSOR TYPE: (X)
3 - K4 LineaCross (Four Quadrant, Standard)

3. LINER TYPE: (X)
0 - 1/2" Dual Density Fiberglass
1 - 1" Dual Density Fiberglass
6 - 1/2" Foil Encapsulated Fiberglass
8 - Sterilwall with 1" Dual Density Fiberglass
9 - 1" Foil Encapsulated Fiberglass
B - Perforated Double Wall with 1" Dual Density Fiberglass
F - 1/2" Cellular (Fiber Free)
H - 1" Cellular (Fiber Free)

4. UNIT CASING CONTROLS: (XX)
1L - Left-hand Controls, 20 Gage Casing
1R - Right-hand Controls, 20 Gage Casing

5. UNIT SIZE: (X)
3 - Available Inlet Sizes: 6", 8", 10"
4 - Available Inlet Sizes: 8", 10", 12"
5 - Available Inlet Sizes: 10", 12", 14"
6 - Available Inlet Sizes: 10", 12", 14", 16"
7 - Available Inlet Sizes: 10", 12", 14", 16" *

6. INLET CODE: (XX)

06 - 6"	08 - 8"
10 - 10"	12 - 12"
14 - 14"	16 - 16"

7. MOTOR VOLTAGE: (X)
A - ECM Motor, 120V, 1-Phase **
B - ECM Motor, 208/240V, 1-Phase **
C - ECM Motor, 277V, 1-Phase **

8. EC MOTOR SPEED CONTROL: (X)
6 - Manual Speed Control
7 - 0-10Vdc Remote Speed Control
8 - 2-10Vdc Remote Speed Control

9. CONTROL TYPE: (XXXX)
(7XXX) - Digital, BACnet Compatible, Smart Equipment Controls
(6XXX) - Digital, Standalone, Smart Equipment Controls
(XXXX) - Factory Mounted, Provided by Others
(1XXX) - Pneumatic

10. ELECTRICAL ENCLOSURE: (X)
S - Standard Enclosure
9 - 90° High Voltage Enclosure
B - Bottom Facing Enclosure
R - Remote Mounted High Voltage Enclosure

SUGGESTED SPECIFICATION & CONFIGURATION (CONTINUED)

11. CONTROL ACCESSORIES: (X)
0 - None
N - Standalone SEC Occupancy Pressure Switch

12. THERMOSTAT: (X)
0 - None
4 - 2-Pipe DA (Pneumatic Controls)
5 - 2-Pipe RA (Pneumatic Controls)

13. DISCONNECT SWITCH: (X)
0 - None
A - Toggle Disconnect Switch ***
K - Door-interlocking Fused Disconnect Switch
L - Door-interlocking Non-fused Disconnect Switch

14. FILTER: (X)
0 - None
1 - 1" Construction Filter
A - 1" MERV 8 Filter
D - 2" MERV 13 Filter

15. ATTENUATOR: (X)
0 - None
T - Induced Inlet Attenuator

16. HANGERS: (X)
0 - None
S - Factory Installed Hangers

17. CAM LOCK ACCESS DOORS: (X)
0 - None
P - Cam Lock Access Door

18. DUST TIGHT: (X)
0 - None
E - Dust Tight Control Enclosure

19. FAN MOTOR FUSE: (X)
0 - None
F - Fan Motor Fuse

20. HOT WATER REHEAT COILS: (XXX) (ROWS/CONNECTION HAND)
000 - None
W11 - 1-Row/Right Hand Connection
W12 - 2-Row/Right Hand Connection
W13 - 3-Row/Right Hand Connection
W14 - 4-Row/Right Hand Connection
W21 - 1-Row/Left Hand Connection
W22 - 2-Row/Left Hand Connection
W23 - 3-Row/Left Hand Connection
W24 - 4-Row/Left Hand Connection

21. ELECTRIC HEAT TYPE: (XX)
0 - None
E - Staged
L - LineaHeat, SSR Time Modulated

22. ELECTRIC REHEAT VOLTAGE: (X)
0 - None
1 - 120V/1-Phase
2 - 208V/1-Phase
3 - 240V/1-Phase
4 - 277V/1-Phase
6 - 208V/3-Phase
9 - 480V/3-Phase

23. ELECTRIC HEAT STAGES: (X)
0 - None
1 - 1 Stage
2 - 2 Stages
3 - 3 Stages

24. LINEAHEAT CONTROL: (X)
0 - None
1 - On/Off
2 - 2 Stages
3 - 0-10Vdc Proportional
4 - 2-10Vdc Proportional
5 - Incremental Proportional
6 - Binary
7 - 3-Point Floating

25. ELECTRIC HEAT KW(XX.X)
0.5 kW Increments
See selection software for ranges.

26. HEAT COIL ACCESSORIES: (X) (X) (X) (X) (X)
ELECTRIC HEAT ACCESSORIES
E - Chicago Code Construction with Dust Tight Electric Heat Enclosure
F - Manual Reset Thermal Cutout
H - Silent Solid State Relays
S - Discharge Temperature Sensor

HOT WATER HEAT ACCESSORIES
A - Upstream Access Door
P - Vent & Drain Ports

* Unit size 7 not available with 120V.
** Manual or remote adjustable speed controller for ECM motor option is required.
*** Motor toggle disconnect not available with electric heat.

SAMPLE CONFIGURATION: KFSS - 3 - 1 - 1L - 410 - A6 - 6202 - B0L - KATSP0000 - 000E91 - 05.5 - FH000