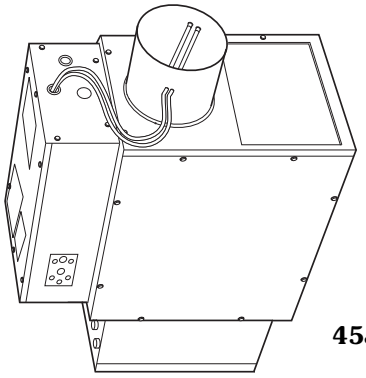
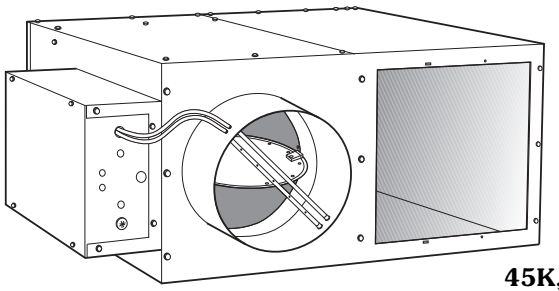
Product Data

45J,M,K,N,Q,R Standard, Quiet, and Low Profile Fan Powered Variable Air Volume Terminals

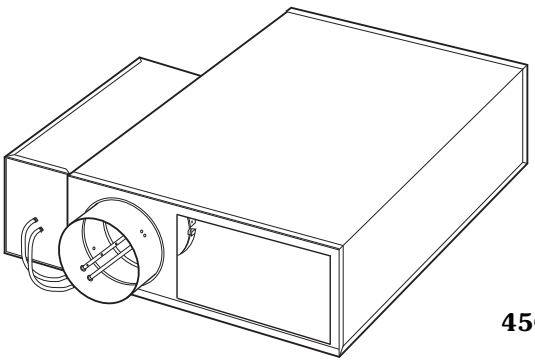
90 to 3900 Cfm



45J,M



45K,N



45Q,R

The 45J,M,K,N,Q,R units were designed to maintain accurate temperatures in the conditioned zone. They offer:

- Series units that provide constant airflow to the zone to help maintain optimal occupant comfort
- Parallel units that draw primary air from the air source and warm air from the return plenum to satisfy zone temperature requirements
- 45K,N quiet fan units were designed with the lowest sound levels in the industry
- 45Q,R low profile units offer a low height ($10^5/_8$ in.) for installation in compact spaces
- 45Q,R dedicated outdoor air mixing box supplied with cooling coil to handle sensible loads in the space

Features/Benefits

Carrier's 45J,M,K,N,Q,R fan-powered variable air volume (VAV) units are designed to maintain optimum temperatures in the conditioned zone through the accurate mixing of plenum return air and cold primary air to the zone.

Flexible, high performance units

The 45 Series units are available in 6 sizes, with capacities ranging from 90 to 3900 cfm. All units have round inlets (6 in. to 16 in. diameter, depending on model size and type) to fit standard spiral and flex duct. Fan airflow is field-adjustable through the use of an electronic fan speed controller (SCR).

Features/Benefits (cont)

The 45 Series units offer excellent performance characteristics and affordability in a compact unit with optimum physical dimensions.

The 45J,K,Q constant volume operation unit's recirculation fan draws cold air from the primary air duct and warm air from the return plenum in varying amounts to satisfy zone temperature requirements. Warm air and cold air blend in the unit fan before entering the discharge plenum. Optional heating coils may be used for additional terminal heating requirements.

The 45M,N,R units feature intermittent parallel fan operation. It is designed to maintain optimum occupant comfort levels by supplying warm induced plenum air, cold primary air (VAV), or a mixture of both to condition the space. The 45M,N,R fan cycles on to satisfy zone heating requirements. Optional heating coils provide terminal heat only after the fan has cycled on.

The 45K,N fan-powered variable air volume (VAV) units have a premium design with the lowest sound levels in the industry, as well as a multitude of linings to meet all IAQ (indoor air quality) designs. The units are designed to allow maximum flexibility in configuration and control. Strong integral panel/post construction allows long lasting service access. Multi-voltage motors are standard. The series fan arrangement in the 45K unit has the lowest possible sound levels available, while providing a constant airflow to the space.

The 45Q,R units offer excellent performance characteristics and affordability in a compact unit with optimum low height physical dimensions ($10^5/_8$ in. high).

The standard unit casing is constructed of 22-gage zinc coated steel (20 gage optional) with $^1/_2$ in. dual density fiberglass insulation and a removable bottom panel for easy access. Recirculation fans, mounted on permanently lubricated, multi-voltage motors, combined with dual density insulation and foil lined option, ensure quiet and clean operation. An external filter option offers quick access for routine maintenance.

All casings and liners meet UL 181 (Underwriters Laboratories) and NFPA 90A (National Fire Protection Association). Recirculation fan motors are certified in accordance with AHRI (Air Conditioning, Heating, and Refrigeration Institute) Standard 880.

Superior control offerings

Each 45 Series unit is supplied with a linear averaging flow probe as a standard feature. This probe offers a flow averaging capability and results in flow sensing capability equal to any competitive unit. All units have a standard SCR.

Factory-installed control options include pressure-independent pneumatic, analog electronic, pressure independent VAV (variable air volume) and pressure dependent VVT® (variable volume and temperature) in both BACnet* and Carrier Comfort Network® (CCN) protocols. Both VVT and VAV controls are communicating Product Integrated Controls (PIC).

Pneumatic controls are available with linear actuators and either single-function or multi-function controller. The multi-function controller provides a simple switchover from normally open to normally closed applications.

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

Designed for easy installation

Units have round inlets with a flange type discharge duct connection.

The units can be specified with electric or hot water heat, and a number of linings. Each unit features an integral inlet attenuator for decreasing radiated sound.

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*Sponsored by ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers).

Options and accessories — 45J and 45M

45J and 45M factory-installed options

- 20 gage zinc-coated steel construction
- 1-in. dual density fiberglass insulation liner
- foil encapsulated fiberglass liner
- cellular (fiber free) insulation liner
- 120, 208/240, or 277 volt ECM (electronically commutated motor) with controls
- fused/non-fused door interlocking disconnect switch
- induction inlet attenuator and induction air inlet filter
- 80/20 nickel-chromium heating element
- manual reset cutout
- dust-tight control enclosure
- hanger brackets
- water coil vent and drain
- fuse block
- Chicago code construction

Electric heat

Electric heat options are UL Listed, and meet NEC (National Electrical Code) requirements. Automatic reset thermal cutout and positive pressure airflow switch are standard. Pneumatic electric switches are standard step controllers when pneumatic control systems are specified. Magnetic contactors are standard step controllers when electronic control systems are specified. Control enclosure houses all control components.

Available heater voltages:

- 120 v/single phase
- 208/240,277 v/single phase
- 208/240 v/3 phase/3-wire
- 480 v/3 phase/4-wire

Electric heat options:

- mercury contactors
- fuse block with fuses for primary overload protection
- disconnect switches
- fused disconnect switches
- manual reset thermal cutout
- dust-tight construction

Electric heaters are slip-in type, integrally mounted to the terminal unit. Where possible, select heater so that power (kW) is a whole number (see Electrical Data section). Rounding to the nearest whole number has negligible impact on discharge temperature and power consumption.

Hot water coils

Hot water coils are enclosed in a galvanized steel casing and constructed of corrugated aluminum fins. The coil tubing is water leak tested to 400 psig. Vent and drain options are available.

Features include:

- 1/2 in. O.D. 0.016-in. thick copper coil tubing
- aluminum corrugated fins. 10 per inch
- coil casing — 20 gage galvanized steel
- slip and drive cleat discharge duct connection
- optional access panel

Control options

The 45J and 45M units are 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. These devices are available in both pneumatic and electronic arrangements. The CCN and BACnet VVT® and VAV electronic controls are communicating PIC (product integrated controls) which are integrated with the building system. Many DDC (Direct Digital Controls) control packages by others are available for consignment mounting, as indicated.

Control offerings for the 45J units are:

45JA: Analog electronic controls
45JC: CCN VAV electronic controls
45JD: BACnet VAV electronic controls
45JP: Pneumatic controls
45JN: No controls or DDC by others

Control offerings for the 45M units are:

45MA: Analog electronic controls
45MC: CCN VAV electronic controls
45MD: BACnet VAV electronic controls
45MP: Pneumatic controls
45MV: CCN, VVT electronic controls
45MB: BACnet VVT electronic controls
45MN: No controls or DDC by others

Each control approach offers a variety of operating functions; a control package number identifies combinations of control functions. Because of the variety of functions available, circuit diagrams, operating sequences, and function descriptions are contained in separate Application Data publications. Refer to the specific publication for details.

Analog electronic controls

Pressure independent control packages are available with or without hot water or electric heat, automatic or remote night shutdown, and automatic night setback. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, fan relay, and wall thermostat to match the control type.

Options and accessories — 45J and 45M (cont)

ANALOG ELECTRONIC CONTROL ARRANGEMENTS — 45JA

2200	Cooling only
2201	Cooling only with automatic night shutdown
2202	Cooling only with remote night shutdown
2203	Cooling only with automatic night setback
2204	Cooling with on/off hot water heat
2205	Cooling with on/off hot water heat and automatic night shutdown
2206	Cooling with on/off hot water heat and remote night shutdown
2207	Cooling with on/off hot water heat and automatic night setback
2208	Cooling with proportional hot water heat
2209	Cooling with proportional hot water heat and automatic night shutdown
2210	Cooling with proportional hot water heat and remote night shutdown
2211	Cooling with proportional hot water heat and automatic night setback
2212	Cooling with up to 2 stages of electric heat
2213	Cooling with up to 2 stages of electric heat and automatic night shutdown
2214	Cooling with up to 2 stages of electric heat and remote night shutdown
2215	Cooling with up to 2 stages of electric heat and automatic night setback
2216	Cooling with up to 2 stages of electric heat, cooling/heating automatic change over control (morning warm-up) and automatic night setback
2218	Cooling with proportional electric heat

ANALOG ELECTRONIC CONTROL ARRANGEMENTS — 45MA

2300	Cooling with sequenced fan
2301	Cooling with sequenced fan and auto. night shutdown
2302	Cooling with sequenced fan and auto. night setback
2303	Cooling with sequenced fan and on/off hot water heat
2304	Cooling with sequenced fan and on/off hot water heat and automatic night shutdown
2305	Cooling with sequenced fan and on/off hot water heat and automatic night setback
2306	Cooling with sequenced fan and proportional hot water heat
2307	Cooling with sequenced fan proportional hot water heat and automatic night shutdown
2308	Cooling with sequenced fan proportional hot water heat and automatic night setback
2309	Cooling with sequenced fan and up to 2-stages of electrical heat
2310	Cooling with sequenced fan up to 2-stages of electric heat and automatic night shutdown
2311	Cooling with sequenced fan up to 2-stages of electric heat and automatic night setback
2313	Cooling with sequenced fan and proportional electric heat

NOTE: The 45M control type 2313 is for SSR (solid-state relay) heat only.

Pneumatic controls

Pressure independent control packages are available with or without hot water or electric heat, night shutdown and/or unoccupied heating. All control arrangements include a standard linear inlet flow sensor and SCR fan speed controller.

The single function controller provides single functions, i.e., DA-NO. Multi/4-function controllers are capable of providing DA-NO, DA-NC, RA-NC or RA-NO functions.

DA — Direct acting thermostat
RA — Reverse acting thermostat
NO — Normally open damper position
NC — Normally closed damper position

PNEUMATIC CONTROL ARRANGEMENTS — 45JP

1300	Single function controller; DA-NO with or without hot water or electric heat
1301	Single function controller; DA-NO with or without hot water or electric heat and with night shutdown
1302	Single function controller; DA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating
1303	Single function controller; RA-NC with or without hot water or electric heat
1304	Single function controller; RA-NC with or without hot water or electric heat and with night shutdown
1305	Single function controller; RA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1306	Multi-function controller; DA-NO with or without hot water or electric heat
1307	Multi-function controller; DA-NO with or without hot water or electric heat and with night shutdown
1308	Multi-function controller; DA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating
1309	Multi-function controller; DA-NC with or without hot water or electric heat
1310	Multi-function controller; DA-NC with or without hot water or electric heat and with night shutdown
1311	Multi-function controller; DA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1312	Multi-function controller; RA-NC with or without hot water or electric heat
1313	Multi-function controller; RA-NC with or without hot water or electric heat and with night shutdown
1314	Multi-function controller; RA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1315	Multi-function controller; RA-NO with or without hot water or electric heat
1316	Multi-function controller; RA-NO with or without hot water or electric heat and with night shutdown
1317	Multi-function controller; RA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating

PNEUMATIC CONTROL ARRANGEMENTS — 45MP

1400	1 function DA-NO with or without optional heat
1401	1 function RA-NC with or without optional heat
1402	4 function DA-NO with or without optional heat
1403	4 function RA-NO with or without optional heat
1404	4 function DA-NC with or without optional heat
1405	4 function RA-NC with or without optional heat

CCN VAV controls

Pressure independent control packages are available with or without hot water (on-off or floating modulation control) or electric heat (up to 3 stages), designed to be an integral part of the Carrier DDC system. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Several types of room sensors may be ordered, with and without set point adjustment, and with integral CO_2 sensors.

Carrier Comfort Network® (CCN) control packages must be used in combination with a thermostat. Thermostats are not included in the CCN package.

CCN VAV CONTROL ARRANGEMENTS — 45JC

4440	Cooling Only
4442	3 stage electric heat
4443	On-Off Hot Water
4444	Proportional (floating) Hot Water
4452	1 to 3 stage field-installed electric heat
4454	Proportional solid-state relay (SSR) electric heat

CCN VAV CONTROL ARRANGEMENTS — 45MC

4740	Cooling Only
4742	3 stage electric heat
4743	On-Off Hot Water
4744	Proportional (floating) Hot Water
4752	1 to 3 stage field-installed electric heat
4754	Proportional solid-state relay (SSR) electric heat

Options and accessories — 45J and 45M (cont)

BACnet VAV controls

Pressure independent control packages are available with or without hot water (on-off or floating modulation control) or electric heat (up to 2 stages), designed to be an integral part of the Carrier DDC system. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Several types of room sensors may be ordered, with and without set point adjustment, and with integral CO_2 sensors.

BACnet control packages must be used in combination with a thermostat. Thermostats are not included in the BACnet package.

BACnet VAV CONTROL ARRANGEMENTS — 45JD

4480	Cooling Only
4482	Single-stage and 2-stage electric heat
4483	On-Off Hot Water
4484	Proportional (0-10 vdc) Hot Water
4492	Single-stage and 2-stage field-installed electric heat
4494	Proportional solid-state relay (SSR) electric heat

BACnet VAV CONTROL ARRANGEMENTS — 45MD

4780	Cooling Only
4782	Single-stage and 2-stage electric heat
4783	On-Off Hot Water
4784	Proportional (0-10 vdc) Hot Water
4792	Single-stage and 2-stage field-installed electric heat
4794	Proportional solid-state relay (SSR) electric heat

Accessory CCN thermostats

Thermostat: 33ZCT55SPT: RT (room temperature) sensor, with override only.

Thermostat: 33ZCT56SPT: RT (room temperature) sensor, with set point adjust and override.

Inlet Air Temperature Sensor: 33ZCSENPAT (required only if linkage unavailable)

NOTE: The 33ZCSENSAT supply air temperature sensor is included with the CCN package. Field-installed VVT components such as thermostats and bypass controllers must still be ordered separately and shipped to the job site.

Accessory BACnet thermostats

Thermostat: SPS: RT (room temperature) only.

Thermostat: SPPL: RT (room temperature) sensor, with set point adjust and override.

Thermostat: SPP: RT (room temperature) sensor, with set point adjust, override, LCD display, and zone setpoints.

CCN VVT® controls — 45MN only

Pressure dependent control packages are available with or without hot water (on-off control), electric heat (up to 3 stages), or proportional SSR electric heat for parallel flow units only. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Field-installed thermostats are not included and must be ordered separately.

CCN VVT ELECTRONIC CONTROL ARRANGEMENTS — 45MV

8815	Pressure dependent, cooling only
8818	Pressure dependent, cooling with on-off hot water reheat
8819	Pressure dependent, cooling with 3-stage electric heat
8820	Pressure dependent, cooling with modulating hot water reheat
8825	Pressure dependent, cooling with combination baseboard and ducted reheat
8829	Pressure dependent, cooling with 1 to 3 stage field-installed electric heat
8830	Pressure dependent, cooling with Proportional (modulating) solid-state relay (SSR) electric heat

BACnet VVT controls — 45MB only

Pressure dependent control packages are available with or without hot water (on-off control), electric heat (up to 2 stages), or proportional SSR electric heat for parallel flow units only. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Field-installed thermostats are not included and must be ordered separately.

BACnet VVT ELECTRONIC CONTROL ARRANGEMENTS — 45MB

8855	Pressure dependent, cooling only
8858	Pressure dependent, cooling with on-off hot water reheat
8859	Pressure dependent, cooling with single-stage and 2-stage electric heat
8860	Pressure dependent, cooling with modulating hot water reheat
8865	Pressure dependent, cooling with combination baseboard and ducted reheat
8869	Pressure dependent, cooling with single-stage and 2-stage field-installed electric heat
8870	Pressure dependent, cooling with Proportional (modulating) solid-state relay (SSR) electric heat

No controls or direct digital controls (by others)

Control sequences are available for factory installation of numerous field-supplied controls from various manufacturers including: Andover, Automated Logic, Invensys (Siebe), Siemans (Landis), Johnson, and others. All packages include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, 24-v transformer, and fan relay.

Contact Carrier for information on mounting field-supplied controls.

Control sequences are also available to provide a control box on units supplied with no factory-installed controls. See the price pages for a complete listing of these sequences.

NO CONTROL ARRANGEMENTS — 45JN, 45MN

D000	Field-supplied and field-mounted controls by others. (For units without electric heat, includes add for 24-volt transformer.)
D001	Field-supplied and field-mounted controls by others. (For units with electric heat that already include a transformer.)

Options and accessories — 45K and 45N

45K and 45N factory-installed options

- hot water heat (inlet or discharge, 45N)
- electric heat
- liners:
  - 1-in. dual density fiberglass insulation
  - foil encapsulated fiberglass
  - cellular insulation
  - Steriliner
  - Sterilwall
  - no liner
  - perforated wall
- recirculated air filter
- motor disconnect
- motor fusing
- dust-tight control enclosure
- hanger brackets (not available with Sterilwall liner option)
- fan motors, 277-v single phase ECM (electronically commutated motor)

Electric heat

Electric heat options are UL listed, and meet NEC (National Electrical Code) requirements. Automatic reset thermal cutout and positive pressure airflow switch are standard. Pneumatic electric switches are standard step controllers when pneumatic control systems are specified. Magnetic contactors are standard step controllers when electronic control systems are specified. Control enclosure houses all control components.

Available heater voltages

- 120 v/single phase
- 208/240, 277 v/single phase
- 208/240 v/3-phase/3-wire
- 480 v/3-phase/4-wire

Electric heat options

- mercury contactors
- fuse block with fuses for primary overload protection
- disconnect switches
- fused disconnect switches
- manual reset thermal cutout
- dust-tight construction

Electric heaters are slip-in type, integrally mounted to the terminal unit. Where possible, select heater so that power (kW) is a whole number (see Electrical Data section). Rounding to the nearest whole number has negligible impact on discharge temperature and power consumption.

Hot water coils

Hot water coils are enclosed in a galvanized steel casing and constructed of corrugated aluminum fins. The coil tubing is water leak tested to 400 psig. Vent and drain options are available.

Features include:

- $^1/_2$ in. O.D. 0.016-in. thick copper coil tubing
- aluminum corrugated fins. 10 per inch
- coil casing — 20 gage galvanized steel
- slip and drive cleat discharge duct connection
- optional access panel

Fan motors

- Optional 277-volt, single-phase ECM (electronically commutated motor) fan motors include either a DCU (digitally controlled unit) or ACU (analog controlled unit) speed controller. The DCU fan speed control can be manually set at the factory and/or is manually field set and is field adjustable. The ACU control provides a means to remotely set and/or adjust the fan speed. (Available on 45K sizes 4, 6, and 7 on 45N sizes 4 and 7.)
- Motor disconnect switch (not required if the unit is equipped with electric heat, including the door-locking disconnect option).
- Motor fusing (not required if unit is equipped with electric heat, including the fusing option).
- 480-v, 3-phase, 3-wire units not available.

Control options

The 45K,45N fan powered units are 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. These devices are available in both pneumatic and electronic arrangements. The CCN and BACnet VVT® and, VAV electronic controls are communicating PIC (product integrated controls) which are integrated with the building system. Many DDC control packages by others are available for consignment mounting, as indicated.

The controls for the 45K units are identified as follows:

45KA: Analog electronic controls
45KC: CCN VAV electronic controls
45KD: BACnet VAV electronic controls
45KP: Pneumatic controls
45KN: No controls or DDC by others

The controls for the 45N units are identified as follows:

45NA: Analog electronic controls
45NC: CCN electronic controls
45ND: BACnet VAV electronic controls
45NP: Pneumatic controls
45NV: CCN VVT electronic controls
45NB: BACnet VVT electronic controls
45NN: No controls or DDC by others

Each control approach offers a variety of operating functions; a control package number identifies combinations of control functions. The following tables list the basic function arrangements for each of the basic control offerings. Because of the variety of functions available, circuit diagrams, operating sequences, and function descriptions are contained in separate Application Data publications. Refer to the specific control publication for details.

The single function controller provides single functions, i.e., DA-NO; multi-function controllers are capable of providing DA-NO, DA-NC, RA-NC or RA-NO functions.

DA — Direct acting thermostat
NC — Normally closed damper position
NO — Normally open damper position
RA — Reverse acting thermostat

Pneumatic controls

Pressure independent control packages are available with or without hot water or electric heat, night shutdown and/or unoccupied heating. All control arrangements include a standard linear inlet flow sensor and SCR fan speed controller.

PNEUMATIC CONTROL ARRANGEMENTS — 45KP

1300	Single function controller; DA-NO with or without hot water or electric heat
1301	Single function controller; DA-NO with or without hot water or electric heat and with night shutdown
1302	Single function controller; DA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating
1303	Single function controller; RA-NC with or without hot water or electric heat
1304	Single function controller; RA-NC with or without hot water or electric heat and with night shutdown
1305	Single function controller; RA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1306	Multi-function controller; DA-NO with or without hot water or electric heat
1307	Multi-function controller; DA-NO with or without hot water or electric heat and with night shutdown
1308	Multi-function controller; DA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating
1309	Multi-function controller; DA-NC with or without hot water or electric heat
1310	Multi-function controller; DA-NC with or without hot water or electric heat and with night shutdown
1311	Multi-function controller; DA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1312	Multi-function controller; RA-NC with or without hot water or electric heat
1313	Multi-function controller; RA-NC with or without hot water or electric heat and with night shutdown
1314	Multi-function controller; RA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1315	Multi-function controller; RA-NO with or without hot water or electric heat
1316	Multi-function controller; RA-NO with or without hot water or electric heat and with night shutdown
1317	Multi-function controller; RA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating

PNEUMATIC CONTROL ARRANGEMENTS — 45NP

1400	Single function controller; DA-NO with or without hot water or electric heat
1401	Single function controller; RA-NC with or without hot water or electric heat
1402	Multi-function controller; DA-NO with or without hot water or electric heat
1403	Multi-function controller; RA-NO with or without hot water or electric heat
1404	Multi-function controller; DA-NC with or without hot water or electric heat
1405	Multi-function controller; RA-NC with or without hot water or electric heat

Analog electronic controls

Pressure independent control packages are available with or without hot water or electric heat, automatic or remote night shutdown, and automatic night setback. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, 24-volt transformer, fan relay, and wall thermostat to match the control type.

ANALOG ELECTRONIC CONTROL ARRANGEMENTS — 45KA

2200	Cooling only
2201	Cooling only with automatic night shutdown
2202	Cooling only with remote night shutdown
2203	Cooling only with automatic night setback
2204	Cooling with on/off hot water heat
2205	Cooling with on/off hot water heat and automatic night shutdown
2206	Cooling with on/off hot water heat and remote night shutdown
2207	Cooling with on/off hot water heat and automatic night setback
2208	Cooling with proportional hot water heat
2209	Cooling with proportional hot water heat and automatic night shutdown
2210	Cooling with proportional hot water heat and remote night shutdown
2211	Cooling with proportional hot water heat and automatic night setback
2212	Cooling with up to 2 stages of electric heat
2213	Cooling with up to 2 stages of electric heat and automatic night shutdown
2214	Cooling with up to 2 stages of electric heat and remote night shutdown
2215	Cooling with up to 2 stages of electric heat and automatic night setback
2216	Cooling with up to 2 stages of electric heat, cooling/heating automatic change over control (morning warm-up) and automatic night setback
2218	Cooling with proportional electric heat

Options and accessories — 45K and 45N (cont)

ANALOG ELECTRONIC CONTROL ARRANGEMENTS — 45NA

2300	Cooling with sequenced fan
2301	Cooling with sequenced fan and automatic night shutdown
2302	Cooling with sequenced fan and automatic night setback
2303	Cooling with sequenced fan and on/off hot water heat
2304	Cooling with sequenced fan, no/off hot water and automatic night shutdown
2305	Cooling with sequenced fan, on/off hot water heat and automatic night setback
2306	Cooling with sequenced fan and proportional hot water heat
2307	Cooling with sequenced fan, proportional hot water heat and automatic night shutdown
2308	Cooling with sequenced fan, proportional hot water heat and automatic night setback
2309	Cooling with sequenced fan and up to 2 stages of electric heat
2310	Cooling with sequenced fan, up to 2 stages of electric heat and automatic night shutdown
2311	Cooling with sequenced fan, up to 2 stages of electric heat and automatic setback
2313	Cooling with sequenced fan and proportional electric heat

CCN VAV controls

Pressure independent control packages are available with or without hot water (on-off or floating modulation control) or electric heat (up to 3 stages), designed to be an integral part of the Carrier DDC system. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, 24-volt transformer, and fan relay. Several types of room sensors may be ordered, with and without set point adjustment, and with integral CO_2 sensors.

Carrier Comfort Network® (CCN) control packages must be used in combination with a thermostat. Thermostats are not included in the CCN package.

CCN VAV CONTROL ARRANGEMENTS — 45KC

4440	Cooling only
4442	1-3 Stage electric heat
4443	On-off hot water
4444	Proportional (floating) hot water
4452	1 to 3 stage field-installed electric heat
4454	Proportional SSR electric heat

CCN VAV CONTROL ARRANGEMENTS — 45NC

4740	Cooling only
4742	1-3 Stage electric heat
4743	On-off hot water
4744	Proportional (floating) hot water
4752	1 to 3 stage field-installed electric heat
4754	Proportional SSR electric heat

BACnet VAV controls

Pressure independent control packages are available with or without hot water (on-off or floating modulation control) or electric heat (up to 2 stages), designed to be an integral part of the Carrier DDC system. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Several types of room sensors may be ordered, with and without set point adjustment, and with integral CO_2 sensors.

BACnet control packages must be used in combination with a thermostat. Thermostats are not included in the BACnet package.

BACnet VAV CONTROL ARRANGEMENTS — 45KD

4480	Cooling Only
4482	Single-stage and 2-stage electric heat
4483	On-Off Hot Water
4484	Proportional (0-10 vdc) Hot Water
4492	Single-stage and 2-stage field-installed electric heat
4494	Proportional solid-state relay (SSR) electric heat

BACnet VAV CONTROL ARRANGEMENTS — 45ND

4780	Cooling Only
4782	Single-stage and 2-stage electric heat
4783	On-Off Hot Water
4784	Proportional (0-10 vdc) Hot Water
4792	Single-stage and 2-stage field-installed electric heat
4794	Proportional solid-state relay (SSR) electric heat

Accessory CCN thermostats

Thermostat: 33ZCT55SPT: RT (room temperature) sensor, with override only.

Thermostat: 33ZCT56SPT: RT (room temperature) sensor, with set point adjust and override.

Inlet Air Temperature Sensor: 33ZCSENPAT (required only if linkage unavailable)

NOTE: The 33ZCSENSAT supply air temperature sensor is included with the CCN package. Field-installed VVT components such as thermostats and bypass controller must still be ordered separately and shipped to the job site.

Accessory BACnet thermostats

Thermostat: SPS: RT (room temperature) only.

Thermostat: SPPL: RT (room temperature) sensor, with set point adjust and override.

Thermostat: SPP: RT (room temperature) sensor, with set point adjust, override, LCD display, and zone setpoints.

CCN VVT® controls — 45NV only

Pressure dependent control packages are available with or without hot water (on-off control), electric heat (up to 2 stages), or proportional SSR electric heat for parallel flow units only. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Field-installed thermostats are not included and must be ordered separately.

CCN, VVT ELECTRONIC CONTROL ARRANGEMENTS — 45NV

8815	Pressure dependent, cooling only
8818	Pressure dependent, cooling with on-off hot water heat
8819	Pressure dependent, cooling with 3-stage electric heat
8820	Pressure dependent, cooling with modulating hot water heat
8825	Pressure dependent, cooling with combination baseboard and ducted reheat
8829	Pressure dependent, cooling with 1 to 3 stages of field-supplied electric heat
8830	Pressure dependent, cooling with proportional SSR electric heat

BACnet VVT controls — 45NB only

Pressure dependent control packages are available with or without hot water (on-off control), electric heat (up to 2 stages), or proportional SSR electric heat for parallel flow units only. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Field-installed thermostats are not included and must be ordered separately.

BACnet VVT ELECTRONIC CONTROL ARRANGEMENTS — 45NB

8855	Pressure dependent, cooling only
8858	Pressure dependent, cooling with on-off hot water reheat
8859	Pressure dependent, cooling with single-stage and 2-stage electric heat
8860	Pressure dependent, cooling with modulating hot water reheat
8865	Pressure dependent, cooling with combination baseboard and ducted reheat
8869	Pressure dependent, cooling with single-stage and 2-stage field-installed electric heat
8870	Pressure dependent, cooling with Proportional (modulating) solid-state relay (SSR) electric heat

No controls or direct digital electronic control arrangements (by others)

Control sequences are available for factory installation of field-supplied controls from various manufacturers including: Andover, Automated Logic, Invensys (Siebe), Siemens (Landis), Johnson, and others.

All packages include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, 24-volt transformer and fan relay.

Control sequences are also available to provide a control box on units supplied with no factory-installed controls. These arrangements include: standard inlet linear flow sensor, control enclosure, SCR fan speed controller, 24-volt transformer and fan relay.

NO CONTROL ARRANGEMENTS — 45KN, 45NN

D000	Field-supplied and field-mounted controls by others. (For units without electric heat includes 24-volt transformer.)
D001	Field-supplied and field-mounted controls by others. (For units with electric heat and already includes a transformer.)

Options and accessories 45Q and 45R

45Q and 45R factory-installed options

- foil encapsulated fiberglass liner
- cellular (fiber free) insulation liner
- mercury contactors
- fused/non-fused door interlocking disconnect switch
- recirculated air filter
- motor fusing
- manual reset cutout
- dust-tight construction (control box and/or electric heat control box)

Electric heat

Electric heat options are UL Listed and meet NEC (National Electrical Code) requirements. Automatic reset thermal cutout and positive pressure airflow switch are standard. Pneumatic Electric (PE) switches are standard step controllers when pneumatic control systems are specified. Magnetic contactors are standard step controllers when electronic control systems are specified. Control enclosure houses all control components.

Available heater voltages

- 120, 208/240, 277 v/single phase
- 208/240 v/3 phase/3-wire
- 480 v/3 phase/4-wire

(480 v/3 phase /3-wire heaters may be ordered as special)

Electric heat options

- mercury contactors
- fuse block with fuses for primary overload protection
- disconnect switches
- fused disconnect switches
- manual reset thermal cutout
- dust-tight construction

Electric heaters are slip-in type, integrally mounted to the terminal unit. Where possible, 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.

Hot water coils

Hot water coils are enclosed in a galvanized steel casing and constructed of corrugated aluminum fins. The coil tubing is water leak tested to 400 psig. Vent and drain options are available.

Features include:

- 1/2 in. O.D. 0.016-in. thick copper coil tubing
- aluminum corrugated fins. 10 per inch
- coil casing — 20 gage galvanized steel
- slip and drive cleat discharge duct connection
- optional access panel

Control options

The 45Q,45R 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. These devices are available in both pneumatic and electronic arrangements. The CCN and BACnet VVT® and, VAV electronic controls are communicating PIC (product integrated controls) which are integrated with the building system. Many DDC control packages by others are available for consignment mounting, as indicated.

