

The Carnes Electric Coil is available on both the single duct terminal units and the fan powered terminal units. Electric coils meet all applicable requirements of the National Electric Code (NEC). Heater frames and boxes are constructed of 20 gauge or heavier galvanized steel. Factory pre-wiring of components eliminates costly field installation. A specific wiring diagram is furnished for every heater regardless of the options.

Standard Features Include:

For Terminal Units with Electric Controls

Standard Basic Controls

- Automatic Reset Primary Thermal Cutout
- Replaceable Secondary Thermal Cutout
- De-energizing Magnetic Contactors
- Transformer for 24 Volt Controls
- Power Terminal Block
- Control Terminal Block
- Slip and Drive Construction
- Air Flow Interlock with Single Duct Throttling Units
- Fan Interlock with Fan Units

For Terminal Units with Pneumatic Controls

Standard Basic Controls

- Automatic Reset Primary Thermal Cutout
- Replaceable Secondary Thermal Cutout
- PE Switches
- De-energizing Magnetic Contactors (as required)
- Power Terminal Block
- Control Terminal Block
- Slip and Drive Construction
- Air Flow Interlock with Single Duct Throttling Units
- Fan Interlock with Fan Units

Optional Features:

- Disconnect Switch
- Mercury De-energizing Contactors
- Fusing
- Single Point Wiring

Engineering Data—Electric Reheat Coil

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The following load calculation and recommended operating ranges are based on standard 75°F entering air (comfort heating).

1. **Conversion:** 1 KW = 3413 BTU
2. **Load Requirement:** KW = $\frac{\text{Cubic Feet per Min.} \times \text{Temperature Rise}}{3160}$
3. **Ohm's Law:** Watts = $\frac{(\text{Volts})^2}{\text{Resistance}} = \text{Volts} \times \text{Amps}$
4. **Line Current, 1 Phase:** Amps = $\frac{\text{Watts}}{\text{Volts}}$
5. **Line Current, 3 Phase:** Amps = $\frac{\text{Watts}}{1.73 \times \text{Volts}}$
6. **Pressure Drop:** Inches H₂O = $\frac{(\text{KW}/\text{ft}^2)}{760} \times \left(\frac{\text{Velocity in FPM}}{500} \right)^2$

MINIMUM KW

Small frame sizes with high voltages require at least the following minimum wattages:

Frame Size		Supply Voltage	Stages	Minimum KW
8" x 10"		277V/1 Phase	1	0.5
Model	Sizes		2	0.5
AVEB	02/04		3	1.5
ACEA/ACEE	04		480V/3 Phase	1
ASEC/ASEE	04	2		3.0
10" x 12"		277V/1 Phase	1	0.5
Model	Sizes		2	0.5
AVEB	06/08		3	1.0
ACEA/ACEE	06	480V/3 Phase	1	1.0
ASEC/ASEE	06/08		2	3.0
A TEC/A TEE	08		3	Not Available
12" x 14"		277V/1 Phase	1	0.5
Model	Sizes		2	0.5
AVEB	12		3	0.5
ACEA/ACEE	08	480V/3 Phase	1	0.5
ASEC/ASEE	12		2	1.5
A TEC/A TEE	12		3	3.0

