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35E

Single Duct Terminal Units for Variable Volume Systems

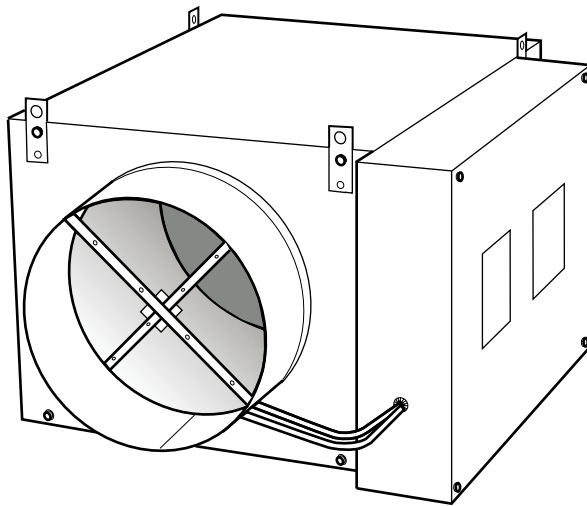
Nominal: 75 to 5995 CMH



Product Data

35E Single Duct Terminal Units for Variable Volume Systems

Nominal 75 to 5995 CMH



Single duct variable air volume (VAV) terminal units provide:

- 0.8mm galvanized steel, unit casing lined with 25mm. dual density fiberglass

Features/Benefits

Carrier's 35E terminal units are among the most versatile single duct products on the market today, offering a compact design with control packages.

Flexible, high performance units

The 35E unit single duct variable air volume (VAV) unit provides cooling only or cooling with reheat to meet all your application needs. It is designed to allow maximum flexibility in configuration and control.

The 35E unit is offered in 10 sizes with air delivery range from 75 to 5995 cmh. The basic model is a compact, high performance unit with a standard single blade damper. Minimal leakage and effective use of reheat airflow combine to assure optimum utilization of supplied airflow. The small size of the unit ensures an easy fit in all applications.

Application flexibility

Units have round inlets

All round inlets have a raised collar bead to ensure tight inlet duct connections. The 35E unit has a rectangular slip and drive connection on the discharge for quick installation.

The units can be specified with electric or hot water heat, a number of linings, multiple outlet assembly (octopus), and sound attenuator.

Superior control offerings

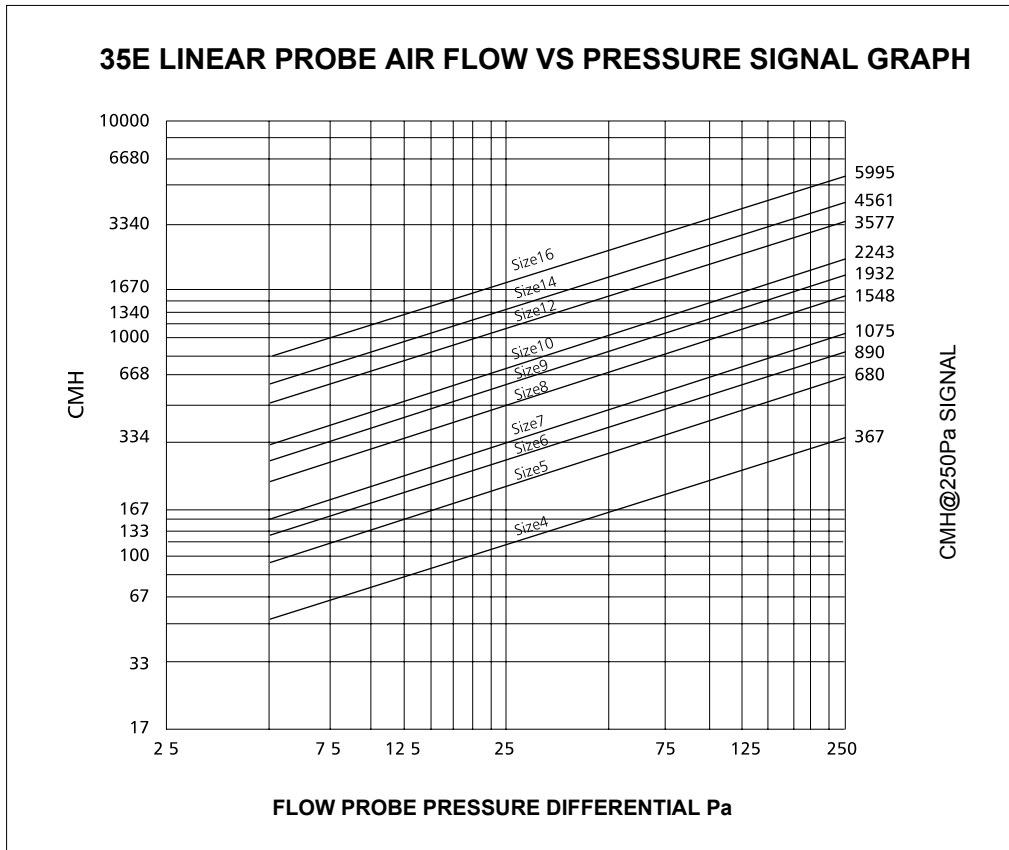
Each 35E unit is supplied with a crossed Averaging Flow probe as a standard feature. This probe offers a flow averaging capability and results in flow sensing capability (see chart below).

Control offerings include: pressure independent, BACnet protocol is standard and Carrier Control Network (CCN) is optional.

Electronic control units feature a factory-installed enclosure that provides easy access for field connections.

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Factory-installed options

0.8mm galvanized steel casing construction
Liner options include cellular, fiberglass
(25mm dual density)
Dust tight control enclosures
Sound attenuator
Water or electric coils
Hanger brackets

Control options

The 35E single duct unit is offered with a wide variety of factory-mounted controls that regulate the volume of air delivery from the unit and respond to cooling and heating load requirements of the conditioned space. Stand-alone controls will fulfill the thermal requirements of a given control space.

Zone Controller

Carrier VAV zone controller is mounted in the factory with transformer, power switch and other electric accessories. The thermostat is installed at jobsite and provided separately. The zone controller must work together with thermostat, suitable for cooling only, single or multi stage electric heater, on/off or proportional control valve. The heating coil must be purchased separately.

Thermostat

- * BAC----RS indoor thermostat(Temperature set, Override button).
- * BAC----RSP indoor thermostat(Temperature set, Override button, LCD display)
- * CO2 sensor

Electric Heater

Manually and resettable control
Heat circuit breaker, fuse and positive pressure air flow switch
All these control components are involved in control box

Hot water coils

The 35E hot water coils are enclosed in a galvanized steel casing and constructed of corrugated aluminum fins. The coil tubing is water leak tested to 2.8MPa.

Features:

Tube: 12.7*0.34mm copper tube
Fin: 0.115mm, 12FPFCasing:
0.8mm GI steel
Outlet connection: Slip and drive cleat
discharge duct connection

Inner casing

- 2 options available
1. 25mm fiberglass with aluminum foil
 2. 25mm fiberglass with non-woven fabrics

Model number nomenclature

35E C 0 0R 04 0 D000 S 000 000 00 1 S A

35E:
Single duct

With/ Without Control
C- BAC control
N- No control

Insulation
0- 1" fiberglass Al foil
1- 1" fiberglass non-woven fabrics

2- 1" Pe (Soft Polyethylene)
Unit Hand
0R- Right hand
0L- Left hand

Inlet Size
04 - 4" 05 - 5" 06 - 6"
07 - 7" 08 - 8" 09 - 9"
10 - 10" 12 - 12" 14 - 14"
16 - 16"

Outlet Size
0 - Standard rectangle outlet
1 - Round outlet same as inlet
A - (2) Dia 5-7/8" outlet
B - (3) Dia 5-7/8" outlet
C - (2) Dia 7-7/8" outlet
D - (3) Dia 7-7/8" outlet
E - (2) Dia 9-7/8" outlet
F - (3) Dia 9-7/8" outlet

Control type
D000 - W/o electric heater, W/ transformer
D001 - W/o electric heater, W/O transformer
EH01 - 1 stage EH, <5kW; EH11-1 stage EH, >=5kW
EH02 - 2 stage EH, <5kW; EH12-2 stage EH, >=5kW
EH03 - 3 stage EH, <5kW; EH13-3 stage EH, >=5kW
WHV1 - On/Off hot water valve (standard)
WHV2 - Analog control hot water valve (standard)

Znitial Design

Control Panel
0 - N/A
S - Standard
L - LCD type

Control Type
0 - N/A
1 - ZN141V
3 - ZN341V

Electric Heater Input
00 - N/A
10 - 1.0kW
15 - 1.5kW
20 - 2.0kW
... ..
95 - 9.5kW

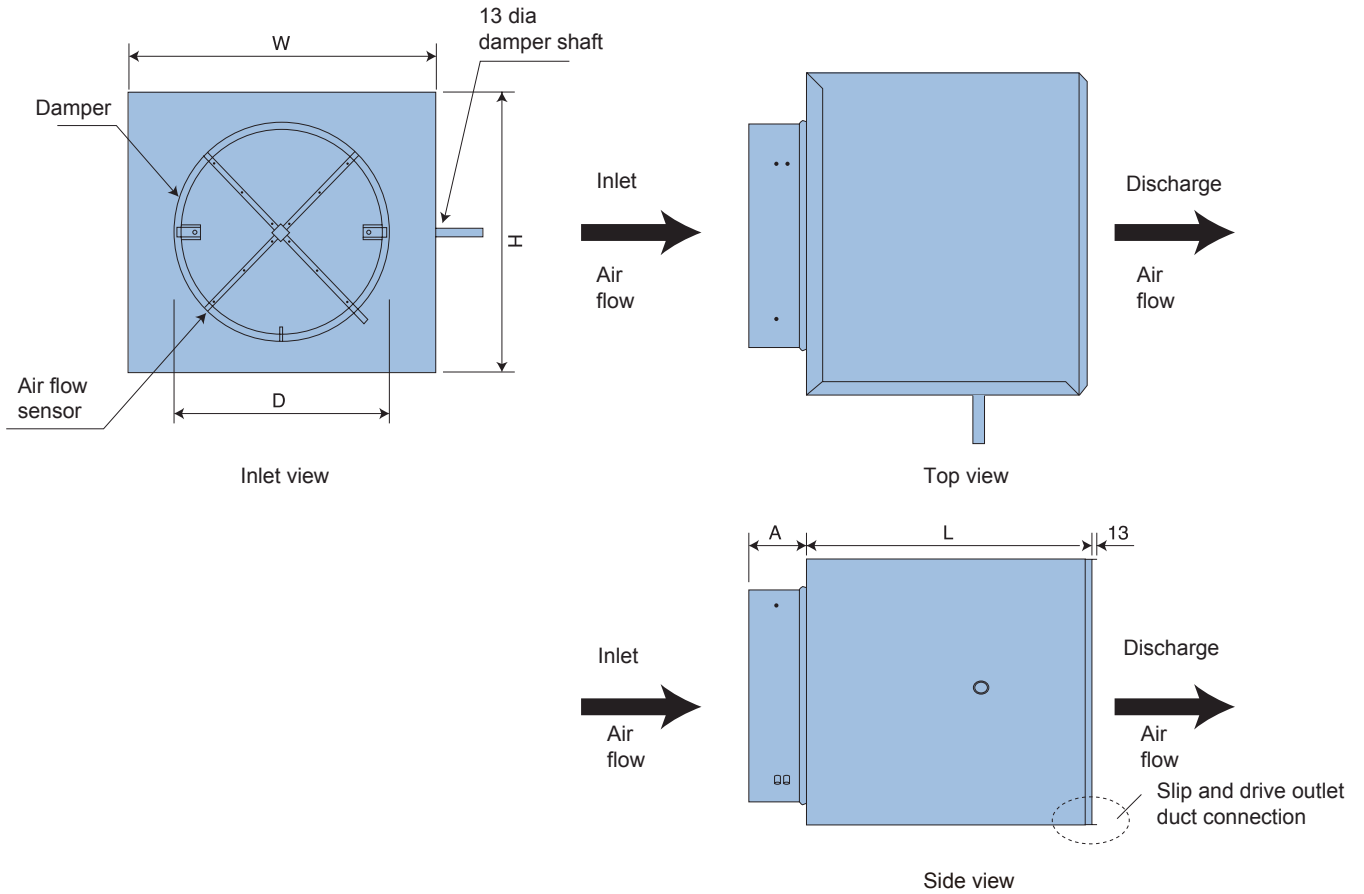
Electric Heater Stage
000 - N/A
E11 - 1Ph 1 Stage
E12 - 1Ph 2 Stage
E13 - 1Ph 3 Stage

