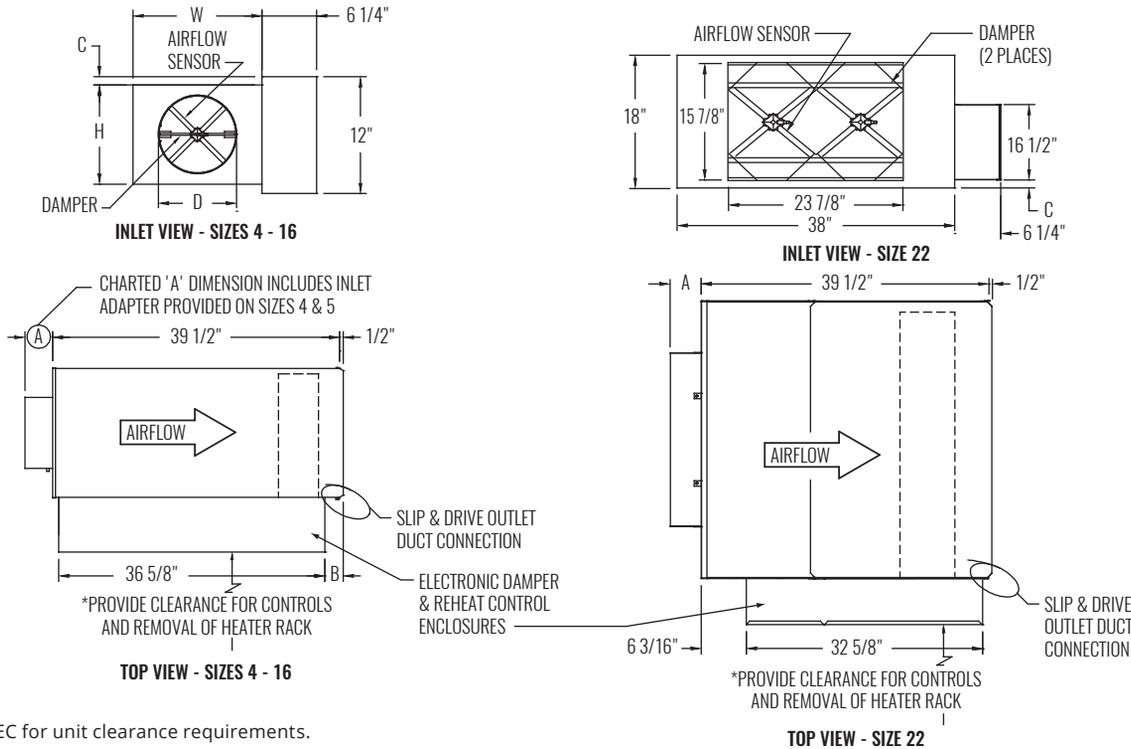


DIMENSIONAL DATA | BASE UNIT WITH ELECTRIC HEAT



* Check NEC for unit clearance requirements.

INLET SIZE	MAX CFM [L/s]	W	H	A	B	C	D
4	230 [109]	12"	8"	5 3/8"	5 1/2"	2"	3 7/8"
5	360 [170]	12"	8"	5 3/8"	5 1/2"	2"	4 7/8"
6	515 [243]	12"	8"	3 3/8"	5 1/2"	2"	5 7/8"
7	700 [330]	12"	10"	3 3/8"	5 1/2"	1"	6 7/8"
8	920 [434]	12"	10"	3 3/8"	5 1/2"	1"	7 7/8"
9	1160 [547]	14"	12 1/2"	3 3/8"	3 1/2"	-	8 7/8"
10	1430 [675]	14"	12 1/2"	3 3/8"	3 1/2"	-	9 7/8"
12	2060 [972]	16"	15"	3 3/8"	3 1/2"	-	11 7/8"
14	2800 [1321]	20"	17 1/2"	3 3/8"	1 1/2"	-	13 7/8"
16	3660 [1727]	24"	18"	3 3/8"	1 1/2"	-	15 7/8"
22	7000 [3304]	38"	18"	4 1/4"	-	1 1/8"	23 7/8" x 15 7/8"

NOTES: *Right-hand base unit with electronic control enclosure shown; left-hand is available. See page A2-4 for minimum CFM values. Horizontal installation only.