Control offerings for 45Q units are:

45QA: Analog electronic controls
45QC: CCN VAV electronic controls
45QD: BACnet VAV electronic controls
45QP: Pneumatic controls
45QN: No controls or DDC by others

Control offerings for 45R units are:

45RA: Analog electronic controls
45RC: CCN VAV electronic controls
45RD: BACnet VAV electronic controls
45RP: Pneumatic controls
45RV: CCN VVT electronic controls
45RB: BACnet VVT electronic controls
45RN: No controls or DDC by others

Each control approach offers a variety of operating functions; a control package number identifies combinations of control functions. Because of the variety of functions available, circuit diagrams, operating sequences, and function descriptions are contained in separate Application Data publications. Refer to the specific control publication for details.

Pneumatic controls

Pressure independent control packages are available with or without hot water or electric heat, night shutdown and/or unoccupied heating. All control arrangements include a standard linear inlet flow sensor and SCR fan speed controller.

Single function controller: Provides single function, i.e., DA-NO

Multi-function controller: Capable of providing DA-NO, DA-NC, RA-NC or RA-NO functions.

DA — Direct acting thermostat
NC — Normally closed damper position
NO — Normally open damper position
RA — Reverse acting thermostat

PNEUMATIC CONTROL ARRANGEMENTS — 45QP

1300	Single function controller; DA-NO with or without hot water or electric heat
1301	Single function controller; DA-NO with or without hot water or electric heat and with night shutdown
1302	Single function controller; DA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating
1303	Single function controller; RA-NC with or without hot water or electric heat
1304	Single function controller; RA-NC with or without hot water or electric heat and with night shutdown
1305	Single function controller; RA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1306	Multi-function controller; DA-NO with or without hot water or electric heat
1307	Multi-function controller; DA-NO with or without hot water or electric heat and with night shutdown
1308	Multi-function controller; DA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating
1309	Multi-function controller; DA-NC with or without hot water or electric heat
1310	Multi-function controller; DA-NC with or without hot water or electric heat and with night shutdown
1311	Multi-function controller; DA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1312	Multi-function controller; RA-NC with or without hot water or electric heat
1313	Multi-function controller; RA-NC with or without hot water or electric heat and with night shutdown
1314	Multi-function controller; RA-NC with or without hot water or electric heat, with night shutdown and unoccupied heating
1315	Multi-function controller; RA-NO with or without hot water or electric heat
1316	Multi-function controller; RA-NO with or without hot water or electric heat and with night shutdown
1317	Multi-function controller; RA-NO with or without hot water or electric heat, with night shutdown and unoccupied heating

PNEUMATIC CONTROL ARRANGEMENTS — 45RP

1400	Single function controller; DA-NO with or without hot water or electric heat
1401	Single function controller; RA-NC with or without hot water or electric heat
1402	Multi-function controller; DA-NO with or without hot water or electric heat
1403	Multi-function controller; RA-NO with or without hot water or electric heat
1404	Multi-function controller; DA-NC with or without hot water or electric heat
1405	Multi-function controller; RA-NC with or without hot water or electric heat

Analog electronic controls

Pressure independent control packages are available with or without hot water or electric heat, automatic or remote night shutdown, and automatic night setback. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, 24-volt transformer, fan relay, and wall thermostat to match the control type.

ANALOG ELECTRONIC CONTROL ARRANGEMENTS — 45QA

2200	Cooling only
2201	Cooling only with automatic night shutdown
2202	Cooling only with remote night shutdown
2203	Cooling only with automatic night setback
2204	Cooling with on/off hot water heat
2205	Cooling with on/off hot water heat and automatic night shutdown
2206	Cooling with on/off hot water heat and remote night shutdown
2207	Cooling with on/off hot water heat and automatic night setback
2208	Cooling with proportional hot water heat
2209	Cooling with proportional hot water heat and automatic night shutdown
2210	Cooling with proportional hot water heat and remote night shutdown
2211	Cooling with proportional hot water heat and automatic night setback
2212	Cooling with up to 2 stages of electric heat
2213	Cooling with up to 2 stages of electric heat and automatic night shutdown
2214	Cooling with up to 2 stages of electric heat and remote night shutdown
2215	Cooling with up to 2 stages of electric heat and automatic night setback
2216	Cooling with up to 2 stages of electric heat and morning warm-up
2218	Cooling with proportional electric heat

Options and accessories 45Q and 45R (cont)

ANALOG ELECTRONIC CONTROL ARRANGEMENTS — 45RA

2300	Cooling with sequenced fan
2301	Cooling with sequenced fan and automatic night shutdown
2302	Cooling with sequenced fan and automatic night setback
2303	Cooling with sequenced fan and on/off hot water heat
2304	Cooling with sequenced fan, on/off hot water and automatic night shutdown
2305	Cooling with sequenced fan, on/off hot water heat and automatic night setback
2306	Cooling with sequenced fan and proportional hot water heat
2307	Cooling with sequenced fan, proportional hot water heat and automatic night shutdown
2308	Cooling with sequenced fan, proportional hot water heat and automatic night setback
2309	Cooling with sequenced fan and up to 2 stages of electric heat
2310	Cooling with sequenced fan, up to 2 stages of electric heat and automatic night shutdown
2311	Cooling with sequenced fan, up to 2 stages of electric heat and automatic setback
2313	Cooling with sequenced fan and proportional electric heat

CCN VAV controls

Pressure Independent control packages are available with or without hot water (on-off or floating modulation control) or electric heat (up to 3 stages), designed to be an integral part of the Carrier DDC control system. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Several types of room sensors may be ordered, with and without set point adjustment, and with integral CO_2 sensors.

Carrier Comfort Network® CCN control packages must be used in combination with a thermostat. Thermostats are not included in the CCN package.

CCN CONTROL ARRANGEMENTS — 45QC

4440	Cooling only
4442	1-3 Stage electric heat
4443	On-off hot water
4444	Proportional (floating) hot water
4452	1 to 3 stage field-installed electric heat
4454	Proportional SSR electric heat

CCN CONTROL ARRANGEMENTS — 45RC

4740	Cooling only
4742	1-3 Stage electric heat
4743	On-off hot water
4744	Proportional (floating) hot water
4472	1 to 3 stage field-installed electric heat
4474	Proportional SSR electric heat

BACnet VAV controls — BACnet pressure independent controls are factory-installed in a control enclosure. Factory-mounted transformers are available as an option. Thermostats are supplied separately as a field-installed accessory. BACnet control packages must be used in combination with a thermostat. Thermostats are not included in the package.

BACnet VAV CONTROL ARRANGEMENTS — 45QD

4480	Cooling Only
4482	Single-stage and 2-stage electric heat
4483	On-Off Hot Water
4484	Proportional (0-10 vdc) Hot Water
4492	Single-stage and 2-stage field-installed electric heat
4494	Proportional solid-state relay (SSR) electric heat

BACnet VAV CONTROL ARRANGEMENTS — 45RD

4780	Cooling Only
4782	Single-stage and 2-stage electric heat
4783	On-Off Hot Water
4784	Proportional (0-10 vdc) Hot Water
4792	Single-stage and 2-stage field-installed electric heat
4794	Proportional solid-state relay (SSR) electric heat

Accessory CCN thermostats

Thermostat: 33ZCT55SPT: RT (room temperature) sensor, with override only.

Thermostat: 33ZCT56SPT: RT (room temperature) sensor, with set point adjust and override.

Inlet Air Temperature Sensor: 33ZCSENPAT (required only if linkage unavailable)

NOTE: The 33ZCSENSAT supply air temperature sensor is included with the CCN package. Field-installed VVT components such as thermostats and bypass controller must still be ordered separately and shipped to the job site.

Accessory BACnet thermostats

Thermostat: SPS: RT (room temperature) only.

Thermostat: SPPL: RT (room temperature) sensor, with set point adjust and override.

Thermostat: SPP: RT (room temperature) sensor, with set point adjust, override, LCD display, and zone setpoints.

CCN VVT® controls

Pressure dependent control packages are available with or without hot water (on-off control), electric heat (up to 2 stages), or proportional SSR electric heat for parallel flow units only. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Field-installed thermostats are not included and must be ordered separately.

CCN VVT ELECTRONIC CONTROL ARRANGEMENTS — 45RV

8818	Pressure Independent, Cooling with on-off hot water
8819	Pressure Independent, Cooling with 3 stage electric heat
8815	Pressure Dependent, Cooling only
8820	Pressure Dependent, Cooling with modulating hot water heat
8825	Pressure Dependent, Cooling with combination baseboard and ducted heat
8829	Pressure Dependent, Cooling with 1 to 3 stages of field-supplied electric heat
8830	Pressure Dependent, Cooling with proportional SSR electric heat

BACnet VVT controls — 45RB only

Pressure dependent control packages are available with or without hot water (on-off control), electric heat (up to 2 stages), or proportional SSR electric heat for parallel flow units only. All control arrangements include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, transformer to 24 volts, and fan relay. Field-installed thermostats are not included and must be ordered separately.

BACnet VVT ELECTRONIC CONTROL ARRANGEMENTS — 45RB

8855	Pressure dependent, cooling only
8858	Pressure dependent, cooling with on-off hot water reheat
8859	Pressure dependent, cooling with single-stage and 2-stage electric heat
8860	Pressure dependent, cooling with modulating hot water reheat
8865	Pressure dependent, cooling with combination baseboard and ducted reheat
8869	Pressure dependent, cooling with single-stage and 2-stage field-installed electric heat
8870	Pressure dependent, cooling with Proportional (modulating) solid-state relay (SSR) electric heat

No controls or direct digital electronic control arrangements (by others)

Control sequences are available for factory installation of field-supplied controls from various manufacturers including: Andover, Automated Logic, Invensys (Siebe), Siemans (Landis), Johnson, and others.

All packages include a standard linear inlet flow sensor, control enclosure, SCR fan speed controller, 24-volt transformer and fan relay.

Control sequences are also available to provide a control box on units supplied with no factory-installed controls. These arrangements include: standard inlet linear flow sensor, control enclosure, SCR fan speed controller, 24-volt transformer and fan relay.

NO CONTROL ARRANGEMENT — 45QN,45RN

D000	Field-supplied and mounted controls by others. (For units without electric heat includes 24-volt transformer.)
D001	Field-supplied and mounted controls by others. (For units with electric heat and already includes a transformer.)

Selection procedure

The performance data tables, fan curves, electrical data tables and heat data tables in this document will provide a quick reference guide for unit selection.

Refer to the Carrier Air Terminal Builder electronic selection program for more detailed unit selection information.

Application data

Airflow range

Carrier fan-powered units include a linear 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 airflows of less than 350 fpm should be avoided to prevent erratic control. A minimum flow less than 350 fpm results in pressure signals less than 0.01 in. wg, which cannot be resolved reliably by most control systems.

Maximum inlet flow limits are typically restricted to less than 2500 fpm by duct pressure loss limitations, although acoustical limits may also limit selection above this range. The 45 Series units will operate well up to 3000 fpm inlet velocity, and up to 6 in. inlet pressure, 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 fan-tracking 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 shown in the box flow table 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 AHRI Standard 880. The pressure shown is for the unit only. With a series flow design, the internal fan handles discharge options and ductwork, and minimum inlet pressure is independent of unit options.

Acoustics

The primary determinant in the acoustics of a terminal is the inlet, or duct, static pressure. While velocity (flow rate) is also a factor, significant reductions in sound can be realized by reducing duct pressures in the branch duct supplying the unit.

Lined duct downstream of the unit is very effective in reducing discharge noise levels. System noise is increased when lined duct is not used. Reduced 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. If a discharge attenuator is employed to reduce discharge sound, it should be located far enough away from the unit fan that the resultant high velocity/turbulent airflow does not create noise entering the silencer.

Radiated sound is the most predominant problem with series fan powered terminals, especially when the fan is operating. Keeping the unit at the lowest possible fan speed will produce less sound in the space. Inlet silencers are seldom effective with well-designed fan terminals, especially at the low frequencies where problems are usually found. The 45 Series units have, in effect, a silencer built into the induction port.

Acoustic performance data

Acoustic performance data shown for 45 Series units is based on tests conducted in accordance with AHRI Standard 880. Data is presented as sound power for the units indicated. Application sound levels are provided as NC levels. These are determined by applying factors provided in AHRI Standard 885, as indicated. Lined duct, ceiling effect, and room attenuation are typical for many office spaces. These assumptions, for discharge (airborne) sound, also include a typical end reflection effect. Alternate effects can be examined by using the air terminal builder program or AHRI Standard 885, available at no charge from AHRI's web page (www.ahrinet.org).

The supplied application data assumes that the sound power levels are split, based on a fixed cfm maximum per split, as indicated. This assumes, however, that split flows are not directed to the same conditioned space. When two split flows are supplied to the same space, the effect of power splits is often negated, depending on the location of the supply outlets and the observer.

The addition of electric or hot water heat has little effect on sound power levels, either discharge or radiated. Sound data presented for the unit is based on inlet pressure drop vs. sound generated. With series flow units, external pressure drop has little effect on the sound produced by the unit.

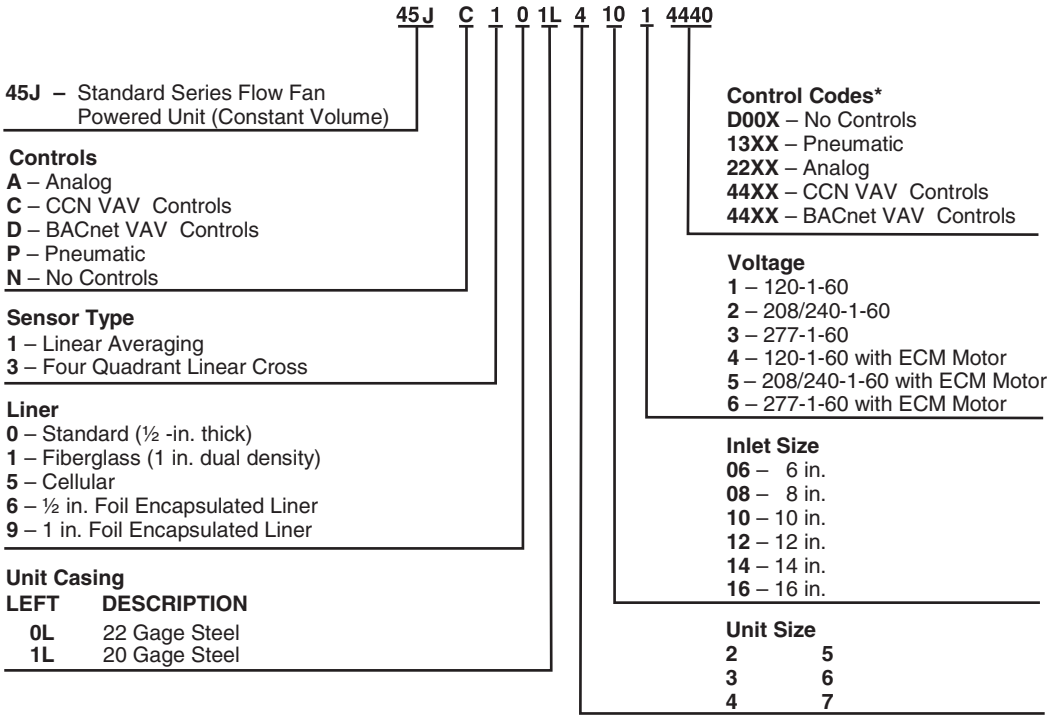
Linings other than fiberglass can have a significant effect on unit sound power levels. Refer to the air terminal builder selection program for information regarding alternate linings.

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.)

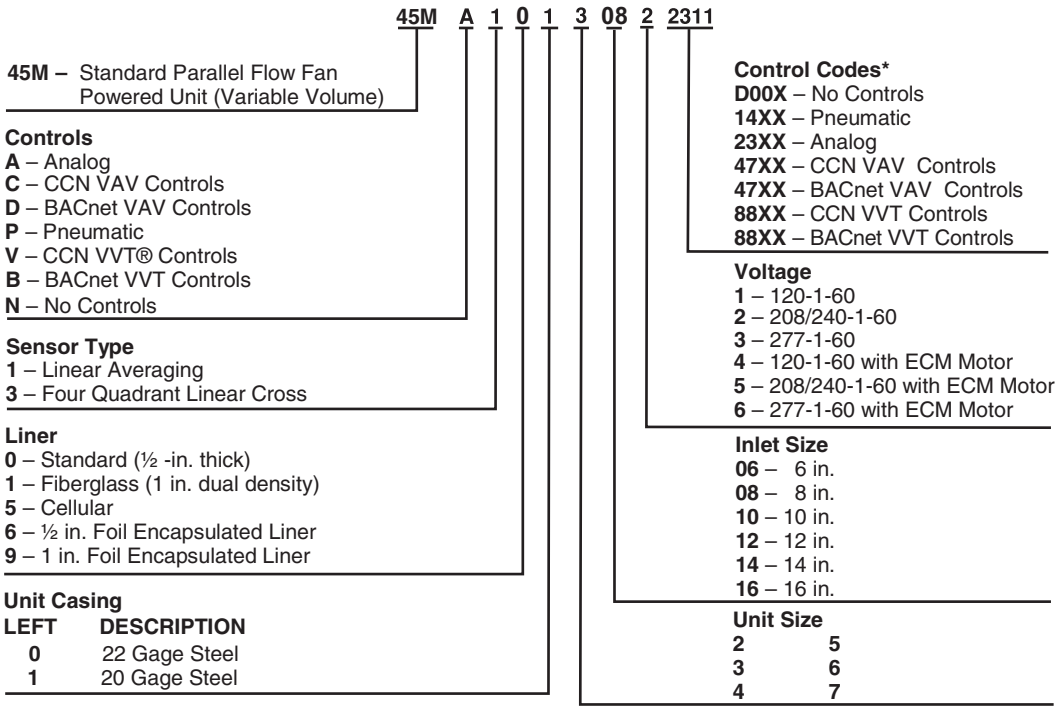
NOTE: Refer to Carrier publication "HVAC Acoustical Application Guidelines" (Catalog No. 811-449) for more information.

Model number nomenclature

45J SERIES FAN POWERED TERMINALS



45M PARALLEL FAN POWERED TERMINALS



LEGEND

CCN — Carrier Comfort Network®
ECM — Electronically Commutated Motor
VAV — Variable Air Volume
VVT — Variable Volume and Temperature

*See pages 4 - 7 for complete control code number list.

Physical data

45J SERIES FAN POWERED TERMINAL UNIT WEIGHTS (lb)

SIZE	UNIT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEATER	WITH HOT WATER	
					1-Row	2-Row
2	70	74	79	100	89	91
3	70	74	79	100	90	92
4	85	89	94	117	107	110
5	85	89	94	117	109	113
6	100	104	109	135	125	130
7	140	144	109	180	175	183

45M PARALLEL FAN POWERED TERMINAL UNIT WEIGHTS (lb)

SIZE	UNIT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEATER	WITH HOT WATER	
					1-Row	2-Row
2	114	118	123	144	133	135
3	114	118	123	144	133	135
4	115	119	124	147	134	136
5	122	126	131	154	134	136
6	123	127	132	155	135	137
7	127	131	136	167	139	141

LEGEND

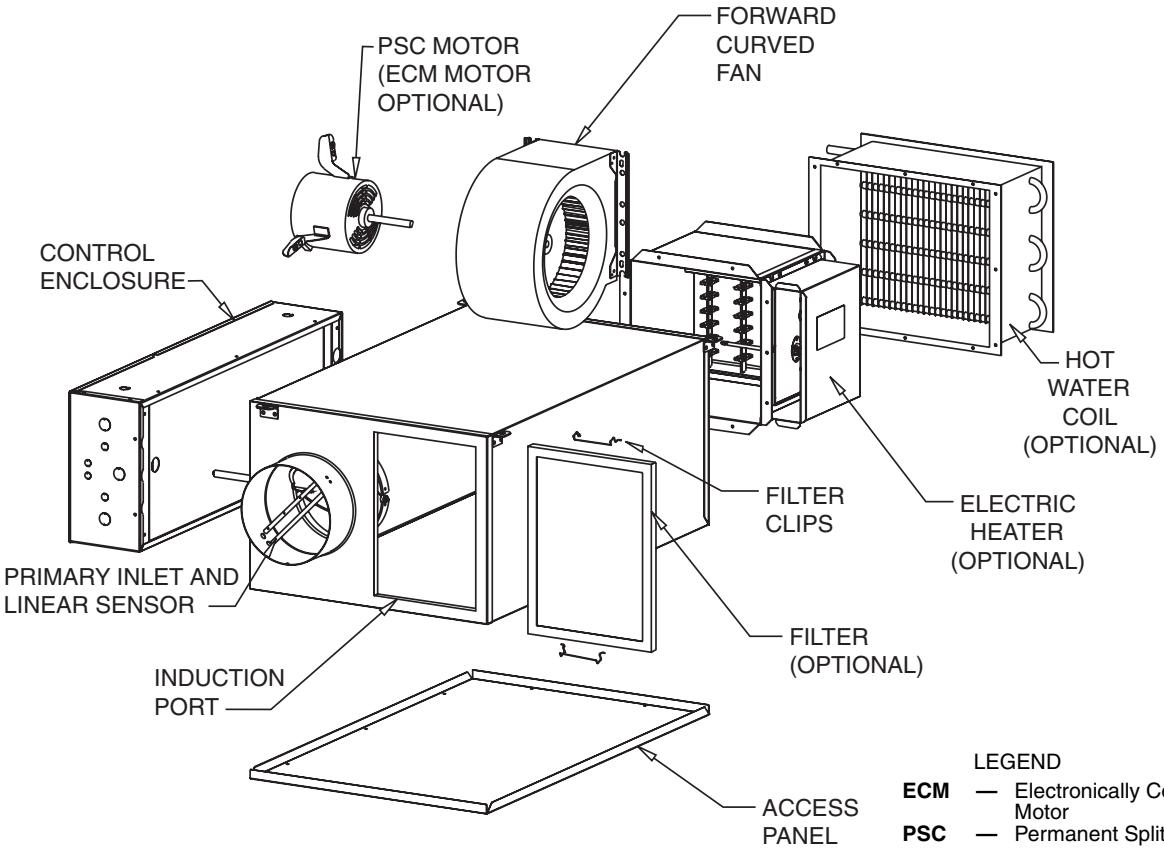
DDC — Direct Digital Controls

45J, 45M OPTIONAL FILTER SIZES AND PART NUMBERS

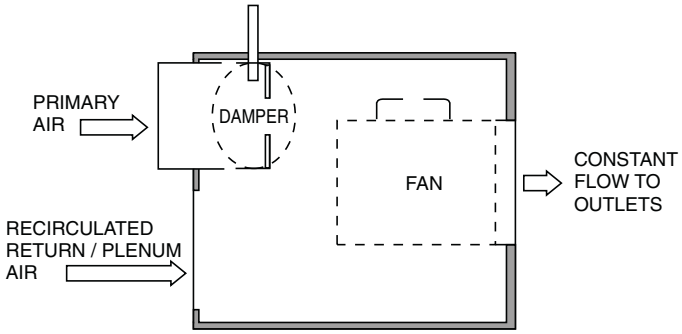
UNIT MODEL	UNIT SIZE	FILTER SIZE (in.)	FILTER P/N	FILTER KIT P/N
45J	2,3	11x15x1	102649-1115	3503341115
	4,5,6,7*	17x17x1	102649-1717	3503341717
45M	2,3,4	15x15x1	102649-1515	3503341515
	5,6,7	19x17x1	102649-1917	3503341917
45J with Attenuator	2,3	9x13x1	102649-0913	3503370913
	4,5,6	13x15x1	102649-1315	3503371315
	7*	15x15x1	102649-1515	3503371515
45M with Attenuator	2,3,4	13x13x1	102649-1313	3503371313
	5,6,7	17x15x1	102649-1517	3503371715

*45J size 7 requires two kits per unit (double filters and clips).

TYPICAL UNIT CONFIGURATION 45J SERIES FAN POWERED TERMINAL UNIT

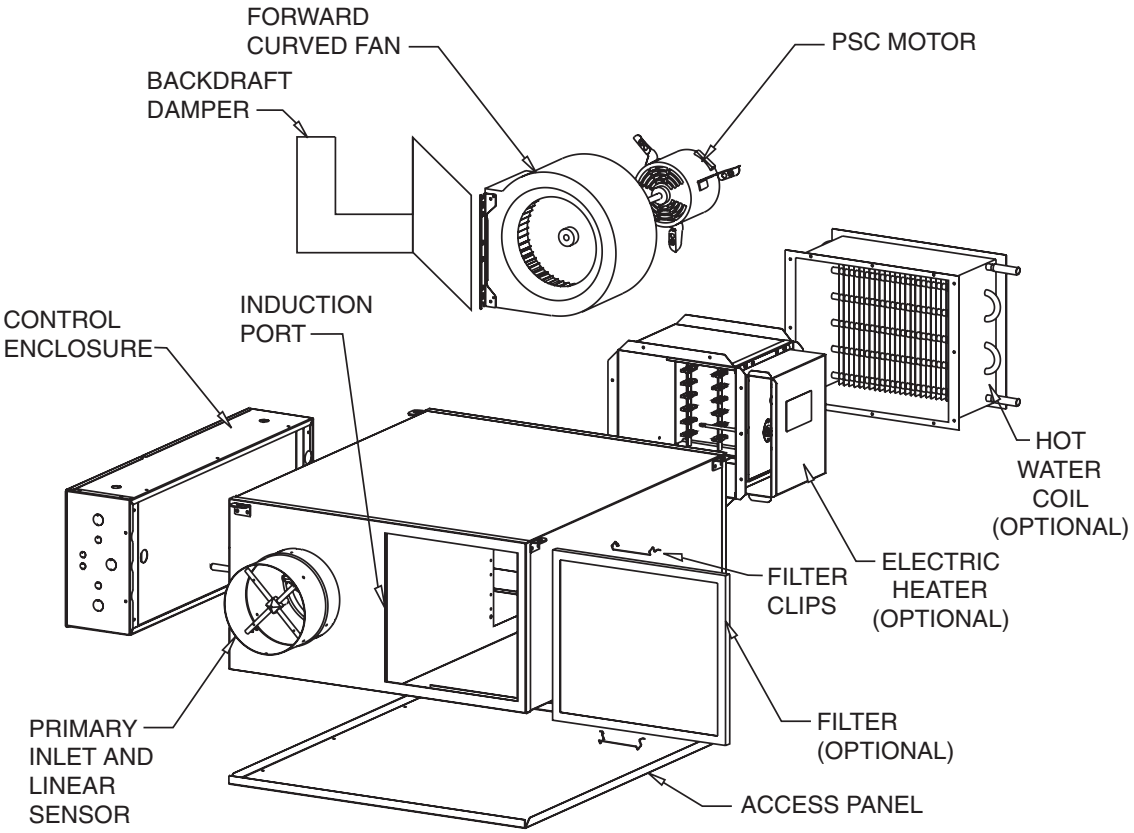


45J INTERNAL DETAIL SERIES FLOW UNIT



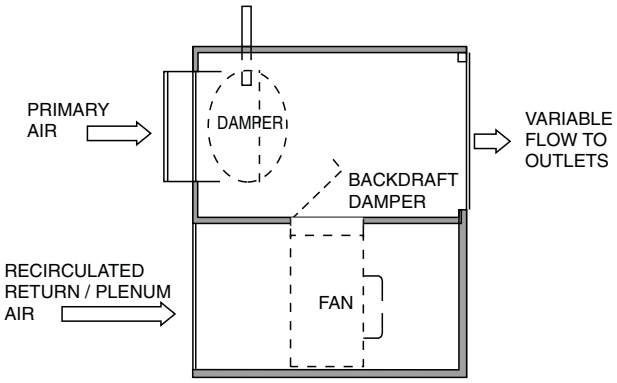
Physical data (cont)

TYPICAL UNIT CONFIGURATION 45M PARALLEL FAN POWERED TERMINAL UNIT



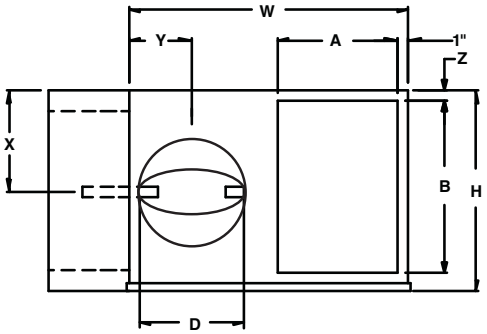
PSC — Permanent Split Capacitor

45M INTERNAL DETAIL PARALLEL FLOW UNIT

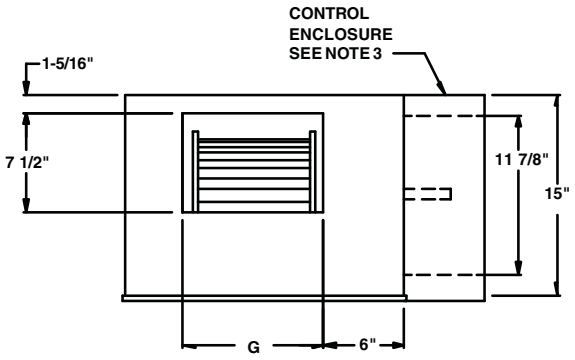


Dimensions

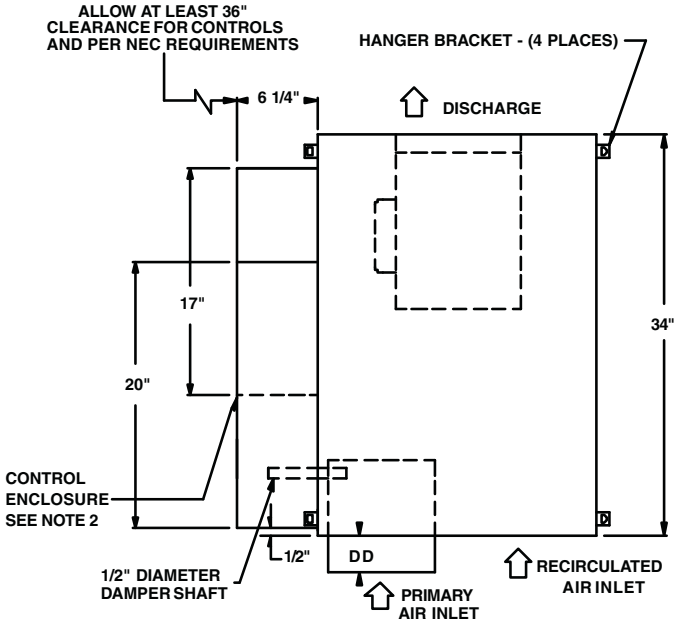
45J SERIES FAN POWERED VAV TERMINALS — SIZES 2-6



INLET VIEW



DISCHARGE VIEW



PLAN VIEW – LEFT HAND BOX
CONTROLS AND SENSORS NOT SHOWN

LEGEND

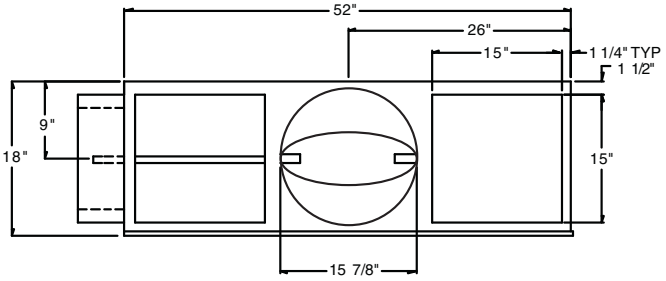
DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = $3^7/_8$ in.; 12-14 DD = $5^7/_8$ in.)
NEC — National Electrical Code

NOTES:
1. Dimensions are given in inches.
2. Available in left hand primary air configuration only (control enclosure available in left hand only).
3. Digital or analog control enclosure: 20 in. x $11^7/_8$ in., Pneumatic enclosure: 17 in. x 15 in.