Hot water coil
000 - N/A
W11- 1row Right hand
W12- 2row Right hand
W21- 1row Left hand
W22- 2 row Left hand

Accessories
0 - Without bracket
S - With bracket

Dimensions (cont)

35E BASE UNIT



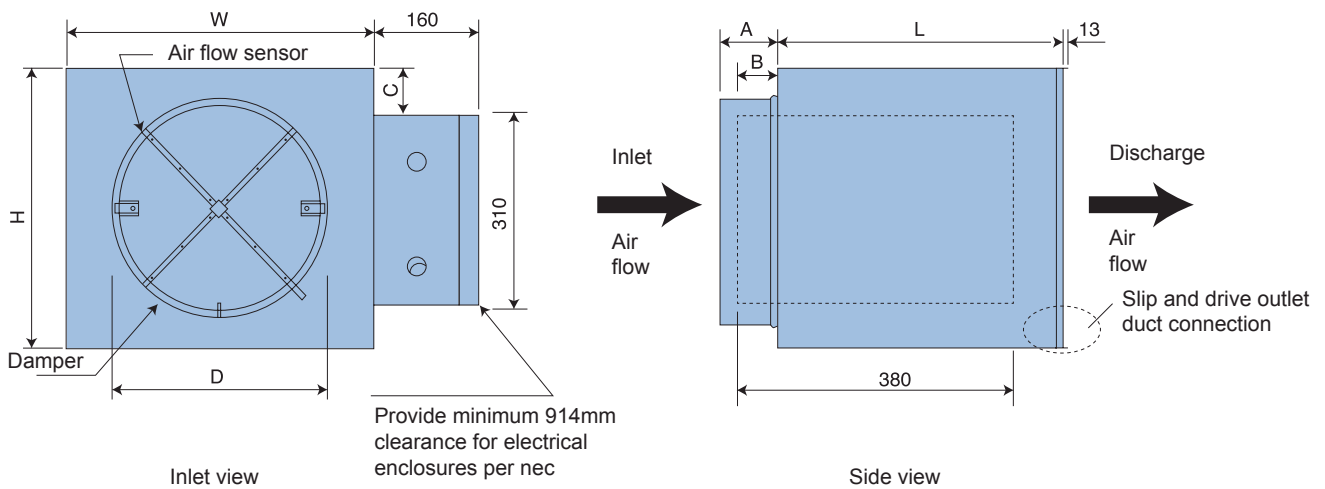
| Inlet Size (in) | Nom Max AirFlow (m ³ /h) | L (mm) | W (mm) | H (mm) | A (mm) | D (mm) |
|-----------------|-------------------------------------|--------|--------|--------|--------|--------|
| 4 | 367 | 394 | 305 | 203 | 135 | 98 |
| 5 | 680 | 394 | 305 | 203 | 135 | 124 |
| 6 | 890 | 394 | 305 | 203 | 85 | 149 |
| 7 | 1075 | 394 | 305 | 254 | 85 | 175 |
| 8 | 1548 | 394 | 305 | 254 | 85 | 200 |
| 9 | 1932 | 394 | 356 | 318 | 85 | 225 |
| 10 | 2243 | 394 | 356 | 318 | 85 | 251 |
| 12 | 3577 | 394 | 406 | 381 | 85 | 302 |
| 14 | 4561 | 394 | 508 | 445 | 85 | 352 |
| 16 | 5995 | 394 | 610 | 457 | 85 | 403 |

Notes:

1. Right hand configuration shown, left hand is available.
2. Dimensions are given as mm.
3. Discharge side of box is fully open. Dimensions are in H x W, as listed.

Dimensions (cont)

35E WITH CONTROL BOX



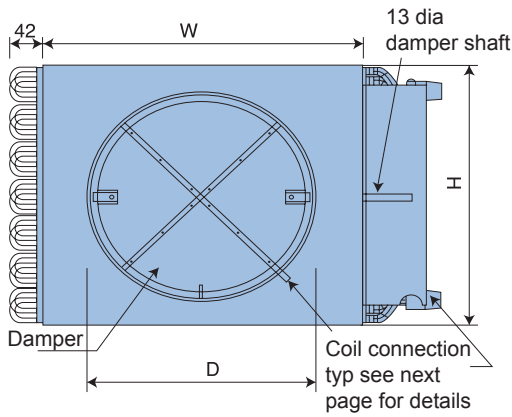
| Inlet Size (in) | Nom Max AirFlow (m ³ /h) | L (mm) | W (mm) | H (mm) | A (mm) | B (mm) | C (mm) | D (mm) |
|-----------------|-------------------------------------|--------|--------|--------|--------|--------|--------|--------|
| 4 | 367 | 394 | 305 | 203 | 135 | 604 | -53 | 98 |
| 5 | 680 | 394 | 305 | 203 | 135 | 604 | -53 | 124 |
| 6 | 890 | 394 | 305 | 203 | 85 | 604 | -53 | 149 |
| 7 | 1075 | 394 | 305 | 254 | 85 | 604 | -28 | 175 |
| 8 | 1548 | 394 | 305 | 254 | 85 | 604 | -28 | 200 |
| 9 | 1932 | 394 | 356 | 318 | 85 | 603 | 4 | 225 |
| 10 | 2243 | 394 | 356 | 318 | 85 | 603 | 4 | 251 |
| 12 | 3577 | 394 | 406 | 381 | 85 | 603 | 35 | 302 |
| 14 | 4561 | 394 | 508 | 445 | 85 | 60 | 67 | 352 |
| 16 | 5995 | 394 | 610 | 457 | 85 | 60 | 73 | 403 |

Notes:

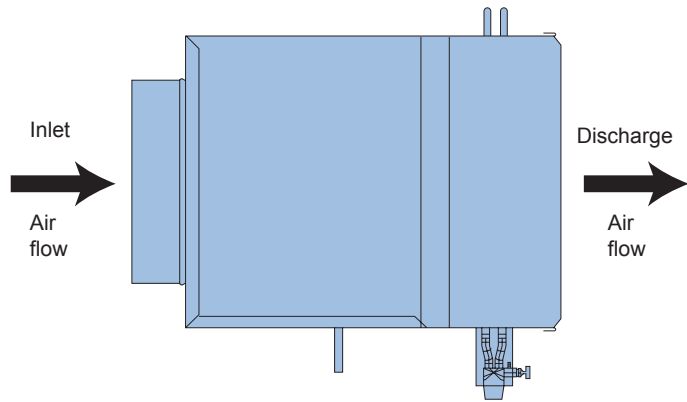
1. Left and right-hand configurations are available. Right hand is shown.
2. Dimensions are given as mm.
3. A control box will be factory-supplied for control installation.

Dimensions (cont)

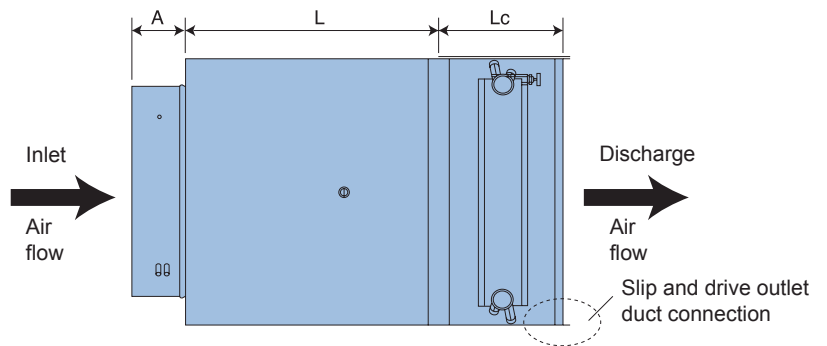
35E WITH HOT WATER REHEAT



Inlet view



Top view



Side view

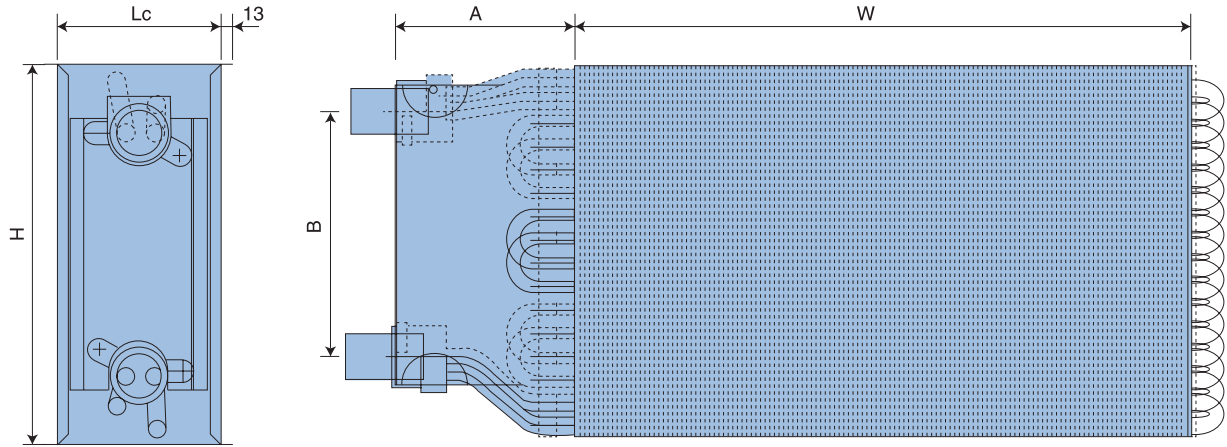
| Inlet Size(in) | Nom Max AirFlow(m ³ /h) | L (mm) | W (mm) | H (mm) | A (mm) | D (mm) | Lc |
|----------------|------------------------------------|--------|--------|--------|--------|--------|---------------|
| 4 | 367 | 394 | 305 | 203 | 135 | 98 | see next page |
| 5 | 680 | 394 | 305 | 203 | 135 | 124 | |
| 6 | 890 | 394 | 305 | 203 | 85 | 149 | |
| 7 | 1075 | 394 | 305 | 254 | 85 | 175 | |
| 8 | 1548 | 394 | 305 | 254 | 85 | 200 | |
| 9 | 1932 | 394 | 356 | 318 | 85 | 225 | |
| 10 | 2243 | 394 | 356 | 318 | 85 | 251 | |
| 12 | 3577 | 394 | 406 | 381 | 85 | 302 | |
| 14 | 4561 | 394 | 508 | 445 | 85 | 352 | |
| 16 | 5995 | 394 | 610 | 457 | 85 | 403 | |

Notes:

1. Right hand configuration shown, left hand is available.
2. Dimensions are given as mm.
3. Discharge "Lc" would be added to base 35E unit shown or would be same if added to base unit with attenuator.

Dimensions (cont)

35E HOT WATER COILS



35E coils are shipped from the factory attached to the unit discharge. Coil discharge is configured for slip and drive field ductwork installation. Coil section is uninsulated.

CONNECTION TUBING — DN20.

COIL CASING — 0.8mm Galvanized steel.