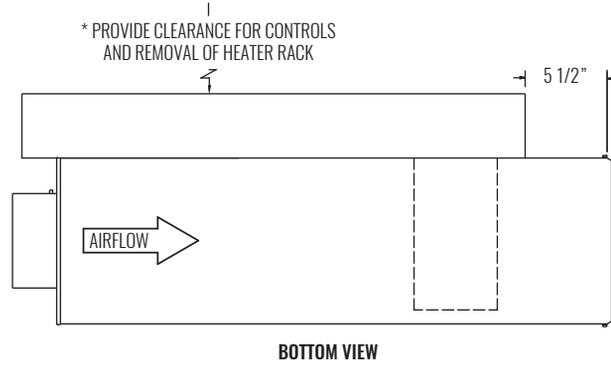
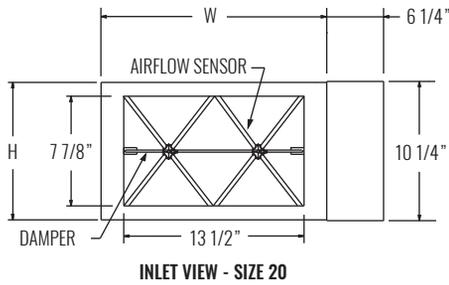
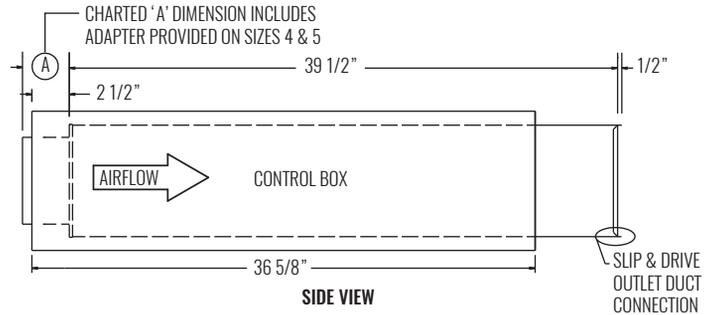
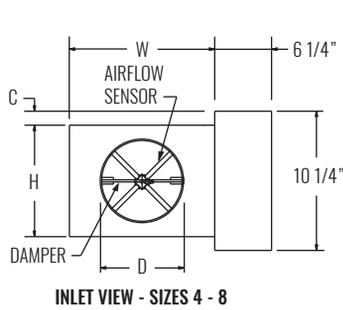
STANDARD FEATURES

- 22 Gauge galvanized steel casing construction.
- Integral sound attenuator.
- NEMA 1 steel control enclosure for electric or electronic components.
- 1/2" Thick dual density fiberglass insulation that meets NFPA 90A and UL 181 safety requirements.
- Four quadrant center averaging airflow sensor.
- Variety of pneumatic, analog, and factory mounted direct digital control packages for pressure dependent and pressure independent systems.
- ETL Listed as an entire assembly under UL 1996.
- See Page A2-16 for electric heat standard features.

OPTIONAL FEATURES*

- LineaHeat solid state electronic proportional control of electric heat.
- 20 Gauge galvanized steel casing construction.
- Liners: 1/2" Cellular Insulation, 1" Dual Density Fiberglass Insulation, Sterilwall, Steriliner, Perforated Doublewall, or no liner.
- Linear averaging airflow sensor.
- Left or right-hand control & electric heat enclosure.
- Fused or non-fused door interlocking heater disconnect switch.
- Fuse block with fuses for primary overload protection.
- AC solid state relays.
- Dust tight construction.
- Hanger brackets.

DIMENSIONAL DATA | LOW PROFILE UNIT WITH ELECTRIC HEAT



* Check NEC for unit clearance requirements.

INLET SIZE	MAX CFM [L/s]	W	H	A	C	D
4	230 [109]	12"	8"	5 3/8"	1 1/8"	3 7/8"
5	360 [170]	12"	8"	5 3/8"	1 1/8"	4 7/8"
6	515 [243]	12"	8"	3 3/8"	1 1/8"	5 7/8"
7	710 [335]	12"	10"	3 3/8"	1/8"	6 7/8"
8	920 [434]	12"	10"	3 3/8"	1/8"	7 7/8"
20	2100 [991]	16 1/4"	10"	3 3/4"	1/8"	N/A

NOTES: *Right-hand base unit with electronic control enclosure shown; left-hand is available.

STANDARD FEATURES

- 22 Gauge galvanized steel casing construction.
- Integral sound attenuator.
- NEMA 1 steel control enclosure for electric or electronic components.
- 1/2" Thick dual density fiberglass insulation that meets NFPA 90A and UL 181 safety requirements.
- Four quadrant center averaging airflow sensor.
- Variety of pneumatic, analog, and factory mounted direct digital control packages for pressure dependent and pressure independent systems.
- ETL Listed as an entire assembly under UL 1996.
- See Page A2-16 for electric heat standard features.

OPTIONAL FEATURES*

- LineaHeat solid state electronic proportional control of electric heat.
- 20 Gauge galvanized steel casing construction.
- Liners: 1/2" Cellular Insulation, 1" Dual Density Fiberglass Insulation, Sterilwall, Steriliner, Perforated Doublewall, or no liner.
- Linear averaging airflow sensor.
- Left or right-hand control & electric heat enclosure.
- Fused or non-fused door interlocking heater disconnect switch.
- Fuse block with fuses for primary overload protection.
- AC solid state relays.
- Dust tight construction.
- Hanger brackets.

