

[Patent 5,486,140]

Model AHE

The Carnes Model AHE is available as a basic control unit with electric reheat and open end discharge.

This offers low pressure drop, low sound levels, and valve characteristics which create stable control conditions within the conditioned space.

This product is ideal for Hospitals, Labs, Schools, Government Buildings, i.e., any where Indoor Air Quality (IAQ) concerns exist.

Features Include:

- Air flow capacities from full shut-off to 4,200 CFM (0-3,000 FPM for each unit size).
- Open-end discharge units are provided with slip and drive connections for easy installation.
- External thermally and acoustically insulated casing meet **UL** and **NFPA** standards. (*Electric coil is uninsulated*).
- Low leakage damper design.
- No Insulation comes in contact with the air stream.
- Shell insulation is 1" thick and has a continuous density of 4.25 lbs./cu. ft. with a 4.5 R-value.
- Pneumatic, electric, electronic, or manual control options available.
- Averaging type air flow sensor at inlet of unit.
- Optional cross flow averaging type velocity sensor at inlet of unit.
- Optional pressure independent and pressure dependent controls.
- Optional controls enclosure.
- Optional access panel for water coil inspection.

Available Modules:

- Basic Control Unit with electric reheat coil — **Model AHE**



External Insulation
Standard



A Participating Member
in the ARI 880
Certification Program

AHE

Discharge and Radiated (NC) Noise Criteria

| Inlet Size (Inches) | CFM | Minimum Pressure Drop (Damper Full Open) | |
|---------------------|------|--|-----------------------|
| | | Min. Δ P _s | Min. Δ P _t |
| | | Basic Unit | Basic Unit |
| 5 | 75 | .01 | .03 |
| | 100 | .03 | .06 |
| | 200 | .10 | .25 |
| | 300 | .24 | .57 |
| | 350 | .33 | .77 |
| 6 | 110 | .01 | .03 |
| | 200 | .03 | .10 |
| | 300 | .08 | .23 |
| | 400 | .14 | .40 |
| | 500 | .22 | .64 |
| 7 | 140 | .01 | .02 |
| | 200 | .01 | .05 |
| | 400 | .05 | .18 |
| | 600 | .10 | .41 |
| | 700 | .14 | .55 |
| 8 | 185 | .00 | .02 |
| | 400 | .02 | .09 |
| | 600 | .03 | .20 |
| | 800 | .05 | .34 |
| | 1000 | .09 | .55 |
| 10 | 300 | .00 | .02 |
| | 500 | .00 | .04 |
| | 800 | -.01 | .10 |
| | 1200 | -.02 | .22 |
| | 1500 | -.03 | .35 |
| 12 | 430 | .00 | .02 |
| | 800 | -.01 | .04 |
| | 1200 | -.02 | .10 |
| | 1800 | -.05 | .22 |
| | 2300 | -.06 | .38 |
| 14 | 600 | .01 | .02 |
| | 1000 | -.01 | .04 |
| | 1600 | -.02 | .09 |
| | 2400 | -.05 | .22 |
| | 3100 | -.07 | .37 |
| 16 | 780 | .00 | .02 |
| | 1600 | -.01 | .05 |
| | 2400 | -.02 | .12 |
| | 3600 | -.03 | .30 |
| | 4200 | -.04 | .41 |