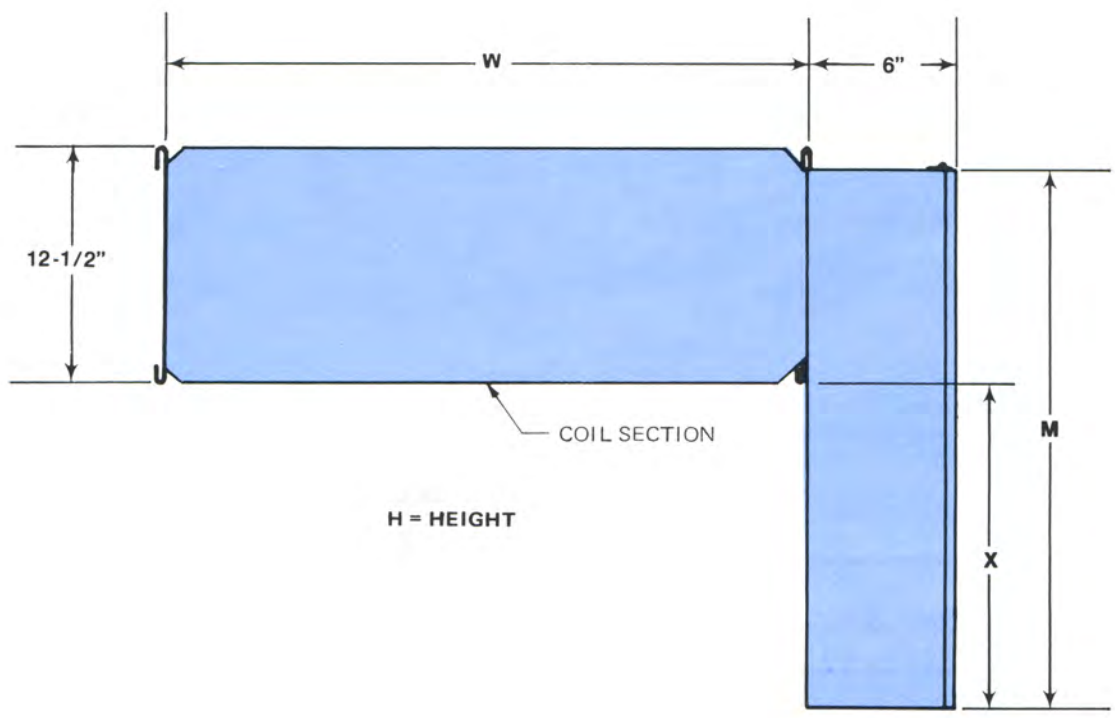
Coils with lower wattages cannot be built.

MAXIMUM KW

Model	Unit Size						
ASEC/ASEE	04	06	08	12	16	24	32
A TEC/A TEE	08	12	16	24	32	45	60
ACEA/ACEE	04	06	08	12	16	24	32
Heater Voltage/Phase	Maximum Allowable KW						
120/1	5.5	5.4	5.2	4.9	4.7	4.2	3.7
208/1	7.0	8.0	9.5	9.3	9.1	8.6	8.2
277/1	7.0	8.0	10.0	12.4	12.1	11.5	11.0
208/3	7.0	8.0	10.0	14.9	14.3	12.6	11.3
480/3	7.0	8.0	10.0	15.0	17.0	20.0	25.0

1. A combined load of 48 amps or more cannot be provided on Carnes fan terminal units.
2. A combined load of 48 amps or more on Model AVEB single duct throttling units requires fusing by Carnes.

4 Dimensional Data—Electric Reheat Coil



DIMENSIONS LISTED IN INCHES		
SIZE H x W	M	X
8 x 10	29	16¼
10 x 12	29	17
12 x 14	33	20¼
14 x 16	35	23
16 x 18	41	28¼
18 x 20	42	29¼
18 x 24	56	43½
18 x 32	56	43½

All M and X dimensions are maximum (not to exceed) and may be less than those shown.