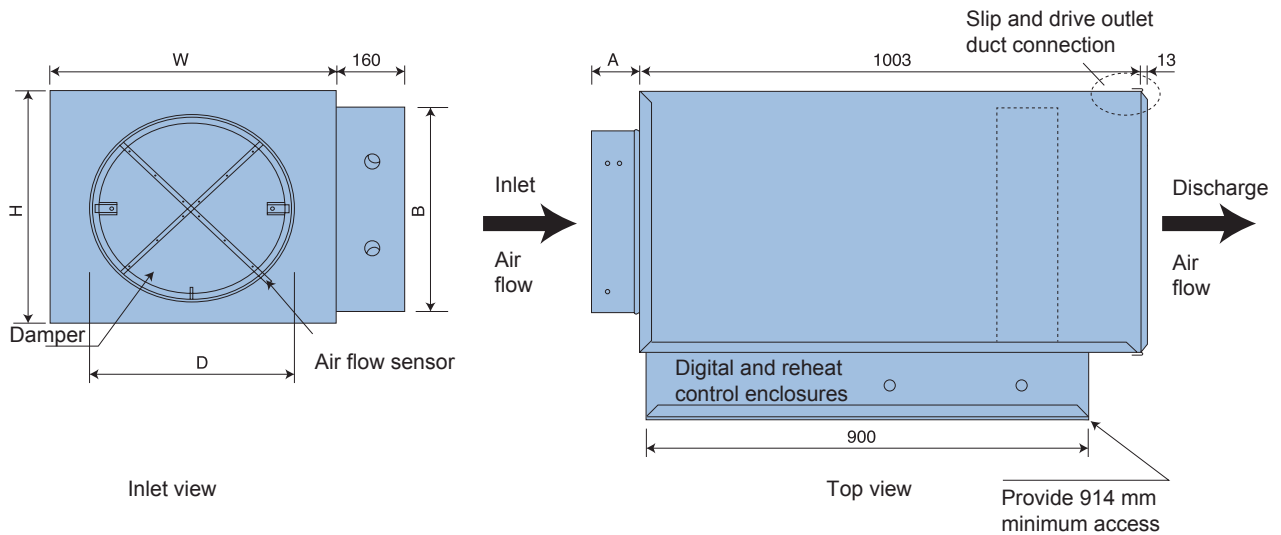
COIL TUBING — 12.7 x 0.34 mm copper.

COIL FINS — Aluminum 0.115 mm, 12FPF, mechanically bonded to tubing.

| 35E Size (in) | NO.OF COILS | H (mm) | W (mm) | Lc (mm) | A (mm) | B (mm) | WATER CONN |
|---------------|-------------|--------|--------|---------|--------|--------|------------|
| 4, 5, 6 | 1 Row | 203 | 305 | 127 | 125 | 149 | DN20 |
| | 2 Row | 203 | 305 | 127 | 125 | 111 | DN20 |
| 7, 8 | 1 Row | 254 | 305 | 127 | 125 | 183 | DN20 |
| | 2 Row | 254 | 305 | 127 | 125 | 174.5 | DN20 |
| 9, 10 | 1 Row | 318 | 356 | 127 | 125 | 246 | DN20 |
| | 2 Row | 318 | 356 | 127 | 125 | 238 | DN20 |
| 12 | 1 Row | 381 | 406 | 127 | 125 | 309 | DN20 |
| | 2 Row | 381 | 406 | 127 | 125 | 301.5 | DN20 |
| 14 | 1 Row | 445 | 508 | 191 | 125 | 373 | DN20 |
| | 2 Row | 445 | 508 | 191 | 125 | 365 | DN20 |
| 16 | 1 Row | 457 | 610 | 191 | 125 | 373 | DN20 |
| | 2 Row | 457 | 610 | 191 | 125 | 365 | DN20 |

Dimensions (cont)

35E BASE UNIT WITH ELECTRIC REHEAT



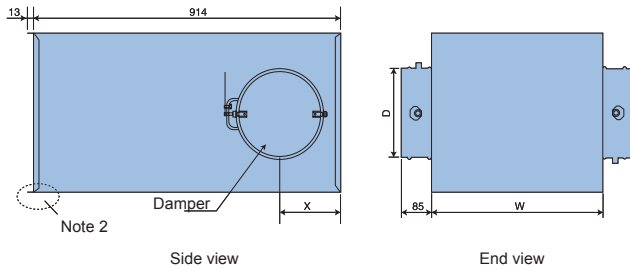
| Inlet Size (in) | Nom Max AirFlow (m ³ /h) | W (mm) | H (mm) | A (mm) | B (mm) | D (mm) |
|-----------------|-------------------------------------|--------|--------|--------|--------|--------|
| 4 | 367 | 305 | 203 | 135 | 310 | 98 |
| 5 | 680 | 305 | 203 | 135 | 310 | 124 |
| 6 | 890 | 305 | 203 | 85 | 310 | 149 |
| 7 | 1075 | 305 | 254 | 85 | 310 | 175 |
| 8 | 1548 | 305 | 254 | 85 | 310 | 200 |
| 9 | 1932 | 356 | 318 | 85 | 310 | 225 |
| 10 | 2243 | 356 | 318 | 85 | 310 | 251 |
| 12 | 3577 | 406 | 381 | 85 | 360 | 302 |
| 14 | 4561 | 508 | 445 | 85 | 430 | 352 |
| 16 | 5995 | 610 | 457 | 85 | 430 | 403 |

Notes:

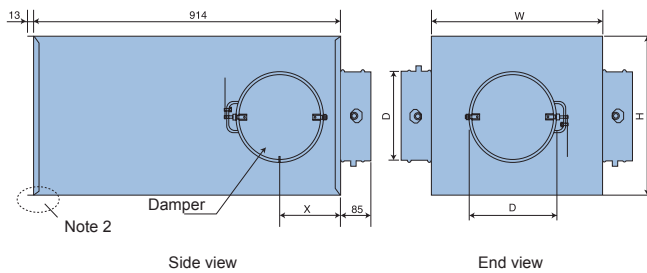
1. Right - hand configuration shown, left hand is available.
2. Dimensions are given as mm.
3. Units with electric heat coils automatically get the attenuator option.

Dimensions (cont)

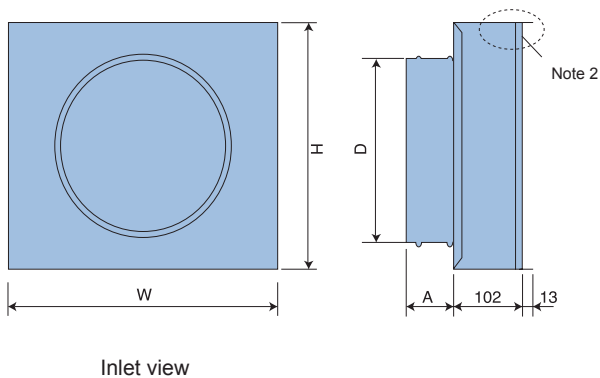
35E MUTI - OUTLET ATTENUATOR OR SINGLE ROUND OUTLET



| (2) Multiple outlets | | | | |
|----------------------|-----------|-----------|-----------|-----------|
| Unit Size (in) | W (mm) | H (mm) | D (mm) | X (mm) |
| 4,5,6 | 305 | 203 | 149 | 187 |
| 7,8 | 305 | 254 | 200 | 187 |
| 9,10 | 356 | 318 | 200 | 187 |
| 12 | 406 | 381 | 251 | 187 |



| (3) Multiple outlets | | | | |
|----------------------|-----------|-----------|-----------|-----------|
| Unit Size (in) | W (mm) | H (mm) | D (mm) | X (mm) |
| 4,5,6 | 305 | 203 | 149 | 187 |
| 7,8 | 305 | 254 | 200 | 187 |
| 9,10 | 356 | 318 | 200 | 187 |
| 12 | 406 | 381 | 251 | 187 |



| Round outlets | | | | |
|-------------------|-----------|-----------|-----------|-----------|
| Unit Size (in) | W (mm) | H (mm) | A (mm) | D (mm) |
| 4 | 305 | 203 | 135 | 98 |
| 5 | 305 | 203 | 135 | 124 |
| 6 | 305 | 203 | 85 | 149 |
| 7 | 305 | 254 | 85 | 175 |
| 8 | 305 | 254 | 85 | 200 |
| 9 | 356 | 318 | 85 | 225 |
| 10 | 356 | 318 | 85 | 251 |
| 12 | 406 | 381 | 85 | 302 |
| 14 | 508 | 445 | 85 | 352 |
| 16 | 406 | 457 | 85 | 403 |

Notes:

1. Dimensions are given as mm.
2. Denotes slip and drive connection.

Physical data

WEIGHT

| 35E size | Unit only | With DDC control | With electric heat | With hot water 1Row/2Row |
|----------|-----------|------------------|--------------------|--------------------------|
| 4,5,6 | 6 | 10 | 15 | 8.6/9.1 |
| 7,8 | 7 | 11 | 18 | 9.5/10 |
| 9,10 | 10 | 14 | 20 | 13/14 |
| 12 | 12 | 16 | 25 | 16/17 |
| 14 | 15 | 20 | 29 | 20/22 |
| 16 | 17 | 21 | 34 | 23/25 |

DDC - Direct Digital Controls

Note: Data is based on the following conditions

1. 0.8 mm GI casing.
2. 25 mm fiber - glass insulation, dual density.
3. Units rated with standard crossed sensor.

AIRFLOW

| 35E size | Inlet size | | MAX primary airflow (m ³ /h) | Minimum recommended airflow (m ³ /h) | | Minimum Ps (Pa) |
|----------|------------|-----|---|---|---------------|-----------------|
| | in. | mm | | Standard | Electric Heat | |
| 4 | 4 | 102 | 367 | 75/0 | 90 | 2.5 |
| 5 | 5 | 127 | 680 | 130/0 | 150 | 10 |
| 6 | 6 | 152 | 890 | 180/0 | 180 | 25 |
| 7 | 7 | 178 | 1075 | 220/0 | 220 | 25 |
| 8 | 8 | 203 | 1548 | 310/0 | 310 | 25 |
| 9 | 9 | 229 | 1931 | 390/0 | 400 | 45 |
| 10 | 10 | 254 | 2243 | 450/0 | 450 | 25 |
| 12 | 12 | 305 | 3577 | 710/0 | 750 | 25 |
| 14 | 14 | 356 | 4561 | 920/0 | 950 | 25 |
| 16 | 16 | 406 | 5995 | 1200/0 | 1200 | 25 |

Note: All the unit inlets are round.

RADIATED SOUND*

| Octave bands at 1.5 In. WG static pressure (375Pa) | Fre- quency (Hz) | 35E SIZE | | | | | | | | | |
|---|------------------------|----------------|-----|-----|-----|------|------|------|------|------|------|
| | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 |
| | | Airflow (m³/h) | | | | | | | | | |
| | | 255 | 425 | 680 | 934 | 1189 | 1529 | 1869 | 2718 | 3568 | 4757 |
| 2 | 125 | 59 | 63 | 62 | 60 | 60 | 60 | 60 | 60 | 58 | 62 |
| 3 | 250 | 50 | 52 | 58 | 57 | 57 | 53 | 55 | 56 | 54 | 57 |
| 4 | 500 | 43 | 45 | 50 | 50 | 51 | 48 | 53 | 53 | 49 | 54 |
| 5 | 1000 | 39 | 40 | 44 | 41 | 45 | 45 | 45 | 49 | 45 | 50 |
| 6 | 2000 | 37 | 36 | 42 | 37 | 43 | 43 | 43 | 48 | 44 | 48 |
| 7 | 4000 | 34 | 33 | 38 | 32 | 39 | 39 | 38 | 41 | 41 | 43 |

DISCHARGE SOUND*

| Octave bands at 1.5 In. WG static pressure (375Pa) | Fre- quency (Hz) | 35E SIZE | | | | | | | | | |
|---|------------------------|----------------|-----|-----|-----|------|------|------|------|------|------|
| | | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 |
| | | Airflow (m³/h) | | | | | | | | | |
| | | 255 | 425 | 680 | 934 | 1189 | 1529 | 1869 | 2718 | 3568 | 4757 |
| 2 | 125 | 61 | 67 | 65 | 67 | 67 | 65 | 66 | 69 | 68 | 70 |
| 3 | 250 | 61 | 63 | 68 | 69 | 70 | 65 | 66 | 69 | 65 | 66 |
| 4 | 500 | 55 | 58 | 61 | 59 | 63 | 58 | 61 | 64 | 62 | 63 |
| 5 | 1000 | 51 | 52 | 54 | 55 | 57 | 56 | 58 | 61 | 59 | 60 |
| 6 | 2000 | 49 | 50 | 50 | 52 | 54 | 53 | 56 | 60 | 57 | 59 |
| 7 | 4000 | 45 | 47 | 48 | 49 | 51 | 51 | 54 | 57 | 58 | 59 |