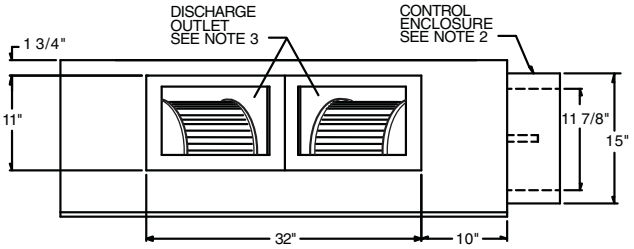
UNIT SIZE	PRI. CFM	FAN CFM	HP	INLET SIZE	W	H	RECIRC. AIR		D	G	X	Y	Z
							A	B					
2	515	560	$^1/_{10}$	6	21	15	9	13	$5^7/_8$	$6^3/_4$	$7^1/_2$	$5^3/_8$	1
3	515	990	$^1/_4$	6	21	15	9	13	$5^7/_8$	$9^1/_4$	$7^1/_2$	$5^3/_8$	1
	920	990	$^1/_4$	8	21	15	9	13	$7^7/_8$	$9^1/_4$	$7^1/_2$	$5^3/_8$	1
4	920	1440	$^1/_4$	8	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$7^7/_8$	$11^7/_8$	$8^7/_8$	$7^3/_8$	$1^3/_8$
	1430	1440	$^1/_4$	10	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$9^7/_8$	$11^7/_8$	$8^7/_8$	$7^3/_8$	$1^3/_8$
5	1430	2100	$^1/_2$	10	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$9^7/_8$	$13^1/_8$	$8^7/_8$	$7^3/_8$	$1^3/_8$
	2060	2100	$^1/_2$	12	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$11^7/_8$	$13^1/_8$	$8^7/_8$	$8^3/_8$	$1^3/_8$
6	2060	2530	$^3/_4$	12	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$11^7/_8$	$13^1/_8$	$8^7/_8$	$8^3/_8$	$1^3/_8$
	2530	2530	$^3/_4$	14	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$13^7/_8$	$13^1/_8$	$8^7/_8$	$8^3/_8$	$1^3/_8$

Dimensions (cont)

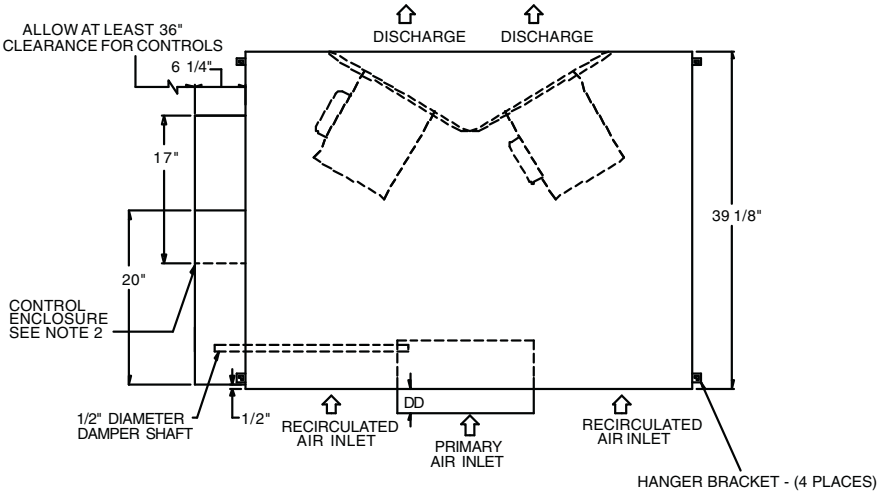
45J SERIES FAN POWERED VAV TERMINALS — SIZE 7



INLET VIEW



DISCHARGE VIEW



PLAN VIEW - LEFT HAND BOX
CONTROLS AND SENSORS NOT SHOWN

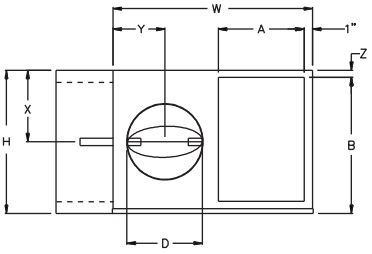
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Size 16 DD = $5^7/_8$ in.)

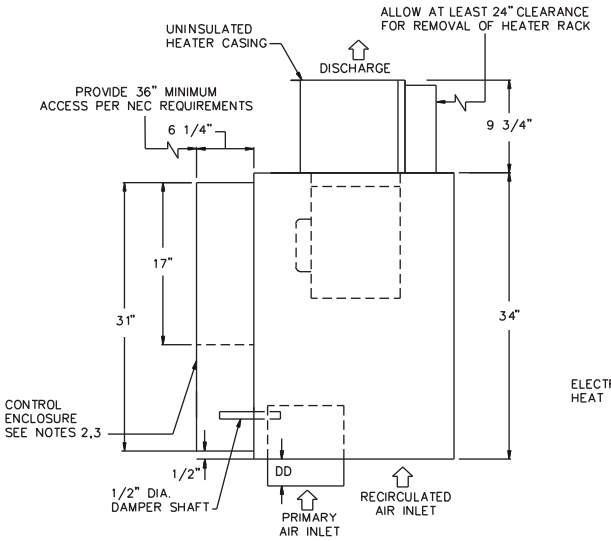
NOTES:
1. Dimensions are given in inches.
2. Digital or analog control enclosure: 20 in. x $11^7/_8$ in., Pneumatic enclosure: 17 in. x 15 in.
3. Discharge outlet dimensions: 32 in. x 11 in.

UNIT SIZE	PRIMARY CFM	FAN CFM	MOTOR HP (Qty)	INLET SIZE
7	3660	3900	$^3/_4$ (2)	16

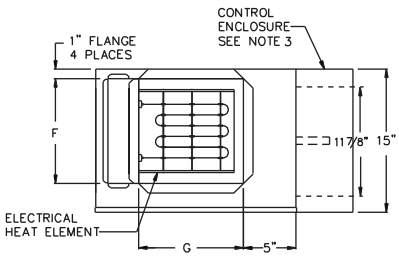
45J SERIES FAN POWERED VAV TERMINALS WITH ELECTRIC HEAT — SIZES 2-6



INLET VIEW



PLAN VIEW – LEFT HAND BOX
CONTROLS AND SENSORS NOT SHOWN



DISCHARGE VIEW

LEGEND

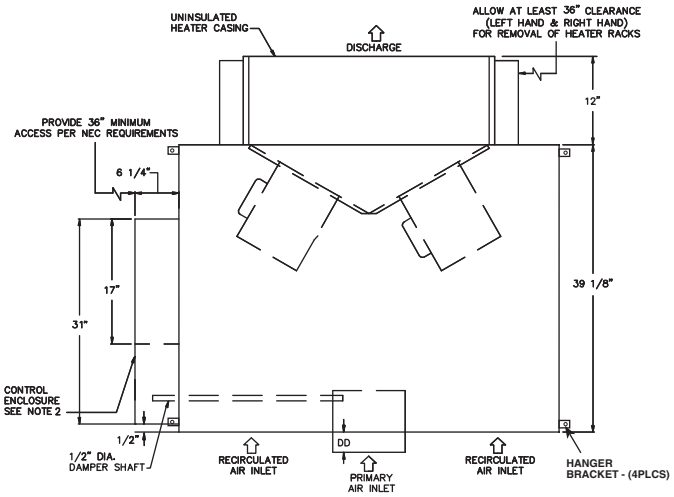
DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = $3^7/_8$ in.; 12-16 DD = $5^7/_8$ in.)
NEC — National Electrical Code

NOTES:
1. Dimensions are given in inches.
2. Available in left hand primary air configuration only (control enclosure available in left hand only).
3. Digital or analog control enclosure: 31 in. x $11^7/_8$ in., Pneumatic enclosure: 17 in. x 15 in.

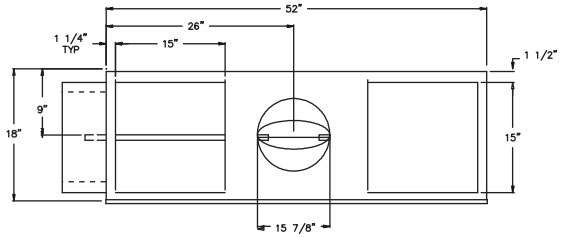
UNIT SIZE	PRI. CFM	FAN CFM	HP	INLET SIZE	W	H	RECIRC. AIR		D	DISCHARGE		X	Y	Z
							A	B		F	G			
2	515	560	$^1/_{10}$	6	21	15	9	13	$5^7/_8$	11	11	$7^1/_2$	$5^3/_8$	1
3	515	990	$^1/_4$	6	21	15	9	13	$5^7/_8$	11	11	$7^1/_2$	$5^3/_8$	1
	920	990	$^1/_4$	8	21	15	9	13	$7^7/_8$	11	11	$7^1/_2$	$5^3/_8$	1
4	920	1440	$^1/_4$	8	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$7^7/_8$	13	$14^1/_2$	$8^7/_8$	$7^3/_8$	$1^3/_8$
	1430	1440	$^1/_4$	10	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$9^7/_8$	13	$14^1/_2$	$8^7/_8$	$7^3/_8$	$1^3/_8$
5	1430	2100	$^1/_2$	10	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$9^7/_8$	13	$14^1/_2$	$8^7/_8$	$7^3/_8$	$1^3/_8$
	2060	2100	$^1/_2$	12	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$11^7/_8$	13	$14^1/_2$	$8^7/_8$	$8^3/_8$	$1^3/_8$
6	2060	2530	$^3/_4$	12	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$11^7/_8$	13	$14^1/_2$	$8^7/_8$	$8^3/_8$	$1^3/_8$
	2530	2530	$^3/_4$	14	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$13^7/_8$	13	$14^1/_2$	$8^7/_8$	$8^3/_8$	$1^3/_8$

Dimensions (cont)

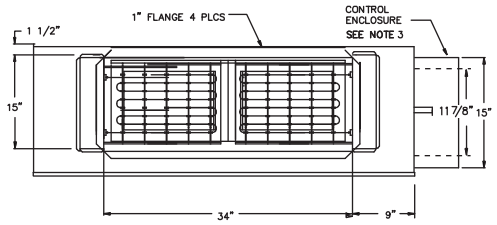
45J SERIES FAN POWERED VAV TERMINALS WITH ELECTRIC HEAT — SIZE 7



PLAN VIEW – LEFT HAND BOX
CONTROLS ANS SENSORS NOT SHOWN



INLET VIEW



DISCHARGE VIEW

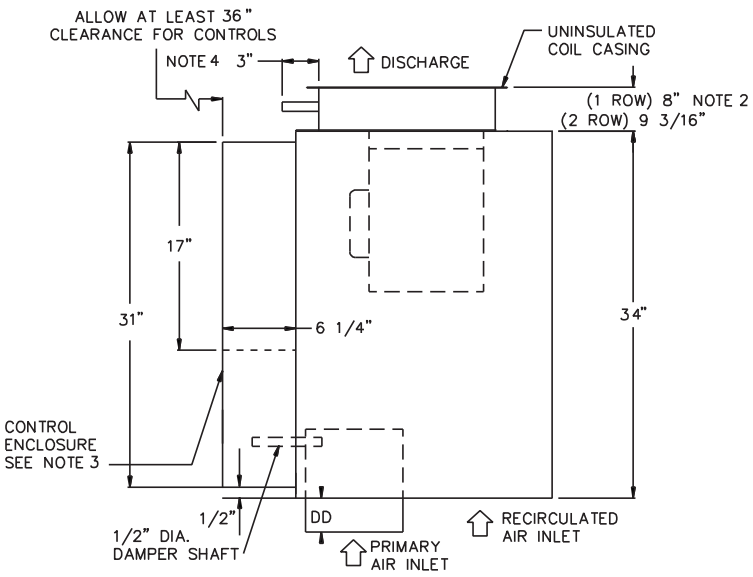
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = $3^7/_8$ in.; 12-16 DD = $5^7/_8$ in.)
NEC — National Electrical Code

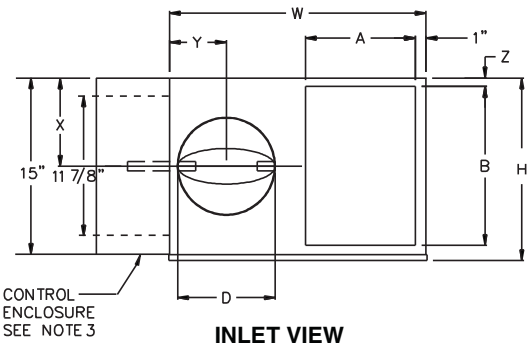
NOTES:
1. Dimensions are given in inches.
2. Available in left hand primary air configuration only (control enclosure available in left hand only).
3. Digital or analog control enclosure: 31 in. x $11^7/_8$ in., Pneumatic enclosure: 17 in. x 15 in.

UNIT SIZE	INLET SIZE	PRIMARY CFM	FAN CFM	HP
7	16	3660	3900	$^3/_4$ (2)

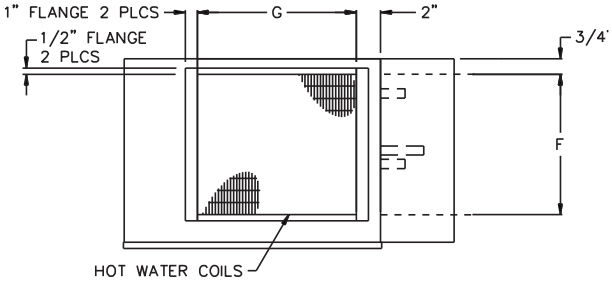
45J SERIES FAN POWERED VAV TERMINALS WITH HOT WATER HEAT — SIZES 2-6



PLAN VIEW – LEFT HAND CONTROLS & WATER CONNECTION
CONTROLS AND SENSORS NOT SHOWN



INLET VIEW



DISCHARGE VIEW

LEGEND

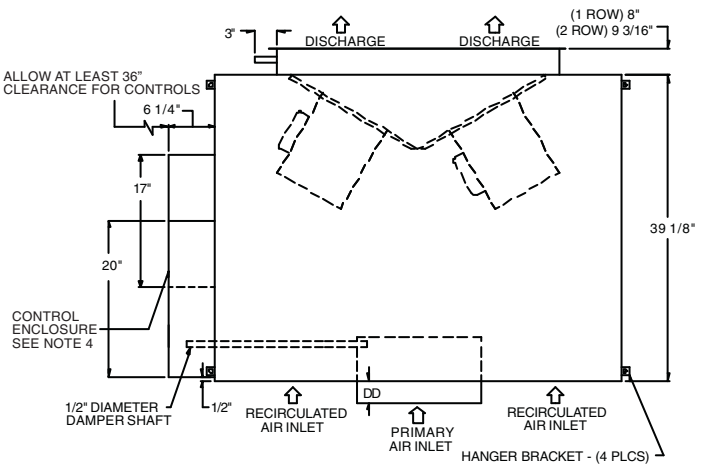
DD — Linear Averaging Sensor/ Inlet (Inlet Sizes 6-10 DD= $3^7/_8$ in.; 12-16 DD = $5^7/_8$ in.)

NOTES:
1. Dimensions are given in inches.
2. Available in left hand primary air configuration only.
3. Digital or analog control enclosure: 31 in. x $11^7/_8$ in., Pneumatic enclosure: 17 in. x 15 in.
4. $6^1/_6$ in. long connection with vent and drain.

UNIT SIZE	PRI. CFM	FAN CFM		HP	INLET SIZE	W	H	RECIRC. AIR		D	DISCHARGE		X	Y	Z
		1 ROW	2 ROW					A	B		F	G			
2	515	540	525	$^1/_{10}$	6	21	15	9	13	$5^7/_8$	$12^1/_2$	15	$7^1/_2$	$5^3/_8$	1
3	515	825	800	$^1/_4$	6	21	15	9	13	$5^7/_8$	$12^1/_2$	15	$7^1/_2$	$5^3/_8$	1
	920	875	800	$^1/_4$	8	21	15	9	13	$7^7/_8$	$12^1/_2$	15	$7^1/_2$	$5^3/_8$	1
4	920	1440	1310	$^1/_4$	8	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$7^7/_8$	$12^1/_2$	22	$8^7/_8$	$7^3/_8$	$1^3/_8$
	1430	1440	1310	$^1/_4$	10	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$9^7/_8$	$12^1/_2$	22	$8^7/_8$	$7^3/_8$	$1^3/_8$
5	1430	1960	1800	$^1/_2$	10	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$9^7/_8$	15	22	$8^7/_8$	$7^3/_8$	$1^3/_8$
	2060	1960	1800	$^1/_2$	12	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$11^7/_8$	15	22	$8^7/_8$	$8^3/_8$	$1^3/_8$
6	2060	2425	2275	$^3/_4$	12	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$11^7/_8$	15	$24^1/_2$	$8^7/_8$	$8^3/_8$	$1^3/_8$
	2530	2425	2275	$^3/_4$	14	$32^1/_4$	$17^3/_4$	$14^3/_8$	15	$13^7/_8$	15	$24^1/_2$	$8^7/_8$	$8^3/_8$	$1^3/_8$

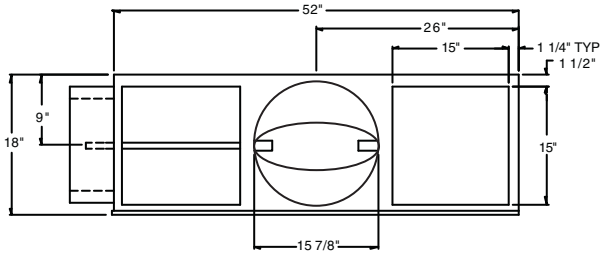
Dimensions (cont)

45J SERIES FAN POWERED VAV TERMINALS WITH HOT WATER HEAT
SIZE 7

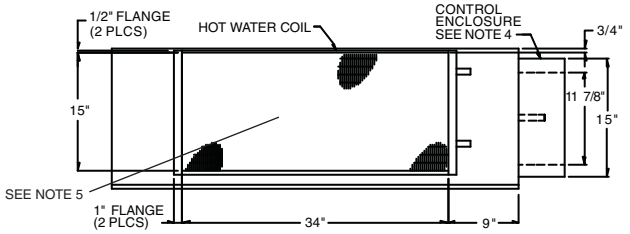


PLAN VIEW – LEFT HAND CONTROL AND COIL CONNECTION

CONTROLS AND SENSORS NOT SHOWN



INLET VIEW



DISCHARGE VIEW

LEGEND

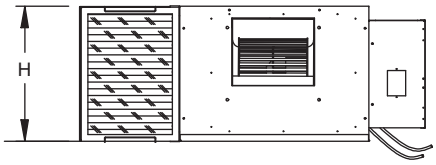
DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = $3^{7}/_{8}$ in.; 12-16 DD = $5^{7}/_{8}$ in.)

NOTES:
1. Dimensions are given in inches.
2. 12 in. for 1 row or 2 row hot water coils with access doors.
3. Available in left hand primary air configuration only (control enclosure available in left hand only).
4. Digital or analog control enclosure: 20 in. x $11^{7}/_{8}$ in., Pneumatic enclosure: 17 in. x 15 in.
5. Discharge outlet dimensions: 34 in. x 15 in.
6. $6^{1}/_{16}$ in. long connection with vent and drain.

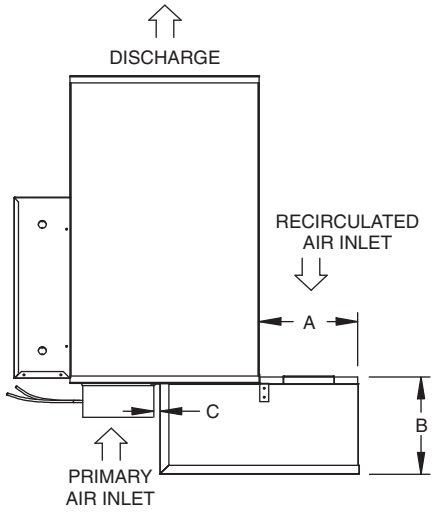
UNIT SIZE	INLET SIZE	MAXIMUM PRIMARY CFM	MAXIMUM FAN CFM		MOTOR HP
			1-Row	2-Row	
7	16	4000	3700	3400	$^{3}/_{4}$ (2)

45J ATTENTUATOR, EXPLODED, PLAN, AND DISCHARGE VIEWS

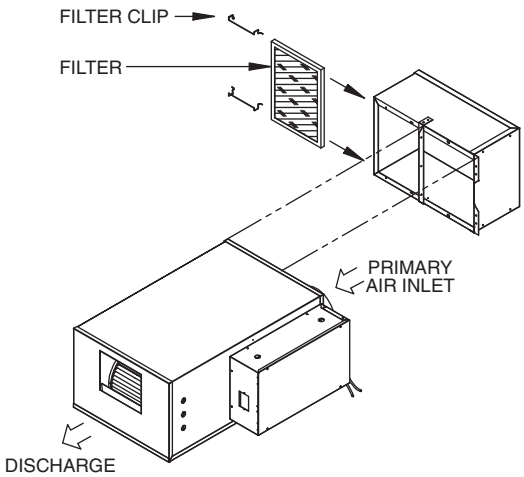
SIZE 2 - 6



DISCHARGE VIEW

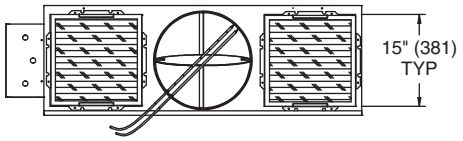


PLAN VIEW

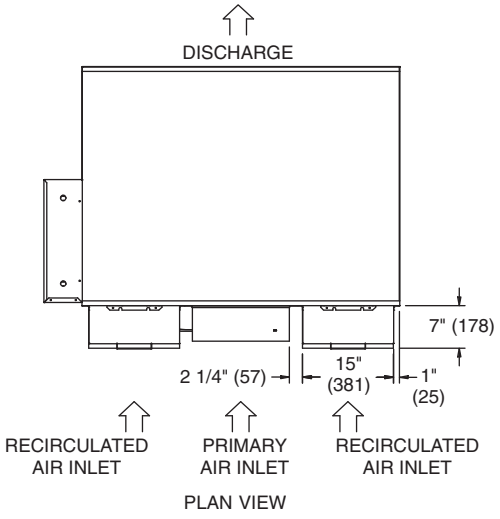


EXPLODED VIEW

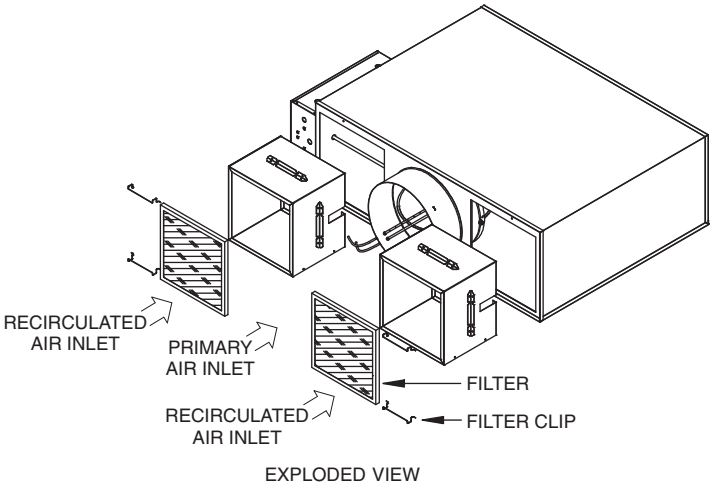
SIZE 7



DISCHARGE VIEW



PLAN VIEW



EXPLODED VIEW

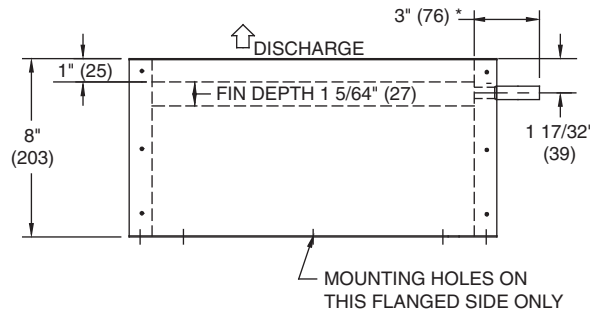
45J ATTENUATOR, DIMENSIONAL DETAILS

SIZE 2 - 6

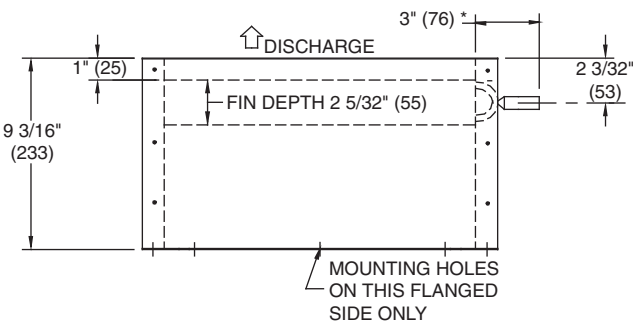
UNIT SIZE	INLET SIZE	DIMENSIONS - INCHES			
		H	A	B	C
2	6	15	15	14	$4^{1}/_{2}$
3	6	15	15	14	$3^{1}/_{2}$
	8	15	15	14	$2^{1}/_{2}$
4	8	$17^{1}/_{2}$	15	14	$2^{1}/_{2}$
	10	$17^{1}/_{2}$	15	14	$1^{1}/_{2}$
5	10	$17^{1}/_{2}$	19	18	$3^{1}/_{4}$
	12	$17^{1}/_{2}$	19	18	$2^{1}/_{4}$
6	12	$17^{1}/_{2}$	19	18	$2^{1}/_{4}$
	14	$17^{1}/_{2}$	19	18	$1^{1}/_{4}$

Dimensions (cont)

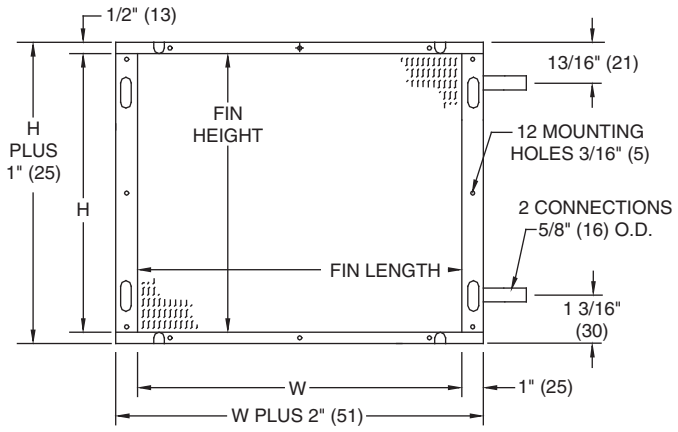
45J SERIES FAN POWERED VAV TERMINALS HOT WATER HEAT COIL — SIZES 2-7



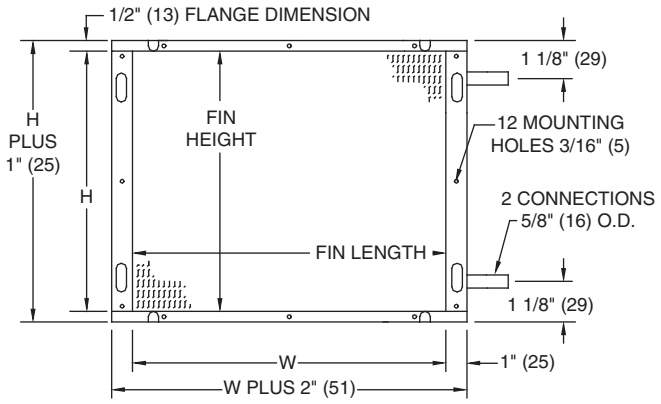
TOP VIEW, 1 ROW



TOP VIEW, 2 ROW



FRONT VIEW, 1 ROW



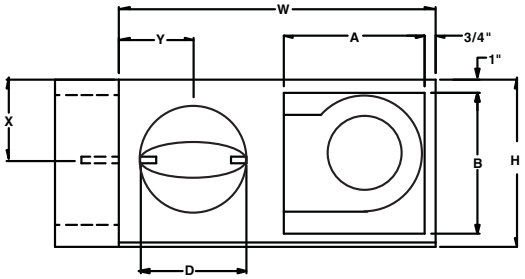
FRONT VIEW, 2 ROW

* There is a 6 $^{1}/_{16}$ in. long connection with vent and drain.

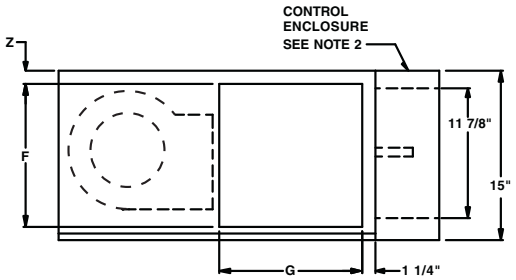
NOTES:
1. Dimensions are given in inches. Dimensions in () are in millimeters.
2. There is a 12-in. depth for all 1 and 2 row coils with accessories.

UNIT SIZE	DIMENSION (in.)	
	W	H
2	15	12 $^{1}/_{2}$
3	15	12 $^{1}/_{2}$
4	22	12 $^{1}/_{2}$
5	22	15
6	24 $^{1}/_{2}$	15
7	34	15

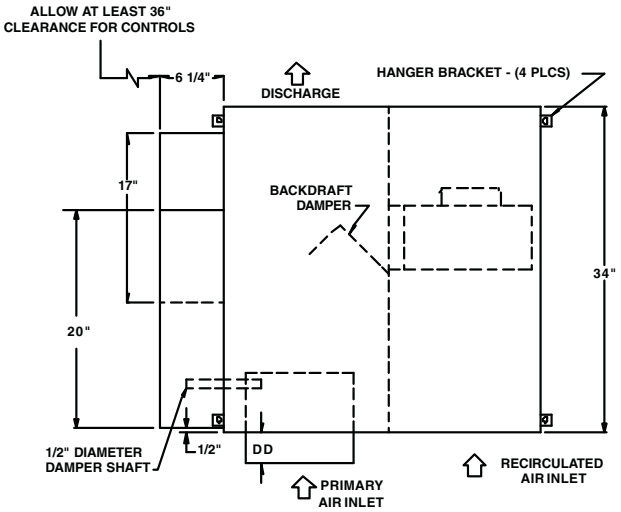
45M PARALLEL FAN POWERED VAV TERMINALS — SIZES 2-7



INLET VIEW



DISCHARGE VIEW



PLAN VIEW – LEFT HAND BOX
CONTROLS AND SENSORS NOT SHOWN

LEGEND

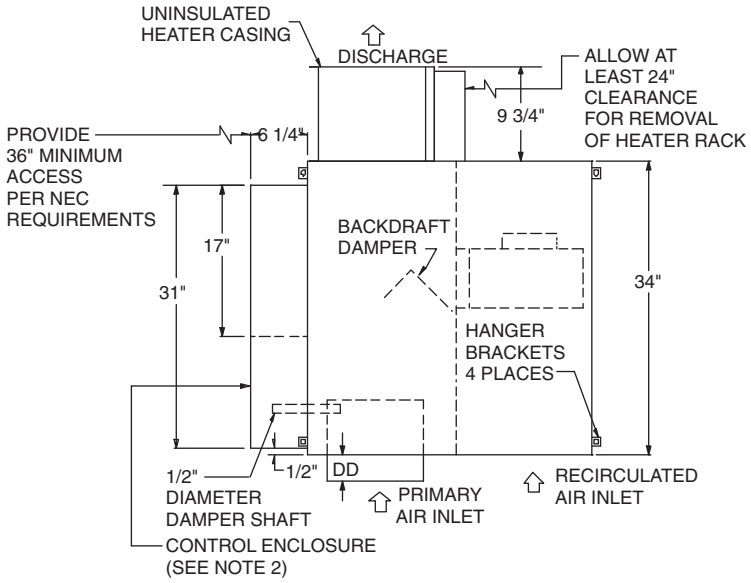
DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-10 DD = $3^{7}/_{8}$ in.; 12-16 DD = $5^{7}/_{8}$ in.)

NOTES:
1. Dimensions are given in inches.
2. Available in left hand primary air configuration only (control enclosure available in left hand only).
3. Digital or analog control enclosure: 31 in. x $11^{7}/_{8}$ in., Pneumatic enclosure: 17 in. x 15 in.