| Min. Δ P _s (Damper Full Open) | | | 1.0" Δ P _s | | | 1.5" Δ P _s | | | 3.0" Δ P _s | | |
|--|--------------|---------|-----------------------|--------------|---------|-----------------------|--------------|---------|-----------------------|--------------|---------|
| Δ P _t | Discharge NC | Rad. NC | Δ P _t | Discharge NC | Rad. NC | Δ P _t | Discharge NC | Rad. NC | Δ P _t | Discharge NC | Rad. NC |
| .03 | — | — | 1.02 | 13 | 14 | 1.52 | 13 | 16 | 3.02 | 14 | 22 |
| .06 | — | — | 1.04 | 14 | 15 | 1.54 | 14 | 18 | 3.04 | 15 | 23 |
| .25 | 12 | 11 | 1.14 | 24 | 16 | 1.64 | 22 | 20 | 3.14 | 24 | 25 |
| .57 | 14 | 13 | 1.33 | 25 | 18 | 1.83 | 28 | 21 | 3.33 | 30 | 26 |
| .77 | 14 | 14 | 1.44 | 25 | 19 | 1.94 | 28 | 22 | 3.44 | 30 | 26 |
| .03 | — | — | 1.02 | 13 | 14 | 1.52 | 14 | 19 | 3.02 | 15 | 25 |
| .10 | 10 | 10 | 1.07 | 15 | 18 | 1.57 | 18 | 21 | 3.07 | 21 | 27 |
| .23 | 12 | 12 | 1.15 | 20 | 19 | 1.65 | 22 | 23 | 3.15 | 25 | 30 |
| .40 | 12 | 13 | 1.27 | 21 | 21 | 1.77 | 22 | 24 | 3.27 | 25 | 31 |
| .64 | 13 | 15 | 1.42 | 22 | 21 | 1.92 | 24 | 25 | 3.42 | 28 | 32 |
| .02 | — | — | 1.02 | 15 | 18 | 1.52 | 16 | 22 | 3.02 | 21 | 30 |
| .05 | — | — | 1.03 | 16 | 18 | 1.53 | 20 | 22 | 3.03 | 23 | 31 |
| .18 | 12 | 10 | 1.14 | 20 | 18 | 1.64 | 22 | 23 | 3.14 | 27 | 31 |
| .41 | 14 | 11 | 1.30 | 23 | 18 | 1.80 | 25 | 24 | 3.30 | 30 | 31 |
| .55 | 13 | 13 | 1.41 | 23 | 18 | 1.91 | 25 | 24 | 3.41 | 30 | 31 |
| .02 | — | — | 1.02 | 18 | 18 | 1.52 | 20 | 23 | 3.02 | 25 | 31 |
| .09 | 10 | 10 | 1.07 | 20 | 19 | 1.57 | 22 | 23 | 3.07 | 28 | 32 |
| .20 | 12 | 11 | 1.16 | 23 | 19 | 1.66 | 25 | 24 | 3.16 | 31 | 32 |
| .34 | 12 | 12 | 1.29 | 23 | 19 | 1.79 | 25 | 24 | 3.29 | 31 | 33 |
| .55 | 14 | 13 | 1.45 | 23 | 20 | 1.95 | 27 | 24 | 3.45 | 31 | 33 |
| .02 | — | — | 1.02 | 20 | 23 | 1.52 | 23 | 29 | 3.02 | 29 | 37 |
| .04 | — | — | 1.04 | 20 | 25 | 1.54 | 23 | 20 | 3.04 | 29 | 39 |
| .10 | — | 11 | 1.11 | 20 | 26 | 1.61 | 23 | 31 | 3.11 | 29 | 40 |
| .22 | 12 | 14 | 1.24 | 22 | 26 | 1.74 | 25 | 32 | 3.24 | 31 | 41 |
| .35 | 12 | 16 | 1.38 | 22 | 27 | 1.88 | 25 | 33 | 3.38 | 31 | 41 |
| .02 | — | — | 1.02 | 16 | 23 | 1.52 | 21 | 27 | 3.02 | 28 | 35 |
| .04 | — | 10 | 1.05 | 16 | 23 | 1.55 | 21 | 29 | 3.05 | 28 | 36 |
| .10 | — | 12 | 1.12 | 19 | 24 | 1.62 | 22 | 29 | 3.12 | 30 | 37 |
| .22 | 11 | 16 | 1.27 | 19 | 24 | 1.77 | 22 | 30 | 3.27 | 30 | 37 |
| .38 | 12 | 22 | 1.43 | 19 | 25 | 1.93 | 22 | 30 | 3.43 | 31 | 38 |
| .02 | — | — | 1.02 | 20 | 22 | 1.52 | 23 | 24 | 3.02 | 31 | 35 |
| .04 | — | 10 | 1.05 | 19 | 24 | 1.55 | 23 | 29 | 3.05 | 31 | 36 |
| .09 | — | 13 | 1.12 | 19 | 25 | 1.62 | 24 | 30 | 3.12 | 31 | 38 |
| .22 | 11 | 20 | 1.26 | 20 | 26 | 1.76 | 24 | 32 | 3.26 | 33 | 39 |
| .37 | 11 | 26 | 1.44 | 20 | 27 | 1.94 | 25 | 33 | 3.44 | 33 | 40 |
| .02 | — | 10 | 1.02 | 20 | 29 | 1.52 | 23 | 34 | 3.02 | 30 | 41 |
| .05 | 10 | 12 | 1.07 | 20 | 29 | 1.57 | 23 | 34 | 3.07 | 30 | 41 |
| .12 | 12 | 18 | 1.15 | 22 | 30 | 1.65 | 27 | 34 | 3.15 | 33 | 41 |
| .30 | 13 | 30 | 1.33 | 22 | 30 | 1.83 | 27 | 34 | 3.33 | 33 | 42 |
| .41 | .14 | 34 | 1.45 | 22 | 30 | 1.95 | 27 | 35 | 3.45 | 33 | 42 |

- NOTES:**
1. Δ P_s static pressure difference from inlet to discharge.
 2. Δ P_s is the minimum pressure required to deliver CFM shown with the primary damper in wide open position.
 3. Δ P_t is the total pressure difference from inlet to discharge.
 4. Dash (—) indicates NC level less than 10.

NC levels are derived from tests conducted in accordance with ARI Standard 880-98 and are calculated in accordance with ARI Standard 885-98 as application data based on the following:

- Discharge NC levels are based on—
- a) 5 foot rectangular 12" x 12" duct lined with 1" fiberglass insulation.
 - b) Rectangular tee attenuation entering branch duct.
 - c) 6 foot lined flex duct (8" diameter).
 - d) Maximum of 300 CFM per outlet.
 - e) Space effect factor (5000 ft³) at 5 feet from outlet.
 - f) End reflection.
 - g) Environmental adjustment factor.

- Radiated NC levels are based on—
- a) Plenum / ceiling effect - 5/8" mineral fiber tile, 35 lb / ft³ - 3 foot plenum.
 - b) Space effect factor (5000 ft³) at 10 feet from source.
 - c) Environmental adjustment factor.

NC is not part of the ARI 880 Certification Program.

Sound Data (Sound Power by Octave Band)