*Sound power base on. ARI 880 - 98

35E BASIC PRESSURE DATA

| Inlet size | | Airflow (CMH) | Mini airflow (m ³ /h) | | Electric heat** (at eat 12.8 °C) | Minimum inlet static pressure(Unit and Heat Pressure Drop) | | | | |
|------------------------------|-----------------------------|---------------|--|-----------------|----------------------------------|--|-------------------|---------------------------|---------------------------|-----------------------|
| in. (Area ft. ²) | mm (Area cm. ²) | | Cooling only or cooling with hot water | Electric Heat + | | Velocity Press (Δ Vps) | Basic Unit (Δ Ps) | Basic + 1 Row Coil (Δ Ps) | Basic + 2 Row Coil (Δ Ps) | Basic + Heater (Δ Ps) |
| 4 (0.09) | 102 (84) | 92 | 75or0 | 90 | 1.1 | 5.0 | 0.0 | 2.0 | 3.0 | 0.0 |
| | | 184 | | | 2.3 | 25.0 | 2.5 | 7.0 | 9.0 | 2.5 |
| | | 284 | | | 3++ | 57.5 | 5.0 | 13.0 | 20.0 | 5.0 |
| | | 367 | | | 3++ | 107.5 | 7.5 | 20.0 | 33.0 | 7.5 |
| 5 (0.14) | 127 (130) | 142 | 130or0 | 150 | 1.7 | 5.0 | 0.0 | 2.0 | 5.0 | 0.0 |
| | | 284 | | | 3.5 | 22.5 | 5.0 | 14.0 | 20.0 | 5.0 |
| | | 442 | | | 5++ | 57.5 | 10.0 | 28.0 | 48.0 | 10.0 |
| | | 680 | | | 5++ | 107.5 | 20.0 | 62.0 | 105 | 20.0 |
| 6 (0.2) | 152 (186) | 167 | 180or0 | 180 | 2.1 | 5.0 | 2.5 | 6 | 8 | 2.5 |
| | | 400 | | | 4.9 | 22.5 | 10.0 | 25 | 40 | 10.0 |
| | | 635 | | | 7.5 | 55.0 | 22.5 | 61 | 102 | 22.5 |
| | | 890 | | | 7.5 | 107.5 | 42.5 | 115 | 188 | 42.5 |
| 7 (0.27) | 178 (251) | 234 | 220or0 | 220 | 2.9 | 5.0 | 2.5 | 6 | 10 | 2.5 |
| | | 550 | | | 6.8 | 22.5 | 10.0 | 25 | 40 | 10.0 |
| | | 877 | | | 9.5++ | 57.5 | 22.5 | 57 | 94 | 22.5 |
| | | 1075 | | | 9.5++ | 102.5 | 42.5 | 93 | 176 | 42.5 |
| 8 (0.35) | 203 (325) | 317 | 310or0 | 310 | 3.9 | 5.0 | 2.5 | 7 | 11 | 2.5 |
| | | 735 | | | 9.1 | 22.5 | 10.0 | 35 | 63 | 10.0 |
| | | 1127 | | | 9.5++ | 52.5 | 22.5 | 83 | 146 | 22.5 |
| | | 1548 | | | 9.5++ | 97.5 | 42.5 | 145 | 248 | 42.5 |
| 9 (0.44) | 229 (4409) | 400 | 390or0 | 400 | 4.9 | 5.0 | 2.5 | 6 | 10 | 2.5 |
| | | 920 | | | 9.5 | 20.0 | 17.5 | 39 | 64 | 17.5 |
| | | 1460 | | | 9.5++ | 52.5 | 42.5 | 90 | 132 | 42.5 |
| | | 1930 | | | 9.5++ | 100.0 | 80.0 | 168 | 259 | 80.0 |
| 10 (0.55) | 254 (511) | 500 | 450or0 | 450 | 6.2 | 5.0 | 2.5 | 8 | 17 | 2.5 |
| | | 1130 | | | 9.5 | 20.0 | 10.0 | 42 | 75 | 10.0 |
| | | 1800 | | | 9.5++ | 50.0 | 25.0 | 100 | 175 | 25.0 |
| | | 2240 | | | 9.5++ | 90.0 | 42.5 | 157 | 264 | 42.5 |
| 12 (0.78) | 305 (725) | 710 | 710or0 | 750 | 8.7 | 2.5 | 2.5 | 9 | 14 | 2.5 |
| | | 1670 | | | 9.5 | 20.0 | 10.0 | 40 | 72 | 10.0 |
| | | 2590 | | | 9.5++ | 47.5 | 22.5 | 103 | 1734 | 22.5 |
| | | 3580 | | | 9.5++ | 85.0 | 42.5 | 186 | 301 | 42.5 |

35E BASIC PRESSURE DATA

| Inlet size | | Airflow (CMH) | Mini airflow (m ³ /h) | | Electric heat** (at eat 12.8 °C) | Minimum inlet static pressure(Unit and Heat Pressure Drop) | | | | |
|------------------------------|-----------------------------|---------------|--|-----------------|----------------------------------|--|-------------------|---------------------------|---------------------------|-----------------------|
| in. (Area ft. ²) | mm (Area cm. ²) | | Cooling only or cooling with hot water | Electric Heat + | | Velocity Press (Δ Vps) | Basic Unit (Δ Ps) | Basic + 1 Row Coil (Δ Ps) | Basic + 2 Row Coil (Δ Ps) | Basic + Heater (Δ Ps) |
| 14 (1.07) | 356 (994) | 970 | 920or0 | 950 | 9.5 | 2.5 | 2.5 | 9 | 13 | 2.5 |
| | | 2300 | | | 9.5 | 17.5 | 10.0 | 45 | 73 | 10.0 |
| | | 3550 | | | 9.5++ | 42.5 | 25.0 | 104 | 160 | 25.0 |
| | | 4560 | | | 9.5++ | 77.5 | 47.5 | 178 | 267 | 47.5 |
| 16 (1.4) | 406 (1301) | 1250 | 1200or0 | 1200 | 9.5 | 2.5 | 2.5 | 9 | 15 | 2.5 |
| | | 2960 | | | 9.5++ | 15.0 | 10.0 | 41 | 70 | 10.0 |
| | | 4550 | | | 9.5++ | 35.0 | 22.5 | 95 | 168 | 22.5 |
| | | 6000 | | | 9.5++ | 62.5 | 42.5 | 170 | 305 | 42.5 |

Legend:

DDC — Direct digital control

EAT — Enttring air temperature

Δ Ps — The difference in static pressure from inlet to discharge with damper fully open

Δ Vps — Chage in velocity pressure

+ Minimum 20 Pa discharge static pressure is required to set the flow switch in the electric heater.

** Maximum discharge temperatures with electric heat are set at 49 oC by the National Electric Code. Max kW shown assumes 12.8 oC entering air and is limited by unit's selected voltage, phase, max capacity and design. Min cfm for electric heat is based on UL/ETL listings. (Diffuser performance will likely be poor at this low flow rate.) The ASHRAE (American Fundamentals does not recommend a discharge temperature exceeding 32 oC for satisfactory air mixing and comfort.

++ Max. kW is limited by design.

Notes:

1. To obtain Total Pressure (Pt), add the Velocity Pressure for a given airflow to the Static Pressure drop (□ Ps) of the desired configuration.
2. The electric heat max kW is single phase. For more details, refer to the air terminal selection program.

Performance data (cont)