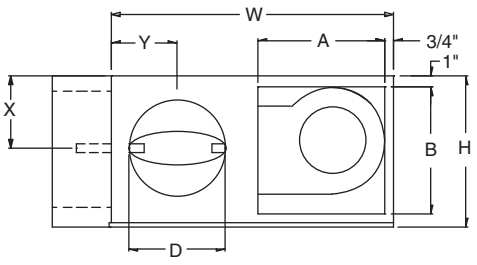
UNIT SIZE	PRI. CFM	FAN CFM	HP	INLET SIZE	W	H	RECIRC. AIR		D	DISCHARGE		X	Y	Z
							A	B		F	G			
2	515	400	$^{1}/_{10}$	6	29	15	13	13	$5^{7}/_{8}$	$11^{1}/_{2}$	$11^{1}/_{2}$	$7^{1}/_{2}$	$6^{7}/_{8}$	$1^{3}/_{4}$
	920	400	$^{1}/_{10}$	8	29	15	13	13	$7^{7}/_{8}$	$11^{1}/_{2}$	$11^{1}/_{2}$	$7^{1}/_{2}$	$6^{7}/_{8}$	$1^{3}/_{4}$
3	920	600	$^{1}/_{10}$	8	29	15	13	13	$7^{7}/_{8}$	$11^{1}/_{2}$	$11^{1}/_{2}$	$7^{1}/_{2}$	$6^{7}/_{8}$	$1^{3}/_{4}$
	1430	600	$^{1}/_{10}$	10	29	15	13	13	$9^{7}/_{8}$	$11^{1}/_{2}$	$11^{1}/_{2}$	$7^{1}/_{2}$	$6^{7}/_{8}$	$1^{3}/_{4}$
4	1430	1050	$^{1}/_{4}$	10	29	15	13	13	$9^{7}/_{8}$	$11^{1}/_{2}$	$11^{1}/_{2}$	$7^{1}/_{2}$	$6^{7}/_{8}$	$1^{3}/_{4}$
	2060	1050	$^{1}/_{4}$	12	29	15	13	13	$11^{7}/_{8}$	$11^{1}/_{2}$	$11^{1}/_{2}$	$7^{1}/_{2}$	$6^{7}/_{8}$	$1^{3}/_{4}$
5	2060	1500	$^{1}/_{2}$	12	37	$17^{3}/_{4}$	17	$15^{3}/_{4}$	$11^{7}/_{8}$	14	$15^{1}/_{2}$	$8^{7}/_{8}$	9	$1^{7}/_{8}$
	2800	1500	$^{1}/_{2}$	14	37	$17^{3}/_{4}$	17	$15^{3}/_{4}$	$13^{7}/_{8}$	14	$15^{1}/_{2}$	$8^{7}/_{8}$	9	$1^{7}/_{8}$
6	2800	1800	$^{1}/_{2}$	14	37	$17^{3}/_{4}$	17	$15^{3}/_{4}$	$13^{7}/_{8}$	14	$15^{1}/_{2}$	$8^{7}/_{8}$	9	$1^{7}/_{8}$
	3660	1800	$^{1}/_{2}$	16	37	$17^{3}/_{4}$	17	$15^{3}/_{4}$	$15^{7}/_{8}$	14	$15^{1}/_{2}$	$8^{7}/_{8}$	9	$1^{7}/_{8}$
7	3660	2200	$^{3}/_{4}$	16	37	$17^{3}/_{4}$	17	$15^{3}/_{4}$	$15^{7}/_{8}$	14	$15^{1}/_{2}$	$8^{7}/_{8}$	9	$1^{7}/_{8}$

Dimensions (cont)

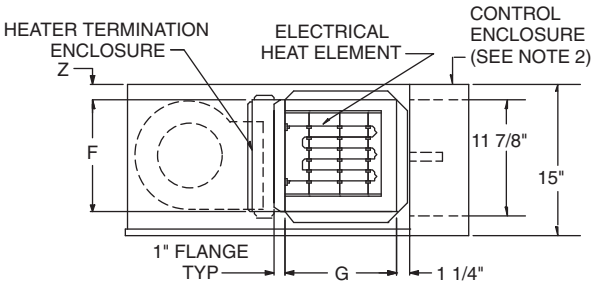
45M PARALLEL FAN POWERED VAV TERMINALS WITH ELECTRIC HEAT — SIZES 2-7



PLAN VIEW — LEFT HAND BOX SHOWN
(CONTROLS AND SENSORS NOT SHOWN)



INLET VIEW



DISCHARGE VIEW

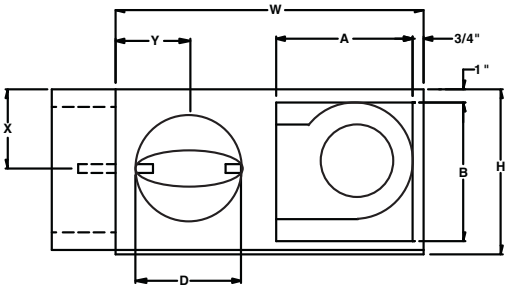
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-12 DD = $2^1/_2$ in.; 14-16 DD = $3^1/_2$ in.)
NEC — National Electrical Code

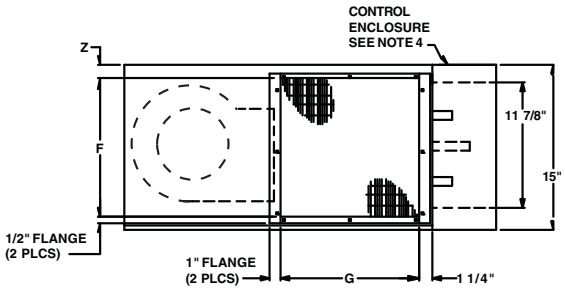
NOTES:
1. Dimensions are given in inches.
2. Available as left hand primary air configuration only (control enclosure available in left hand only).
3. Digital or analog control enclosure: 29-in., pneumatic: 17-in.

UNIT SIZE	PRI. CFM	FAN CFM	HP	INLET SIZE	W	H	RECIRC. AIR		D	DISCHARGE		X	Y	Z
							A	B		F	G			
2	515	400	$^1/_{10}$	6	29	15	13	13	$5^7/_8$	$11^1/_2$	$11^1/_2$	$7^1/_2$	$6^7/_8$	$1^3/_4$
	920	400	$^1/_{10}$	8	29	15	13	13	$7^7/_8$	$11^1/_2$	$11^1/_2$	$7^1/_2$	$6^7/_8$	$1^3/_4$
3	920	600	$^1/_{10}$	8	29	15	13	13	$7^7/_8$	$11^1/_2$	$11^1/_2$	$7^1/_2$	$6^7/_8$	$1^3/_4$
	1430	600	$^1/_{10}$	10	29	15	13	13	$9^7/_8$	$11^1/_2$	$11^1/_2$	$7^1/_2$	$6^7/_8$	$1^3/_4$
4	1430	1050	$^1/_4$	10	29	15	13	13	$9^7/_8$	$11^1/_2$	$11^1/_2$	$7^1/_2$	$6^7/_8$	$1^3/_4$
	2060	1050	$^1/_4$	12	29	15	13	13	$11^7/_8$	$11^1/_2$	$11^1/_2$	$7^1/_2$	$6^7/_8$	$1^3/_4$
5	2060	1500	$^1/_2$	12	37	$17^3/_4$	17	$15^3/_4$	$11^7/_8$	14	$15^1/_2$	$8^7/_8$	9	$1^7/_8$
	2800	1500	$^1/_2$	14	37	$17^3/_4$	17	$15^3/_4$	$13^7/_8$	14	$15^1/_2$	$8^7/_8$	9	$1^7/_8$
6	2800	1800	$^1/_2$	14	37	$17^3/_4$	17	$15^3/_4$	$13^7/_8$	14	$15^1/_2$	$8^7/_8$	9	$1^7/_8$
	3660	1800	$^1/_2$	16	37	$17^3/_4$	17	$15^3/_4$	$15^7/_8$	14	$15^1/_2$	$8^7/_8$	9	$1^7/_8$
7	3660	2200	$^3/_4$	16	37	$17^3/_4$	17	$15^3/_4$	$15^7/_8$	14	$15^1/_2$	$8^7/_8$	9	$1^7/_8$

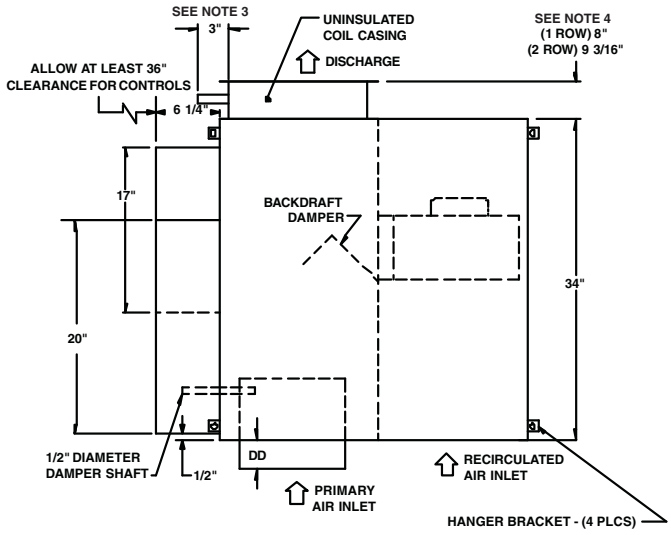
45M PARALLEL FAN POWERED VAV TERMINALS WITH HOT WATER HEAT — SIZES 2-7



INLET VIEW



DISCHARGE VIEW



PLAN VIEW – LEFT HAND BOX
CONTROLS AND SENSORS NOT SHOWN

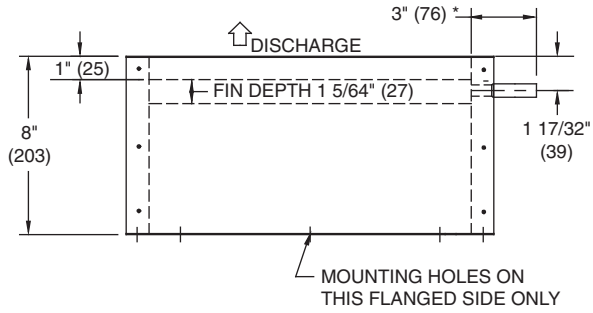
LEGEND
DD — Linear Averaging Sensor/Inlet (Inlet Sizes 6-12 DD = $2^1/_2$ in.; 14-16 DD = $3^1/_2$ in.)

NOTES:
1. Dimensions are given in inches.
2. Available in left hand primary air configuration only (control enclosure available in left hand only).
3. 12-in. depth for all 1 and 2 row hot water coils with access doors.
4. Digital or analog control enclosure: 20 in. x $11^7/_8$ in., Pneumatic enclosure: 17 in. x 15 in.
5. Optional $6^1/_{16}$ in. long connection with vent and drain option.

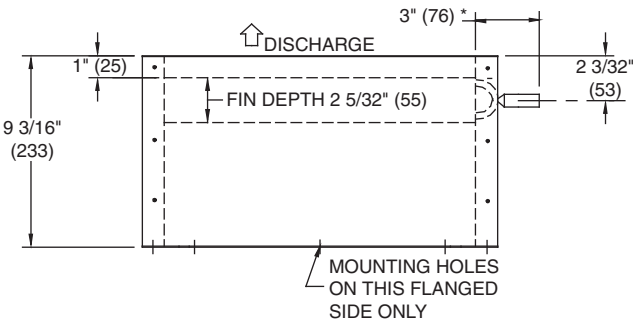
UNIT SIZE	PRI. CFM	FAN CFM	HP	INLET SIZE	W	H	RECIRC. AIR		D	DISCHARGE		X	Y	Z
							A	B		F	G			
2	515	400	$^1/_{10}$	6	29	15	13	13	$5^7/_8$	$12^1/_2$	15	$7^1/_2$	$6^7/_8$	$1^1/_4$
	920	400	$^1/_{10}$	8	29	15	13	13	$7^7/_8$	$12^1/_2$	15	$7^1/_2$	$6^7/_8$	$1^1/_4$
3	920	550	$^1/_{10}$	8	29	15	13	13	$7^7/_8$	$12^1/_2$	15	$7^1/_2$	$6^7/_8$	$1^1/_4$
	1430	550	$^1/_{10}$	10	29	15	13	13	$9^7/_8$	$12^1/_2$	15	$7^1/_2$	$6^7/_8$	$1^1/_4$
4	1430	1000	$^1/_4$	10	29	15	13	13	$9^7/_8$	$12^1/_2$	22	$7^1/_2$	$6^7/_8$	$1^1/_4$
	2060	1000	$^1/_4$	12	29	15	13	13	$11^7/_8$	$12^1/_2$	22	$7^1/_2$	$6^7/_8$	$1^1/_4$
5	2060	1400	$^1/_4$	12	37	$17^3/_4$	17	$15^3/_4$	$11^7/_8$	15	22	$8^7/_8$	9	$1^1/_2$
	2800	1400	$^1/_2$	14	37	$17^3/_4$	17	$15^3/_4$	$13^7/_8$	15	22	$8^7/_8$	9	$1^1/_2$
6	2800	1700	$^1/_2$	14	37	$17^3/_4$	17	$15^3/_4$	$13^7/_8$	15	$24^1/_2$	$8^7/_8$	9	$1^1/_2$
	3660	1700	$^1/_2$	16	37	$17^3/_4$	17	$15^3/_4$	$15^7/_8$	15	$24^1/_2$	$8^7/_8$	9	$1^1/_2$
7	3660	2000	$^3/_4$	16	37	$17^3/_4$	17	$15^3/_4$	$15^7/_8$	15	$24^1/_2$	$8^7/_8$	9	$1^1/_2$

Dimensions (cont)

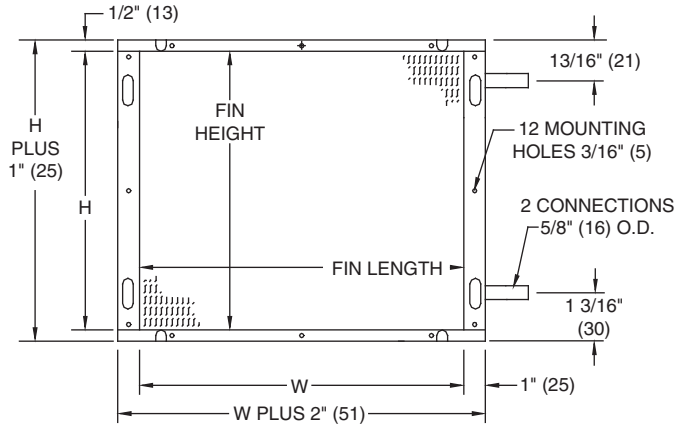
45M PARALLEL FAN POWERED VAV TERMINALS HOT WATER HEAT COIL — SIZES 2-7



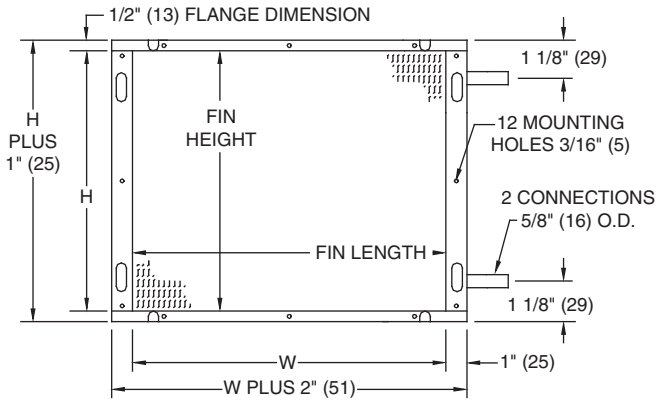
TOP VIEW, 1 ROW



TOP VIEW, 2 ROW



FRONT VIEW, 1 ROW



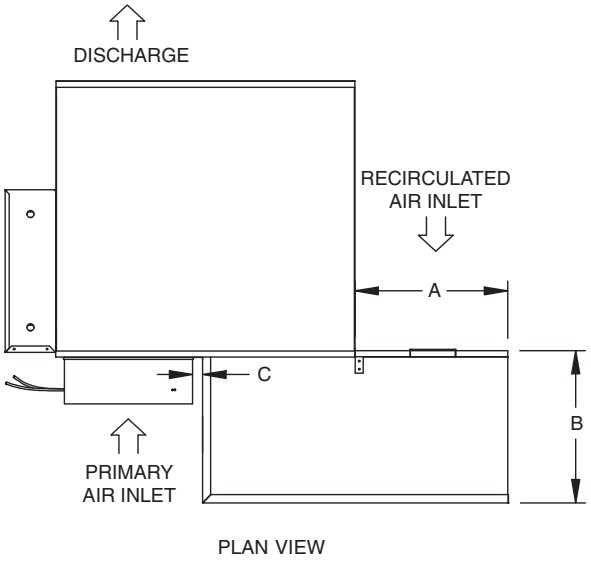
FRONT VIEW, 2 ROW

* There is a 6 $^{1}/_{16}$ in. long connection with vent and drain.

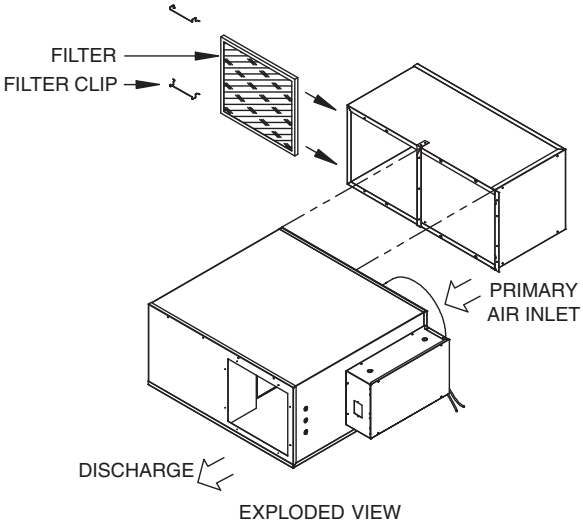
NOTES:
1. Dimensions are given in inches. Dimensions in () are in millimeters.
2. There is a 12-in. depth for all 1 and 2 row coils with accessories.

UNIT SIZE	DIMENSION (in.)	
	W	H
2	15	12 $^{1}/_{2}$
3	15	12 $^{1}/_{2}$
4	22	12 $^{1}/_{2}$
5	22	15
6	24 $^{1}/_{2}$	15
7	24 $^{1}/_{2}$	15

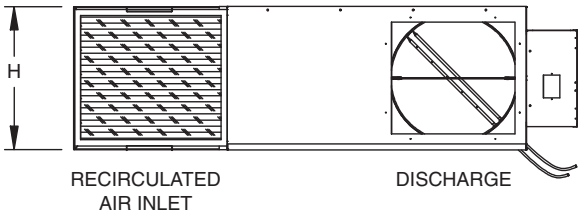
45M ATTENTUATOR, EXPLODED, PLAN, AND DISCHARGE VIEWS



PLAN VIEW



EXPLODED VIEW



DISCHARGE VIEW

45M ATTENUATOR, DIMENSIONAL DETAILS

UNIT SIZE	INLET SIZE	DIMENSIONS - INCHES			
		H	A	B	C
2	6	15	15	14	$4^{1}/_{2}$
	8	15	15	14	$3^{1}/_{2}$
3	8	15	15	14	$3^{1}/_{2}$
	10	15	15	14	$2^{1}/_{2}$
4	10	15	15	14	$2^{1}/_{2}$
	12	15	15	14	$1^{1}/_{2}$
5	12	$17^{1}/_{2}$	19	18	$3^{1}/_{4}$
	14	$17^{1}/_{2}$	19	18	$2^{1}/_{4}$
6	14	$17^{1}/_{2}$	19	18	$2^{1}/_{4}$
	16	$17^{1}/_{2}$	19	18	$1^{1}/_{4}$
7	16	$17^{1}/_{2}$	19	18	$1^{1}/_{4}$

Performance data

UNIT CAPACITIES

45J SERIES FAN POWERED TERMINAL UNIT

UNIT SIZE	INLET SIZE (in.)	MOTOR HP	MOTOR AMPS			FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		
			120V	208/240V	277V	Max	Min	Max	Min	Min CCN
2	6	1/10	1.8	1.0	0.7	560	100	515	90 or 0	52 or 0
3	6	1/4	3.6	2.0	1.5	990	300	515	90 or 0	52 or 0
	8					990	300	920	170 or 0	93 or 0
4	8	1/4	5.0	2.8	2.1	1440	550	920	170 or 0	93 or 0
	10					1440	550	1430	250 or 0	145 or 0
5	10	1/2	8.3	4.6	3.5	2100	1100	1430	250 or 0	145 or 0
	12					2100	1100	2060	360 or 0	210 or 0
6	12	3/4	9.5	5.8	4.4	2530	1200	2060	360 or 0	210 or 0
	14					2530	1200	2530	500 or 0	285 or 0
7*	16	(2) 3/4	N/A	13.2	9.9	3900	2100	3660	650 or 0	370 or 0

45M PARALLEL FAN POWERED TERMINAL UNIT

UNIT SIZE	INLET SIZE (in.)	MOTOR HP	MOTOR AMPS			FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)		
			120V	208/240V	277V	Max	Min	Max	Min	Min CCN
2	6	1/10	1.6	0.9	0.7	400	50	515	90 or 0	52 or 0
	8					400	200	920	170 or 0	93 or 0
3	8	1/10	2.0	1.2	0.9	600	150	920	170 or 0	93 or 0
	10					600	300	1430	250 or 0	145 or 0
4	10	1/4	3.2	1.9	1.4	1050	250	1430	250 or 0	145 or 0
	12					1050	480	2060	360 or 0	210 or 0
5	12	1/2	7.3	4.1	3.1	1500	860	2060	360 or 0	210 or 0
	14					1500	860	2800	500 or 0	285 or 0
6	14	1/2	10.1	5.1	4.2	1800	930	2800	500 or 0	285 or 0
	16					1800	930	3660	650 or 0	370 or 0
7	16	3/4	9.5	5.8	4.4	2200	1140	3660	650 or 0	370 or 0

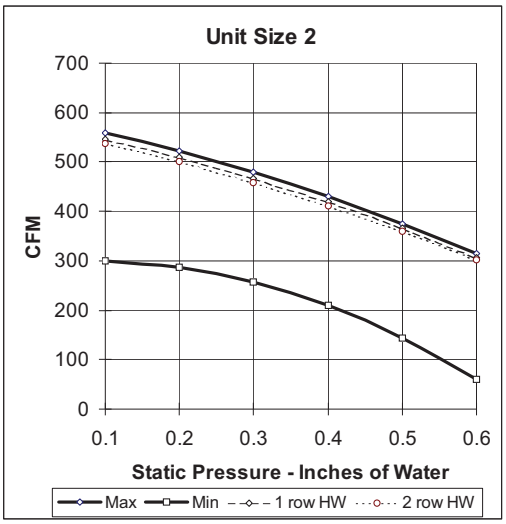
LEGEND

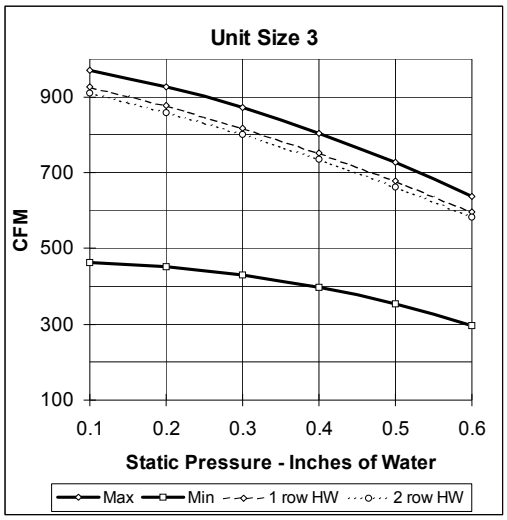
ASHRAE — American Society of Heating, Refrigerating and Air Conditioning Engineers
CCN — Carrier Comfort Network®

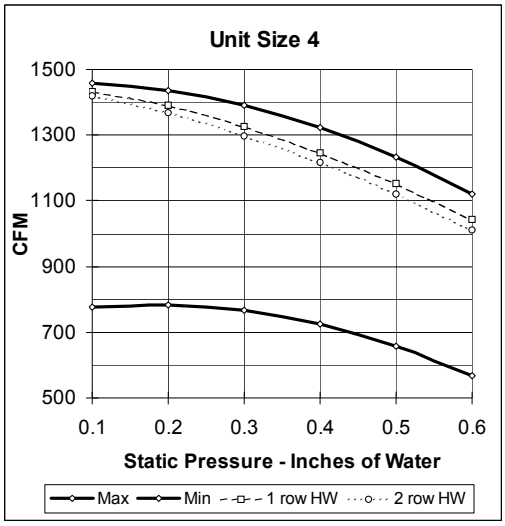
*45J unit size 7 is not available with 120 v motor option.

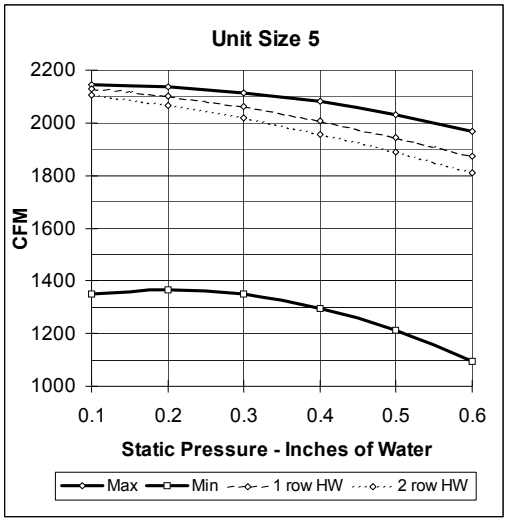
NOTES:
1. 45J maximum primary airflow (cfm) is set by the maximum induced airflow, which may vary as a function of downstream pressure. Maximum airflow shown is based on the maximum induced airflow (fan airflow) or 1.00 in. wg velocity pressure at inlet probe, whichever is less.
2. 45M maximum primary airflow (cfm) is based on 1.00 in. wg velocity pressure signal (VP), per inlet size, using a standard linear averaging sensor.
3. Minimum recommended primary airflow (cfm) is based on 0.03 in. wg differential pressure of the linear inlet flow sensor, or 0 airflow. 0.03 in. wg is equal to 15% to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than +5% control of box flow.
4. 45M maximum fan airflow (cfm) is based on 0.25 in. wg external (downstream) static pressure, and 45J maximum fan airflow is based on 0.10 in. wg downstream static pressure (see pages 35 and 40 for complete fan curves).
5. 45J or 45M minimum fan airflow (cfm) is based on maximum external (downstream) static pressure 0.60 in. wg.
6. Minimum primary airflow (cfm) listed is for all controls except CCN, which is shown separately with lower available minimum cfm. Some DDC (Direct Digital Controls) controls supplied by others may have different limitations.
7. Do not select discharge temperature exceeding 120 F. In addition, ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

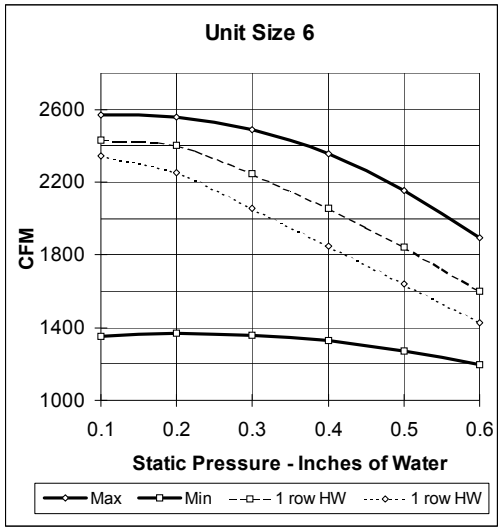
45J SERIES FAN POWERED TERMINAL UNIT
AIRFLOW VS. DOWNSTREAM STATIC PRESSURE

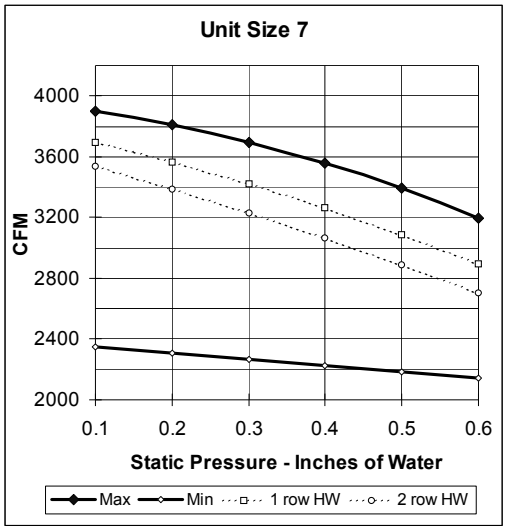












Performance data (cont)

45J SERIES FAN POWERED TERMINAL UNIT
DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		FAN ONLY							FAN AND PRIMARY AT 0.5 ΔPs							FAN AND PRIMARY AT 1.0 ΔPs						
						Octave Band Sound Power						Lp	Octave Band Sound Power						Lp	Octave Band Sound Power						Lp
		CFM	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
2	6	250	118	0.039	9.72	53	54	57	52	47	43	—	55	56	58	53	49	45	—	55	58	59	54	49	45	—
		300	142	0.056	14.00	57	58	59	55	51	47	—	59	59	61	57	53	49	—	59	61	61	57	53	49	—
		350	165	0.077	19.05	60	60	61	57	53	51	—	62	62	63	59	56	53	—	62	63	64	59	56	53	21
		400	189	0.100	24.88	63	63	63	60	56	54	20	65	63	65	62	58	56	20	65	66	66	62	58	56	24
		450	212	0.127	31.49	65	65	65	62	58	57	23	67	65	67	64	61	59	23	67	68	68	64	60	59	26
3	8	450	212	0.041	10.28	60	56	58	53	50	47	—	62	58	60	55	52	49	—	62	58	60	55	52	50	-
		600	283	0.073	18.28	63	62	62	59	56	54	—	65	64	64	61	58	56	21	65	64	64	61	58	56	21
		700	330	0.100	24.88	64	64	65	62	59	58	23	67	66	67	64	62	60	25	67	66	67	64	62	60	25
		800	378	0.131	32.50	66	67	67	65	62	61	25	68	69	69	67	65	63	27	68	69	69	67	64	63	27
		900	425	0.165	41.13	67	69	69	67	65	64	28	69	71	71	69	67	66	30	69	71	71	69	67	66	30
4	10	800	378	0.053	13.16	61	63	64	66	63	55	—	61	63	66	68	65	57	21	64	65	66	68	65	57	22
		950	448	0.075	18.56	63	64	66	67	64	57	21	63	66	68	69	66	59	23	66	67	68	69	66	59	24
		1100	519	0.100	24.88	64	66	68	67	65	59	23	64	67	70	69	67	61	25	68	68	70	70	67	61	26
		1250	590	0.129	32.13	65	67	69	68	65	60	24	65	69	71	70	67	62	26	69	70	71	70	67	63	27
		1400	661	0.162	40.31	67	68	71	68	65	62	26	67	70	71	70	68	63	28	70	71	73	70	68	64	29
5	12	1350	637	0.071	17.72	67	65	66	63	61	61	25	67	65	67	65	63	63	27	70	68	68	66	64	63	27
		1525	720	0.091	22.61	69	67	68	66	64	64	28	69	67	70	68	66	66	30	72	71	70	69	67	66	30
		1700	802	0.113	28.09	71	69	70	69	67	67	31	71	69	71	71	69	69	33	74	73	72	71	70	69	33
		1875	885	0.137	34.17	72	71	71	72	70	69	33	72	71	73	72	72	72	35	75	75	74	74	72	72	35
		2050	967	0.164	40.85	74	73	73	74	72	72	36	74	73	75	74	72	74	38	77	76	76	76	74	74	38
6	14	1400	661	0.044	11.06	68	68	63	60	58	57	26	70	70	64	62	60	59	28	70	70	65	62	60	59	28
		1675	790	0.064	15.83	71	70	67	65	63	62	28	73	72	69	68	66	64	31	73	72	69	68	66	65	31
		1950	920	0.086	21.46	74	72	70	70	68	67	31	76	74	72	72	70	69	33	76	74	72	72	70	69	33
		2225	1050	0.112	27.93	76	74	73	74	72	71	35	78	76	75	76	74	73	36	78	76	75	76	74	73	36
		2500	1180	0.142	35.27	78	75	76	77	75	74	38	80	78	78	79	77	74	38	80	78	78	79	77	76	40
7	16	2100	991	0.056	14.00	68	66	65	62	61	60	24	68	68	67	62	61	60	26	70	68	68	65	63	62	26
		2675	1262	0.091	22.71	71	70	69	67	65	64	28	73	72	71	69	67	66	30	74	72	71	70	68	66	30
		3050	1439	0.119	29.53	73	72	71	70	67	66	30	75	74	73	72	69	68	33	76	74	73	72	70	69	33
		3425	1616	0.150	37.23	75	73	72	72	69	68	32	77	76	75	74	71	70	35	77	76	75	75	72	71	35
		3800	1793	0.184	45.83	76	75	74	74	70	69	34	79	77	76	76	73	72	36	79	77	77	77	74	73	37

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Min ΔPs — Minimum Operating Pressure of the Primary Air Value
NC — AHRI 880 Test Conditions (see Application Assumptions below)
— — Indicates an NC level less than 20
— Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. End discharge sound power is the noise emitted from the unit discharge into the duct.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC application data based on AHRI 885 (2002 Addendum — Appendix E).