Discharge Sound Power

| Inlet Size (Inches) | CFM | Minimum ΔP_s | | | | | | | 1.0" ΔP_s | | | | | | | 1.5" ΔP_s | | | | | | | 3.0" ΔP_s | | | | | | |
|---------------------|------|---------------------------------|-----|-----|-----|-----|-----|-----|---------------------------------|-----|-----|-----|-----|-----|-----|---------------------------------|-----|-----|-----|-----|-----|-----|---------------------------------|-----|-----|-----|--|--|--|
| | | Sound Power (db) by Octave Band | | | | | | | Sound Power (db) by Octave Band | | | | | | | Sound Power (db) by Octave Band | | | | | | | Sound Power (db) by Octave Band | | | | | | |
| | | ΔP_s | (2) | (3) | (4) | (5) | (6) | (7) | (2) | (3) | (4) | (5) | (6) | (7) | (2) | (3) | (4) | (5) | (6) | (7) | (2) | (3) | (4) | (5) | (6) | (7) | | | |
| 5 | 75 | .01 | 36 | 28 | 17 | 16 | 15 | 16 | 47 | 44 | 47 | 45 | 45 | 42 | 48 | 46 | 49 | 49 | 49 | 46 | 50 | 48 | 54 | 55 | 55 | 52 | | | |
| | 100 | .03 | 39 | 32 | 23 | 23 | 21 | 20 | 52 | 47 | 49 | 47 | 47 | 43 | 53 | 49 | 52 | 51 | 51 | 47 | 54 | 51 | 56 | 57 | 57 | 54 | | | |
| | 200 | .10 | 48 | 43 | 40 | 38 | 36 | 29 | 61 | 55 | 55 | 52 | 51 | 46 | 63 | 57 | 58 | 56 | 55 | 50 | 64 | 59 | 62 | 62 | 61 | 57 | | | |
| | 300 | .24 | 54 | 49 | 50 | 47 | 44 | 35 | 67 | 60 | 58 | 55 | 54 | 48 | 68 | 62 | 61 | 59 | 58 | 52 | 70 | 64 | 66 | 65 | 64 | 59 | | | |
| | 350 | .33 | 56 | 51 | 53 | 50 | 48 | 37 | 69 | 62 | 60 | 56 | 55 | 49 | 71 | 63 | 62 | 60 | 58 | 53 | 72 | 66 | 67 | 66 | 65 | 59 | | | |
| 6 | 110 | .01 | 36 | 26 | 20 | 19 | 14 | 17 | 47 | 45 | 49 | 49 | 47 | 45 | 49 | 47 | 52 | 53 | 51 | 49 | 52 | 50 | 57 | 59 | 58 | 57 | | | |
| | 200 | .03 | 42 | 35 | 32 | 30 | 25 | 25 | 54 | 51 | 53 | 52 | 49 | 47 | 56 | 53 | 56 | 56 | 53 | 52 | 59 | 56 | 61 | 62 | 60 | 59 | | | |
| | 300 | .08 | 46 | 41 | 40 | 38 | 33 | 30 | 59 | 55 | 55 | 55 | 51 | 49 | 61 | 57 | 58 | 58 | 55 | 53 | 64 | 60 | 64 | 65 | 62 | 60 | | | |
| | 400 | .14 | 48 | 45 | 46 | 44 | 38 | 34 | 62 | 57 | 57 | 56 | 52 | 50 | 64 | 59 | 60 | 60 | 56 | 54 | 67 | 63 | 66 | 66 | 63 | 61 | | | |
| | 500 | .22 | 51 | 48 | 50 | 49 | 43 | 37 | 65 | 60 | 59 | 57 | 53 | 51 | 67 | 62 | 62 | 61 | 57 | 55 | 70 | 65 | 67 | 67 | 64 | 62 | | | |
| 7 | 140 | .01 | 36 | 26 | 16 | 18 | 15 | 16 | 51 | 50 | 48 | 48 | 46 | 43 | 53 | 52 | 51 | 52 | 50 | 47 | 56 | 56 | 57 | 58 | 56 | 54 | | | |
| | 200 | .01 | 40 | 32 | 24 | 25 | 22 | 21 | 55 | 52 | 50 | 51 | 48 | 45 | 57 | 55 | 54 | 54 | 51 | 49 | 60 | 58 | 59 | 61 | 58 | 56 | | | |
| | 400 | .05 | 48 | 43 | 38 | 39 | 36 | 30 | 62 | 58 | 55 | 55 | 51 | 48 | 64 | 60 | 58 | 59 | 55 | 52 | 67 | 64 | 64 | 65 | 61 | 59 | | | |
| | 600 | .10 | 53 | 50 | 47 | 48 | 43 | 36 | 66 | 61 | 58 | 58 | 53 | 49 | 68 | 63 | 61 | 61 | 56 | 53 | 71 | 67 | 67 | 68 | 63 | 60 | | | |
| | 700 | .14 | 55 | 52 | 50 | 51 | 46 | 38 | 68 | 62 | 59 | 59 | 53 | 50 | 70 | 64 | 62 | 62 | 57 | 54 | 73 | 68 | 68 | 69 | 64 | 61 | | | |
| 8 | 185 | .00 | 33 | 27 | 16 | 15 | 14 | 16 | 56 | 53 | 52 | 52 | 48 | 45 | 59 | 55 | 55 | 56 | 52 | 48 | 63 | 60 | 61 | 63 | 59 | 54 | | | |
| | 400 | .01 | 43 | 39 | 34 | 33 | 30 | 27 | 62 | 58 | 56 | 56 | 52 | 48 | 64 | 60 | 60 | 60 | 56 | 52 | 69 | 65 | 66 | 67 | 63 | 58 | | | |