35E UNIT RADIATED SOUND POWER

| Inlet size | Flow rate | | MIN. Δ Ps | 125Pa* | | | | | | | | 250Pa* | | | | | | | | 500Pa* | | | | | | | |
|------------|-----------|------|------------------|---------------------|----|----|----|----|----|----|----|----------------------------|----|----|----|----|----|----|----|----------------------------|----|----|----|----|----|--|----|
| | Octave | | | Band Sound Power,Lw | | | | | | | Lp | Octave Band Sound Power,Lw | | | | | | | Lp | Octave Band Sound Power,Lw | | | | | | | Lp |
| in. | CMH | L/s | In.wg | pa | 2 | 3 | 4 | 5 | 6 | 7 | NC | 2 | 3 | 4 | 5 | 6 | 7 | NC | 2 | 3 | 4 | 5 | 6 | 7 | NC | | |
| 4 | 92 | 26 | 0.002 | 0.39 | 36 | 27 | 22 | 21 | 16 | 7 | — | 37 | 28 | 25 | 24 | 18 | 12 | — | 38 | 30 | 28 | 26 | 20 | 17 | — | | |
| | 184 | 51 | 0.008 | 1.88 | 49 | 41 | 32 | 32 | 29 | 21 | — | 50 | 42 | 36 | 34 | 31 | 25 | — | 51 | 44 | 39 | 36 | 33 | 30 | — | | |
| | 284 | 79 | 0.018 | 4.50 | 56 | 49 | 38 | 38 | 36 | 28 | — | 57 | 50 | 42 | 40 | 38 | 33 | — | 58 | 52 | 45 | 42 | 40 | 37 | — | | |
| | 367 | 102 | 0.033 | 8.23 | 61 | 54 | 43 | 42 | 41 | 33 | 24 | 62 | 56 | 46 | 44 | 43 | 38 | 25 | 63 | 57 | 50 | 46 | 45 | 42 | 26 | | |
| 5 | 142 | 39 | 0.004 | 0.87 | 39 | 22 | 17 | 14 | 9 | 5 | — | 45 | 27 | 22 | 17 | 13 | 11 | — | 50 | 32 | 27 | 20 | 17 | 18 | — | | |
| | 284 | 79 | 0.018 | 4.49 | 48 | 37 | 29 | 27 | 23 | 16 | — | 53 | 42 | 34 | 31 | 26 | 22 | — | 59 | 47 | 40 | 34 | 30 | 29 | 20 | | |
| | 442 | 123 | 0.044 | 10.93 | 53 | 45 | 36 | 35 | 30 | 22 | — | 58 | 50 | 41 | 38 | 34 | 28 | — | 63 | 55 | 46 | 41 | 38 | 35 | 26 | | |
| | 680 | 189 | 0.081 | 20.16 | 56 | 50 | 41 | 40 | 35 | 26 | — | 61 | 55 | 46 | 43 | 39 | 32 | 24 | 67 | 60 | 51 | 46 | 43 | 39 | 31 | | |
| 6 | 167 | 46 | 0.006 | 1.56 | 41 | 32 | 22 | 20 | 16 | 10 | — | 44 | 37 | 26 | 23 | 20 | 15 | — | 48 | 41 | 30 | 27 | 24 | 21 | — | | |
| | 400 | 111 | 0.036 | 8.95 | 50 | 43 | 35 | 33 | 29 | 22 | — | 53 | 48 | 39 | 36 | 32 | 28 | — | 56 | 52 | 44 | 39 | 36 | 33 | 20 | | |
| | 635 | 176 | 0.090 | 22.47 | 55 | 49 | 43 | 39 | 35 | 28 | — | 58 | 53 | 47 | 42 | 39 | 34 | 22 | 61 | 58 | 51 | 45 | 43 | 40 | 27 | | |
| | 890 | 247 | 0.169 | 42.05 | 58 | 53 | 48 | 44 | 40 | 33 | 22 | 61 | 57 | 52 | 47 | 43 | 39 | 26 | 64 | 62 | 56 | 50 | 47 | 44 | 32 | | |
| 7 | 234 | 65 | 0.007 | 1.85 | 38 | 40 | 24 | 18 | 13 | 6 | — | 42 | 45 | 30 | 22 | 17 | 12 | — | 46 | 51 | 36 | 26 | 21 | 17 | — | | |
| | 550 | 153 | 0.036 | 8.96 | 48 | 45 | 35 | 29 | 24 | 17 | — | 51 | 51 | 41 | 33 | 28 | 23 | — | 55 | 56 | 47 | 37 | 32 | 28 | 25 | | |
| | 877 | 244 | 0.091 | 22.67 | 53 | 48 | 41 | 36 | 31 | 23 | — | 57 | 54 | 47 | 40 | 35 | 29 | 22 | 61 | 59 | 53 | 44 | 39 | 35 | 29 | | |
| | 1075 | 299 | 0.167 | 41.47 | 57 | 50 | 45 | 40 | 36 | 27 | — | 61 | 56 | 51 | 44 | 40 | 33 | 25 | 64 | 61 | 57 | 48 | 44 | 39 | 32 | | |
| 8 | 317 | 88 | 0.008 | 2.03 | 42 | 36 | 29 | 24 | 22 | 14 | — | 45 | 41 | 36 | 29 | 27 | 21 | — | 49 | 47 | 43 | 34 | 32 | 28 | — | | |
| | 735 | 204 | 0.040 | 9.83 | 50 | 43 | 37 | 33 | 30 | 22 | — | 53 | 49 | 44 | 38 | 35 | 29 | — | 56 | 54 | 51 | 43 | 40 | 36 | 25 | | |
| | 1127 | 313 | 0.093 | 23.14 | 54 | 47 | 41 | 38 | 34 | 27 | — | 57 | 52 | 48 | 42 | 39 | 34 | 22 | 60 | 58 | 55 | 47 | 44 | 40 | 30 | | |
| | 1548 | 430 | 0.175 | 43.45 | 57 | 49 | 44 | 41 | 37 | 30 | — | 60 | 55 | 51 | 46 | 42 | 37 | 26 | 63 | 61 | 58 | 51 | 47 | 44 | 33 | | |
| 9 | 400 | 111 | 0.014 | 3.45 | 39 | 33 | 22 | 23 | 20 | 16 | — | 42 | 39 | 27 | 27 | 26 | 25 | — | 46 | 45 | 31 | 31 | 31 | 33 | — | | |
| | 920 | 256 | 0.067 | 16.71 | 48 | 39 | 34 | 32 | 28 | 21 | — | 52 | 45 | 39 | 36 | 33 | 29 | — | 55 | 51 | 43 | 40 | 39 | 38 | — | | |
| | 1460 | 406 | 0.170 | 42.30 | 54 | 43 | 41 | 37 | 32 | 23 | — | 57 | 49 | 46 | 41 | 38 | 32 | — | 61 | 55 | 50 | 45 | 43 | 40 | 24 | | |
| | 1930 | 536 | 0.320 | 79.56 | 58 | 45 | 46 | 41 | 35 | 25 | — | 61 | 51 | 50 | 45 | 41 | 33 | 25 | 64 | 57 | 55 | 49 | 46 | 42 | 29 | | |
| 10 | 500 | 139 | 0.007 | 1.85 | 32 | 30 | 20 | 16 | 10 | -1 | — | 37 | 36 | 23 | 21 | 18 | 11 | — | 43 | 43 | 27 | 26 | 27 | 22 | — | | |
| | 1130 | 314 | 0.038 | 9.37 | 42 | 38 | 36 | 29 | 21 | 9 | — | 48 | 44 | 39 | 34 | 29 | 21 | — | 54 | 50 | 43 | 38 | 37 | 32 | — | | |
| | 1800 | 500 | 0.096 | 23.77 | 48 | 42 | 45 | 36 | 27 | 15 | — | 54 | 48 | 48 | 41 | 35 | 26 | 22 | 60 | 54 | 52 | 45 | 43 | 38 | 26 | | |
| | 2240 | 622 | 0.174 | 43.24 | 52 | 44 | 51 | 40 | 30 | 18 | 25 | 58 | 51 | 54 | 45 | 39 | 30 | 29 | 64 | 57 | 58 | 50 | 47 | 42 | 33 | | |
| 12 | 710 | 197 | 0.008 | 1.97 | 38 | 42 | 29 | 24 | 21 | 15 | — | 43 | 46 | 33 | 28 | 26 | 20 | — | 47 | 51 | 38 | 32 | 31 | 26 | — | | |
| | 1670 | 464 | 0.039 | 9.72 | 47 | 46 | 39 | 35 | 32 | 24 | — | 51 | 50 | 43 | 39 | 36 | 30 | — | 56 | 55 | 48 | 43 | 41 | 35 | 23 | | |
| | 2590 | 719 | 0.094 | 23.35 | 52 | 48 | 44 | 40 | 37 | 29 | — | 56 | 52 | 49 | 44 | 42 | 35 | 23 | 60 | 57 | 54 | 48 | 47 | 40 | 28 | | |
| | 3580 | 994 | 0.172 | 42.87 | 55 | 49 | 48 | 44 | 41 | 32 | 22 | 59 | 54 | 53 | 48 | 46 | 38 | 27 | 64 | 59 | 57 | 52 | 51 | 44 | 32 | | |
| 14 | 970 | 269 | 0.008 | 2.03 | 34 | 33 | 23 | 25 | 24 | 22 | — | 39 | 39 | 26 | 29 | 28 | 27 | — | 43 | 44 | 30 | 32 | 32 | 31 | — | | |
| | 2300 | 639 | 0.043 | 10.67 | 45 | 41 | 37 | 35 | 34 | 30 | — | 49 | 47 | 40 | 38 | 37 | 35 | — | 54 | 52 | 43 | 42 | 41 | 39 | 20 | | |
| | 3550 | 986 | 0.102 | 25.48 | 50 | 45 | 44 | 40 | 39 | 34 | — | 55 | 51 | 48 | 43 | 43 | 39 | 22 | 59 | 56 | 51 | 47 | 46 | 43 | 25 | | |
| | 4560 | 1267 | 0.191 | 47.45 | 54 | 48 | 50 | 43 | 42 | 37 | 24 | 59 | 54 | 53 | 47 | 46 | 42 | 27 | 63 | 59 | 56 | 50 | 50 | 46 | 31 | | |
| 16 | 1250 | 347 | 0.008 | 2.03 | 38 | 35 | 30 | 29 | 25 | 19 | — | 42 | 41 | 35 | 34 | 32 | 27 | — | 47 | 46 | 40 | 39 | 40 | 35 | — | | |
| | 2960 | 822 | 0.040 | 10.00 | 48 | 43 | 40 | 37 | 32 | 25 | — | 52 | 49 | 45 | 42 | 39 | 33 | — | 57 | 54 | 50 | 47 | 46 | 41 | 24 | | |
| | 4550 | 1264 | 0.095 | 23.57 | 53 | 47 | 45 | 41 | 36 | 29 | — | 58 | 53 | 50 | 47 | 43 | 37 | 25 | 63 | 59 | 55 | 52 | 50 | 45 | 30 | | |
| | 6000 | 1667 | 0.175 | 43.45 | 57 | 50 | 49 | 45 | 38 | 31 | 23 | 62 | 56 | 54 | 50 | 46 | 39 | 29 | 66 | 62 | 59 | 55 | 53 | 48 | 34 | | |

Legend:

ARI — Air Conditioning and Refrigeration Institute CMH — Air Volume (m³/h) Lp — Sound Pressure
 Lw — Sound Power Min Δ Ps — Minimum Static Pressure required to achieve rated airflow
 NC — Application Data from ARI 885 - 98 Test Conditions
 Δ Ps — The difference in static pressure from inlet to discharge — — — Indicates an NC level less than 20
 □ — Sound Power Noise Criteria *Pressure drop across damper only

Notes:

1. Sound power levels are in decibels, re: 10⁻¹²watts.

Performance data (cont)

35E UNIT DISCHARGE SOUND

| Inlet size | Flow rate | | MIN. Δ Ps | 125Pa* | | | | | | | | 250Pa* | | | | | | | | 500Pa* | | | | | | | |
|------------|-----------|------|------------------|----------------------------|----|----|----|----|----|----|----|----------------------------|----|----|----|----|----|----|----|----------------------------|----|----|----|----|----|--|--|
| | | | | Octave Band Sound Power,Lw | | | | | | | | Octave Band Sound Power,Lw | | | | | | | | Octave Band Sound Power,Lw | | | | | | | |
| in. | CMH | L/s | In.wg | pa | 2 | 3 | 4 | 5 | 6 | 7 | NC | 2 | 3 | 4 | 5 | 6 | 7 | NC | 2 | 3 | 4 | 5 | 6 | 7 | NC | | |
| 4 | 92 | 26 | 0.002 | 0.39 | 45 | 37 | 32 | 31 | 27 | 22 | — | 46 | 38 | 36 | 35 | 31 | 27 | — | 47 | 39 | 39 | 39 | 34 | 33 | — | | |
| | 184 | 51 | 0.008 | 1.88 | 55 | 52 | 44 | 41 | 38 | 31 | — | 56 | 53 | 48 | 45 | 42 | 37 | — | 57 | 55 | 51 | 49 | 46 | 42 | — | | |
| | 284 | 79 | 0.018 | 4.50 | 61 | 61 | 51 | 46 | 44 | 36 | — | 62 | 62 | 54 | 50 | 48 | 42 | 21 | 63 | 63 | 58 | 54 | 52 | 48 | 22 | | |
| | 367 | 102 | 0.033 | 8.23 | 65 | 67 | 55 | 50 | 49 | 40 | 26 | 66 | 68 | 59 | 54 | 52 | 46 | 28 | 67 | 69 | 62 | 58 | 56 | 51 | 29 | | |
| 5 | 142 | 39 | 0.004 | 0.87 | 45 | 35 | 33 | 30 | 28 | 23 | — | 48 | 38 | 37 | 34 | 33 | 29 | — | 51 | 42 | 41 | 38 | 38 | 35 | — | | |
| | 284 | 79 | 0.018 | 4.49 | 55 | 50 | 45 | 40 | 38 | 32 | — | 59 | 54 | 49 | 44 | 42 | 38 | — | 62 | 57 | 54 | 49 | 47 | 44 | — | | |
| | 442 | 123 | 0.044 | 10.93 | 61 | 59 | 51 | 46 | 43 | 37 | — | 64 | 62 | 56 | 50 | 47 | 43 | 21 | 68 | 66 | 60 | 54 | 52 | 49 | 25 | | |
| | 680 | 189 | 0.081 | 20.16 | 65 | 64 | 56 | 50 | 46 | 41 | 23 | 68 | 68 | 60 | 54 | 51 | 47 | 27 | 72 | 71 | 65 | 59 | 55 | 52 | 31 | | |
| 6 | 167 | 46 | 0.006 | 1.56 | 42 | 41 | 30 | 28 | 29 | 25 | — | 45 | 46 | 36 | 33 | 35 | 31 | — | 49 | 51 | 41 | 37 | 40 | 38 | — | | |
| | 400 | 111 | 0.036 | 8.95 | 52 | 52 | 44 | 40 | 37 | 32 | — | 55 | 57 | 49 | 45 | 43 | 39 | — | 59 | 62 | 55 | 49 | 48 | 46 | 21 | | |
| | 635 | 176 | 0.090 | 22.47 | 58 | 57 | 51 | 47 | 41 | 36 | — | 61 | 63 | 57 | 51 | 47 | 43 | 20 | 64 | 68 | 62 | 55 | 52 | 50 | 27 | | |
| | 890 | 247 | 0.169 | 42.05 | 61 | 61 | 56 | 51 | 44 | 39 | — | 65 | 67 | 62 | 55 | 49 | 45 | 25 | 68 | 72 | 67 | 59 | 55 | 52 | 31 | | |
| 7 | 234 | 65 | 0.007 | 1.85 | 48 | 49 | 32 | 30 | 31 | 27 | — | 52 | 55 | 38 | 33 | 37 | 34 | — | 57 | 62 | 44 | 36 | 43 | 42 | 21 | | |
| | 550 | 153 | 0.036 | 8.96 | 55 | 55 | 44 | 42 | 38 | 33 | — | 59 | 61 | 50 | 46 | 44 | 41 | — | 64 | 68 | 55 | 49 | 50 | 48 | 26 | | |
| | 877 | 244 | 0.091 | 22.67 | 60 | 58 | 51 | 50 | 42 | 37 | — | 64 | 65 | 57 | 53 | 49 | 45 | 23 | 68 | 71 | 62 | 57 | 55 | 52 | 30 | | |
| | 1075 | 299 | 0.167 | 41.47 | 62 | 60 | 55 | 55 | 45 | 40 | — | 66 | 67 | 61 | 58 | 51 | 47 | 24 | 70 | 73 | 67 | 61 | 57 | 55 | 32 | | |
| 8 | 317 | 88 | 0.008 | 2.03 | 49 | 46 | 41 | 35 | 36 | 31 | — | 52 | 52 | 47 | 39 | 41 | 38 | — | 56 | 58 | 53 | 44 | 47 | 45 | — | | |
| | 735 | 204 | 0.040 | 9.83 | 56 | 54 | 49 | 45 | 42 | 37 | — | 60 | 60 | 55 | 49 | 47 | 44 | — | 63 | 65 | 61 | 54 | 53 | 50 | 24 | | |
| | 1127 | 313 | 0.093 | 23.14 | 60 | 58 | 53 | 50 | 45 | 40 | — | 63 | 64 | 59 | 55 | 51 | 47 | 22 | 67 | 70 | 65 | 59 | 56 | 53 | 29 | | |
| | 1548 | 430 | 0.175 | 43.45 | 63 | 61 | 56 | 54 | 48 | 42 | — | 66 | 67 | 62 | 59 | 53 | 49 | 25 | 70 | 73 | 68 | 63 | 59 | 56 | 31 | | |
| 9 | 400 | 111 | 0.014 | 3.45 | 45 | 43 | 35 | 33 | 34 | 33 | — | 48 | 48 | 39 | 37 | 39 | 40 | — | 51 | 53 | 44 | 40 | 44 | 46 | — | | |
| | 920 | 256 | 0.067 | 16.71 | 55 | 52 | 46 | 44 | 41 | 39 | — | 58 | 57 | 51 | 47 | 47 | 45 | — | 61 | 62 | 55 | 51 | 52 | 51 | — | | |
| | 1460 | 406 | 0.170 | 42.30 | 61 | 58 | 53 | 50 | 46 | 42 | — | 64 | 63 | 57 | 54 | 51 | 48 | — | 67 | 67 | 62 | 58 | 56 | 54 | 25 | | |
| | 1930 | 536 | 0.320 | 79.56 | 65 | 61 | 57 | 54 | 49 | 44 | — | 68 | 66 | 62 | 58 | 54 | 50 | 23 | 70 | 71 | 66 | 62 | 59 | 56 | 29 | | |
| 10 | 500 | 139 | 0.007 | 1.85 | 45 | 45 | 38 | 37 | 37 | 35 | — | 48 | 50 | 43 | 41 | 43 | 41 | — | 51 | 55 | 48 | 46 | 48 | 47 | — | | |
| | 1130 | 314 | 0.038 | 9.37 | 54 | 53 | 48 | 46 | 44 | 41 | — | 58 | 58 | 53 | 51 | 49 | 47 | — | 61 | 63 | 58 | 55 | 55 | 53 | 21 | | |
| | 1800 | 500 | 0.096 | 23.77 | 60 | 58 | 54 | 51 | 48 | 44 | — | 63 | 63 | 59 | 56 | 53 | 50 | — | 66 | 68 | 64 | 60 | 59 | 56 | 25 | | |
| | 2240 | 622 | 0.174 | 43.24 | 64 | 61 | 58 | 55 | 50 | 46 | — | 67 | 66 | 63 | 59 | 56 | 52 | 23 | 70 | 71 | 68 | 64 | 61 | 59 | 29 | | |
| 12 | 710 | 197 | 0.008 | 1.97 | 46 | 44 | 37 | 38 | 39 | 38 | — | 50 | 49 | 41 | 43 | 44 | 44 | — | 53 | 54 | 46 | 47 | 49 | 50 | — | | |
| | 1670 | 464 | 0.039 | 9.72 | 57 | 53 | 49 | 47 | 46 | 44 | — | 60 | 58 | 54 | 51 | 51 | 50 | — | 64 | 63 | 58 | 56 | 56 | 56 | 20 | | |
| | 2590 | 719 | 0.094 | 23.35 | 63 | 58 | 56 | 52 | 50 | 47 | — | 66 | 63 | 60 | 56 | 55 | 53 | 20 | 70 | 68 | 65 | 61 | 60 | 59 | 26 | | |
| | 3580 | 994 | 0.172 | 42.87 | 67 | 62 | 60 | 55 | 53 | 49 | — | 70 | 67 | 65 | 59 | 58 | 55 | 24 | 74 | 72 | 69 | 64 | 62 | 61 | 30 | | |
| 14 | 970 | 269 | 0.008 | 2.03 | 43 | 41 | 35 | 37 | 37 | 38 | — | 46 | 46 | 38 | 41 | 41 | 43 | — | 49 | 50 | 42 | 45 | 45 | 49 | — | | |
| | 2300 | 639 | 0.043 | 10.67 | 56 | 53 | 50 | 48 | 46 | 44 | — | 59 | 57 | 54 | 52 | 51 | 50 | — | 63 | 61 | 57 | 56 | 55 | 55 | — | | |
| | 3550 | 986 | 0.102 | 25.48 | 63 | 59 | 58 | 53 | 51 | 48 | — | 66 | 63 | 61 | 57 | 55 | 53 | — | 70 | 67 | 65 | 61 | 60 | 59 | 25 | | |
| | 4560 | 1267 | 0.191 | 47.45 | 68 | 63 | 64 | 57 | 55 | 50 | — | 71 | 67 | 67 | 61 | 59 | 56 | 25 | 75 | 71 | 70 | 65 | 63 | 61 | 30 | | |
| 16 | 1250 | 347 | 0.008 | 2.03 | 38 | 32 | 24 | 31 | 32 | 29 | — | 41 | 36 | 28 | 35 | 36 | 35 | — | 45 | 40 | 31 | 39 | 40 | 40 | — | | |
| | 2960 | 822 | 0.040 | 10.00 | 54 | 48 | 44 | 45 | 44 | 41 | — | 57 | 52 | 48 | 49 | 48 | 46 | — | 61 | 57 | 51 | 53 | 53 | 52 | — | | |
| | 4550 | 1264 | 0.095 | 23.57 | 63 | 57 | 55 | 52 | 50 | 47 | — | 66 | 61 | 59 | 56 | 55 | 53 | — | 69 | 65 | 62 | 60 | 59 | 58 | 22 | | |
| | 6000 | 1667 | 0.175 | 43.45 | 69 | 63 | 63 | 57 | 55 | 52 | — | 72 | 67 | 67 | 61 | 60 | 57 | 25 | 76 | 72 | 70 | 65 | 64 | 63 | 30 | | |