MODEL 45J SERIES FAN POWERED TERMINAL UNIT
APPLICATION ASSUMPTIONS

AHRI 885	OCTAVE BANDS					
Discharge < 300 cfm	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 8 x 8 x 1 in.	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, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885	OCTAVE BANDS					
Discharge 300-700 cfm	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 12 x 12 x 1 in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5 Ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885	OCTAVE BANDS					
Discharge >700 cfm	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 15 x 15 x1 in.	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, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

45J SERIES FAN POWERED TERMINAL UNIT (cont)
RADIATED SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		FAN ONLY							FAN AND PRIMARY AT 0.5 ΔPs							FAN AND PRIMARY AT 1.0 ΔPs						
						Octave Band Sound Power						Lp	Octave Band Sound Power						Lp	Octave Band Sound Power						Lp
		CFM	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
2	6	250	118	0.039	9.72	58	57	53	44	40	36	27	61	60	55	47	42	39	30	62	63	58	49	45	41	33
		300	142	0.056	14.00	60	59	54	46	41	37	29	63	62	57	49	44	41	32	65	65	60	51	47	44	36
		350	165	0.077	19.05	62	60	55	49	43	39	30	65	64	58	51	46	43	34	67	67	61	53	49	45	38
		400	189	0.100	24.88	63	62	56	51	44	40	31	66	65	59	53	47	44	36	68	69	63	55	50	47	40
		450	212	0.127	31.49	64	63	56	53	45	41	33	68	67	60	54	49	45	38	70	70	64	56	51	48	42
3	8	450	212	0.041	10.28	50	50	50	47	35	31	24	58	57	53	49	42	39	28	64	63	58	51	46	42	33
		600	283	0.073	18.28	57	57	54	51	41	38	29	62	62	57	54	47	44	32	67	67	61	56	50	47	37
		700	330	0.100	24.88	61	60	57	53	45	42	32	64	64	59	56	49	47	34	69	69	63	58	52	49	40
		800	378	0.131	32.50	64	63	59	55	48	45	34	66	66	61	58	52	50	37	70	70	65	61	54	52	42
		900	425	0.165	41.13	67	66	61	57	51	48	36	67	68	63	60	54	52	39	72	72	66	62	56	54	44
4	10	800	378	0.053	13.16	57	56	55	51	41	38	30	61	60	57	51	43	40	32	63	62	59	54	46	42	34
		950	448	0.075	18.56	59	58	56	52	44	40	30	64	63	58	54	46	43	33	66	65	61	55	48	45	36
		1100	519	0.100	24.88	61	60	57	53	46	42	31	66	65	59	55	48	45	36	68	67	62	57	50	47	38
		1250	590	0.129	32.13	63	62	57	53	48	44	32	68	68	61	56	48	47	38	71	70	63	58	52	49	41
		1400	661	0.162	40.31	65	63	58	54	50	46	33	70	69	62	57	50	48	41	72	72	65	59	54	51	43
5	12	1350	637	0.071	17.72	68	64	54	49	45	41	34	73	69	61	54	50	48	40	75	71	64	57	52	49	42
		1525	720	0.091	22.61	69	65	56	51	48	44	35	75	70	62	56	52	49	41	76	72	65	58	54	51	44
		1700	802	0.113	28.09	71	66	58	54	50	47	36	76	71	63	57	54	51	43	78	73	67	60	55	52	45
		1875	885	0.137	34.17	72	66	59	55	52	49	38	77	72	65	58	55	53	44	79	74	68	61	57	54	47
		2050	967	0.164	40.85	73	67	61	57	54	51	39	78	73	66	60	57	54	45	80	75	69	62	58	55	48
6	14	1400	661	0.044	11.06	68	63	55	51	47	43	33	71	67	59	53	49	47	37	73	69	62	56	51	49	40
		1675	790	0.064	15.83	71	66	58	54	50	47	37	74	70	62	56	53	50	41	75	72	65	59	55	53	43
		1950	920	0.086	21.46	74	68	60	57	53	50	40	76	72	65	59	56	54	44	78	74	68	61	58	56	46
		2225	1050	0.112	27.93	76	70	62	59	56	53	43	78	74	67	59	58	57	47	80	77	70	63	61	59	49
		2500	1180	0.142	35.27	78	72	64	62	58	56	45	80	76	69	62	61	59	49	82	79	72	65	63	62	51
7	16	2100	991	0.056	14.00	66	64	59	55	50	47	34	71	68	63	59	55	51	39	74	72	67	63	58	55	43
		2675	1262	0.091	22.71	70	67	63	59	54	52	38	74	71	66	62	58	55	42	77	74	70	65	61	58	46
		3050	1439	0.119	29.53	72	69	65	62	57	55	40	76	73	68	64	60	57	44	78	76	71	67	63	60	48
		3425	1616	0.150	37.23	74	71	67	63	59	57	42	77	74	69	65	62	59	46	80	77	72	68	64	62	50
		3800	1793	0.184	45.83	76	72	68	65	61	59	44	79	75	71	65	63	61	48	81	78	74	69	66	64	51

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Min ΔPs — Minimum Operating Pressure of the Primary Air Value
NC — AHRI 880 Test Conditions (see Application Assumptions below)
— — Indicates an NC level less than 20
— Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. Radiated sound power is the noise emitted from the unit casing and induction port.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC application data based on AHRI 885 (2002 Addendum — Appendix E).

MODEL 45J SERIES FAN POWERED TERMINAL UNIT APPLICATION ASSUMPTIONS

AHRI 885	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

Performance data (cont)

AHRI CERTIFICATION RATINGS FOR 45J SERIES FAN POWERED TERMINAL UNIT

AHRI CERTIFICATION RATINGS FOR AIR TERMINALS (RADIATED)

UNIT SIZE	FAN		PRIMARY CFM	MIN. Ps	FAN ONLY SOUND POWER						FAN PLUS PRIMARY AT 1.5 in. INLET					
					Octave Bands						Octave Bands					
	CFM	Watts			2	3	4	5	6	7	2	3	4	5	6	7
2	400	200	400	0.1	63	63	57	52	45	42	70	72	65	57	52	49
3	700	380	700	0.1	64	63	58	54	46	43	73	75	66	60	54	50
4	1100	520	1100	0.1	67	64	60	55	48	44	75	75	67	61	55	51
5	1600	945	1600	0.1	72	68	63	58	52	48	78	76	68	62	56	52
6	2100	1100	2100	0.1	75	71	64	62	57	54	80	78	71	67	61	59
7	2800	2770	2800	0.1	77	74	68	63	59	56	82	81	76	69	64	62

AHRI CERTIFICATION RATINGS FOR AIR TERMINALS (DISCHARGE)

UNIT SIZE	FAN		FAN ONLY SOUND POWER					
			Octave Bands					
	CFM	Watts	2	3	4	5	6	7
2	400	200	64	64	65	61	57	55
3	700	380	66	66	65	63	61	60
4	1100	520	66	66	68	68	66	65
5	1600	945	71	70	70	69	68	68
6	2100	1100	73	73	74	74	71	71
7	2800	2770	78	76	74	73	70	70

AHRI CERTIFIED™
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AHRI Standard 880

Notes for Sound Data Tables:

Air Conditioning, Heating, and Refrigeration Institute (AHRI) and ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) provide guidance in both measuring sound power levels (per AHRI 880), and in estimating the resultant room sound pressure, typically shown as an NC level (per AHRI 885). American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE) handbooks provide detailed acoustical guidance. Air Conditioning, Heating, and Refrigeration Institute (AHRI) Standard 885 is an application standard which provides tables and equations for determining acoustical deduction based on the ASHRAE guides, as well as additional information provided by manufacturers.

All sound data shown by octave bands is raw data without any corrections for room absorption or duct attenuation. This sound power data is tested in accordance with AHRI Standard 880.

Accurate sound level estimates for typical office spaces or other applications are reflected by NC values. These NC levels are calculated based on procedures from AHRI Standard 885.

CORRECTION FACTORS FOR OTHER ENTERING CONDITIONS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.70	0.79	0.88	1.00	1.07	1.20	1.30

NOTE: Do not select for discharge temperatures exceeding 120 F. In addition, ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air temperature stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

45J SERIES FAN POWERED TERMINAL UNIT

HOT WATER COIL DATA CAPACITIES

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				300	330	360	390	420	450	480	510	540
2	One Row	1.0	0.20	11.9	12.3	12.6	13.0	13.2	13.6	14.0	14.3	14.7
		2.0	0.70	13.3	13.8	14.2	14.6	15.0	15.5	16.0	16.5	16.9
		4.0	2.50	14.1	14.7	15.2	15.7	16.1	16.7	17.3	17.9	18.4
		6.0	5.20	14.5	15.1	15.6	16.1	16.5	17.2	17.8	18.4	19.0
		Airside Δ PS		0.02	0.02	0.03	0.03	0.04	0.04	0.04	0.05	0.05
	Two Rows	1.0	0.50	19.3	20.2	21.1	21.9	22.7	23.4	24.1	24.7	25.3
		3.0	3.30	22.7	24.2	25.5	26.8	28.1	29.2	30.3	31.4	32.4
		4.0	5.50	23.3	24.8	26.2	27.6	28.9	30.1	31.3	32.5	33.6
		5.0	8.20	23.6	25.2	26.6	28.1	29.4	30.7	32.0	33.2	34.3
		Airside Δ PS		0.04	0.04	0.05	0.06	0.07	0.07	0.08	0.09	0.10

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				450	505	560	615	670	725	780	835	890
3	One Row	1.0	0.20	13.6	14.3	14.9	15.5	16.0	16.5	16.9	17.3	17.7
		2.0	0.70	15.5	16.4	17.2	18.0	18.7	19.4	20.0	20.6	21.2
		4.0	2.50	16.7	17.8	18.8	19.7	20.6	21.4	22.2	22.9	23.6
		6.0	5.20	17.2	18.3	19.4	20.4	21.3	22.2	23.0	23.8	24.6
		Airside Δ PS		0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.12	0.13
	Two Rows	1.0	0.50	23.4	24.6	25.6	26.6	27.4	28.2	28.9	29.5	30.1
		3.0	3.30	29.2	31.2	33.1	34.8	36.4	37.9	39.3	40.6	41.9
		4.0	5.50	30.1	32.3	34.3	36.2	37.9	39.6	41.1	42.6	44.0
		5.0	8.20	30.7	33.0	35.1	37.1	38.9	40.7	42.3	43.9	45.4
		Airside Δ PS		0.07	0.09	0.11	0.13	0.15	0.17	0.20	0.22	0.25

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				800	875	950	1025	1100	1175	1250	1325	1400
4	One Row	1.0	0.20	20.3	21.0	21.6	22.2	22.7	23.2	23.7	24.1	24.5
		2.0	0.80	24.1	25.1	26.0	26.9	27.7	28.5	29.2	29.9	30.5
		4.0	2.90	26.6	27.9	29.0	30.1	31.2	32.2	33.1	34.0	34.8
		6.0	5.90	27.6	29.0	30.2	31.4	32.6	33.7	34.7	35.7	36.6
		Airside Δ PS		0.06	0.07	0.08	0.09	0.10	0.11	0.12	0.14	0.15
	Two Rows	1.0	0.50	33.4	34.4	35.3	36.1	36.8	37.5	38.1	38.6	39.1
		3.0	3.70	46.0	48.2	50.2	52.1	53.9	55.5	57.1	58.6	60.0
		4.0	6.20	48.1	50.5	52.8	54.9	56.9	58.8	60.6	62.3	64.0
		5.0	9.20	49.5	52.1	54.5	56.8	58.9	61.0	63.0	64.8	66.6
		Airside Δ PS		0.11	0.12	0.14	0.16	0.19	0.21	0.23	0.26	0.28

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				1400	1480	1560	1640	1720	1800	1880	1960	2040
5	One Row	1.0	0.30	26.7	27.1	27.5	27.9	28.3	28.7	29.0	29.3	29.6
		2.0	1.00	33.3	34.0	34.7	35.4	36.0	36.6	37.2	37.8	38.3
		4.0	3.50	38.0	39.0	39.9	40.8	41.7	42.6	43.4	44.1	44.9
		6.0	7.20	40.0	41.1	42.1	43.1	44.1	45.0	45.9	46.8	47.7
		Airside Δ PS		0.11	0.12	0.13	0.14	0.15	0.17	0.18	0.19	0.21
	Two Rows	1.0	0.60	41.5	42.0	42.5	42.9	43.3	43.7	44.1	44.4	44.7
		3.0	4.50	64.5	66.1	67.5	69.0	70.3	71.6	72.8	74.0	75.1
		4.0	7.50	68.8	70.7	72.4	74.1	75.7	77.2	78.6	80.0	81.4
		5.0	11.20	71.7	73.7	75.6	77.5	79.2	80.9	82.5	84.1	85.6
		Airside Δ PS		0.20	0.22	0.25	0.27	0.29	0.32	0.34	0.37	0.40

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				1400	1525	1640	1760	1880	2000	2120	2240	2360
6	One Row	1.0	0.30	27.9	28.6	29.2	29.8	30.4	30.9	31.3	31.8	32.2
		2.0	1.10	34.9	36.1	37.1	38.1	39.1	40.0	40.8	41.6	42.3
		4.0	3.70	39.9	41.5	42.9	44.3	45.6	46.8	48.0	49.1	50.2
		6.0	7.50	42.0	43.7	45.3	46.9	48.3	49.7	51.1	52.3	53.6
		Airside Δ PS		0.09	0.10	0.12	0.13	0.15	0.17	0.19	0.20	0.22
	Two Rows	1.0	0.70	42.7	43.5	44.2	44.8	45.4	45.9	46.3	46.7	47.1
		3.0	4.70	67.1	69.5	71.8	73.9	75.9	77.7	79.4	81.0	82.6
		4.0	7.80	71.7	74.5	77.2	79.7	82.1	84.3	86.3	88.3	90.2
		5.0	11.60	74.6	77.8	80.8	83.5	86.2	88.6	91.0	93.2	95.3
		Airside Δ PS		0.17	0.20	0.22	0.25	0.28	0.32	0.35	0.39	0.42

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				1800	1950	2100	2250	2400	2550	2700	2850	3000
7	One Row	1.0	0.40	34.0	34.8	35.5	36.1	36.6	37.2	37.6	38.1	38.5
		2.0	1.20	44.3	45.6	46.9	48.1	49.2	50.2	51.1	52.1	52.9
		4.0	4.20	51.8	53.7	55.5	57.2	58.8	60.3	61.8	63.2	64.5
		6.0	8.60	54.9	57.0	59.1	61.1	62.9	64.7	66.4	68.0	69.5
		Airside Δ PS		0.08	0.09	0.10	0.12	0.13	0.14	0.16	0.17	0.19
	Two Rows	1.0	0.80	48.6	49.2	49.7	50.2	50.6	51.0	51.3	51.6	51.9
		3.0	5.30	83.7	86.5	89.0	91.3	93.5	95.5	97.3	99.1	100.7
		4.0	8.90	90.7	94.1	97.2	100.1	102.8	105.3	107.7	109.9	112.0
		5.0	13.20	95.3	99.1	102.6	105.9	109.0	112.0	114.7	117.3	119.8
		Airside Δ PS		0.15	0.17	0.19	0.22	0.24	0.27	0.30	0.33	0.36

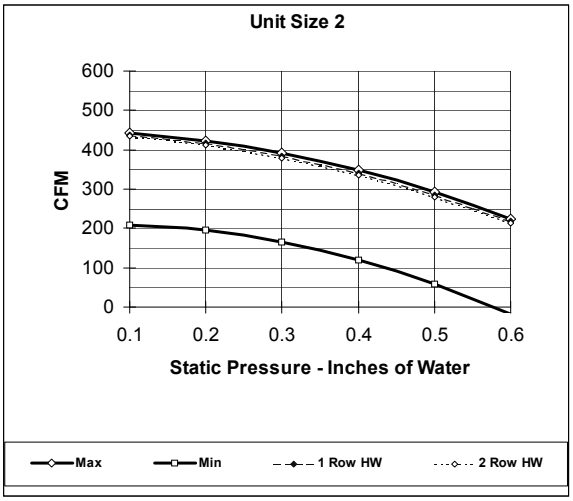
PS — Static Pressure Drop (in.)

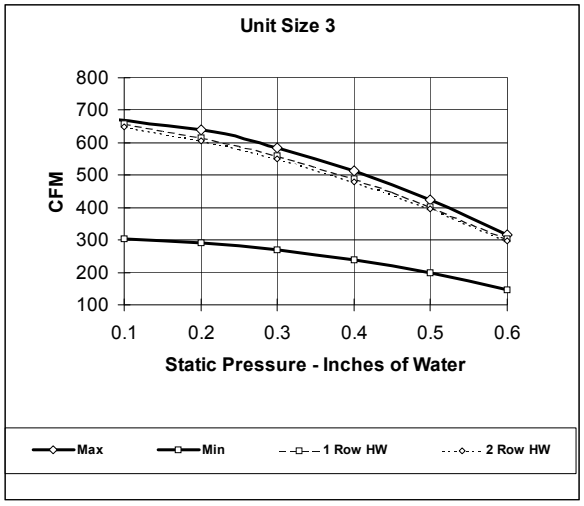
NOTES:

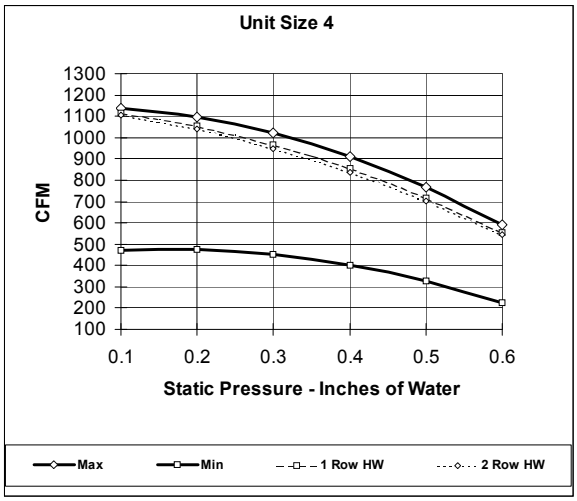
1. Hot water coil capacities are in MBtuh (MBtuh = 1000 Btuh).
2. Btuh = 1.08 x cfm x ΔT (Temp rise across coil).
3. Data is based upon 180 F entering water and 55 F entering air.
4. Head Loss is measured in feet of water.
5. Tables are based upon a temperature difference of 115 F between entering air and entering water. For other temperature differences, multiply MBtuh values by the Correction Factors table on page 38.
6. LAT (Leaving Air Temperature) = Entering Air Temp + air temp rise.
7. Air temperature rise = 927 x MBtuh/cfm.
8. Water temperature drop = 2.04 x MBtuh/gpm.
9. Connections: All coils are $^5/_8$-in. OD male solder.
10. Coils are not for steam application. Contact your Carrier representative for steam coil data.
11. Do not select for discharge temperatures exceeding 120 F. In addition, ASHRAE recommends a maximum discharge temperature of 95 F to avoid room air stratification when heating from the ceiling (2001 Fundamentals, Chapter 32.)

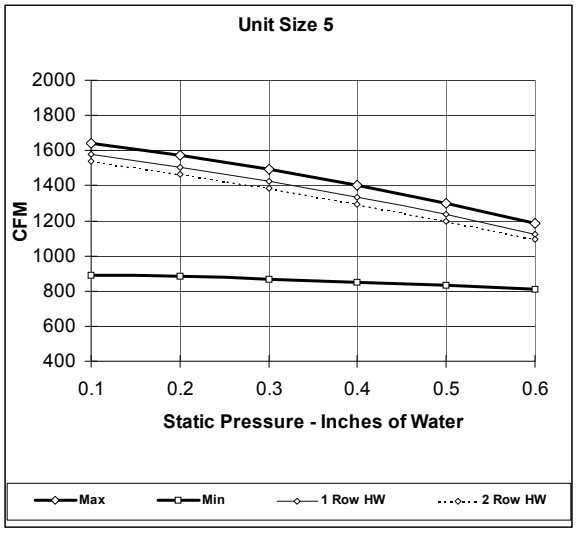
Performance data (cont)

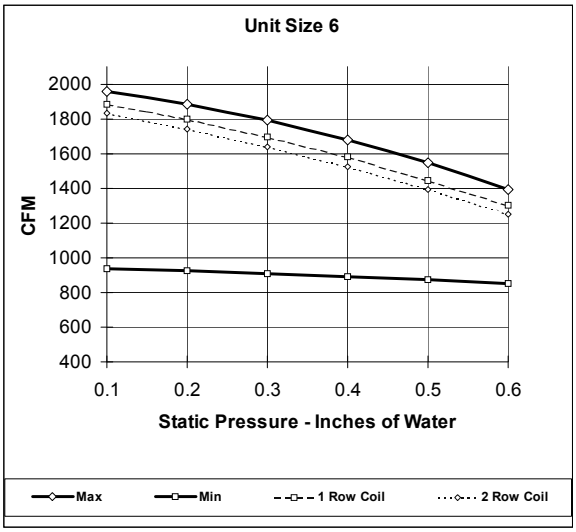
45M PARALLEL FAN POWERED TERMINAL UNIT
FAN CURVES

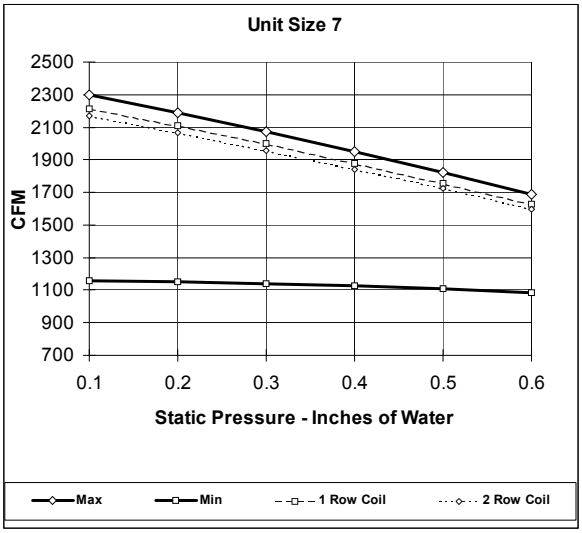












45M PARALLEL FAN POWERED TERMINAL UNIT
PRIMARY DISCHARGE SOUND POWER LEVELS — 100% PRIMARY AIR

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		PRIMARY AT 0.5 ΔPs							PRIMARY AT 1.0 ΔPs							PRIMARY AT 2.0 ΔPs						
						Octave Band Sound Power						Lp	Octave Band Sound Power						Lp	Octave Band Sound Power						Lp
		CFM	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
2	6	100	47	0.013	3.23	42	43	42	39	34	28	—	44	45	45	42	39	33	—	46	47	48	45	43	39	—
		200	94	0.052	12.93	53	53	51	48	42	35	—	55	56	54	51	46	40	—	57	58	57	54	51	45	—
		300	142	0.117	29.09	60	60	57	53	46	38	—	62	62	59	57	51	44	21	64	64	62	60	56	49	23
		400	189	0.208	51.71	64	64	61	57	50	41	22	66	66	63	60	54	46	25	68	69	66	64	59	52	27
		500	236	0.325	80.80	68	67	63	60	52	43	26	70	70	66	63	57	49	29	72	72	69	67	61	54	31
3	8	180	85	0.013	3.31	46	47	47	43	37	32	—	49	52	52	47	43	39	—	53	56	56	52	48	45	—
		360	170	0.053	13.25	57	57	54	51	45	38	—	60	61	59	55	50	45	20	64	66	63	60	56	52	25
		540	255	0.120	29.82	63	63	58	55	49	42	21	67	67	63	60	55	49	26	70	71	67	64	60	56	31
		720	340	0.213	53.02	68	67	61	58	52	45	25	71	71	66	63	58	52	29	75	75	70	68	63	58	34
		900	425	0.333	82.84	71	70	63	61	55	47	28	75	74	68	66	60	54	33	78	79	72	70	66	60	38
4	10	290	137	0.014	3.52	50	52	52	49	41	33	—	54	57	57	55	47	39	—	58	61	62	61	54	46	—
		580	274	0.057	14.09	59	59	57	54	48	40	—	63	64	62	60	54	47	22	67	68	67	66	60	53	27
		870	411	0.127	31.71	64	64	60	57	52	45	20	68	68	66	63	58	51	25	72	72	71	69	64	58	30
		1160	547	0.227	56.37	67	67	63	60	54	48	24	72	71	68	65	60	54	29	76	75	73	71	66	61	34
		1450	684	0.354	88.07	70	69	65	61	56	50	—	74	73	70	67	62	57	—	78	77	75	73	69	63	—
5	12	420	198	0.014	3.56	53	53	54	49	43	38	—	57	58	59	56	50	45	—	61	63	65	63	56	51	21
		840	396	0.057	14.25	61	60	59	55	50	45	—	65	65	65	62	57	52	22	69	70	71	68	63	59	28
		1260	595	0.129	32.07	66	64	63	58	55	49	21	70	69	69	65	61	56	27	74	74	74	71	67	63	33
		1680	793	0.229	57.02	69	67	65	60	58	52	25	73	72	71	67	64	59	31	77	77	77	74	70	66	37
		2100	991	0.358	89.09	72	70	67	62	60	54	27	76	75	73	69	66	61	33	80	80	79	75	72	68	39
6	14	570	269	0.014	3.54	57	55	53	49	45	39	—	63	61	60	56	52	46	—	68	68	67	63	58	53	27
		1140	538	0.057	14.17	64	61	60	55	52	47	—	70	68	66	62	59	54	25	75	74	73	69	65	61	33
		1710	807	0.128	31.88	68	65	64	59	56	51	22	74	72	70	66	63	58	30	79	78	77	73	69	65	38
		2280	1076	0.228	56.68	71	68	66	62	59	54	25	77	74	73	69	66	61	33	82	81	80	76	72	68	41
		2850	1345	0.356	88.57	73	70	68	64	61	57	28	79	76	75	71	68	64	36	84	83	82	78	75	71	43
7	16	740	349	0.014	3.50	60	58	57	52	49	44	—	65	65	63	59	56	51	23	70	71	70	67	62	57	30
		1480	698	0.056	14.00	66	64	63	58	55	51	21	71	70	69	66	62	57	28	76	77	76	73	69	64	36
		2220	1048	0.127	31.50	69	67	66	62	59	54	25	74	74	73	69	66	61	32	79	80	80	77	73	68	40
		2960	1397	0.225	56.00	72	70	69	64	62	57	27	77	76	75	72	69	64	35	82	83	82	79	75	71	43
		3700	1746	0.352	87.50	74	71	71	66	64	59	30	79	78	77	74	71	66	37	84	84	84	81	77	73	45

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Min ΔPs — Minimum Operating Pressure of the Primary Air Value
NC — AHRI 880 Test Conditions (see Application Assumptions below)
— — Indicates an NC level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. End discharge sound power is the noise emitted from the unit discharge into the duct.
4. All sound data is based on tests conducted in accordance with AHRI Standard 880.
5. NC application data based on AHRI 885 (2002 Addendum — Appendix E).

45M PARALLEL FAN POWERED TERMINAL UNIT
APPLICATION ASSUMPTIONS

AHRI 885	OCTAVE BANDS					
Discharge <300 cfm	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5ft, 8x8 x1 in.	2	6	12	25	29	18
End Reflection	9	5	2	0	0	0
Power Division (0 outlets)	0	0	0	0	0	0
5Ft, 8in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885	OCTAVE BANDS					
Discharge 300-700 cfm	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 12 x 12 x 1 in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5 Ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885	OCTAVE BANDS					
Discharge >700 cfm	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 15 x 15 x 1 in.	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, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

Performance data (cont)

45M PARALLEL FAN POWERED TERMINAL UNIT (cont)

PRIMARY RADIATED SOUND POWER LEVELS — 100% PRIMARY AIR

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		PRIMARY AT 0.5 ΔPs							PRIMARY AT 1.0 ΔPs							PRIMARY AT 2.0 ΔPs						
						Octave Band Sound Power						Lp	Octave Band Sound Power						Lp	Octave Band Sound Power						Lp
		CFM	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
2	6	100	47	0.013	3.23	42	36	35	29	24	19	—	45	38	38	33	28	23	—	47	40	41	36	32	28	—
		200	94	0.052	12.93	53	46	44	37	31	26	—	55	48	47	40	35	31	21	57	50	50	44	39	35	24
		300	142	0.117	29.09	59	52	49	41	35	30	23	61	54	52	45	39	35	26	64	56	55	48	43	40	30
		400	189	0.208	51.71	63	56	52	44	38	33	27	66	58	56	48	42	38	30	68	60	59	51	46	43	34
		500	236	0.325	80.80	67	59	55	47	41	36	31	69	61	58	50	45	40	34	71	64	62	54	49	45	37
3	8	180	85	0.013	3.31	48	42	42	35	30	25	—	52	47	47	41	36	30	21	56	52	53	47	41	35	27
		360	170	0.053	13.25	56	50	49	41	36	31	23	60	54	54	47	41	36	28	64	59	59	53	46	41	34
		540	255	0.120	29.82	61	54	52	45	40	35	27	65	59	58	50	45	40	32	69	64	63	56	50	45	38
		720	340	0.213	53.02	64	57	55	47	42	38	30	68	62	60	53	47	42	35	72	67	65	59	52	47	41
		900	425	0.333	82.84	67	59	57	49	44	39	32	71	64	62	55	49	44	38	74	69	68	60	54	49	43
4	10	290	137	0.014	3.52	47	42	42	36	30	23	—	53	49	48	42	36	29	23	58	55	55	48	42	35	29
		580	274	0.057	14.09	57	51	50	43	37	32	24	62	57	56	49	43	38	31	68	64	62	55	49	44	38
		870	411	0.127	31.71	63	56	54	47	42	37	29	68	62	61	53	48	43	36	73	69	67	59	54	49	42
		1160	547	0.227	56.37	67	60	57	50	45	40	32	72	66	64	56	51	46	39	77	72	70	62	57	53	46
		1450	684	0.354	88.07	70	63	60	52	47	43	35	75	69	66	58	53	49	42	80	75	72	64	59	55	49
5	12	420	198	0.014	3.56	50	46	46	40	36	31	—	54	51	50	43	40	36	24	59	55	54	47	43	40	29
		840	396	0.057	14.25	59	54	53	47	43	37	27	63	58	57	50	46	42	32	68	63	61	53	50	46	36
		1260	595	0.129	32.07	64	58	57	51	47	40	32	68	63	61	54	50	45	36	73	67	65	57	54	50	40
		1680	793	0.229	57.02	68	62	60	54	49	43	35	72	66	64	57	53	47	39	76	70	68	60	56	52	44
		2100	991	0.358	89.09	70	64	62	56	51	44	37	75	68	66	59	55	49	41	79	73	70	62	59	54	47
6	14	570	269	0.014	3.54	52	49	47	42	39	30	21	56	55	53	47	44	36	28	61	60	59	53	49	42	34
		1140	538	0.057	14.17	59	54	52	46	44	36	26	64	60	58	52	49	42	33	68	66	63	57	54	48	39
		1710	807	0.128	31.88	64	58	55	49	46	40	29	68	63	61	54	52	46	36	73	69	66	60	57	51	42
		2280	1076	0.228	56.68	67	60	57	51	48	43	32	71	66	63	56	54	48	38	76	71	68	62	59	54	44
		2850	1345	0.356	88.57	69	62	58	52	50	44	34	74	67	64	58	55	50	40	78	73	70	63	60	56	46
7	16	740	349	0.014	3.50	59	58	56	49	46	43	31	63	62	62	56	53	50	37	66	67	67	63	60	57	43
		1480	698	0.056	14.00	67	63	61	55	52	48	36	70	68	67	61	59	55	43	74	73	73	68	65	62	49
		2220	1048	0.127	31.50	72	67	64	58	55	51	40	75	72	70	65	62	58	46	78	76	76	72	69	65	52
		2960	1397	0.225	56.00	75	69	67	60	57	53	42	78	74	72	67	64	60	48	82	79	78	74	71	67	55
		3700	1746	0.352	87.50	77	71	68	62	59	55	44	81	76	74	69	66	62	50	84	81	80	76	73	69	57

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Min ΔPs — Minimum Operating Pressure of the Primary Air Value
NC — AHRI 880 Test Conditions (see Application Assumptions below)
— — Indicates an NC level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from inlet to discharge.
2. Sound levels are primary air only, with fans turned off.
3. Sound power levels are in decibels, re: 10^{-12} watts.
4. Radiated sound power is the noise emitted from the unit casing and induction port
5. Discharge (external) static pressure is 0.25 in. wg.
6. All sound data is based on tests conducted in accordance with AHRI Standard 880.
7. NC application data based on AHRI 885 (2002 Addendum — Appendix E).