| | 600 | .02 | 49 | 45 | 43 | 42 | 38 | 33 | 65 | 61 | 58 | 58 | 54 | 50 | 67 | 63 | 62 | 62 | 58 | 54 | 72 | 68 | 68 | 69 | 65 | 60 | | | |
| | 800 | .05 | 53 | 49 | 49 | 49 | 44 | 37 | 67 | 62 | 60 | 60 | 56 | 52 | 70 | 65 | 64 | 64 | 59 | 55 | 74 | 70 | 70 | 71 | 66 | 61 | | | |
| | 1000 | .09 | 56 | 53 | 54 | 54 | 49 | 40 | 69 | 64 | 61 | 61 | 57 | 53 | 71 | 67 | 65 | 65 | 61 | 56 | 75 | 71 | 71 | 72 | 67 | 62 | | | |
| 10 | 300 | .00 | 34 | 28 | 18 | 18 | 15 | 15 | 55 | 55 | 56 | 58 | 53 | 49 | 57 | 58 | 60 | 62 | 57 | 54 | 62 | 63 | 66 | 68 | 64 | 61 | | | |
| | 500 | .00 | 39 | 35 | 29 | 29 | 25 | 23 | 59 | 58 | 58 | 60 | 55 | 51 | 61 | 61 | 62 | 63 | 59 | 55 | 66 | 66 | 68 | 70 | 66 | 63 | | | |
| | 800 | -.01 | 43 | 41 | 40 | 40 | 34 | 31 | 63 | 61 | 60 | 61 | 56 | 53 | 65 | 64 | 63 | 65 | 60 | 57 | 69 | 69 | 69 | 72 | 67 | 65 | | | |
| | 1200 | -.02 | 47 | 47 | 49 | 50 | 42 | 37 | 66 | 63 | 61 | 63 | 57 | 54 | 68 | 66 | 65 | 67 | 61 | 59 | 73 | 71 | 71 | 73 | 68 | 66 | | | |
| | 1500 | -.03 | 49 | 50 | 54 | 55 | 46 | 41 | 68 | 64 | 62 | 63 | 58 | 55 | 70 | 67 | 66 | 67 | 62 | 59 | 75 | 72 | 72 | 74 | 69 | 67 | | | |
| 12 | 430 | .00 | 37 | 27 | 17 | 17 | 16 | 16 | 52 | 55 | 57 | 59 | 53 | 51 | 56 | 59 | 61 | 63 | 57 | 55 | 61 | 65 | 67 | 70 | 64 | 63 | | | |
| | 800 | -.01 | 42 | 36 | 34 | 31 | 29 | 25 | 58 | 58 | 59 | 61 | 55 | 52 | 61 | 62 | 63 | 65 | 59 | 57 | 67 | 68 | 70 | 72 | 66 | 64 | | | |
| | 1200 | -.03 | 46 | 41 | 45 | 40 | 37 | 32 | 62 | 60 | 61 | 62 | 56 | 53 | 65 | 63 | 65 | 66 | 60 | 58 | 71 | 70 | 72 | 73 | 67 | 65 | | | |
| | 1800 | -.05 | 50 | 47 | 56 | 49 | 46 | 38 | 66 | 62 | 63 | 63 | 58 | 54 | 69 | 65 | 67 | 67 | 62 | 58 | 75 | 71 | 73 | 74 | 68 | 66 | | | |
| | 2300 | -.07 | 52 | 50 | 63 | 55 | 51 | 42 | 68 | 63 | 64 | 64 | 58 | 55 | 71 | 66 | 68 | 68 | 62 | 59 | 77 | 72 | 74 | 75 | 69 | 66 | | | |
| 14 | 600 | .01 | 32 | 23 | 17 | 17 | 17 | 18 | 57 | 58 | 59 | 60 | 53 | 50 | 61 | 62 | 64 | 64 | 57 | 55 | 67 | 68 | 71 | 71 | 65 | 62 | | | |
| | 1000 | -.01 | 38 | 32 | 32 | 28 | 27 | 25 | 61 | 60 | 62 | 61 | 55 | 52 | 65 | 64 | 66 | 66 | 59 | 56 | 71 | 71 | 73 | 73 | 66 | 64 | | | |
| | 1600 | -.02 | 43 | 40 | 46 | 39 | 37 | 32 | 65 | 62 | 63 | 63 | 57 | 54 | 68 | 66 | 68 | 67 | 61 | 58 | 74 | 73 | 75 | 74 | 68 | 65 | | | |
| | 2400 | -.05 | 48 | 47 | 58 | 49 | 46 | 37 | 68 | 64 | 65 | 64 | 58 | 55 | 72 | 68 | 69 | 68 | 63 | 59 | 78 | 75 | 77 | 75 | 70 | 67 | | | |
| | 3100 | -.07 | 51 | 51 | 65 | 54 | 51 | 41 | 70 | 65 | 66 | 65 | 59 | 56 | 74 | 69 | 70 | 69 | 64 | 60 | 80 | 76 | 78 | 76 | 71 | 67 | | | |
| 16 | 780 | -.01 | 38 | 30 | 20 | 21 | 17 | 18 | 63 | 61 | 62 | 63 | 58 | 54 | 66 | 64 | 65 | 67 | 61 | 59 | 72 | 70 | 71 | 73 | 67 | 66 | | | |
| | 1600 | -.01 | 49 | 43 | 43 | 38 | 34 | 31 | 67 | 64 | 65 | 65 | 60 | 57 | 71 | 68 | 69 | 69 | 63 | 61 | 76 | 73 | 75 | 75 | 70 | 68 | | | |
| | 2400 | -.02 | 55 | 51 | 56 | 48 | 43 | 38 | 70 | 66 | 67 | 67 | 61 | 58 | 73 | 70 | 71 | 70 | 65 | 62 | 79 | 75 | 77 | 77 | 71 | 70 | | | |
| | 3600 | -.03 | 60 | 58 | 68 | 58 | 52 | 45 | 72 | 69 | 70 | 68 | 62 | 59 | 76 | 72 | 73 | 72 | 66 | 64 | 81 | 77 | 79 | 78 | 72 | 71 | | | |
| | 4200 | -.04 | 63 | 61 | 73 | 62 | 56 | 48 | 73 | 69 | 70 | 68 | 63 | 60 | 77 | 73 | 74 | 72 | 66 | 64 | 82 | 78 | 80 | 79 | 72 | 72 | | | |