Legend:

ARI — Air Conditioning and Refrigeration Institute CMH — Air Volume (m³/h) Lp — Sound Pressure
 Lw — Sound Power Min Δ Ps — Minimum Static Pressure required to achieve rated airflow
 Δ Ps — The difference in static pressure from inlet to discharge — — Indicates an NC level less than 20
 □ — Sound Power Noise Criteria *Pressure drop across damper only

Notes:

1. Sound power levels are in decibels, re: 10⁻¹²watts.

Performance data (cont)

35E UNIT APPLICATION ASSUMPTIONS

| ARI 885-98 Discharge < 300 cfm (510m ³ /h) | Discharge sound application assumptions (dB) | | | | | |
|--|--|----|----|----|----|----|
| | Octave Bands | | | | | |
| | 2 | 3 | 4 | 5 | 6 | 7 |
| Environ.Effect | 2 | 1 | 0 | 0 | 0 | 0 |
| Duct Lining, 5 ft(1524mm), 8 x 8 x 7 in.(203mm x 203mm x 25mm) | 2 | 6 | 12 | 25 | 29 | 18 |
| End Reflection | 9 | 5 | 2 | 0 | 0 | 0 |
| Power Division (0 outlets) | 0 | 0 | 0 | 0 | 0 | 0 |
| 5 ft (1524mm), 8 in. (203mm) Flex Duct | 6 | 10 | 18 | 20 | 21 | 12 |
| Space Effect | 5 | 6 | 7 | 8 | 9 | 10 |
| Total Attenuation | 24 | 28 | 39 | 53 | 59 | 40 |

| ARI 885-98 Discharge <300-700 cfm (510-1190m ³ /h) | Discharge sound application assumptions (dB) | | | | | |
|--|--|----|----|----|----|----|
| | Octave Bands | | | | | |
| | 2 | 3 | 4 | 5 | 6 | 7 |
| Environ.Effect | 2 | 1 | 0 | 0 | 0 | 0 |
| Duct Lining, 5 ft(1524mm), 8 x 8 x 7 in.(203mm x 203mm x 25mm) | 2 | 4 | 10 | 20 | 20 | 14 |
| End Reflection | 9 | 5 | 1 | 0 | 0 | 0 |
| Power Division (2 outlets) | 3 | 3 | 3 | 3 | 3 | 3 |
| 5 ft (1524mm), 8 in. (203mm) Flex Duct | 6 | 10 | 18 | 20 | 21 | 12 |
| Space Effect | 5 | 6 | 7 | 8 | 9 | 10 |
| Total Attenuation | 27 | 29 | 40 | 51 | 53 | 39 |

| ARI 885-98 Discharge < 700 cfm (1190m ³ /h) | Discharge sound application assumptions (dB) | | | | | |
|--|--|----|----|----|----|----|
| | Octave Bands | | | | | |
| | 2 | 3 | 4 | 5 | 6 | 7 |
| Environ.Effect | 2 | 1 | 0 | 0 | 0 | 0 |
| Duct Lining, 5 ft(1524mm), 8 x 8 x 7 in.(203mm x 203mm x 25mm) | 2 | 3 | 9 | 18 | 17 | 12 |
| End Reflection | 9 | 5 | 2 | 0 | 0 | 0 |
| Power Division (3 outlets) | 5 | 5 | 5 | 5 | 5 | 5 |
| 5 ft (1524mm), 8 in. (203mm) Flex Duct | 6 | 10 | 18 | 20 | 21 | 12 |
| Space Effect | 5 | 6 | 7 | 8 | 9 | 10 |
| Total Attenuation | 29 | 30 | 41 | 51 | 52 | 39 |

| ARI 885-98 | Discharge sound application assumptions (dB) | | | | | |
|-----------------------------------|--|----|----|----|----|----|
| | Octave Bands | | | | | |
| | 2 | 3 | 4 | 5 | 6 | 7 |
| Mineral Tile Space/Ceiling Effect | 16 | 18 | 20 | 26 | 31 | 36 |
| Environ. Effect | 2 | 1 | 0 | 0 | 0 | 0 |
| Total Attenuation | 18 | 19 | 20 | 26 | 31 | 36 |

| | Octave Bands | | | | | |
|-----------------------|--------------|-----|-----|------|------|------|
| | 2 | 3 | 4 | 5 | 6 | 7 |
| Center Area Frequency | 125 | 250 | 500 | 1000 | 2000 | 4000 |

Performance data (cont)

35E HOT WATER COIL VOLUMES (kW)

Size 4, 5, 6

| Row/ Circuits | Water Flow (L/S) | Head loss (kPa) | Airflow (CMH) | | | | | | | | |
|------------------------------|------------------------|--------------------|---------------|------|------|------|------|------|------|------|------|
| | | | 84 | 167 | 251 | 334 | 418 | 501 | 585 | 668 | 752 |
| One Row Single Circuit | 0.03 | 0.9 | 0.84 | 1.14 | 1.33 | 1.46 | 1.60 | 1.71 | 1.81 | 1.92 | 1.98 |
| | 0.06 | 2.3 | 0.89 | 1.27 | 1.48 | 1.65 | 1.84 | 2.00 | 2.15 | 2.28 | 2.38 |
| | 0.13 | 8.1 | 0.93 | 1.33 | 1.58 | 1.77 | 1.98 | 2.19 | 2.36 | 2.51 | 2.66 |
| | 0.19 | 16.7 | 0.93 | 1.35 | 1.62 | 1.81 | 2.05 | 2.26 | 2.45 | 2.62 | 2.78 |
| | Airside Δ ps | | 1 | 3 | 6 | 10 | 16 | 23 | 31 | 40 | 51 |
| Two Row Multi- Circuit | 0.06 | 1.4 | 1.12 | 1.84 | 2.34 | 2.74 | 3.06 | 3.33 | 3.57 | 3.78 | 3.94 |
| | 0.13 | 4.1 | 1.16 | 1.94 | 2.55 | 3.06 | 3.48 | 3.84 | 4.16 | 4.43 | 4.68 |
| | 0.19 | 8.1 | 1.16 | 1.98 | 2.64 | 3.16 | 3.63 | 4.05 | 4.41 | 4.73 | 5.02 |
| | 0.25 | 13.5 | 1.18 | 2.00 | 2.68 | 3.25 | 3.73 | 4.16 | 4.54 | 4.87 | 5.19 |
| | Airside Δ ps | | 1 | 5 | 12 | 21 | 32 | 47 | 63 | 83 | 105 |
| Airflow Range | | | 4 | | | | | | | | |
| | | | 5 | | | | | | | | |
| | | | 6 | | | | | | | | |