45M PARALLEL FAN POWERED TERMINAL UNIT APPLICATION ASSUMPTIONS

AHRI 885	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

45M PARALLEL FAN POWERED TERMINAL UNIT (cont)

FAN SOUND POWER LEVELS — FAN ONLY

UNIT SIZE	FLOW RATE		RADIATED SOUND POWER							DISCHARGE SOUND POWER						
			Octave Bands						Lp	Octave Bands						Lp
	CFM	L/s	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	190	90	65	61	56	52	47	42	31	55	54	54	52	47	45	—
	250	118	66	63	58	54	49	44	33	58	57	56	54	50	48	—
	310	146	68	64	59	55	50	46	34	60	60	58	56	52	50	—
	370	175	69	65	60	56	51	47	35	62	62	60	58	53	52	—
	430	203	70	66	61	56	52	48	36	64	64	61	59	55	54	22
3	300	142	57	52	51	43	39	34	25	42	45	48	44	38	33	—
	375	177	59	55	53	46	42	39	28	48	50	52	49	44	40	—
	450	212	61	57	55	49	45	42	30	54	55	56	53	48	46	—
	525	248	63	59	57	51	48	45	32	59	59	59	56	52	51	—
	600	283	64	61	58	53	50	48	33	63	62	61	59	56	55	—
4	500	236	57	60	52	45	43	41	29	54	59	58	50	48	47	—
	640	302	60	62	56	50	47	46	32	57	61	60	55	52	51	—
	775	366	62	64	59	54	51	50	34	59	62	62	59	56	55	—
	910	429	64	65	61	58	54	53	37	61	63	63	62	58	58	22
	1050	496	65	66	64	61	57	56	39	62	64	64	64	61	60	24
5	925	437	58	58	62	61	51	46	37	58	63	60	56	54	53	—
	1070	505	63	62	63	62	54	51	39	61	64	62	59	57	56	21
	1210	571	66	65	65	64	57	55	40	63	65	64	62	60	59	23
	1360	642	70	68	66	65	60	58	42	64	66	66	65	62	62	26
	1500	708	72	71	67	66	62	61	43	66	67	67	67	64	64	28
6	980	462	61	62	62	54	50	47	37	62	62	60	52	51	50	—
	1190	562	64	65	64	58	54	51	39	64	64	63	59	55	54	21
	1400	661	67	68	65	60	57	55	41	66	66	66	64	58	58	23
	1610	760	69	70	66	63	60	58	42	68	68	68	68	61	61	25
	1820	859	71	73	67	65	63	60	44	69	69	70	72	64	64	28
7	1200	566	65	63	61	57	54	52	37	69	60	62	59	57	57	21
	1450	684	67	66	64	60	58	56	39	71	63	64	63	60	60	24
	1700	802	69	68	65	63	61	59	41	71	65	66	66	63	63	27
	1950	920	71	69	67	65	63	61	43	72	68	68	69	65	65	29
	2200	1038	73	71	68	67	65	63	44	73	70	69	72	67	67	31

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
NC — AHRI 880 Test Conditions
— — Indicates an NC level less than 20
Sound Power Noise Criteria

NOTES:
1. Sound levels are 100% recirculated air with fan on.
2. Discharge (external) static pressure is 0.25 in. wg.
3. Sound power levels are in decibels, re: 10^{-12} watts.
4. End discharge sound power is the noise emitted from the unit discharge into the duct.
5. Radiated sound power is the noise emitted from the unit casing and induction port.
6. All sound data is based on tests conducted in accordance with AHRI Standard 880.
7. NC application data based on AHRI 885 (2002 Addendum — Appendix E).

Performance data (cont)

AHRI CERTIFICATION RATINGS FOR 45M PARALLEL FAN POWERED TERMINAL UNIT

AHRI CERTIFICATION RATING POINTS — DISCHARGE

CASE SIZE	INLET SIZE (in.)	PRI. CFM	MIN. Δ PS	SOUND POWER AT 1.5 in. Δ PS Octave Bands					
				2	3	4	5	6	7
2	6	400	0.200	74	73	65	62	58	52
3	8	700	0.200	75	75	69	66	61	55
4	10	1100	0.200	76	76	71	69	64	58
5	12	1600	0.200	77	77	76	72	68	63
6	14	2100	0.200	78	78	77	73	69	64
7	16	2800	0.200	79	79	78	74	70	65

AHRI CERTIFICATION RATING POINTS — RADIATED

CASE SIZE	INLET SIZE (in.)	PRI. CFM	MIN. Δ PS	SOUND POWER AT 1.5 in. Δ PS Octave Bands					
				2	3	4	5	6	7
2	6	392	0.200	67	59	57	50	44	38
3	8	698	0.200	70	64	63	56	51	46
4	10	1090	0.200	75	70	67	58	55	49
5	12	1570	0.200	76	71	68	59	55	50
6	14	2136	0.200	77	72	69	60	56	52
7	16	2790	0.200	81	79	77	71	68	65

AHRI CERTIFICATION RATING POINTS — FAN ONLY

UNIT SIZE	FAN WATTS	FAN CFM	FAN ONLY DISCHARGE SOUND POWER Octave Bands						FAN ONLY RADIATED SOUND POWER Octave Bands					
			2	3	4	5	6	7	2	3	4	5	6	7
2	190	350	66	62	60	58	55	53	72	66	61	57	52	48
3	230	525	67	63	61	59	56	55	73	67	62	59	54	49
4	350	925	68	65	65	66	62	62	74	68	64	63	59	58
5	800	1350	69	69	68	69	66	66	75	74	68	67	64	62
6	800	1500	70	70	70	72	67	67	76	74	68	68	65	63
7	1030	1950	74	71	71	72	68	68	77	75	69	69	66	65

AHRI CERTIFIED™
www.ahridirectory.org
VAV Terminals
AHRI Standard 880

Notes for Sound Data Tables:

Air Conditioning, Heating, and Refrigeration Institute (AHRI) and ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) provide guidance in both measuring sound power levels (per AHRI 880), and in estimating the resultant room sound pressure, typically shown as an NC level (per AHRI 885). American Society of Heating, Refrigerating and Air Conditioning, Heating, Engineers (ASHRAE) handbooks provide detailed acoustical guidance. Air Conditioning and Refrigeration Institute (AHRI) Standard 885 is an application standard which provides tables and equations for determining acoustical deduction based on the ASHRAE guides, as well as additional information provided by manufacturers.

All sound data shown by octave bands is raw data without any corrections for room absorption or duct attenuation. This sound power data is tested in accordance with AHRI Standard 880.

Accurate sound level estimates for typical office spaces or other applications are reflected by NC values. These NC levels are calculated based on procedures from AHRI Standard 885.

45M PARALLEL FAN POWERED TERMINAL UNITS
HOT WATER COIL DATA CAPACITIES

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				200	225	250	275	300	325	350	375	400
2	One Row	1.0	0.20	11.1	11.7	12.1	12.5	12.9	13.3	13.6	13.9	14.2
		2.0	0.70	12.2	12.8	13.4	13.9	14.4	14.9	15.3	15.7	16.1
		4.0	2.50	12.8	13.6	14.2	14.8	15.4	15.9	16.4	16.8	17.3
		6.0	5.20	13.1	13.8	14.5	15.2	15.7	16.3	16.8	17.3	17.7
		Airside Δ PS		0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03	0.03
	Two Rows	1.0	0.50	16.7	17.9	19.0	20.0	20.9	21.8	22.6	23.4	24.1
		3.0	3.30	18.7	20.4	21.9	23.3	24.7	26.0	27.3	28.5	29.6
		4.0	5.50	19.0	20.7	22.3	23.8	25.3	26.7	28.0	29.3	30.5
		5.0	8.20	19.2	21.0	22.6	24.1	25.6	27.1	28.4	29.7	31.0
		Airside Δ PS		0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				300	335	370	405	440	475	510	545	580
3	One Row	1.0	0.20	12.9	13.4	13.9	14.1	14.6	15.1	15.6	16.0	16.4
		2.0	0.70	14.4	15.1	15.6	16.0	16.6	17.3	17.9	18.5	19.0
		4.0	2.50	15.4	16.1	16.7	17.1	17.9	18.7	19.4	20.1	20.8
		6.0	5.20	15.7	16.5	17.2	17.6	18.4	19.3	20.0	20.8	21.5
		Airside Δ PS		0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.06	0.06
	Two Rows	1.0	0.50	20.9	22.2	23.3	24.3	25.2	28.0	26.8	27.6	28.2
		3.0	3.30	24.7	26.5	28.2	29.8	31.3	32.8	34.1	35.4	36.7
		4.0	5.50	25.3	27.2	29.0	30.7	32.3	33.9	35.3	36.7	38.0
		5.0	8.20	25.9	27.6	29.5	31.3	32.9	34.5	36.1	37.5	38.9
		Airside Δ PS		0.04	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.12

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				480	555	630	705	780	855	930	1005	1080
4	One Row	1.0	0.20	18.6	19.4	20.1	21.0	21.9	22.6	23.3	24.0	24.6
		2.0	0.80	21.3	22.4	23.4	24.7	25.9	27.0	28.0	29.0	29.9
		4.0	2.90	23.0	24.4	25.5	27.1	28.6	29.9	31.2	32.4	33.6
		6.0	5.90	23.7	25.1	26.4	28.1	29.6	31.1	32.5	33.8	35.1
		Airside Δ PS		0.02	0.03	0.04	0.04	0.05	0.06	0.07	0.08	0.09
	Two Rows	1.0	0.50	29.7	31.7	33.3	34.7	36.0	37.1	38.1	39.0	39.8
		3.0	3.70	37.4	40.8	43.9	46.7	49.3	51.7	54.0	56.1	58.0
		4.0	6.20	38.5	42.2	45.6	46.7	51.6	54.2	56.8	59.1	61.3
		5.0	9.20	39.3	43.1	46.6	49.9	53.0	55.9	58.5	61.1	63.5
		Airside Δ PS		0.04	0.06	0.07	0.08	0.10	0.12	0.14	0.16	0.18

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				900	970	1040	1110	1180	1250	1320	1390	1460
5	One Row	1.0	0.30	25.0	25.7	26.3	26.9	27.4	28.0	28.4	28.9	29.3
		2.0	1.00	30.0	31.0	31.9	32.9	33.7	34.5	35.3	36.1	36.8
		4.0	3.50	33.3	34.6	35.8	37.0	38.1	39.2	40.2	41.2	42.1
		6.0	7.20	34.7	36.1	37.4	38.7	39.9	41.1	42.2	43.3	44.3
		Airside Δ PS		0.05	0.06	0.06	0.07	0.08	0.09	0.10	0.11	0.12
	Two Rows	1.0	0.60	40.0	40.9	41.8	42.5	43.2	43.9	44.4	45.0	45.5
		3.0	4.50	56.7	59.0	61.0	63.0	64.9	66.6	68.3	69.9	71.4
		4.0	7.50	59.6	62.1	64.4	66.7	68.8	70.8	72.7	74.6	76.3
		5.0	11.20	61.4	64.1	66.6	69.0	71.3	73.5	75.6	77.6	79.6
		Airside Δ PS		0.09	0.11	0.12	0.14	0.15	0.17	0.18	0.20	0.22

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				950	1050	1150	1250	1350	1450	1550	1650	1750
6	One Row	1.0	0.30	26.6	27.6	28.4	29.2	30.0	30.6	31.2	31.8	32.4
		2.0	1.10	32.1	33.6	35.0	36.2	37.4	38.5	39.5	40.5	41.4
		4.0	3.70	35.8	37.7	39.5	41.1	42.6	44.1	45.5	46.8	48.0
		6.0	7.50	37.3	39.4	41.3	43.1	44.8	46.4	47.9	49.4	50.8
		Airside Δ PS		0.04	0.05	0.06	0.07	0.08	0.09	0.11	0.12	0.13
	Two Rows	1.0	0.70	42.0	43.2	44.3	45.2	46.1	46.8	47.5	48.1	48.7
		3.0	4.70	60.5	63.7	66.6	69.3	71.7	74.1	76.2	78.3	80.2
		4.0	7.80	63.7	67.2	70.6	73.6	76.5	79.2	81.8	84.2	86.4
		5.0	11.60	65.7	69.5	73.1	76.5	79.6	82.6	85.4	88.1	90.6
		Airside Δ PS		0.09	0.10	0.12	0.14	0.16	0.18	0.20	0.23	0.25

UNIT SIZE	ROWS	FLOW RATE (Gpm)	HEAD LOSS	AIRFLOW (cfm)								
				1150	1270	1390	1510	1630	1750	1870	1990	2110
7	One Row	1.0	0.40	32.3	33.3	34.3	35.2	36.0	36.7	37.4	38.0	38.6
		2.0	1.20	40.0	41.8	43.4	44.9	46.3	46.6	48.8	50.0	51.1
		4.0	4.20	45.2	47.6	49.8	51.8	53.7	55.5	57.3	58.9	60.5
		6.0	8.60	47.3	49.9	52.3	54.6	56.8	58.8	60.8	62.6	64.4
		Airside Δ PS		0.04	0.04	0.05	0.06	0.07	0.07	0.08	0.09	0.10
	Two Rows	1.0	0.80	48.1	49.3	50.3	51.1	51.9	52.5	53.1	53.6	54.1
		3.0	5.30	74.2	77.9	81.3	84.4	87.3	89.9	92.4	94.7	96.9
		4.0	8.90	78.7	83.0	87.0	90.7	94.1	97.3	100.3	103.2	105.8
		5.0	13.20	81.6	86.3	90.7	94.7	98.6	102.2	105.6	108.8	111.8
		Airside Δ PS		0.07	0.08	0.09	0.11	0.12	0.14	0.16	0.18	0.20

Ps — Static Pressure Drop (in.)

NOTES:

1. Hot water coil capacities are in MBtuh (MBtuh = 1000 Btuh).
2. Btuh = 1.08 x cfm x ΔT (Temp rise across coil).
3. Data is based upon 180 F entering water and 55 F entering air.
4. Head loss is measured in feet of water.
5. Tables are based upon a temperature difference of 115 F between entering air and entering water. For other temperature differences, multiply MBtuh values by the Correction Factors table on page 38.

LAT (Leaving Air Temperature) = Entering Air Temp + air temp rise.
Air temperature rise = 927 x MBtuh/cfm.
Water temperature drop = 2.04 x MBtuh/gpm.

6. Connections: All coils are $^5/_8$-in. OD male solder.
7. Coils are not for steam application. Contact your Carrier representative for steam coil data.
8. Do not select for discharge temperatures exceeding 120 F. In addition, ASHRAE recommends a maximum discharge temperature of 95 F to avoid room air stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

Electrical data

45J SERIES FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT — kW RANGES

UNIT SIZE	MAXIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
2	5.0	5.0	5.0	5.0	5.0	5.0
3	5.0	5.0	5.0	5.0	5.0	5.0
4	4.5	9.0	9.0	10.0	12.0	13.0
5	4.5	9.0	9.0	12.0	14.0	19.0
6	4.5	8.5	8.5	12.0	13.0	23.0
7	N/A	6.5	7.5	10.0	11.0	25.0

STAGES	MINIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
1	.5	.5	.5	.5	1.5	1.5
2	1.0	1.0	1.0	1.0	1.5	1.5
3	1.5	1.5	1.5	1.5	1.5	1.5

LEGEND

kW — Heating Capacity (kilowatts)

NOTES:
1. Three-stage heaters are not available with analog controls.
2. Pneumatic and digital controlled terminals are available with up to 3 stages of heat. Analog controlled terminals are available with 1 or 2 stages of heat only.
3. Heaters require a minimum of 0.03 in. wg downstream static pressure to ensure proper operation.

45M PARALLEL FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT — kW RANGES

UNIT SIZE	MAXIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
2	4.0	4.0	4.0	4.0	4.0	4.0
3	5.5	6.0	6.0	6.0	6.0	6.0
4	5.0	6.0	6.0	6.0	6.0	6.0
5	4.5	9.0	9.0	12.0	12.0	12.0
6	4.5	8.0	9.0	12.0	14.0	14.0
7	4.5	8.5	8.5	12.0	15.0	18.0

STAGES	MINIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
1	.5	.5	.5	.5	1.5	1.5
2	1.0	1.0	1.0	1.0	1.5	1.5
3	1.5	1.5	1.5	1.5	1.5	1.5

4. kW/Voltage ratings are sized not to exceed 48 amps so NEC code requirement for circuit fusing is not necessary.

$$\text{Single Phase — Amperes} = \frac{\text{Watts (kW x 1000)}}{\text{Line Voltage}}$$

$$\text{Three Phase — Amperes} = \frac{\text{Watts (kW x 1000)}}{\text{Line Voltage x 1.73}}$$

Electric heat selection — Specify electric duct heaters using voltage, kW and number of steps.

Select heater so that power (kW) matches available electric heat options. Tables show maximum, minimum and available kW's within those ranges. Rounding to the nearest whole number has negligible impact on discharge temperature. If the fan is selected for less than maximum speed, then the maximum operating kW would be lower than the maximum kW shown in the table. Calculate kW based on the available fan cfm. A minimum of 70 cfm is required per kW.

Total fan cfm/70 cfm = max allowable kW

The Total kW required for the unit is based on the sum of both (A) room Btuh load and (B) the Btuh required to raise the entering air temperature to the desired room air temperature. Total kW = room Btuh + ΔBtuh

$$\text{room Btuh kW} = \frac{\text{room Btuh}}{3413}$$

$$\Delta\text{ Btuh kW} = \frac{\text{cfm x } \Delta t}{3160}$$

where Δt = desired room temp. – air entering electric heater (typically 70 F)

Determine what the desired discharge air temperature will be. Do not select for discharge air temperatures exceeding 120 F. In addition note that ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air temperature stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

$$\Delta t = (\text{LAT} - \text{EAT}) = \frac{\text{kW x } 3160}{\text{cfm}}$$

LAT = Discharge air temp
EAT = Air temp to heater

The desired heating airflow for the space can be verified by the following:

$$\text{cfm} = \frac{\text{kW x } 3160}{\Delta t}$$

ELECTRIC HEAT kW OPTIONS

UNIT	AVAILABLE kW
45J	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 22.0, 23.0, 24.0, 25.0
45M	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0

Model number nomenclature

45K QUIET SERIES FAN POWERED TERMINALS

45K C 1 0 1L 4 10 1 4440

45K – Quiet Series Flow Fan Powered Unit (Constant Volume)

Controls
A – Analog
C – CCN VAV Controls
D – BACnet VAV Controls
P – Pneumatic
N – No Controls

Sensor Type
1 – Linear Averaging
3 – Four Quadrant Linear Cross

Liner
0 – Standard (½ in. thick)
1 – Fiberglass (1 in. dual density)
2 – Steriliner
3 – No Liner
4 – Sterilwall with ½ in. Dual Density Liner
5 – Cellular
6 – ½ in. Foil Encapsulated Liner
8 – Sterilwall with 1 in. Dual Density Liner
9 – 1 in. Foil Encapsulated Liner
A – Perforated Wall with ½ in. Dual Density Liner
B – Perforated Wall with 1 in. Dual Density Liner
C – Perforated Wall with ½ in. Foil Encapsulated Liner
D – Perforated Wall with 1 in. Foil Encapsulated Liner
E – Steriliner Perforated Wall

Unit Casing

LEFT	RIGHT	DESCRIPTION
1L	1R	20 Gage Steel

Unit Size

2	5
3	6
4	7

Inlet Size
06 – 6 in.
08 – 8 in.
10 – 10 in.
12 – 12 in.
14 – 14 in.
16 – 16 in.

Voltage
1 – 120-1-60
2 – 208/240-1-60
3 – 277-1-60
6 – 277-1-60 with ECM Motor†

Control Codes*
D00X – No Controls
13XX – Pneumatic
22XX – Analog
44XX – CCN VAV Controls
44XX – BACnet VAV Controls

45N QUIET PARALLEL FAN POWERED TERMINALS

45N A 1 E 1R 3 06 2 2311

45N – Quiet Parallel Flow Fan Powered Unit (Variable Volume)

Controls
A – Analog
C – CCN VAV Controls
D – BACnet VAV Controls
P – Pneumatic
V – CCN VVT® Controls
B – BACnet VVT Controls
N – No Controls

Sensor Type
1 – Linear Averaging
3 – Four Quadrant Linear Cross

Liner
0 – Standard (½ in. thick)
1 – Fiberglass (1 in. dual density)
2 – Steriliner
3 – No Liner
4 – Sterilwall with ½ in. Dual Density Liner
5 – Cellular
6 – ½ in. Foil Encapsulated Liner
8 – Sterilwall with 1 in. Dual Density Liner
9 – 1 in. Foil Encapsulated Liner
A – Perforated Wall with ½ in. Dual Density Liner
B – Perforated Wall with 1 in. Dual Density Liner
C – Perforated Wall with ½ in. Foil Encapsulated Liner
D – Perforated Wall with 1 in. Foil Encapsulated Liner
E – Steriliner Perforated Wall

Unit Casing

LEFT	RIGHT	DESCRIPTION
1L	1R	20 Gage Steel

Unit Size

2	5
3	6
4	7

Inlet Size
06 – 6 in.
08 – 8 in.
10 – 10 in.
12 – 12 in.
14 – 14 in.
16 – 16 in.

Voltage
1 – 120-1-60
2 – 208/240-1-60
3 – 277-1-60
6 – 277-1-60 with ECM Motor**

Control Codes*
D00X – No Controls
14XX – Pneumatic
23XX – Analog
47XX – CCN VAV Controls
47XX – BACnet VAV Controls
88XX – CCN VVT Controls
88XX – BACnet VVT Controls

LEGEND

CCN — Carrier Comfort Network®
ECM — Electronically Commutated Motor
VAV — Variable Air Volume
VVT — Variable Volume and Temperature

*See pages 9 - 11 for complete control code number list.
†Sizes 3, 6, and 7 only.
**Sizes 4 and 7 only.

Physical data

45K QUIET SERIES FAN POWERED TERMINAL UNIT WEIGHTS (lb)

45K SIZE	UNIT WEIGHT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEATER	WITH HOT WATER	
					1-Row	2-Row
2	185	189	194	215	194	197
3	200	204	209	230	209	212
4	200	204	209	232	209	212
5	225	229	234	257	237	242
6	250	254	259	285	262	267
7	260	264	269	300	272	277

45N QUIET PARALLEL FAN POWERED TERMINAL UNIT WEIGHTS (lb)

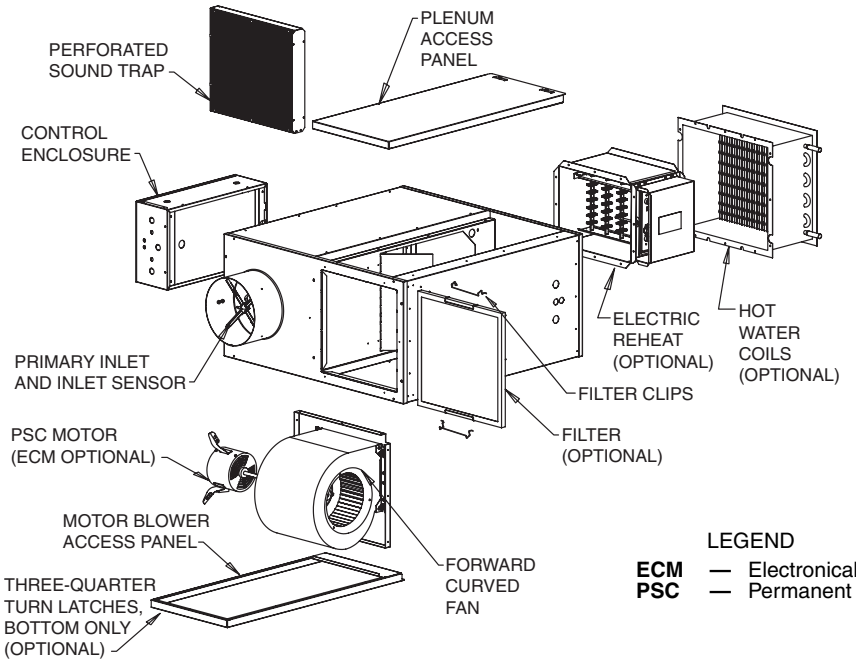
45N SIZE	UNIT WEIGHT	WITH PNEUMATIC CONTROLS	WITH DDC OR ANALOG CONTROLS	WITH ELECTRIC HEATER	WITH HOT WATER	
					1-Row	2-Row
2	185	189	194	215	197	197
3	200	204	209	230	209	212
4	200	204	209	232	209	212
5	225	229	234	257	237	242
6	250	254	259	285	262	267
7	260	264	269	300	272	277

LEGEND

DDC — Direct Digital Controls

NOTE: All weights shown in pounds (lb).

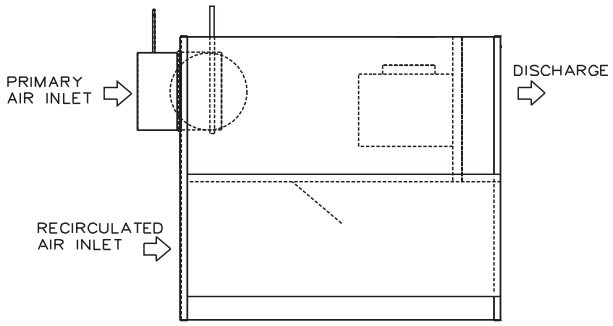
TYPICAL 45K QUIET SERIES FAN POWERED TERMINAL UNIT SETUP



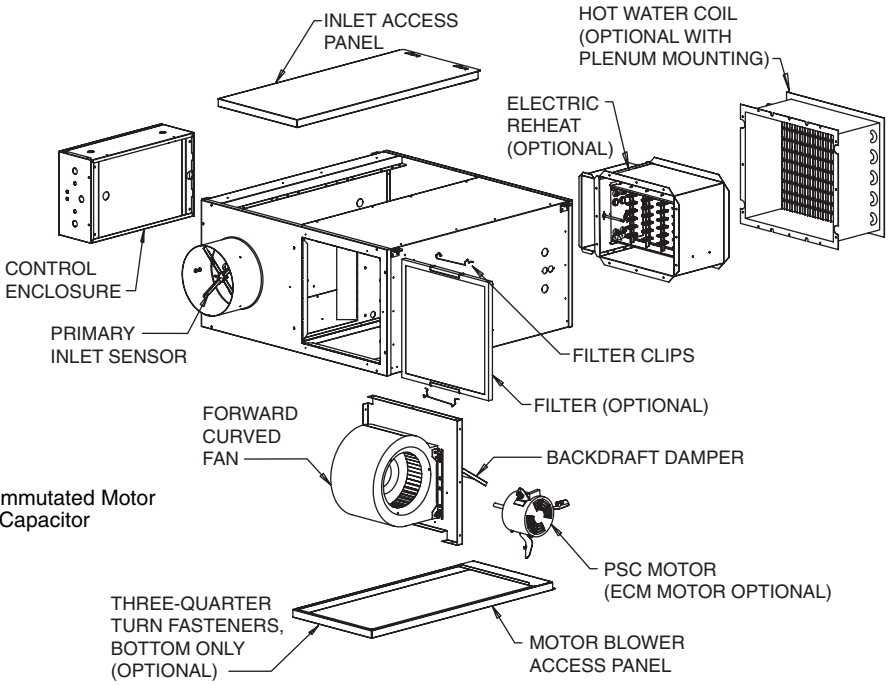
LEGEND

ECM — Electronically Commutated Motor
PSC — Permanent Split Capacitor

45K INTERNAL DETAIL SERIES FLOW UNIT



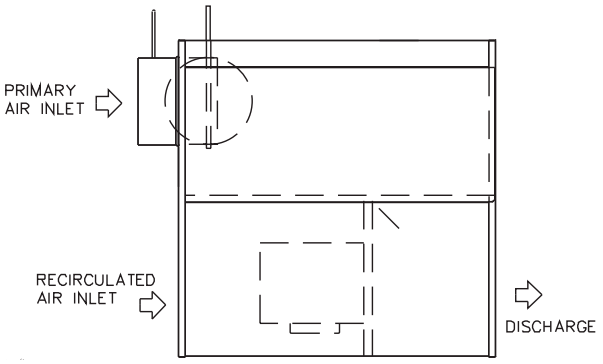
TYPICAL 45N QUIET PARALLEL FAN POWERED TERMINAL UNIT SETUP



LEGEND

ECM — Electronically Commutated Motor
PSC — Permanent Split Capacitor

45N INTERNAL DETAIL PARALLEL FLOW UNIT

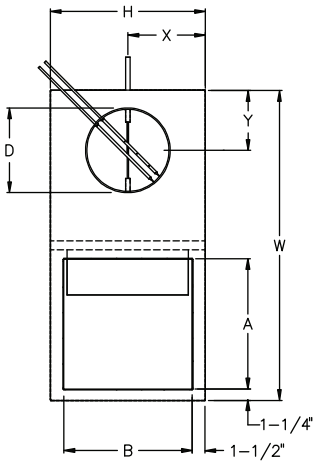


45K,N OPTIONAL FILTER SIZES AND PART NUMBERS

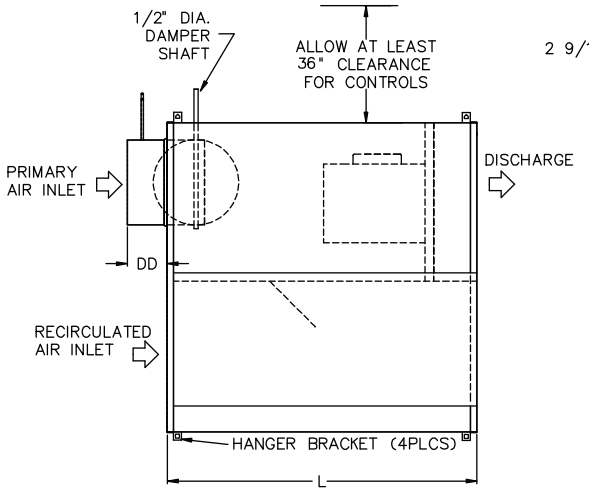
UNIT	UNIT SIZE	FILTER SIZE	FILTER P/N	FILTER KIT P/N
45K,N	2,3,4	17X17X1	102649-1717	3503341717
	5,6,7	22X19X1	102649-2219	3503342219

Dimensions

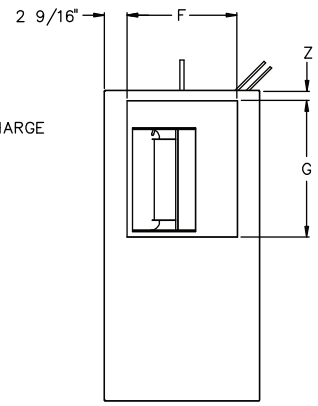
45K QUIET SERIES FAN POWERED TERMINAL UNITS



INLET VIEW



PLAN VIEW — LEFT HAND UNIT SHOWN
RIGHT HAND AVAILABLE
(CONTROLS NOT SHOWN)



DISCHARGE VIEW

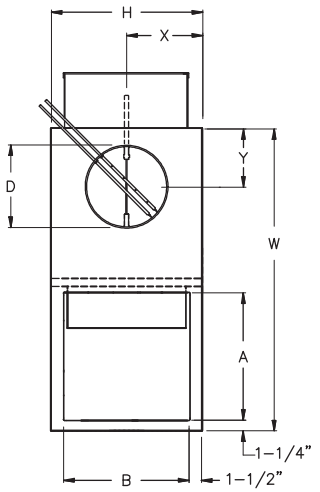
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = $3^{7}/_{8}$-in.; 12-16 DD = $5^{7}/_{8}$-in.)