- NOTES:**
1. Based on tests conducted in accordance with ARI Standard 880-98.
 2. ΔP_s static pressure difference from inlet to discharge.
 3. ΔP_s is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
 4. Dash (—) indicates db level less than 10.



A Participating Member in the ARI 880 Certification Program

Sound Data (Sound Power by Octave Band)

Radiated Sound Power

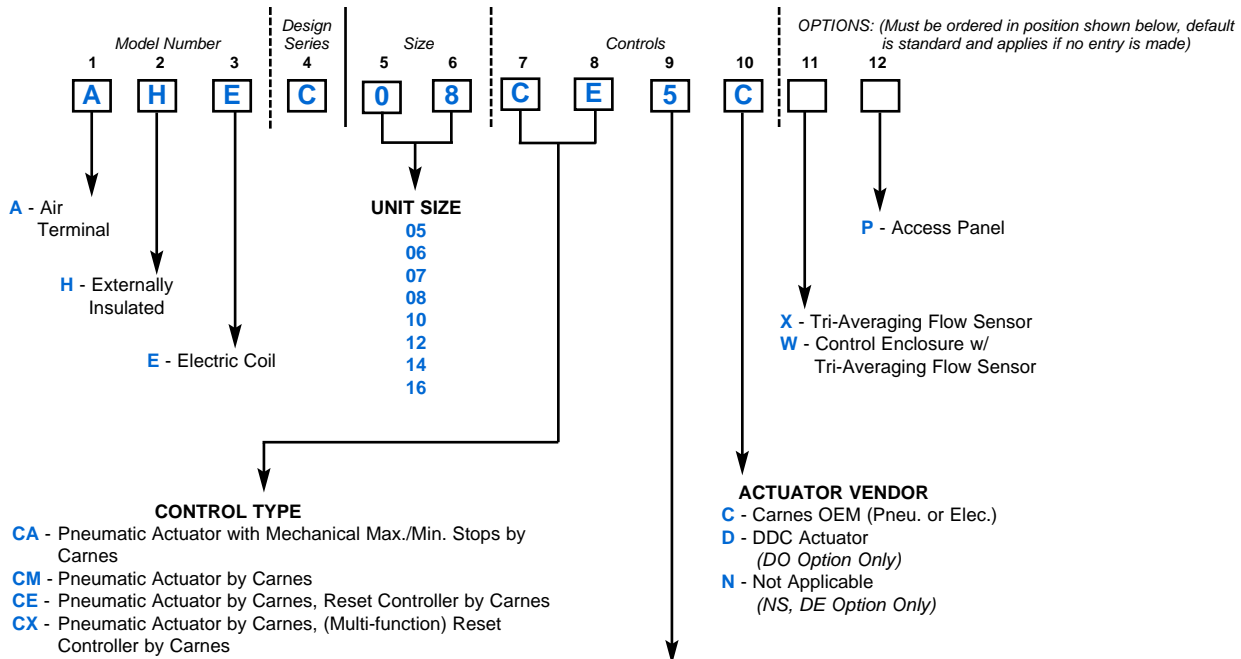
| Inlet Size (Inches) | CFM | Minimum ΔP_s | | | | | | | 1.0" ΔP_s | | | | | | | 1.5" ΔP_s | | | | | | | 3.0" ΔP_s | | | | | | |
|---------------------|------|---------------------------------|-----|-----|-----|-----|-----|-----|---------------------------------|-----|-----|-----|-----|-----|-----|---------------------------------|-----|-----|-----|-----|-----|-----|---------------------------------|-----|-----|-----|--|--|--|
| | | Sound Power (db) by Octave Band | | | | | | | Sound Power (db) by Octave Band | | | | | | | Sound Power (db) by Octave Band | | | | | | | Sound Power (db) by Octave Band | | | | | | |
| | | ΔP_s | (2) | (3) | (4) | (5) | (6) | (7) | (2) | (3) | (4) | (5) | (6) | (7) | (2) | (3) | (4) | (5) | (6) | (7) | (2) | (3) | (4) | (5) | (6) | (7) | | | |
| 5 | 75 | .01 | 36 | 28 | 19 | 17 | 15 | 20 | 41 | 44 | 46 | 37 | 31 | 28 | 42 | 46 | 48 | 40 | 35 | 31 | 44 | 47 | 53 | 45 | 41 | 38 | | | |
| | 100 | .03 | 38 | 31 | 23 | 20 | 17 | 21 | 45 | 46 | 47 | 37 | 32 | 28 | 46 | 47 | 49 | 41 | 35 | 32 | 47 | 49 | 54 | 46 | 42 | 38 | | | |
| | 200 | .10 | 43 | 39 | 35 | 27 | 23 | 22 | 53 | 51 | 48 | 38 | 33 | 29 | 54 | 52 | 51 | 41 | 37 | 33 | 56 | 54 | 56 | 47 | 43 | 39 | | | |
| | 300 | .24 | 46 | 43 | 42 | 32 | 26 | 23 | 58 | 54 | 49 | 39 | 34 | 29 | 59 | 55 | 52 | 42 | 37 | 33 | 61 | 57 | 57 | 47 | 44 | 40 | | | |
| | 350 | .33 | 47 | 45 | 45 | 34 | 28 | 24 | 60 | 55 | 50 | 39 | 34 | 29 | 61 | 56 | 53 | 42 | 38 | 33 | 63 | 58 | 57 | 47 | 44 | 40 | | | |
| 6 | 110 | .01 | 32 | 27 | 20 | 21 | 21 | 21 | 43 | 46 | 46 | 40 | 36 | 32 | 44 | 48 | 50 | 44 | 41 | 36 | 47 | 53 | 56 | 50 | 49 | 44 | | | |
| | 200 | .03 | 38 | 36 | 29 | 28 | 25 | 23 | 50 | 50 | 49 | 43 | 37 | 33 | 51 | 52 | 52 | 47 | 42 | 37 | 59 | 57 | 58 | 53 | 50 | 45 | | | |
| | 300 | .08 | 42 | 43 | 36 | 33 | 28 | 25 | 54 | 53 | 50 | 45 | 38 | 34 | 56 | 55 | 54 | 49 | 43 | 38 | 58 | 59 | 60 | 55 | 51 | 46 | | | |
| | 400 | .14 | 45 | 47 | 40 | 36 | 29 | 26 | 58 | 54 | 52 | 47 | 39 | 34 | 61 | 59 | 57 | 52 | 45 | 41 | 61 | 61 | 61 | 57 | 51 | 47 | | | |
| | 500 | .22 | 47 | 51 | 44 | 39 | 31 | 27 | 60 | 56 | 52 | 48 | 39 | 35 | 62 | 59 | 57 | 52 | 45 | 41 | 64 | 63 | 62 | 58 | 52 | 47 | | | |
| 7 | 140 | .01 | 37 | 27 | 19 | 20 | 16 | 19 | 46 | 47 | 49 | 42 | 38 | 32 | 48 | 50 | 53 | 47 | 44 | 37 | 51 | 55 | 60 | 56 | 53 | 46 | | | |
| | 200 | .01 | 40 | 31 | 24 | 24 | 19 | 20 | 49 | 48 | 49 | 42 | 38 | 32 | 51 | 51 | 53 | 47 | 43 | 37 | 54 | 56 | 61 | 55 | 52 | 46 | | | |
| | 400 | .05 | 45 | 37 | 34 | 30 | 25 | 22 | 56 | 51 | 49 | 41 | 37 | 32 | 58 | 53 | 54 | 46 | 42 | 37 | 61 | 58 | 61 | 54 | 51 | 46 | | | |
| | 600 | .10 | 48 | 41 | 39 | 35 | 29 | 24 | 60 | 52 | 49 | 40 | 36 | 32 | 61 | 55 | 54 | 45 | 42 | 38 | 64 | 60 | 61 | 54 | 51 | 46 | | | |
| | 700 | .14 | 50 | 42 | 42 | 36 | 30 | 24 | 61 | 53 | 49 | 40 | 36 | 32 | 63 | 55 | 54 | 45 | 41 | 38 | 66 | 60 | 61 | 54 | 51 | 47 | | | |
| 8 | 185 | .00 | 41 | 30 | 17 | 17 | 15 | 19 | 46 | 48 | 49 | 43 | 38 | 31 | 48 | 51 | 54 | 48 | 43 | 36 | 52 | 56 | 61 | 56 | 51 | 44 | | | |