Size 7, 8

| Row/ Circuits | Water Flow (L/S) | Head loss (kPa) | Airflow (CMH) | | | | | | | | |
|------------------------------|------------------------|--------------------|---------------|------|------|------|------|------|------|------|------|
| | | | 167 | 334 | 501 | 668 | 835 | 1002 | 1169 | 1336 | 1503 |
| One Row Single Circuit | 0.03 | 0.9 | 1.33 | 1.71 | 1.96 | 2.19 | 2.36 | 2.51 | 2.64 | 2.74 | 2.83 |
| | 0.06 | 3.2 | 1.46 | 1.94 | 2.28 | 2.59 | 2.87 | 3.08 | 3.27 | 3.44 | 3.59 |
| | 0.13 | 11.3 | 1.52 | 2.09 | 2.49 | 2.87 | 3.21 | 3.48 | 3.73 | 3.97 | 4.16 |
| | 0.19 | 22.9 | 1.56 | 2.15 | 2.55 | 3.00 | 3.35 | 3.65 | 3.92 | 4.18 | 4.41 |
| | Airside Δ ps | | 1 | 5 | 11 | 20 | 31 | 45 | 61 | 80 | 101 |
| Two Row Multi- Circuit | 0.06 | 1.8 | 1.98 | 3.04 | 3.76 | 4.28 | 4.68 | 5.02 | 5.30 | 5.51 | 5.72 |
| | 0.13 | 5.4 | 2.09 | 3.35 | 4.28 | 5.00 | 5.59 | 6.10 | 6.52 | 6.88 | 7.19 |
| | 0.19 | 11.3 | 2.13 | 3.48 | 4.49 | 5.32 | 5.99 | 6.56 | 7.07 | 7.51 | 7.91 |
| | 0.25 | 18.5 | 2.15 | 3.54 | 4.62 | 5.48 | 6.20 | 6.84 | 7.38 | 7.87 | 8.31 |
| | Airside Δ ps | | 3 | 10 | 23 | 41 | 63 | 91 | 124 | 162 | 206 |
| Airflow Range | | | 7 | | | | | | | | |
| | | | 8 | | | | | | | | |

Electrical data

35E HOT WATER COIL VOLUMES (kW)

Size 9, 10

| Row/ Circuits | Water Flow (L/S) | Head loss (kPa) | Airflow (CMH) | | | | | | | | |
|------------------------------|------------------------|--------------------|---------------|------|------|------|------|------|-------|-------|-------|
| | | | 418 | 635 | 852 | 1069 | 1286 | 1503 | 1720 | 1937 | 2154 |
| One Row Single Circuit | 0.03 | 0.5 | 2.07 | 2.30 | 2.53 | 2.72 | 2.87 | 2.97 | 3.08 | 3.16 | 3.23 |
| | 0.06 | 0.9 | 2.47 | 2.81 | 3.19 | 3.48 | 3.71 | 3.92 | 4.11 | 4.26 | 4.41 |
| | 0.13 | 3.2 | 2.72 | 3.16 | 3.65 | 4.07 | 4.41 | 4.70 | 4.96 | 5.21 | 5.42 |
| | 0.19 | 6.5 | 2.83 | 3.31 | 3.86 | 4.32 | 4.70 | 5.04 | 5.36 | 5.63 | 5.89 |
| | Airside Δ ps | | 4 | 9 | 17 | 27 | 39 | 53 | 69 | 88 | 108 |
| Two Row Multi-Circuit | 0.06 | 0.9 | 3.78 | 4.62 | 5.21 | 5.67 | 6.03 | 6.31 | 6.56 | 6.77 | 6.94 |
| | 0.13 | 3.2 | 4.26 | 5.44 | 6.33 | 7.05 | 7.64 | 8.14 | 8.59 | 8.97 | 9.28 |
| | 0.19 | 6.3 | 4.45 | 5.78 | 6.81 | 7.68 | 8.40 | 9.03 | 9.56 | 10.04 | 10.48 |
| | 0.25 | 10.4 | 4.56 | 5.97 | 7.09 | 8.04 | 8.84 | 9.54 | 10.15 | 10.72 | 11.20 |
| | Airside Δ ps | | 8 | 19 | 35 | 55 | 79 | 108 | 141 | 179 | 222 |
| Airflow Range 9 | | | | | | | | | | | |
| 10 | | | | | | | | | | | |

Size 12

| Row/ Circuits | Water Flow (L/S) | Head loss (kPa) | Airflow (CMH) | | | | | | | | |
|------------------------------|------------------------|--------------------|---------------|------|------|-------|-------|-------|-------|-------|-------|
| | | | 501 | 835 | 1169 | 1503 | 1837 | 2171 | 2505 | 2839 | 3173 |
| One Row Single Circuit | 0.03 | 0.5 | 2.59 | 2.93 | 3.23 | 3.46 | 3.63 | 3.76 | 3.86 | 3.97 | 4.05 |
| | 0.06 | 1.4 | 3.12 | 3.69 | 4.18 | 4.58 | 4.89 | 5.17 | 5.40 | 5.59 | 5.76 |
| | 0.13 | 4.1 | 3.48 | 4.22 | 4.89 | 5.48 | 5.97 | 6.37 | 6.73 | 7.05 | 7.32 |
| | 0.19 | 8.6 | 3.63 | 4.45 | 5.21 | 5.86 | 6.43 | 6.92 | 7.34 | 7.72 | 8.06 |
| | Airside Δ ps | | 3 | 8 | 15 | 26 | 38 | 53 | 71 | 91 | 114 |
| Two Row Multi-Circuit | 0.06 | 1.4 | 4.62 | 5.84 | 6.65 | 7.19 | 7.62 | 7.95 | 8.21 | 8.44 | 8.61 |
| | 0.13 | 4.1 | 5.25 | 7.07 | 8.35 | 9.32 | 10.10 | 10.76 | 11.29 | 11.75 | 12.15 |
| | 0.19 | 8.1 | 5.51 | 7.57 | 9.11 | 10.32 | 11.31 | 12.15 | 12.87 | 13.50 | 14.05 |
| | 0.25 | 13.1 | 5.63 | 7.85 | 9.54 | 10.89 | 12.02 | 13.00 | 13.82 | 14.56 | 15.21 |
| | Airside Δ ps | | 6 | 16 | 32 | 52 | 78 | 109 | 146 | 187 | 234 |

Size 14

| Row/ Circuits | Water Flow (L/S) | Head loss (kPa) | Airflow (CMH) | | | | | | | | |
|------------------------------|------------------------|--------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | 668 | 1169 | 1670 | 2171 | 2672 | 3173 | 3674 | 4175 | 4676 |
| One Row Single Circuit | 0.03 | 0 | 3.19 | 3.59 | 3.86 | 4.07 | 4.24 | 4.37 | 4.47 | 4.54 | 4.62 |
| | 0.06 | 0.5 | 4.03 | 4.75 | 5.32 | 5.78 | 6.14 | 6.41 | 6.65 | 6.86 | 7.02 |
| | 0.13 | 2.3 | 4.64 | 5.70 | 6.54 | 7.28 | 7.89 | 8.38 | 8.80 | 9.18 | 9.49 |
| | 0.19 | 4.5 | 4.89 | 6.10 | 7.09 | 8.00 | 8.73 | 9.35 | 9.89 | 10.36 | 10.78 |
| | Airside Δ ps | | 3 | 8 | 17 | 29 | 44 | 62 | 83 | 107 | 134 |
| Two Row Multi-Circuit | 0.06 | 0.9 | 5.84 | 7.34 | 8.19 | 8.75 | 9.16 | 9.45 | 9.68 | 9.87 | 10.04 |
| | 0.13 | 2.7 | 6.90 | 9.32 | 10.95 | 12.11 | 13.02 | 13.73 | 14.30 | 14.79 | 15.21 |
| | 0.19 | 5.4 | 7.30 | 10.21 | 12.26 | 13.82 | 15.04 | 16.05 | 16.90 | 17.62 | 18.25 |
| | 0.25 | 9.0 | 7.53 | 10.72 | 13.04 | 14.83 | 16.29 | 17.51 | 18.54 | 19.45 | 20.23 |
| | Airside Δ ps | | 5 | 14 | 29 | 49 | 74 | 104 | 140 | 181 | 227 |

Performance data (cont)

35E HOT WATER COIL VOLUMES (kW)

Size 16

| Row/ Circuits | Water Flow (L/S) | Head loss (kPa) | Airflow (CMH) | | | | | | | | |
|------------------------------|------------------------|--------------------|---------------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | 1002 | 1670 | 2338 | 3006 | 3674 | 4342 | 5010 | 5678 | 6346 |
| One Row Single Circuit | 0.03 | 0 | 3.78 | 4.13 | 4.43 | 4.64 | 4.79 | 4.89 | 4.98 | 5.04 | 5.11 |
| | 0.06 | 0.5 | 5.02 | 5.74 | 6.39 | 6.86 | 7.19 | 7.49 | 7.72 | 7.91 | 8.08 |
| | 0.13 | 2.3 | 5.97 | 7.07 | 8.14 | 8.94 | 9.60 | 10.13 | 10.59 | 10.97 | 11.31 |
| | 0.19 | 4.5 | 6.37 | 7.68 | 8.97 | 9.98 | 10.80 | 11.50 | 12.09 | 12.62 | 13.06 |
| | Airside Δ ps | | 3 | 9 | 19 | 31 | 46 | 64 | 85 | 110 | 137 |
| Two Row Multi-Circuit | 0.06 | 0.5 | 6.98 | 8.19 | 8.88 | 9.30 | 9.62 | 9.85 | 10.04 | 10.17 | 10.29 |
| | 0.13 | 1.4 | 8.82 | 11.14 | 12.62 | 13.67 | 14.45 | 15.06 | 15.57 | 15.99 | 16.33 |
| | 0.19 | 2.3 | 9.64 | 12.59 | 14.62 | 16.10 | 17.26 | 18.21 | 18.99 | 19.64 | 20.21 |
| | 0.25 | 4.1 | 10.08 | 13.46 | 15.84 | 17.66 | 19.11 | 20.29 | 21.29 | 22.15 | 22.89 |
| | Airside Δ ps | | 7 | 19 | 38 | 62 | 93 | 130 | 173 | 222 | 277 |

Ps -Static Pressure Drop(Pa)

Δ Ps -Difference in static pressure from inlet to discharge

Notes:

1 The data is based on 60 °C EWT,10 °C EAT

2 Head loss is in Pa

3 Tables are based upon a temperature difference of 50 °C between entering air and entering water. For other condition, multiply factor below

4 LAT=EAT+ Air temp rise

5 Air temp rise=2970 x kW/CMH

6 Water temp. drop=0.244 x kW/(L/s)

7 Coils are not for steam application. Please contact a Carrier representative for steam coil data.

CORRECTION FACTORS FOR OTHER ENTERING CONDITIONS

| | | | | | | | | | | |
|------------|------|------|------|------|------|------|------|------|------|------|
| Δ T | 28 | 33 | 39 | 44 | 50 | 56 | 64 | 69 | 78 | 83 |
| Factor | 0.56 | 0.67 | 0.78 | 0.89 | 1.00 | 1.11 | 1.22 | 1.39 | 1.56 | 1.67 |

35E UNIT WITH ELECTRIC HEAT

| Electric reheat code | Volts/Phase/Steps | Minimum/Maximum allowable kW by unit size* | | | | | | | | | | | |
|----------------------|-------------------|--|------|------|------|------|------|------|------|------|------|------|------|
| | | 35E Unit Size | | | | | | | | | | | |
| | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | |
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| 0 | None | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| EH01/EH11 | 220/1/1 | 0.5 | 3.0 | 0.5 | 5.0 | 0.5 | 7.5 | 0.5 | 8.0 | 0.5 | 8.0 | 0.5 | 8.0 |
| EH02/EH12 | 220/1/2 | 1.0 | 3.0 | 1.0 | 5.0 | 1.0 | 7.5 | 1.0 | 8.0 | 1.0 | 8.0 | 1.0 | 9.5 |
| EH03/EH13 | 220/1/3 | 1.5 | 3.0 | 1.5 | 5.0 | 1.5 | 7.5 | 1.5 | 9.5 | 1.5 | 9.5 | 1.5 | 9.5 |

| Electric reheat code | Volts/Phase/Steps | Minimum/Maximum allowable kW by unit size* | | | | | | | |
|----------------------|-------------------|--|------|------|------|------|------|------|------|
| | | 35E Unit Size | | | | | | | |
| | | 10 | | 12 | | 14 | | 16 | |
| | | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. |
| 0 | None | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| EH01/EH11 | 220/1/1 | 0.5 | 8.0 | 0.5 | 8.0 | 0.5 | 8.0 | 0.5 | 8.0 |
| EH02/EH12 | 220/1/2 | 1.0 | 9.5 | 1.0 | 9.5 | 1.0 | 9.5 | 1.0 | 9.5 |
| EH03/EH13 | 220/1/3 | 1.5 | 9.5 | 1.5 | 9.5 | 1.5 | 9.5 | 1.5 | 9.5 |

* Based on maximum cmh for box size. See 35E Basic Pressure Data table on page 16 for maximum kW limits based on lower cmh.