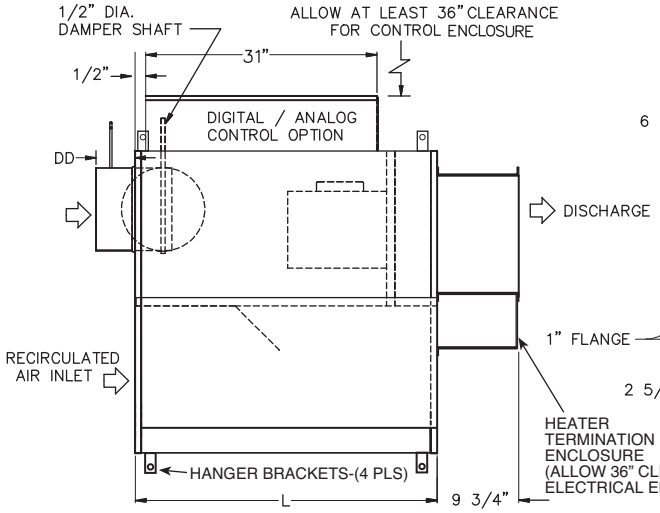
NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM	HP	L	W	H	RECIRC AIR		D	DISCHARGE		X	Y	Z
								A	B		F	G			
2	6	515	530	$^{1}/_{10}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	11	14	9	6	$3^{1}/_{8}$
	8	530	530	$^{1}/_{10}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	11	14	9	6	$3^{1}/_{8}$
3	6	515	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	11	14	9	6	$3^{1}/_{8}$
	8	920	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$7^{7}/_{8}$	11	14	9	6	$3^{1}/_{8}$
	10	1100	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$9^{7}/_{8}$	11	14	9	7	$3^{1}/_{8}$
	12	1100	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$9^{7}/_{8}$	11	14	9	7	$3^{1}/_{8}$
4	8	920	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$7^{7}/_{8}$	11	14	10	6	$5^{1}/_{2}$
	10	1300	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	11	14	10	7	$5^{1}/_{2}$
	12	1300	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	11	14	10	8	$5^{1}/_{2}$
5	10	1430	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	15	17	10	7	$5^{1}/_{2}$
	12	1900	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	15	17	10	8	$5^{1}/_{2}$
	14	1900	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	15	17	10	10	$5^{1}/_{2}$
6	10	1430	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	15	17	10	7	$5^{1}/_{2}$
	12	2060	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	15	17	10	8	$5^{1}/_{2}$
	14	2600	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	15	17	10	10	$5^{1}/_{2}$
	16	2600	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$15^{7}/_{8}$	15	17	10	$10^{1}/_{4}$	$5^{1}/_{2}$
7	10	1430	2600	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	15	17	10	7	$5^{1}/_{2}$
	12	2060	2600	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	15	17	10	8	$5^{1}/_{2}$
	14	2800	2600	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	15	17	10	10	$5^{1}/_{2}$
	16	3660	2600	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$15^{7}/_{8}$	15	17	10	$10^{1}/_{4}$	$5^{1}/_{2}$

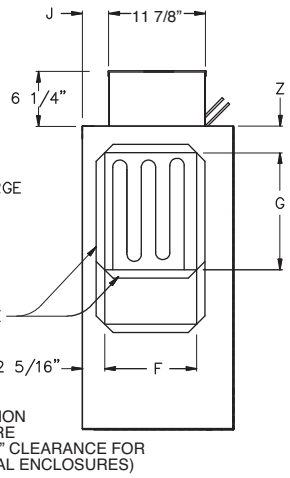
45K QUIET SERIES FAN POWERED TERMINAL UNITS WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS



INLET VIEW



PLAN VIEW — LEFT HAND UNIT SHOWN
RIGHT HAND AVAILABLE
(CONTROLS NOT SHOWN)



DISCHARGE VIEW

LEGEND

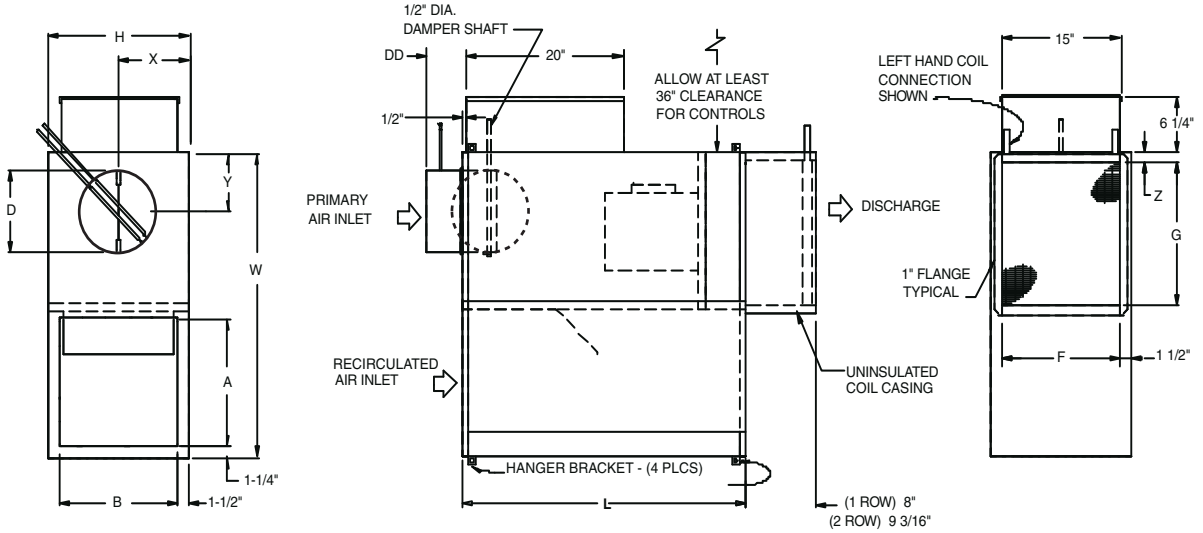
DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = $3^{7}/_{8}$-in.; 12-16 DD = $5^{7}/_{8}$-in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM	HP	L	W	H	RECIRC AIR		D	DISCHARGE		X	Y	Z	J
								A	B		F	G				
2	6	515	530	$^{1}/_{10}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	9	6	$2^{7}/_{8}$	3
	8	530	530	$^{1}/_{10}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	9	6	$2^{7}/_{8}$	3
3	6	515	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	9	6	$2^{7}/_{8}$	3
	8	920	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$7^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	9	6	$2^{7}/_{8}$	3
	10	1100	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$9^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	9	7	$2^{7}/_{8}$	3
	12	1100	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$9^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	9	7	$2^{7}/_{8}$	3
4	8	920	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$7^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	10	6	$5^{1}/_{2}$	3
	10	1300	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	10	7	$5^{1}/_{2}$	3
	12	1300	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	$11^{1}/_{2}$	$14^{1}/_{2}$	10	8	$5^{1}/_{2}$	3
5	10	1430	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	15	17	10	7	$5^{1}/_{2}$	4
	12	1900	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	15	17	10	8	$5^{1}/_{2}$	4
	14	1900	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	15	17	10	10	$5^{1}/_{2}$	4
6	10	1430	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	15	17	10	7	$5^{1}/_{2}$	4
	12	2060	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	15	17	10	8	$5^{1}/_{2}$	4
	14	2600	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	15	17	10	10	$5^{1}/_{2}$	4
	16	2600	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$15^{7}/_{8}$	15	17	10	$10^{1}/_{4}$	$5^{1}/_{2}$	4
7	10	1430	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	15	17	10	7	$5^{1}/_{2}$	4
	12	2060	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	15	17	10	8	$5^{1}/_{2}$	4
	14	2800	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	15	17	10	10	$5^{1}/_{2}$	4
	16	3660	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$15^{7}/_{8}$	15	17	10	$10^{1}/_{4}$	$5^{1}/_{2}$	4

Dimensions (cont)

45K QUIET SERIES FAN POWERED TERMINAL UNITS WITH ELECTRONIC CONTROLS AND HOT WATER HEAT



INLET VIEW

PLAN VIEW — LEFT HAND UNIT SHOWN
RIGHT HAND AVAILABLE
(CONTROLS NOT SHOWN)

DISCHARGE VIEW

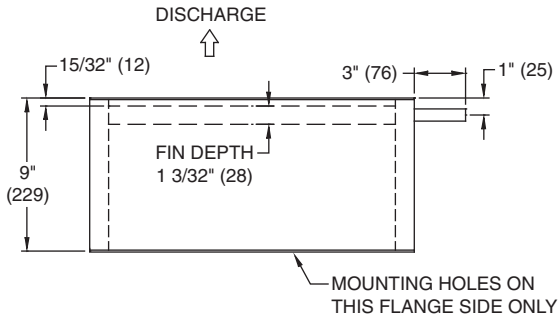
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = $3^{7}/_{8}$-in.; 12-16 DD = $5^{7}/_{8}$-in.)

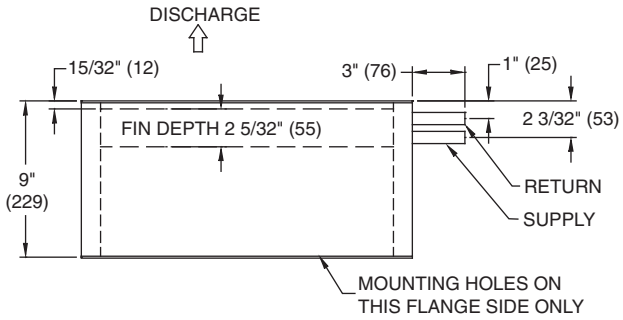
NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM	HP	L	W	H	RECIRC AIR		D	DISCHARGE		X	Y	Z
								A	B		F	G			
2	6	515	530	$^{1}/_{10}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	$15^{1}/_{8}$	17	9	6	2
	8	530	530	$^{1}/_{10}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	$15^{1}/_{8}$	17	9	6	2
3	6	515	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$5^{7}/_{8}$	$15^{1}/_{8}$	17	9	6	2
	8	920	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$7^{7}/_{8}$	$15^{1}/_{8}$	17	9	6	2
	10	1100	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$9^{7}/_{8}$	$15^{1}/_{8}$	17	9	7	2
	12	1100	1100	$^{1}/_{4}$	$39^{1}/_{2}$	$36^{1}/_{8}$	$18^{1}/_{16}$	$15^{1}/_{8}$	15	$9^{7}/_{8}$	$15^{1}/_{8}$	17	9	7	2
4	8	920	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$7^{7}/_{8}$	$15^{1}/_{8}$	17	10	6	$3^{3}/_{16}$
	10	1300	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	$15^{1}/_{8}$	17	10	7	$3^{3}/_{16}$
	12	1300	1300	$^{1}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	$15^{1}/_{8}$	17	10	8	$3^{3}/_{16}$
5	10	1430	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	$17^{5}/_{8}$	25	10	7	1
	12	1900	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	$17^{5}/_{8}$	25	10	8	1
	14	1900	1900	$^{1}/_{2}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	$17^{5}/_{8}$	25	10	10	1
6	10	1430	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	$17^{5}/_{8}$	25	10	7	1
	12	2060	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	$17^{5}/_{8}$	25	10	8	1
	14	2600	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	$17^{5}/_{8}$	25	10	10	1
	16	2600	2600	$^{3}/_{4}$	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$15^{7}/_{8}$	$17^{5}/_{8}$	25	10	$10^{1}/_{4}$	1
7	10	1430	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$9^{7}/_{8}$	$17^{5}/_{8}$	25	10	7	1
	12	2060	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$11^{7}/_{8}$	$17^{5}/_{8}$	25	10	8	1
	14	2800	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$13^{7}/_{8}$	$17^{5}/_{8}$	25	10	10	1
	16	3660	3000	1	$42^{1}/_{8}$	$46^{1}/_{8}$	$20^{1}/_{16}$	$20^{1}/_{8}$	17	$15^{7}/_{8}$	$17^{5}/_{8}$	25	10	$10^{1}/_{4}$	1

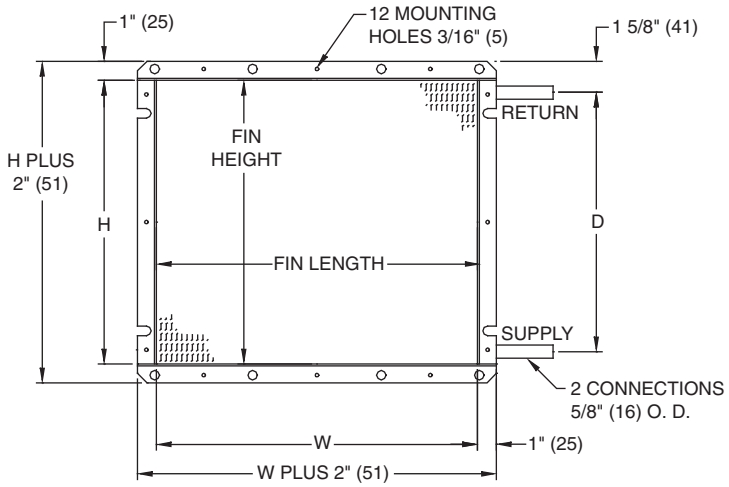
HOT WATER HEAT COIL FOR 45K QUIET SERIES FAN POWERED TERMINAL UNITS — SIZES 2-7



TOP VIEW:
1 ROW HOT WATER COIL



TOP VIEW:
2 ROW HOT WATER COIL



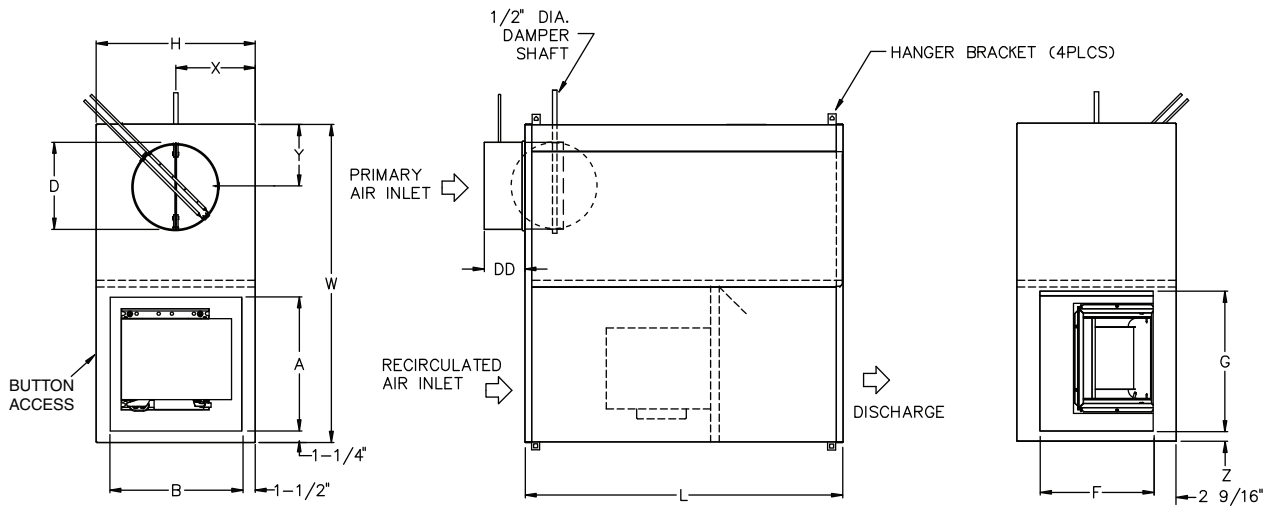
FACE VIEW

NOTE: Dimensions are given in inches. Dimensions in () are in millimeters.

UNIT SIZE	DIMENSION (in.)		
	W	H	D
2	17	15 1/8	13 3/4
3			
4			
5	25	17 5/8	16 1/4
6			
7			

Dimensions (cont)

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS



INLET VIEW

PLAN VIEW — LEFT HAND UNIT SHOWN RIGHT HAND AVAILABLE (CONTROLS NOT SHOWN)

DISCHARGE VIEW

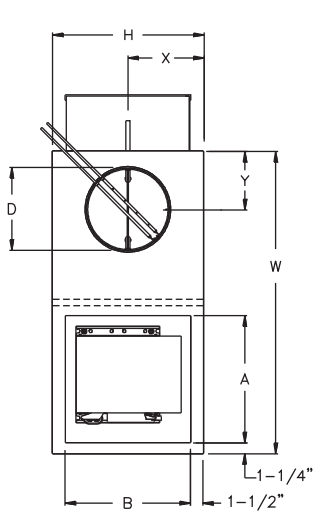
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = $3^{7}/_{8}$-in.; 12-16 DD = $5^{7}/_{8}$-in.)

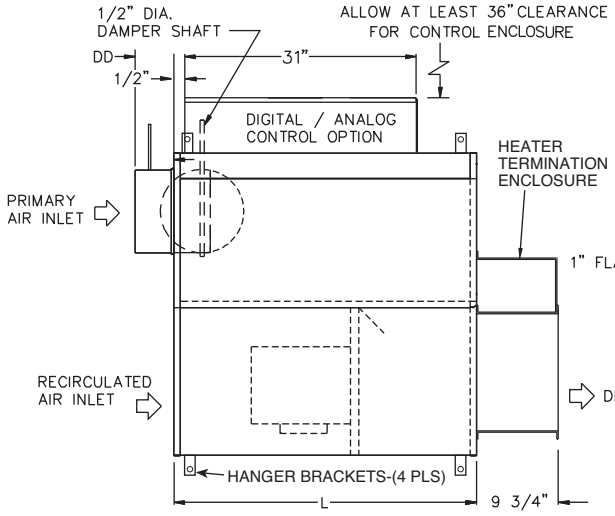
NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM	HP	L	W	H	RECIRC AIR		D	DISCHARGE		X	Y	Z
								A	B		F	G			
2	6	515	530	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	9	6	3 1/8
	8	530	530	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	9	6	3 1/8
3	6	515	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11	14	9	6	3 1/8
	8	920	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11	14	9	6	3 1/8
	10	1100	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	11	14	9	7	3 1/8
4	6	515	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	5 7/8	11	14	10	6	5 1/2
	8	920	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	7 7/8	11	14	10	6	5 1/2
	10	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	11	14	10	7	5 1/2
	12	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	11	14	10	8	5 1/2
5	10	1430	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	10	7	5 1/2
	12	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	10	8	5 1/2
	14	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	10	10	5 1/2
6	10	1430	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	10	7	5 1/2
	12	2060	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	10	8	5 1/2
	14	2600	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	10	10	5 1/2
	16	2600	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	10	10 1/4	5 1/2
7	10	1430	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	10	7	5 1/2
	12	2060	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	10	8	5 1/2
	14	2800	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	10	10	5 1/2
	16	3660	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	10	10 1/4	5 1/2

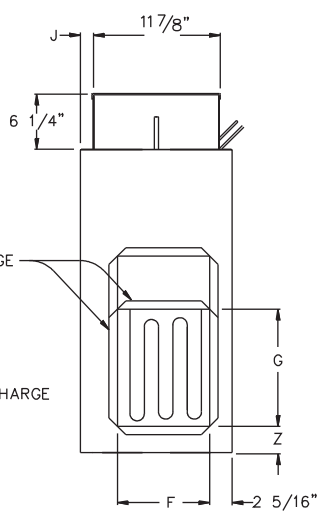
45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS



INLET VIEW



PLAN VIEW — LEFT HAND UNIT SHOWN
RIGHT HAND AVAILABLE
(CONTROLS NOT SHOWN)



DISCHARGE VIEW

LEGEND

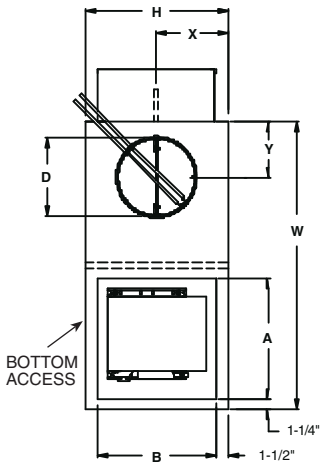
DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = $3^7/_8$-in.; 12-16 DD = $5^7/_8$-in.)

NOTE: Dimensions are given in inches.

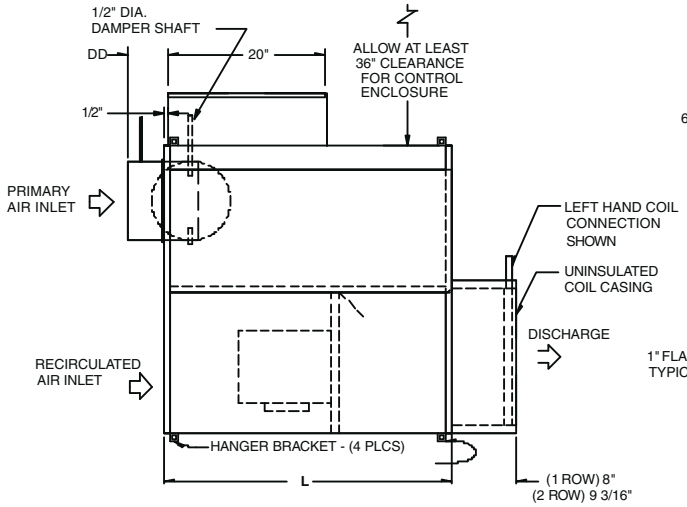
UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM	HP	L	W	H	RECIRC AIR		D	DISCHARGE		X	Y	Z
								A	B		F	G			
2	6	515	530	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11 1/2	14 1/2	9	6	3
	8	530	530	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11 1/2	14 1/2	9	6	3
3	6	515	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	11 1/2	14 1/2	9	6	3
	8	920	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	11 1/2	14 1/2	9	6	3
	10	1100	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	11 1/2	14 1/2	9	7	3
4	6	515	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	5 7/8	11 1/2	14 1/2	10	6	3
	8	920	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	7 7/8	11 1/2	14 1/2	10	6	3
	10	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	11 1/2	14 1/2	10	7	3
	12	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	11 1/2	14 1/2	10	8	3
5	10	1430	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	10	7	4
	12	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	10	8	4
	14	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	10	10	4
6	10	1430	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	10	7	4
	12	2060	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	10	8	4
	14	2600	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	10	10	4
	16	2600	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	10	10 1/4	4
7	10	1430	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15	17	10	7	4
	12	2060	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15	17	10	8	4
	14	2800	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	15	17	10	10	4
	16	3660	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	15	17	10	10 1/4	4

Dimensions (cont)

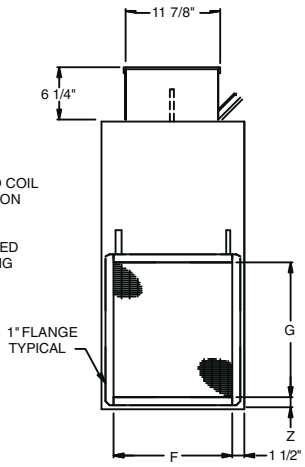
45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH ELECTRONIC CONTROLS AND HOT WATER HEAT ON UNIT DISCHARGE



INLET VIEW



PLAN VIEW — LEFT HAND UNIT SHOWN (COIL CONNECTIONS SHOWN ON LEFT SIDE, BUT AVAILABLE ON EITHER HAND)



DISCHARGE VIEW

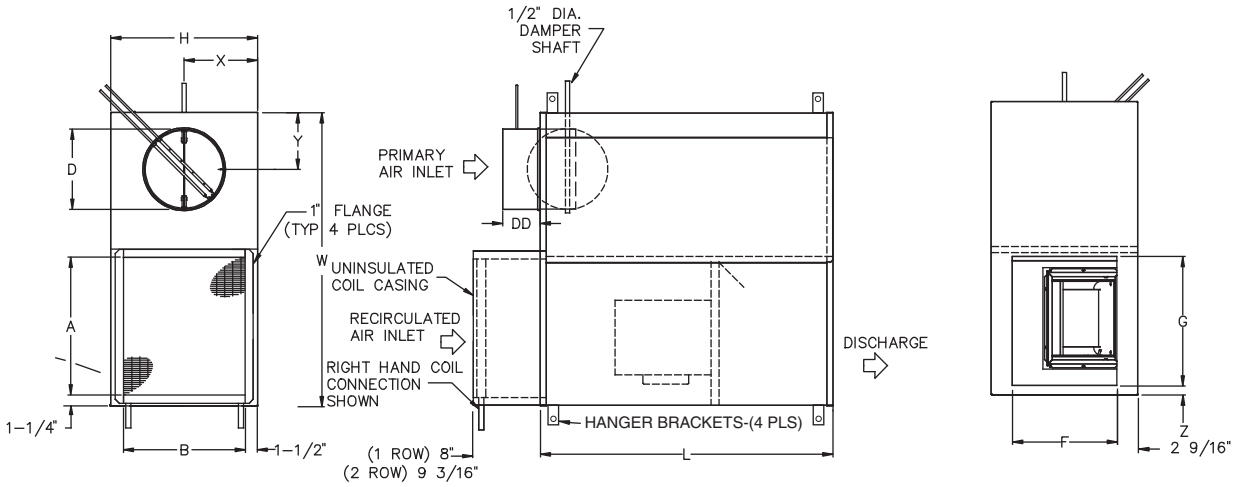
LEGEND

DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = $3^{7}/_{8}$-in.; 12-16 DD = $5^{7}/_{8}$-in.)

NOTE: Dimensions are given in inches.

UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM	HP	L	W	H	RECIRC AIR		D	DISCHARGE		X	Y	Z
								A	B		F	G			
2	6	515	530	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	14 1/2	9	6	2
	8	530	530	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	14 1/2	9	6	2
3	6	515	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	5 7/8	15 1/8	14 1/2	9	6	2
	8	920	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	7 7/8	15 1/8	14 1/2	9	6	2
	10	1100	1100	1/4	39 1/2	36 1/8	18 1/16	15 1/8	15	9 7/8	15 1/8	14 1/2	9	7	2
4	6	515	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	5 7/8	15 1/8	14 1/2	10	6	3 3/16
	8	920	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	7 7/8	15 1/8	14 1/2	10	6	3 3/16
	10	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	15 1/8	14 1/2	10	7	3 3/16
	12	1300	1300	1/4	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	15 1/8	14 1/2	10	8	3 3/16
5	10	1430	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	17 5/8	17	10	7	1
	12	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	17	10	8	1
	14	1900	1900	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	17	10	10	1
6	10	1430	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	17 5/8	17	10	7	1
	12	2060	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	17	10	8	1
	14	2600	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	17	10	10	1
	16	2600	2600	1/2	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	17	10	10 1/4	1
7	10	1430	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	9 7/8	17 5/8	17	10	7	1
	12	2060	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	11 7/8	17 5/8	17	10	8	1
	14	2800	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	13 7/8	17 5/8	17	10	10	1
	16	3660	2600	3/4	42 1/8	46 1/8	20 1/16	20 1/8	17	15 7/8	17 5/8	17	10	10 1/4	1

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH HOT WATER COILS FOR UNITS WITH COILS ON THE INDUCED AIR INLET



INLET VIEW

PLAN VIEW — LEFT HAND UNIT SHOWN RIGHT HAND AVAILABLE (CONTROLS NOT SHOWN)

DISCHARGE VIEW

LEGEND

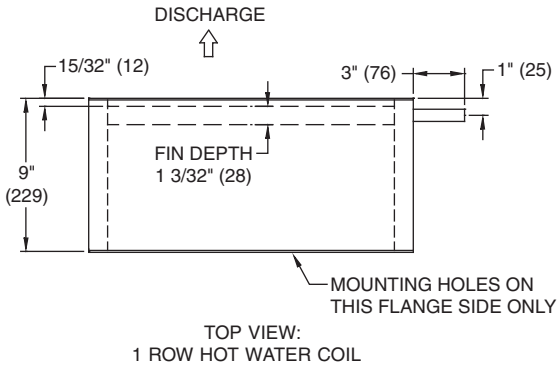
DD — Linear Averaging Sensor/Inlet (Inlet Sizes: 6-10 DD = $3^7/_8$-in.; 12-16 DD = $5^7/_8$-in.)

NOTE: Dimensions are given in inches.

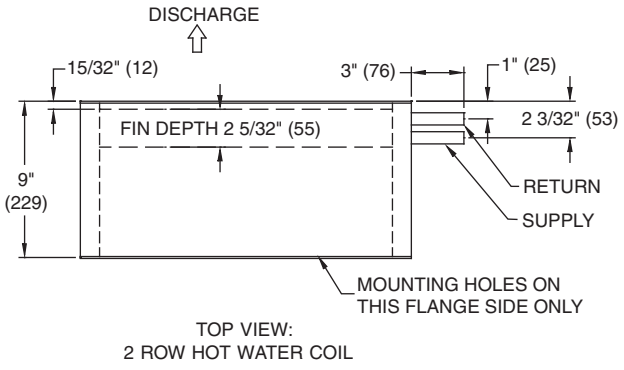
UNIT SIZE	INLET SIZE	PRI. CFM	FAN CFM		HP	L	W	H	RECIRC. AIR		D	DISCHARGE		X	Y	Z
			1 Row	2 Row					A	B		F	G			
2	6	515	490	480	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	5 7/8	11	14	9	6	3 1/8
	8	920	490	480	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	5 7/8	11	14	9	6	3 1/8
3	6	515	800	790	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	5 7/8	11	14	9	6	3 1/8
	8	920	800	790	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	7 7/8	11	14	9	6	3 1/8
	10	1430	800	790	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	9 7/8	11	14	9	7	3 1/8
4	6	515	880	870	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	5 7/8	11	14	9	6	3 1/8
	8	920	880	870	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	7 7/8	11	14	9	6	3 1/8
	10	1430	880	870	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	9 7/8	11	14	9	7	3 1/8
	12	2060	880	870	1/4	36 1/8	36 1/8	18 1/16	17	15 1/8	11 7/8	11	14	9	8	3 1/8
5	10	1430	1650	1600	1/2	42 1/8	46 1/8	20 1/16	25	17 5/8	9 7/8	15	17	10	7	5 1/2
	12	2060	1650	1600	1/2	42 1/8	46 1/8	20 1/16	25	17 5/8	11 7/8	15	17	10	8	5 1/2
	14	2800	1650	1600	1/2	42 1/8	46 1/8	20 1/16	25	17 5/8	13 7/8	15	17	10	10	5 1/2
6	10	1430	1650	1600	1/2	42 1/8	46 1/8	20 1/16	25	17 5/8	9 7/8	15	17	10	7	5 1/2
	12	2060	1650	1600	1/2	42 1/8	46 1/8	20 1/16	25	17 5/8	11 7/8	15	17	10	8	5 1/2
	14	2800	1650	1600	1/2	42 1/8	46 1/8	20 1/16	25	17 5/8	13 7/8	15	17	10	10	5 1/2
	16	3660	1650	1600	1/2	42 1/8	46 1/8	20 1/16	25	17 5/8	15 7/8	15	17	10	10 1/4	5 1/2
7	10	1430	1850	1780	3/4	42 1/8	46 1/8	20 1/16	25	17 5/8	9 7/8	15	17	10	7	5 1/2
	12	2060	1850	1780	3/4	42 1/8	46 1/8	20 1/16	25	17 5/8	11 7/8	15	17	10	8	5 1/2
	14	2800	1850	1780	3/4	42 1/8	46 1/8	20 1/16	25	17 5/8	13 7/8	15	17	10	10	5 1/2
	16	3660	1850	1780	3/4	42 1/8	46 1/8	20 1/16	25	17 5/8	15 7/8	15	17	10	10 1/4	5 1/2

Dimensions (cont)

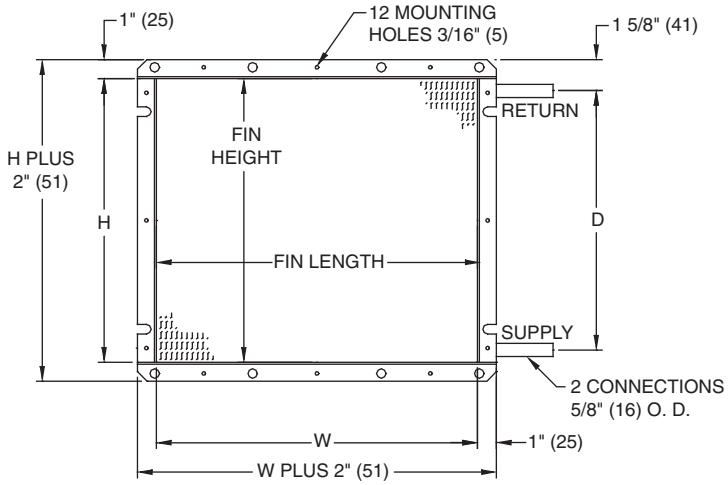
HOT WATER HEAT COIL FOR 45N QUIET PARALLEL FAN POWERED TERMINAL UNITS — SIZES 2-7



TOP VIEW:
1 ROW HOT WATER COIL



TOP VIEW:
2 ROW HOT WATER COIL



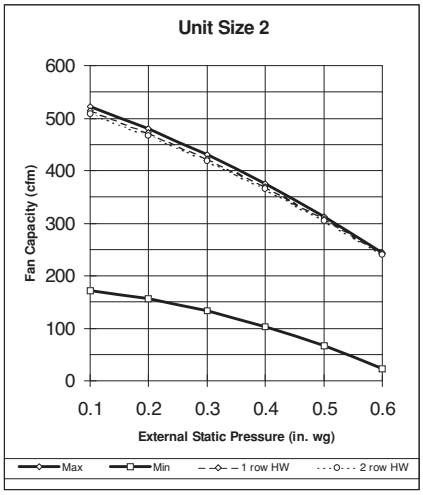
FACE VIEW

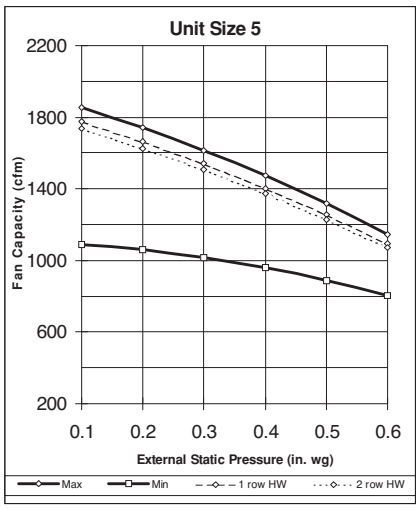
NOTE: Dimensions are given in inches. Dimensions in () are in millimeters.