| | 400 | .02 | 45 | 36 | 28 | 26 | 21 | 22 | 54 | 51 | 50 | 44 | 37 | 31 | 56 | 54 | 54 | 49 | 42 | 36 | 60 | 59 | 62 | 57 | 51 | 45 | | | |
| | 600 | .03 | 47 | 39 | 34 | 31 | 24 | 23 | 58 | 52 | 50 | 44 | 37 | 32 | 60 | 55 | 55 | 49 | 42 | 37 | 64 | 60 | 62 | 57 | 50 | 45 | | | |
| | 800 | .05 | 49 | 41 | 38 | 35 | 26 | 23 | 61 | 53 | 50 | 44 | 37 | 32 | 63 | 56 | 55 | 49 | 42 | 37 | 67 | 61 | 63 | 57 | 50 | 45 | | | |
| | 1000 | .09 | 50 | 42 | 41 | 38 | 27 | 24 | 63 | 54 | 51 | 44 | 36 | 32 | 65 | 57 | 55 | 49 | 41 | 37 | 69 | 62 | 63 | 57 | 50 | 45 | | | |
| 10 | 300 | .00 | 33 | 26 | 20 | 18 | 15 | 19 | 52 | 54 | 54 | 47 | 42 | 35 | 54 | 58 | 59 | 53 | 47 | 41 | 58 | 65 | 67 | 62 | 56 | 51 | | | |
| | 500 | .00 | 37 | 31 | 29 | 25 | 19 | 20 | 55 | 55 | 56 | 49 | 42 | 36 | 58 | 59 | 60 | 54 | 48 | 42 | 62 | 66 | 69 | 63 | 57 | 52 | | | |
| | 800 | -0.1 | 40 | 35 | 37 | 30 | 23 | 21 | 59 | 56 | 57 | 50 | 43 | 37 | 61 | 61 | 61 | 55 | 48 | 43 | 66 | 68 | 70 | 64 | 57 | 53 | | | |
| | 1200 | -0.2 | 43 | 39 | 44 | 35 | 26 | 22 | 62 | 57 | 57 | 51 | 43 | 38 | 64 | 62 | 62 | 56 | 49 | 44 | 69 | 69 | 71 | 65 | 58 | 54 | | | |
| | 1500 | -0.3 | 45 | 41 | 48 | 38 | 28 | 23 | 64 | 58 | 58 | 51 | 44 | 39 | 66 | 62 | 63 | 57 | 49 | 45 | 70 | 69 | 71 | 66 | 58 | 55 | | | |
| 12 | 430 | .00 | 40 | 31 | 19 | 16 | 17 | 21 | 51 | 56 | 54 | 46 | 39 | 33 | 54 | 59 | 58 | 50 | 44 | 37 | 60 | 66 | 65 | 58 | 52 | 45 | | | |
| | 800 | -0.1 | 44 | 37 | 32 | 24 | 22 | 23 | 56 | 56 | 54 | 46 | 40 | 34 | 59 | 60 | 59 | 51 | 44 | 38 | 65 | 67 | 66 | 59 | 52 | 47 | | | |
| | 1200 | -0.2 | 46 | 41 | 40 | 29 | 25 | 25 | 59 | 57 | 55 | 47 | 40 | 34 | 62 | 61 | 59 | 52 | 44 | 39 | 68 | 67 | 67 | 60 | 53 | 47 | | | |
| | 1800 | -0.5 | 49 | 45 | 48 | 34 | 28 | 26 | 63 | 57 | 55 | 48 | 40 | 35 | 66 | 61 | 60 | 52 | 45 | 40 | 71 | 68 | 67 | 60 | 53 | 48 | | | |
| | 2300 | -0.6 | 50 | 47 | 53 | 37 | 30 | 27 | 64 | 57 | 56 | 48 | 40 | 35 | 68 | 61 | 60 | 53 | 45 | 40 | 73 | 68 | 68 | 61 | 53 | 48 | | | |
| 14 | 600 | .01 | 44 | 29 | 20 | 15 | 14 | 19 | 53 | 55 | 53 | 46 | 39 | 32 | 56 | 59 | 57 | 51 | 43 | 37 | 62 | 67 | 65 | 60 | 50 | 44 | | | |
| | 1000 | -0.1 | 45 | 35 | 32 | 22 | 21 | 22 | 56 | 56 | 55 | 47 | 41 | 35 | 60 | 60 | 59 | 52 | 45 | 39 | 66 | 68 | 68 | 61 | 52 | 47 | | | |
| | 1600 | -0.2 | 46 | 41 | 42 | 29 | 28 | 25 | 59 | 57 | 56 | 48 | 42 | 37 | 63 | 61 | 60 | 53 | 47 | 42 | 69 | 69 | 68 | 62 | 53 | 49 | | | |
| | 2400 | -0.5 | 46 | 46 | 51 | 34 | 33 | 27 | 62 | 58 | 57 | 49 | 44 | 39 | 65 | 62 | 62 | 54 | 48 | 44 | 72 | 70 | 69 | 62 | 55 | 51 | | | |
| | 3100 | -0.7 | 47 | 49 | 57 | 38 | 37 | 29 | 64 | 58 | 58 | 50 | 45 | 40 | 67 | 63 | 63 | 55 | 49 | 45 | 73 | 70 | 70 | 63 | 56 | 52 | | | |
| 16 | 780 | .00 | 39 | 31 | 21 | 20 | 19 | 18 | 56 | 60 | 60 | 56 | 49 | 42 | 60 | 64 | 64 | 60 | 53 | 47 | 65 | 71 | 71 | 67 | 61 | 56 | | | |
| | 1600 | -0.1 | 45 | 42 | 39 | 30 | 28 | 24 | 60 | 61 | 60 | 55 | 50 | 43 | 63 | 65 | 64 | 59 | 54 | 49 | 69 | 71 | 71 | 66 | 62 | 57 | | | |
| | 2400 | -0.2 | 48 | 49 | 49 | 36 | 33 | 28 | 62 | 61 | 60 | 55 | 50 | 44 | 66 | 65 | 64 | 59 | 55 | 50 | 71 | 72 | 70 | 66 | 62 | 58 | | | |
| | 3600 | -0.3 | 51 | 55 | 60 | 42 | 38 | 31 | 64 | 61 | 59 | 54 | 50 | 45 | 68 | 65 | 64 | 58 | 55 | 50 | 73 | 72 | 70 | 66 | 63 | 59 | | | |
| | 4200 | -0.4 | 53 | 57 | 64 | 44 | 40 | 32 | 65 | 61 | 59 | 54 | 51 | 46 | 68 | 65 | 63 | 58 | 55 | 51 | 74 | 72 | 70 | 66 | 63 | 60 | | | |