ELECTRIC COIL VOLTAGE SELECTION CHART

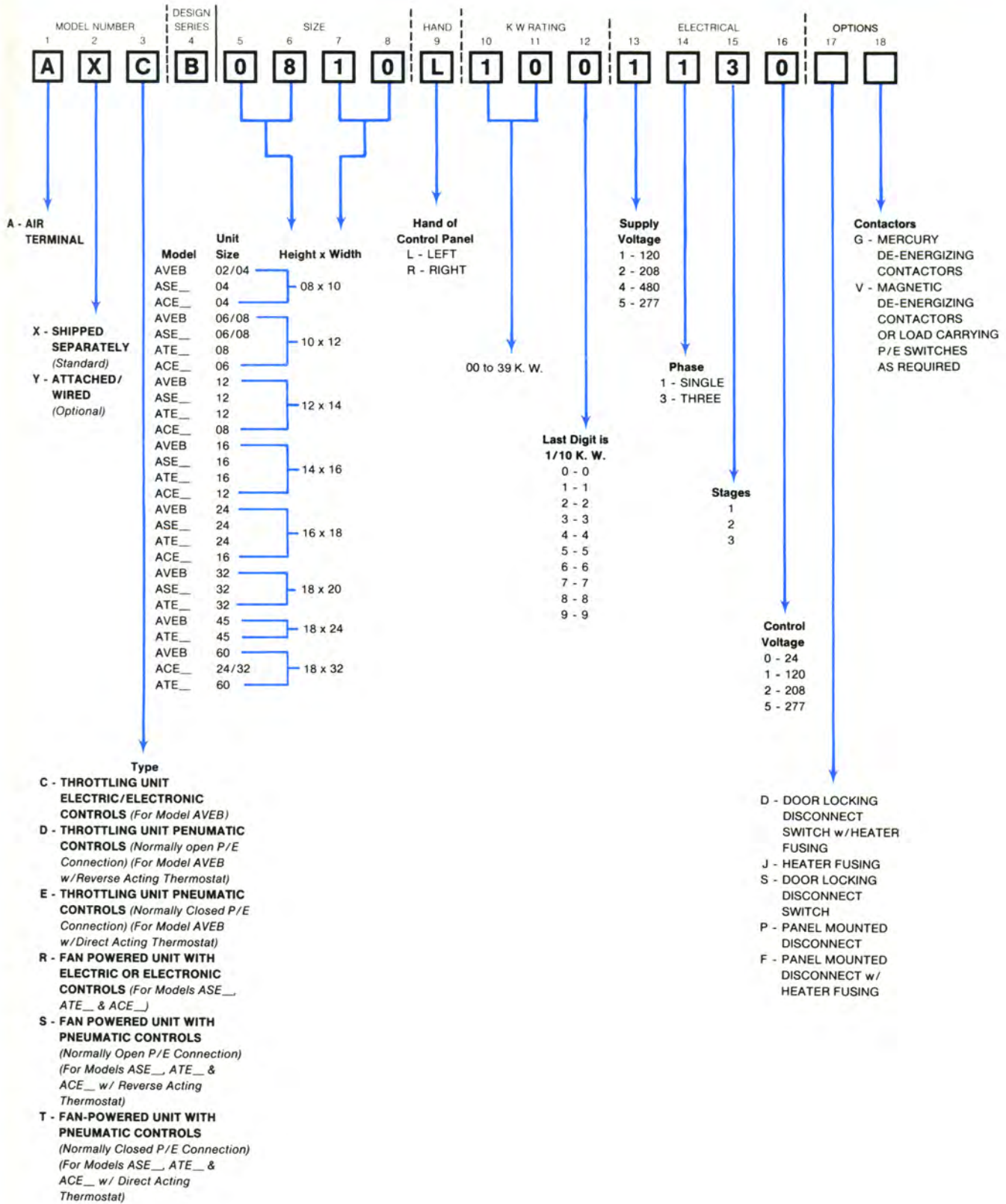
PNEUMATIC

Control	Supply/Coil	Fan
24V/1Ø	480V/3Ø/3 Wire	—
120V/1Ø	120V/1Ø	120V/1Ø
	208V/3Ø/4 Wire	120V/1Ø
277V/1Ø	277V/1Ø	277V/1Ø
	480V/3Ø/4 Wire	277V/1Ø
208V/1Ø	208V/1Ø	208V/1Ø
	208V/3Ø/3 Wire	—

ELECTRIC/ELECTRONIC

Control	Supply/Coil	Fan
24V/1Ø	120V/1Ø	120V/1Ø
	277V/1Ø	277V/1Ø
	208V/3Ø/3 Wire	—
	208V/3Ø/4 Wire	120V/1Ø
	480V/3Ø/3 Wire	—
	480V/3Ø/4 Wire	277V/1Ø

NOTE: 4 Wire Service is required when using 3 phase supply voltage and fan terminal units.



NOTE: Hand of the coil is selected by facing the outside of the coil control panel and determining the direction of the control panel overhang from the coil section.