ELECTRIC HEAT STANDARD FEATURES

- ETL Listed, Meeting NEC Requirements
- 20 Gauge Galvanized Steel Construction
- Line Voltage Combinations:
[120, 208/240, 277 Volt, Single-Phase]
[208 Volt, Three-Phase, Three-Wire]
[480 Volt, Three-Phase, Four-Wire]
- Control Transformer for Analog and Direct Digital Controls
- NEMA 1 Electric Heat Control Enclosure
- Slip and Drive Discharge for Field Duct Connection
- 80/20 Ni-Cr Heating Elements
- Automatic Reset Thermal Cutout Secondary Manual Reset Thermal Cutouts
- De-energizing Magnetic Contactors (Electronic Controls)
- Positive Pressure Airflow Switch
- PE Switch Step Controllers (Pneumatic Controls)

OPTIONAL FEATURES

- AC Solid State Relays offer silent operation for staged electric heat.
- Fuse Block with fuses for primary overload protection.
- Door interlocking disconnect switches (fused or non-fused).
- Dust-tight construction.

OPTIONAL HEATER CONTROL

- LineaHeat Solid State Electronic Heater Control available with or without Leaving Air Temperature Control. See the Engineering section for more information.

MINIMUM / MAXIMUM kW

UNIT SIZE	STAGES	1 PHASE								3 PHASE			
		120 Volt		208 Volt		240 Volt		277 Volt		208 Volt (3 wire)		480 Volt (4 wire)	
		MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
4	1	0.5		0.5		1.0		1.0		1.5	3.0	2.5	3.0
	2	1.0	3.0	1.0	3.0	1.5	3.0	1.5	3.0				
	3	1.5		1.5		2.0		2.5					
5	1	0.5		0.5		1.0		1.0		1.5	5.0	2.5	5.0
	2	1.0	5.0	1.0	5.0	1.5	5.0	1.5	5.0				
	3	1.5		1.5		2.0		2.5					
6	1	0.5		0.5		1.0		1.0		1.5	7.5	2.5	7.5
	2	1.0	5.0	1.0	7.5	1.5	7.5	1.5	7.5				
	3	1.5		1.5		2.0		2.5					
7	1	0.5		0.5		1.0		1.0		1.5	9.5	2.5	9.5
	2	1.0	5.0	1.0	9.5	1.5	9.5	1.5	9.5				
	3	1.5		1.5		2.0		2.5					
8	1	0.5		0.5		1.0		1.0		1.5	13.0	2.5	13.0
	2	1.0	5.0	1.0	9.5	1.5	11.0	1.5	13.0				
	3	1.5		1.5		2.0		2.5					
9	1	0.5		0.5		1.0		1.0		1.5	16.0	2.5	16.0
	2	1.0	5.0	1.0	9.5	1.5	11.0	1.5	13.0				
	3	1.5		1.5		2.0		2.5					
10	1	0.5		0.5		1.0		1.0		1.5	16.0	2.5	21.0
	2	1.0	5.0	1.0	9.5	1.5	11.0	1.5	13.0				
	3	1.5		1.5		2.0		2.5					
12	1	0.5		0.5		1.0		1.0		1.5	16.0	2.5	30.0
	2	1.0	5.0	1.0	9.5	1.5	11.0	1.5	13.0				
	3	1.5		1.5		2.0		2.5					
14	1	1.0		1.0		1.0		1.0		3.0	16.0	3.0	36.0
	2	2.0	5.0	2.0	9.5	2.0	11.0	2.0	13.0				
	3	3.0		3.0		3.0		3.0					
16	1	1.0		1.0		1.0		1.0		3.0	16.0	3.0	36.0
	2	2.0	5.0	2.0	9.5	2.0	11.0	2.0	13.0				
	3	3.0		3.0		3.0		3.0					
20	1	1.0	0.5	1.0		1.0		1.0		1.5	16.0	2.5	30.0
	2	2.0	5.0	1.0	9.5	1.5	11.0	1.5	13.0				
	3	3.0		1.5		2.0		2.5		3.0	16.0	3.0	30.0
22	1	1.0		1.0		1.0		1.5		3.0	16.0	4.0	36.0
	2	2.0	5.0	2.0	9.5	2.0	11.0	3.0	13.0				
	3	3.0		3.0		3.0		4.5					

FORMULAS

Specify electric duct heaters using voltage, kW, and number of steps.

Required kW is calculated using the following relationship:

$$kW = \text{Btuh} / 3413$$

$$kW = (\text{CFM} \times \Delta T) / 3160$$

Where:

Btuh = Required Heating Capacity

CFM = Volume of Air Controlled During Heating (Typically 30%-100% of Maximum Cooling Volume)

ΔT = Leaving Air Temperature minus the entering air temperature or the desired air temperature rise across the electric heater.*

NOTES: 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 62.1 limits discharge temperatures to 90°F or increasing the ventilation rate when heating from the ceiling.

NOTES: Minimum and maximum values apply to staged heaters only. Contact your local Krueger representative for LineaHeat limits. Electric heaters are provided as slip-in type integrally mounted to the terminal unit. Where possible, select heater so that power (kW) is a whole number. Often rounding to the nearest whole number has negligible impact on discharge temperature and power consumption.