- NOTES:**
1. Based on tests conducted in accordance with ARI Standard 880-98.
 2. ΔP_s static pressure difference from inlet to discharge.
 3. ΔP_s is the minimum pressure required to deliver CFM shown with primary damper in wide open position.
 4. Dash (—) indicates db level less than 10.



A Participating Member
in the ARI 880
Certification Program

MODEL NUMBERING SYSTEM - Model AHE

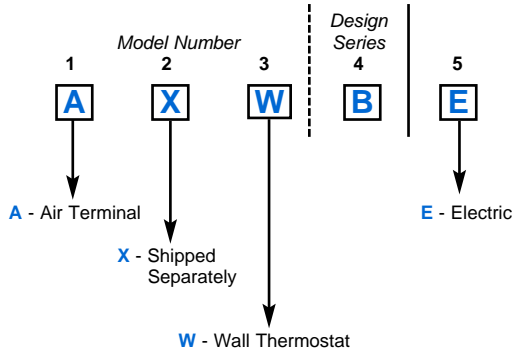


- CONTROLS, DAMPERS AND COIL ARRANGEMENTS**
- *1 - Normally Open - Right Hand Controls (All Electric/Electronic/Manual Control Types/DO, DE, NS) (All Pneumatic Control Types for Reverse Acting Thermostat)
 - *2 - Normally Open - Left Hand Controls (All Electric/Electronic/Manual Control Types/DO, DE, NS) (All Pneumatic Control Types for Reverse Acting Thermostat)
 - 3 - Normally Closed - Right Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
 - 4 - Normally Closed - Left Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
 - 5 - Normally Open - Right Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
 - 6 - Normally Open - Left Hand Controls (All Pneumatic Control Types for Direct Acting Thermostat)
 - 7 - Normally Closed - Right Hand Controls (All Pneumatic Control Types for Reverse Acting Thermostat)
 - 8 - Normally Closed - Left Hand Controls (All Pneumatic Control Types for Reverse Acting Thermostat)

NOTE: Hand of controls is determined by facing the averaging flow sensor (inlet of the unit) with the supply air hitting the back of your head.

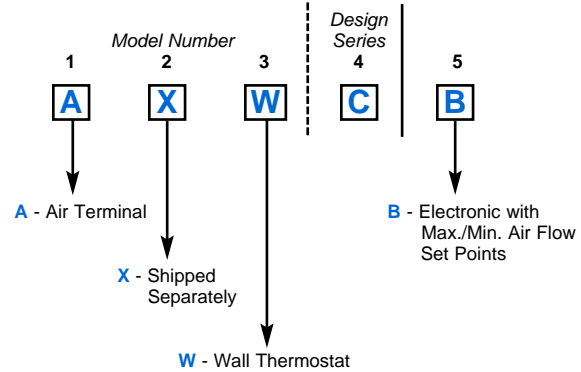
* Electric, Electronic and DDC Units **DO NOT** fail open. '1' or '2' is used for Right or Left Hand Only. Electric/Electronic Units are shipped with the Damper in the Open Position.