Notes:

1. See Selecion Procedure section below for more information.
2. A minimal 20Pa discharge static pressure is required to set the flow switch in the electric heater.

Electric heat selection

Select heater so that power (kW) is a whole number. Rounding to the nearest whole number has negligible impact on discharge temperature and power consumption.

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

B. Required kW can be calculated using the following relationship.

$$kW = \frac{CMH \times \Delta T}{2970}$$

Where:

kW = Required heating capacity

CMH = volume of air controlled during heating (typically 30% to 100% of maximum cooling volume, m³/h)

Δ T = desired air temperature rise across the electric heater

Inter air temperature = primary air temperature, usually 55 °C

Select the discharge temperature so that it does not exceed 49 °C. American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) recommends discharge temperatures do not exceed 32 °C to avoid air stratification and poor ventilation mixing.

Heater kW selected must be within the maximum and minimum kW's listed in the table above.

Several factors should be considered when selecting single duct units.

These include: Airflow range — Carrier single duct units are equipped with a crossed averaging flow probe in the unit inlet to allow pressure-independent control of airflow on the basis of a control signal. The flow range is limited by the sensitivity of the controller employed; the inlet duct conditions; and the size of the selected unit.

In most cases, inlet duct minimum airflow of less than 1.8m/s should be avoided to prevent erratic control. A minimum flow less than 1.8m/s results in pressure signals less than 2.5Pa, which cannot be resolved reliably by most control systems.

Maximum inlet flow limits are typically restricted to less than by duct pressure loss limitations, although acoustical limits may also limit selection above this range. The 35E units will operate well up to 17.5m/s inlet velocity, but with increased pressure drop through the supply duct and high noise levels.

System pressure — Control of duct pressures is the most effective means of ensuring low noise levels, accurate flow control, and minimum energy use. The use of various fantracking techniques can ensure optimum system efficiency and operation. Response times of the fan tracking system should be adjustable in order to prevent system oscillations between the pressure independent controllers and the fan system.

Minimum inlet static pressure is the pressure required by a given size box at a specified airflow with the unit damper wide open. This pressure was measured by tests conducted in accordance with ARI (Air Conditioning and Refrigeration Institute) Standard 880-98, using 3 ft of discharge duct of the same size as the unit plenum. The pressure shown is for the unit only or for unit plus hot water coil or electric heat coil. To determine the total static pressure loss in the distribution system, the minimum inlet static pressure must be added to the duct pressure drop (both upstream and downstream of the 35E unit) and the outlet pressure drop.

Acoustics — The primary determinant to terminal acoustics is the inlet and duct size and static pressure. Velocity (flow rate) is also a factor. System sound can be limited by reducing duct pressures in the branch duct supplying the unit. Lined duct downstream of the unit is effective in reducing

discharge noise levels. Where no duct lining is employed between the unit and the room diffusers, a noisy system is possible. Reducing inlet pressure drop will help, provided the techniques used to reduce local duct pressure levels do not increase noise levels in the duct that will be carried into the space.

Radiated sound is seldom a problem with single duct terminals. Flexible ducts at the inlet can transmit airborne sound levels into

the plenum space, where they add to the radiated sound component.

Sound performance data shown for model 35E is presented as sound power for the units indicated. When the attenuator, octopus, or electric reheat version is ordered, a long unit will be shipped. The added length of this unit reduces sound power in a similar manner as 3 ft of lined duct, producing an effective 3 NC (Noise Criteria) reduction in room sound levels in most cases.

The use of multiple outlet plenum will result in reduced sound levels due to power division. The supplied application data assumes that the sound power levels are split, based on a fixed cfm maximum per split, as indicated, assuming split flows are not directed to the same conditioned space. Two split flows directed to the same space often negate the desired effect of power splits.

Adding electric or hot water heat affects the pressure assumptions. Sound data is based on unit pressure drop vs sound generated. If there is low downstream pressure (0.3 in. wg or less), the inlet static pressure (duct pressure) is used to enter the sound level tables. If there is significant discharge pressure drop, the pressure drop across the unit is less than the inlet duct pressure and should be accounted for when determining discharge sound.

Example: 35E size 10 unit with a 2-row coil is selected at 1800m³/h; the unit pressure drop is 175Pa. If the duct pressure is 375Pa, then the sound is a function of only 200Pa pressure drop (375-175).

If both the diffuser and the terminal are selected at the same delivered sound power level, the discharge (airborne) sound levels should be combined, by octave band, with the sound power generated by the selected diffuser when predicting sound levels in the space. In many cases, diffusers generate higher frequency sound than the terminal, and the two power levels combine without raising the room NC level. Each application of unit and diffuser must be examined individually to verify that the net NC does not increase. (Equal sound power levels, when added, increase the sound level by 3 db.)

NOTE: Refer to Carrier publication: **HVAC Acoustical Application Guidelines** for additional information.

Carrier BAC VAV Zone controller

Automated Logic's ZN341v+/ZN141v+ are designed for a variety of pressure-independent VAV applications. These advanced controllers feature an integral actuator, advanced precision air-flow sensor, flexible connectivity to the full line of RS sensors, and easy-to-use air balance routines.

Sophisticated pre-engineered control algorithms reduce energy consumption, maximize actuator life, and ensure occupant comfort. The ZN series controllers are fully programmable and provide networked peer-to-peer communications using native BAC net-over-ARCNET 156 kbps or MS/TP.



Key Features and Benefits

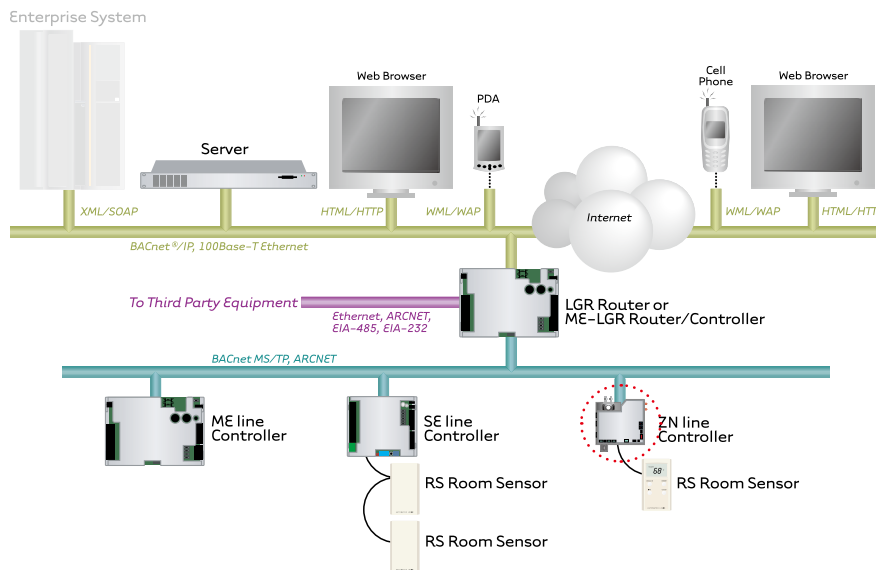
- Optimized design for all types of pressure independent VAV applications including cooling only, cooling with modulated hot water re-heat, cooling with electric re-heat, constant volume boxes and dual duct boxes.
- Uses a high speed 16-bit microprocessor with 1 M Byte Flash memory and 512 K Byte of RAM for graphical programming, diagnostic trends, and easy firmware upgrades using remote downloading - no chip replacement necessary.
- Built-in 0-10 V dc AO for baseboard or re-heat valve actuator.
- Compact and rugged design for easy mounting and an integral brushless actuator for reliability and longevity.
- The combination of the precision air flow sensor and advanced VAV algorithm assures occupant comfort both at minimum and maximum design air flows, while maximizing actuator life.
- Compatible with the ZASF integral air flow sensor/ actuator assembly for dual duct applications.
- Rnet port supports Automated Logic's line of RS room sensors and provides local access to the system.
- The ZN341v+/ZN141v+ controllers are fully graphically programmable and offer full peer to peer communications with other ZN line, ME line, or SE line controllers. Graphical programs are universally understood and provide self documenting control sequences.
- Easy-to-use test and balance program via RS sensor or Rnet connection.



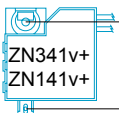
Product model number

Single duct BAC VAV Zone controller BAC141
Fan powered BAC VAV Zone controller BAC341

Carrier Controller



| | | |
|--------------------------------|---|--|
| BACnet Support: | Conforms to the Advanced Application Controller (B-AAC) Standard Device Profile as defined in BACnet 135-2001 Annex L. | |
| Communication: | The following ports are available on the ZN341v+/ZV141v+ modules: EIA-485 port for ARCNET 156 kbps or MS/TP (9600 bps – 76.8 kbps). Local access port for system start-up and troubleshooting. Rnet port for RS room sensors. The Rnet port supports up to four RS Standard sensors and one either RS Pro sensor or RS Plus sensor for averaging or high/low select control. | |
| Integral Air Flow Sensor: | Precision low flow AWM series 0-2" W.C., sensitive down to ±0.001" W.C. Barbed tapered air flow connections 3/16" (4.75mm) I.D. tubing. | |
| Integral Actuator: | Brushless DC motor, torque 35 inch-pounds (4Nm), 5 sq.ft. (0.46m ²) maximum damper size. Both the ZN341v+ and ZN141v+ are compatible with the optional ZASF integral air flow sensor/actuator assembly for dual duct applications. | |
| Digital Outputs: | ZN141v+ has one digital output, ZN341v+ has three digital outputs. Relay contact rated at 1A max @ 24VAC/VDC, configured normally open. | |
| Universal Inputs: | Four inputs with 10 bit A/D resolution. Four inputs are configurable for dry contact and type 2 thermistors. Inputs 1 and 2 are also configurable for 0 to 5 Vdc. Inputs 3 and 4 are taken when a LogiStat sensor is connected – these inputs are available if RS sensors are used. | |
| Analog Outputs: | One analog output, 0 to 10 Vdc (5mA maximum) with 8-bit resolution. | |
| Microprocessor: | High speed 16-bit microprocessor with ARCNET communication co-processor. | |
| Memory: | 512 KByte non-volatile battery-backed RAM, 1 MByte Flash memory, 16-bit memory bus. (Shelf life of the battery is 10 years with 10,000 hours of continuous operation.) | |
| Status Indicators: | LED status indicators for EIA-485 communication, running, error, power and all digital outputs. | |
| Module Addressing: | Rotary dip switches for intuitive network addressing of modules. | |
| Protection: | Built-in surge and transient protection circuitry for communications. | |
| Listed by: | UL916 (Canadian Std C22.2 No. 205-M1983), CE, FCC Part 15 – Subpart B – Class A | |
| Environmental Operating Range: | 0°F to 130°F (-17.8°C to 54.4°C); 10 to 90% relative humidity, non-condensing. NOTE: Control modules must be installed within the building. | |
| Power Requirements: | 24VAC ± 10%, 26VDC (25 V min, 30 V max), 50 to 60Hz, 14 VA | |
| Physical: | UL94-5VA plenum rated enclosure. | |
| Weight: | 1 lb. 11 oz. (0.8 kg) | |
| Dimensions: | <p>Overall</p> <p>Width: 6-1/2" (165mm)</p> <p>Height: 7" (178mm)</p> <p>Depth:</p> | <p>Mounting*</p> <p>One mounting hole as shown at left with 5-5/8" (143mm) spacing (height) from shaft 2-1/2" (64mm) min. panel depth centerline.</p> <p>*For indoor use only.</p> |



Mounting hole spacing 5-5/8".



Carrier improves the world around us; Carrier improves people's lives; our products and services improve building performance; our culture of improvement will not allow us to rest when it comes to the environment.



| | |
|-----------------|-----------------------|
| Version: | CAT_35E_E-1204_01_CHK |
| Supersede: | E-35E-1008-02 |
| Effective Date: | Apr, 2012 |