▼ Electric Thermostat



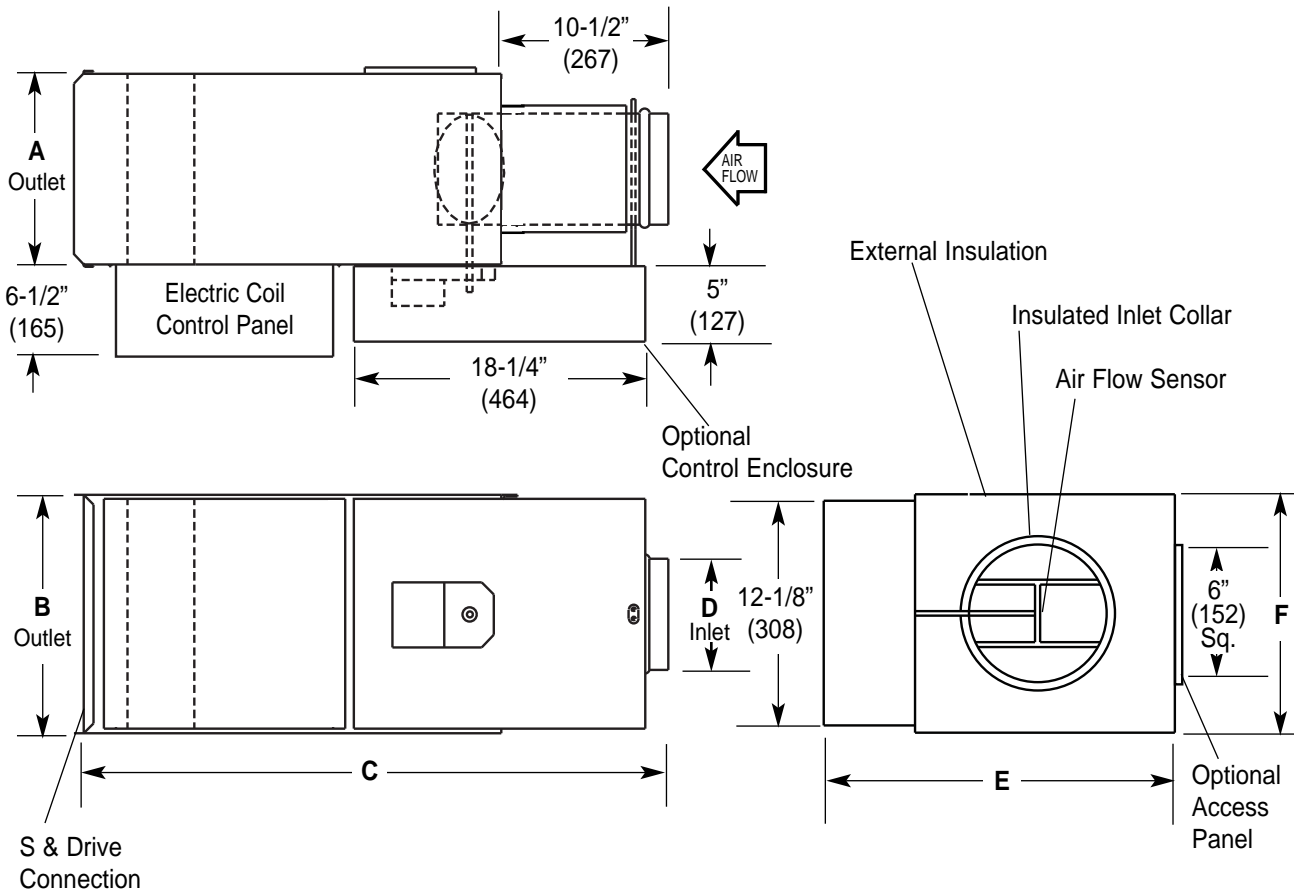
A Carnes Electric Thermostat **must be ordered** with the Electric ER and EK Control Options.

▼ Electronic Thermostat



A Carnes Electronic Thermostat **must be ordered** with the ET Electronic Control Option.

LEFT HAND UNIT SHOWN
RIGHT HAND AVAILABLE



DIMENSIONS LISTED IN INCHES (Metric in Millimeters)

| Unit Size | CFM (L/s) Range | Outlet | | C | Inlet | | F |
|-----------|--------------------|-------------|-----------------|------------------|-----------------|-----------------|-----------------|
| | | A | B | | D | E | |
| 05 | 0-350 (0-165) | 12 (305) | 10 (254) | 44-3/8 (1127) | 4-7/8 (124) | 20-1/2 (521) | 12-1/8 (308) |
| 06 | 0-500 (0-236) | 12 (305) | 10 (254) | 44-3/8 (1127) | 5-7/8 (149) | 20-1/2 (521) | 12-1/8 (308) |
| 07 | 0-700 (0-330) | 12 (305) | 10 (254) | 44-3/8 (1127) | 6-7/8 (175) | 20-1/2 (521) | 12-1/8 (308) |
| 08 | 0-1000 (0-472) | 12 (305) | 10 (254) | 44-3/8 (1127) | 7-7/8 (200) | 20-1/2 (521) | 12-1/8 (308) |
| 10 | 0-1500 (0-708) | 14 (356) | 12-1/2 (318) | 44-3/8 (1127) | 9-7/8 (251) | 22-1/2 (572) | 14-5/8 (371) |
| 12 | 0-2300 (0-1085) | 16 (406) | 15 (381) | 44-3/8 (1127) | 11-7/8 (302) | 24-1/2 (622) | 17-1/8 (435) |
| 14 | 0-3100 (0-1463) | 20 (508) | 17-1/2 (445) | 44-3/8 (1127) | 13-7/8 (352) | 28-1/2 (724) | 19-5/8 (498) |
| 16 | 0-4200 (0-1982) | 24 (610) | 17-1/2 (445) | 44-3/8 (1127) | 15-7/8 (403) | 32-1/2 (826) | 19-5/8 (498) |