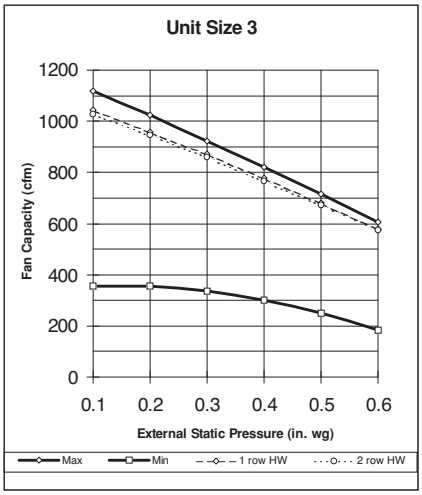
UNIT SIZE	DIMENSION (in.)		
	W	H	D
2	17	15 1/8	13 3/4
3			
4			
5	25	17 5/8	16 1/4
6			
7			

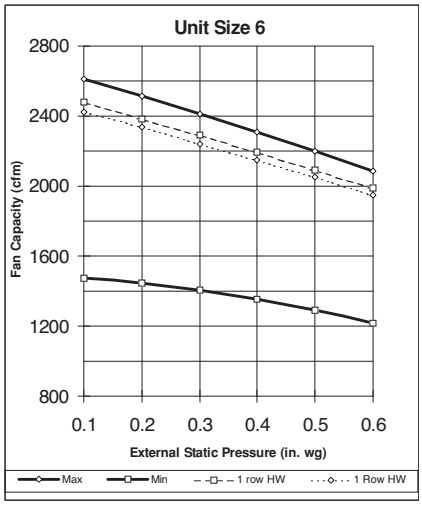
45K QUIET SERIES FAN POWERED TERMINAL UNITS — FAN CURVES WITH PSC MOTOR OPTION

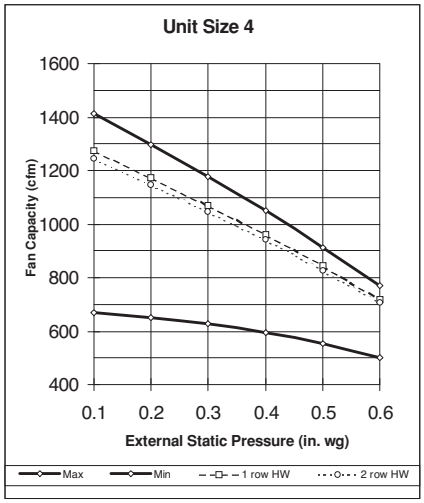
AIRFLOW VS. DOWNSTREAM STATIC PRESSURE

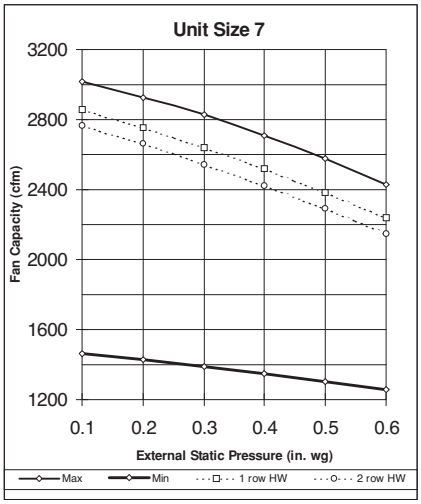












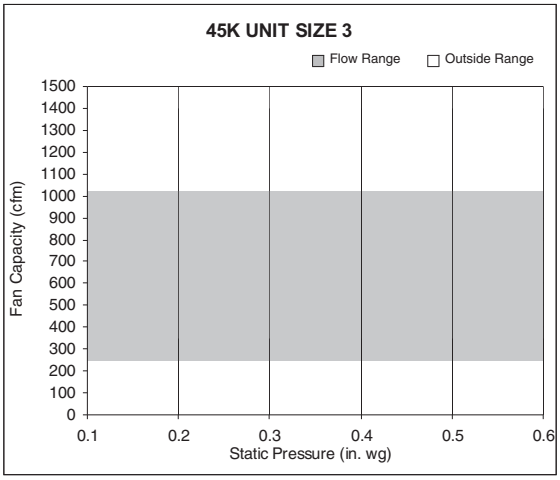
LEGEND

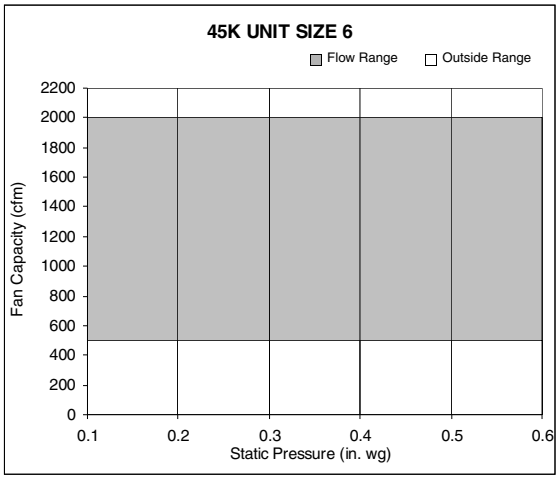
PSC — Permanent Split Capacitor

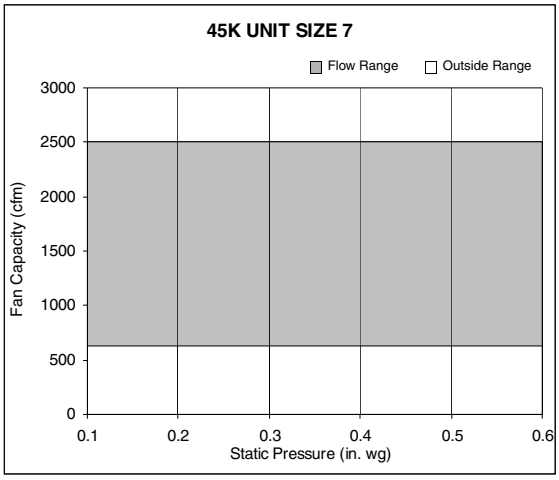
NOTES:

1. Fan speed controller (SCR) is standard with each unit. Fan curve minimums indicate maximum achievable flow reductions using speed control.
2. Units must be selected to operate within the flow envelopes shown.
3. Fan air discharge will be reduced approximately 5% when the unit is equipped with factory-supplied electric heating coils.

45K QUIET SERIES FAN POWERED TERMINAL UNITS — FAN CURVES WITH ECM MOTOR OPTION
AIRFLOW VS. DOWNSTREAM STATIC PRESSURE







LEGEND

ECM — Electronically Commutated Motor

45K quiet series fan powered terminal unit

1. 45K maximum primary airflow (cfm) is based on 1.00 in. wg velocity pressure signal (VP), from standard Carrier linear averaging sensor.
2. Minimum recommended airflow (cfm) is based on 0.03 in. wg differential pressure of the linear inlet flow sensor, or 0 airflow, 0.03 in. wg is equal to 15% to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than ±5% control of box flow.
3. Maximum induced airflow (cfm) is based on 0.25 in. wg external downstream static pressure.
4. Minimum fan airflow (cfm) is based on maximum external (downstream) static pressure 0.6 in. wg.
5. Minimum primary airflow (cfm) listed is for all controls except CCN controls, which is shown separately with lower available minimum cfm. Some DDC controls supplied by others may have different limitations.
6. Motor amp draw = Power (w)/Voltage.

45K QUIET SERIES FAN POWERED TERMINAL UNITS (PSC MOTOR)

UNIT SIZE	INLET SIZE (in.)	PSC MOTOR HP	MOTOR AMPS				PRIMARY AIRFLOW			FAN AIRFLOW*	
			120 V FLA	208 V FLA	240 V FLA	277 V FLA	Max with PSC	Min†	Min CCN	Max PSC	Min PSC
2	6	1/10	1.4	0.8	0.8	0.6	500	90 or 0	52 or 0	530	50
	8						530	170 or 0	93 or 0		
3	6	1/4	4.3	2.4	2.4	1.8	500	90 or 0	52 or 0	1150	185
	8						900	170 or 0	93 or 0		
	10						1150	250 or 0	145 or 0		
4	6	1/4	4.3	2.4	2.4	1.8	500	90 or 0	52 or 0	1425	500
	8						900	170 or 0	93 or 0		
	10						1400	250 or 0	145 or 0		
	12						1425	360 or 0	210 or 0		
5	10	1/2	8.3	4.4	4.4	3.5	1400	250 or 0	145 or 0	1900	800
	12						1900	360 or 0	210 or 0		
	14						1900	500 or 0	285 or 0		
6	10	3/4	9.5	5.0	5.0	4.4	1400	250 or 0	145 or 0	2600	1200
	12						2100	360 or 0	210 or 0		
	14						2500	500 or 0	285 or 0		
	16						2600	650 or 0	370 or 0		
7	10	1	12.8	7.1	7.1	5.3	1400	250 or 0	145 or 0	3000	1250
	12						2100	360 or 0	210 or 0		
	14						2500	500 or 0	285 or 0		
	16						3000	650 or 0	370 or 0		

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CCN — Carrier Comfort Network® Controls
DDC — Direct Digital Controls
FLA — Full Load Amps
PSC — Permanent Split Capacitor Motor
Ps — Static Pressure

*Max based on 0.1 in. wg downstream Ps for PSC motors. See Catalog for complete fan curves. Min based on 0.6 in. wg downstream Ps for PSC motors.
†For all controls except CCN controls. Some DDC controls supplied by others may have differing limitations.

NOTES:
1. Data is based on tests conducted in accordance with AHRI Standard 880.
2. Minimum airflow for cooling or cooling with hot water heat is the minimum flow rate controllable by the unit volume controller; shutoff or zero is also acceptable.

45K QUIET SERIES FAN POWERED TERMINAL UNITS (ECM MOTOR)

UNIT SIZE	INLET SIZE (in.)	ECM MOTOR HP	ECM MOTOR AMPS			PRIMARY AIRFLOW			FAN AIRFLOW	
			120 V FLA*	240 V FLA*	277 V FLA	Max with ECM	Min†	Min CCN	Max ECM	Min ECM
3	6	1/2	7.7	5.0	4.1	500	90 or 0	52 or 0	1030	250
	8					900	170 or 0	93 or 0		
	10					1400	250 or 0	145 or 0		
	12					1400	360 or 0	209 or 0		
6	10	1	12.8	9.4	6.9	1400	250 or 0	145 or 0	2000	500
	12					2000	360 or 0	209 or 0		
	14					2000	500 or 0	284 or 0		
	16					2000	650 or 0	370 or 0		
7	10	1	12.8	9.4	6.9	1400	250 or 0	145 or 0	2500	600
	12					2100	360 or 0	209 or 0		
	14					2500	500 or 0	284 or 0		
	16					2500	650 or 0	370 or 0		

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CCN — Carrier Comfort Network Controls
ECM — Electronically Commutated Motor
FLA — Full Load Amps

*Special order.
†This value is based on signal of 0.03 in. wg differential pressure of the linear averaging probe.

NOTES:
1. Data is based on tests conducted in accordance with AHRI Standard 880.
2. Minimum airflow for cooling or cooling with hot water heat is the minimum flow rate controllable by the unit volume controller; shutoff or zero is also acceptable.

Performance data (cont)

45K QUIET SERIES FAN POWERED TERMINAL UNITS
HOT WATER COIL DATA

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				200	240	280	320	360	400	440	480	520
2	One Row	1.0	0.30	12.0	12.9	13.7	14.4	15.0	15.6	16.1	16.5	16.9
		2.0	1.00	13.1	14.3	15.3	16.2	17.0	17.7	18.3	18.9	19.4
		4.0	3.20	13.7	15.1	16.2	17.2	18.1	19.0	19.7	20.4	21.1
		6.0	6.70	14.0	15.4	16.6	17.6	18.6	19.5	20.3	21.0	21.7
		Airside Δ PS		0.01	0.01	0.01	0.01	0.02	0.02	0.02	0.03	0.03
	Two Rows	1.0	0.60	16.7	18.7	20.4	22.0	23.4	24.6	25.8	26.8	27.7
		2.0	2.00	18.1	20.6	22.8	24.9	26.8	28.6	30.2	31.7	33.2
		4.0	6.90	18.8	21.6	24.2	26.5	28.8	30.9	32.9	34.7	36.5
		6.0	14.30	19.1	22.0	24.6	27.1	29.5	31.7	33.9	35.9	37.8
		Airside Δ PS		0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.06

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				300	370	440	510	580	650	720	790	860
3	One Row	1.0	0.30	14.1	15.2	16.1	16.8	17.4	18.2	19.0	19.6	20.3
		2.0	1.00	15.7	17.1	18.3	19.3	20.1	21.2	22.3	23.3	24.2
		4.0	3.20	16.7	18.4	19.7	20.9	21.9	23.3	24.5	25.7	26.8
		6.0	6.70	17.1	18.8	20.3	21.5	22.6	24.0	25.4	26.7	27.9
		Airside Δ PS		0.01	0.02	0.02	0.03	0.02	0.04	0.05	0.06	0.07
	Two Rows	1.0	0.60	21.2	23.7	25.8	27.5	29.0	30.3	31.5	32.5	33.4
		2.0	2.00	23.9	27.2	30.2	32.8	35.2	37.3	39.2	41.0	42.6
		4.0	6.90	25.4	29.3	32.9	36.1	39.1	41.8	44.3	46.7	48.9
		5.0	10.30	25.7	29.8	33.4	36.8	39.9	42.8	45.5	48.0	50.3
		Airside Δ PS		0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.12	0.13

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				300	375	450	525	600	675	750	825	900
4	One Row	1.0	0.30	14.1	15.2	16.2	16.9	17.6	18.5	19.3	20.0	20.6
		2.0	1.00	15.7	17.2	18.5	19.5	20.4	21.6	22.7	23.7	24.7
		4.0	3.20	16.7	18.5	19.9	21.2	22.3	23.7	25.0	26.3	27.5
		6.0	6.70	17.1	18.9	20.5	21.8	23.0	24.5	26.0	27.3	28.6
		Airside Δ PS		0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.08
	Two Rows	1.0	0.60	21.2	23.9	26.0	27.9	29.4	30.8	32.0	33.0	33.9
		2.0	2.00	23.9	27.5	30.6	33.3	35.8	38.0	40.0	41.8	43.5
		4.0	6.90	25.4	29.6	33.3	36.7	39.9	42.7	45.3	47.8	50.1
		5.0	10.30	25.7	30.0	33.9	37.5	40.8	43.8	46.6	49.2	51.6
		Airside Δ PS		0.02	0.03	0.04	0.06	0.07	0.09	0.11	0.13	0.15

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				500	620	740	860	980	1100	1220	1340	1460
5	One Row	1.0	0.40	22.1	23.6	24.8	25.8	26.5	27.7	28.6	29.5	30.3
		2.0	1.30	25.6	27.8	29.6	31.1	32.3	34.0	35.6	37.0	38.3
		4.0	4.40	27.7	30.4	32.7	34.6	36.1	38.3	40.3	42.2	44.0
		6.0	9.00	28.5	31.4	33.9	36.0	37.6	40.0	42.3	44.4	46.3
		Airside Δ PS		0.01	0.02	0.02	0.03	0.03	0.04	0.05	0.06	0.07
	Two Rows	1.0	0.80	31.9	35.0	37.4	39.3	40.9	42.2	43.4	44.3	45.2
		2.0	2.70	38.0	43.0	47.3	51.0	54.2	57.0	59.5	61.8	63.8
		4.0	9.20	41.5	47.9	53.6	58.6	63.2	67.4	71.2	74.7	78.0
		5.0	13.70	42.3	48.9	54.9	60.3	65.2	69.7	73.9	77.8	81.4
		Airside Δ PS		0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.11	0.13

See Legend and Notes on page 63.

45K QUIET SERIES FAN POWERED TERMINAL UNITS (cont)

HOT WATER COIL DATA (cont)

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				400	575	750	925	1100	1275	1450	1625	1800
6	One Row	1.0	0.40	20.4	23.1	24.9	26.3	27.7	29.1	30.3	31.3	32.2
		2.0	1.30	23.3	27.0	29.7	31.9	34.0	36.2	38.2	40.0	41.6
		4.0	4.40	25.0	29.5	32.8	35.8	38.3	41.2	43.9	46.3	48.5
		6.0	9.00	25.6	30.4	34.1	37.0	40.0	43.2	46.2	48.9	51.4
		Airside Δ PS		0.01	0.01	0.02	0.03	0.04	0.06	0.07	0.08	0.10
	Two Rows	1.0	0.80	28.6	33.9	37.6	40.2	42.2	43.8	45.1	46.1	47.0
		2.0	2.70	33.1	41.3	47.8	52.8	57.0	60.6	63.7	66.3	68.7
		4.0	9.20	35.5	45.6	54.0	61.1	67.4	72.8	77.7	82.1	86.1
		5.0	13.70	36.0	46.5	55.4	63.0	69.7	75.7	81.1	85.9	90.4
		Airside Δ PS		0.01	0.03	0.04	0.06	0.08	0.10	0.13	0.16	0.19

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				900	965	1130	1295	1460	1625	1790	1955	2120
7	One Row	1.0	0.40	25.3	26.4	27.9	29.2	30.3	31.3	32.2	32.9	33.6
		2.0	1.30	30.4	32.0	34.4	36.5	38.3	40.0	41.5	42.9	44.2
		4.0	4.40	33.7	35.8	38.8	41.5	44.0	46.3	48.4	50.4	52.2
		6.0	9.00	35.0	37.3	40.6	43.6	46.3	48.9	51.3	53.5	55.5
		Airside Δ PS		0.02	0.03	0.04	0.06	0.07	0.08	0.10	0.12	0.13
	Two Rows	1.0	0.80	38.4	40.7	42.5	44.0	45.2	46.1	47.0	47.7	48.3
		2.0	2.70	49.2	53.8	57.7	61.0	63.8	66.3	68.5	70.5	72.2
		4.0	9.20	56.2	62.6	68.4	73.4	78.0	82.1	85.8	89.3	92.5
		5.0	13.70	57.7	64.6	70.8	76.4	81.4	85.9	90.1	94.0	97.6
		Airside Δ PS		0.05	0.06	0.08	0.11	0.13	0.16	0.19	0.22	0.26

LEGEND

PS — Static Pressure Drop (in. wg)

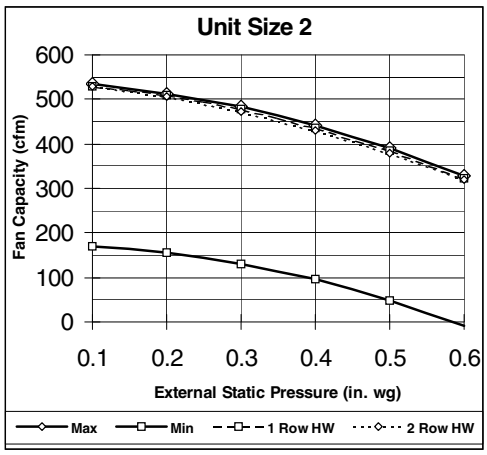
NOTES:
1. Hot water coil capacities are in MBtuh (MBtuh = 1000 Btuh).
2. Btuh = 1.08 x cfm x ΔT (Temp rise across coil).
3. Data is based upon 180 F entering water and 55 F entering air.
4. Head Loss is in feet of water.
5. Tables are based upon a temperature difference of 125 F between entering air and entering water. For other temperature differences, multiply MBtuh values by factors below.
6. LAT (Leaving Air Temperature) = Entering Air Temp + air temp rise.
7. Air temperature rise = 927 x MBtuh/cfm.
8. Water temperature drop = 2.04 x MBtuh/gpm.
9. Connections: All coils are $^{5}/_{8}$-in. OD male solder.
10. Coils are not for steam application. Contact a Carrier representative for steam coil data.

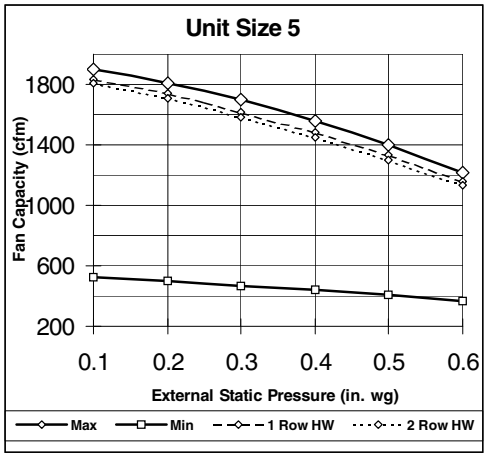
CORRECTION FACTORS FOR OTHER ENTERING CONDITIONS

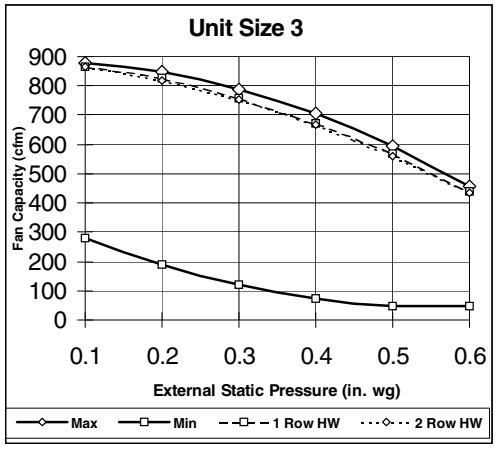
ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.40	0.48	0.56	0.64	0.72	0.80	0.88	1.00	1.12	1.20

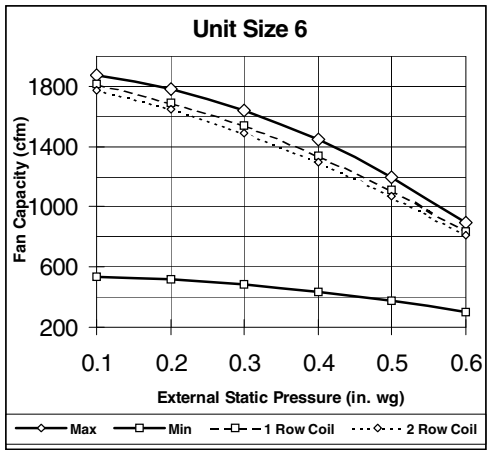
NOTE: Do not select for discharge temperatures exceeding 120 F. In addition, ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air temperature stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

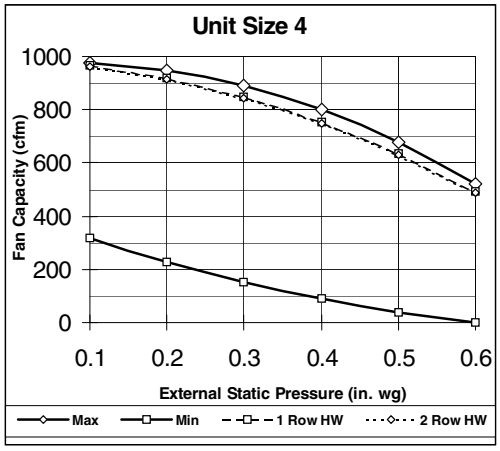
45N QUIET PARALLEL FAN POWERED TERMINAL UNITS — FAN CURVES WITH PSC MOTOR OPTION
AIRFLOW VS. DOWNSTREAM STATIC PRESSURE

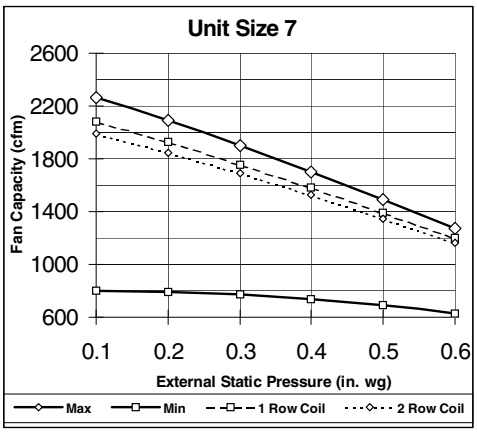










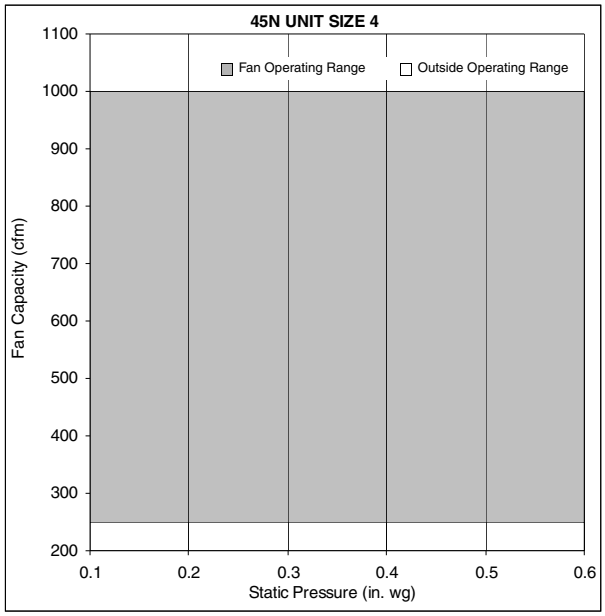


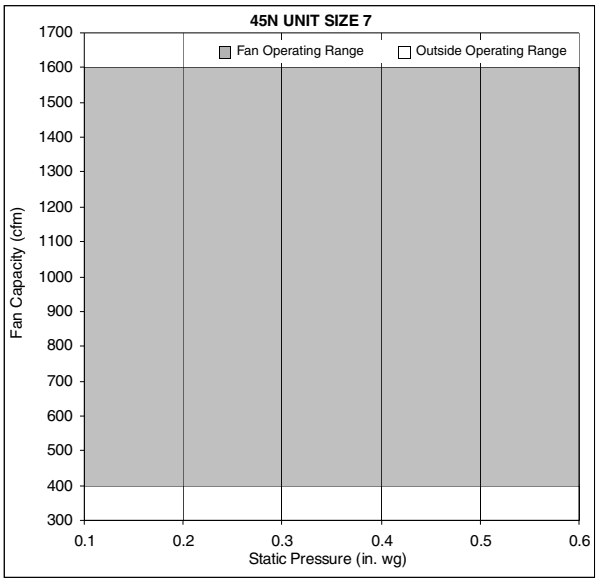
LEGEND

PSC — Permanent Split Capacitor

NOTES:
1. Fan speed controller (SCR) is standard with each unit. Fan curve minimums indicate maximum achievable flow reductions using speed control.
2. Units must be selected to operate within the flow envelopes shown.
3. Fan air discharge will be reduced approximately 5% when the unit is equipped with factory-supplied electric heating coils.

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS — FAN CURVES WITH ECM OPTION
AIRFLOW VS. DOWNSTREAM STATIC PRESSURE





LEGEND

ECM — Electronically Commutated Motor

Performance data (cont)

45N quiet parallel fan powered terminal unit

1. 45N maximum primary airflow (cfm) is based on 1.00 in. wg velocity pressure signal (VP), from standard Carrier linear averaging sensor.
2. Minimum recommended airflow (cfm) is based on 0.03 in. wg differential pressure of the linear inlet flow sensor, or 0 airflow, 0.03 in. wg is equal to 15% to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than ±5% control of box flow.
3. Maximum induced airflow (cfm) is based on 0.25 in. wg external downstream static pressure.
4. Minimum fan airflow (cfm) is based on maximum external (downstream) static pressure 0.6 in. wg.
5. Minimum primary airflow (cfm) listed is for all controls except CCN controls, which is shown separately with lower available minimum cfms. Some DDC controls supplied by others may have different limitations.
6. Motor amp draw = Power (w)/Voltage.

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS (PSC MOTOR)

UNIT SIZE	INLET SIZE (in.)	MOTOR Hp	MOTOR AMPS			FAN AIRFLOW*		PRIMARY AIRFLOW		
			120 V	208/240 V	277 V	Max	Min	Max	Min†	Min CCN
2	6	1/4	2.6	1.5	1.1	500	50	515	90 or 0	52 or 0
	8							920	160 or 0	93 or 0
3	6	1/4	3.1	1.7	1.3	800	50	515	90 or 0	52 or 0
	8							920	160 or 0	93 or 0
	10							1430	250 or 0	145 or 0
4	6	1/4	3.4	1.9	1.4	900	50	515	90 or 0	52 or 0
	8							920	160 or 0	93 or 0
	10							1430	250 or 0	145 or 0
	12							2060	360 or 0	210 or 0
5	10	1/2	7.3	4.1	3.1	1700	375	1430	250 or 0	145 or 0
	12							2060	360 or 0	210 or 0
	14							2800	480 or 0	285 or 0
6	10	1/2	7.3	4.1	3.1	1800	400	1430	250 or 0	145 or 0
	12							2060	360 or 0	210 or 0
	14							2800	480 or 0	285 or 0
	16							3660	630 or 0	370 or 0
7	10	3/4	9.5	5.8	4.4	2000	625	1430	250 or 0	145 or 0
	12							2060	360 or 0	210 or 0
	14							2800	480 or 0	285 or 0
	16							3660	630 or 0	370 or 0

LEGEND

CCN — Carrier Comfort Network® Controls
DDC — Direct Digital Controls
Ps — Static Pressure
PSC — Permanent Split Capacitor Motor

*Max based on 0.25 in. wg downstream Ps for PSC motors. See Catalog for complete fan curves. Min based on 0.6 in. wg downstream Ps for PSC motors.
†For all controls except CCN controls. Some DDC controls supplied by others may have differing limitations.

NOTE: Data is based on tests conducted in accordance with AHRI (Air Conditioning, Heating, and Refrigeration Institute) Standard 880.

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS (ECM MOTOR)

UNIT SIZE	INLET SIZE (in.)	MOTOR Hp	ECM MOTOR AMPS			PRIMARY AIRFLOW			ECM FAN AIRFLOW	
			120 V FLA*	240 V FLA*	277 V FLA	Max	Min†	Min CCN	Max	Min
4	6	1/2	7.7	5.0	4.1	500	90 or 0	52 or 0	1000	250
	8					900	170 or 0	93 or 0		
	10					1400	250 or 0	145 or 0		
	12					2100	360 or 0	210 or 0		
7	10	1	12.8	9.4	6.9	1400	250 or 0	145 or 0	1600	400
	12					2100	360 or 0	210 or 0		
	14					2500	500 or 0	285 or 0		
	16					3300	650 or 0	370 or 0		

LEGEND

CCN — Carrier Comfort Network Controls
DDC — Direct Digital Controls
ECM — Electronically Commutated Motor
FLA — Full Load Amps

*Special order.
†For all controls except CCN controls. Some DDC controls supplied by others may have differing limitations. This value is based on a signal of 0.03 in. wg differential pressure of the linear averaging flow probe.

NOTE: Data is based on tests conducted in accordance with AHRI (Air Conditioning, Heating, and Refrigeration Institute) Standard 880.

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS

HOT WATER COIL DATA

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				150	190	230	270	310	350	390	430	470
2	One Row	1.0	0.30	10.5	11.7	12.7	13.6	14.3	14.9	15.4	15.9	16.4
		2.0	1.00	11.3	12.8	14.0	15.0	16.0	16.8	17.5	18.1	18.8
		4.0	3.20	11.7	13.4	14.7	15.9	17.0	17.9	18.8	19.5	20.3
		6.0	6.70	11.9	13.6	15.0	16.3	17.4	18.4	19.3	20.1	20.8
		Airside Δ PS		0.01	0.01	0.01	0.01	0.01	0.01	0.02	0.02	0.02
	Two Rows	1.0	0.60	13.8	16.1	18.2	20.0	21.6	23.0	24.3	25.5	26.5
		2.0	4.20	14.9	17.9	20.6	23.1	25.4	27.6	29.6	31.5	33.3
		4.0	6.90	15.0	18.1	20.9	23.5	26.0	28.2	30.4	32.4	34.3
		5.0	10.30	15.1	18.3	21.1	23.8	26.3	28.6	30.9	32.9	34.9
		Airside Δ PS		0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.05

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				200	265	330	395	460	525	590	655	720
3	One Row	1.0	0.30	12.0	13.5	14.6	15.5	16.3	16.9	17.5	18.3	19.0
		2.0	1.00	13.1	14.9	16.4	17.6	18.6	19.5	20.3	21.3	22.3
		4.0	3.20	13.7	15.8	17.5	18.9	20.1	21.2	22.1	23.3	24.5
		6.0	6.70	14.0	16.1	17.9	19.4	20.7	21.8	22.8	24.1	25.4
		Airside Δ PS		0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.04	0.05
	Two Rows	1.0	0.60	16.7	19.8	22.3	24.5	26.3	27.9	29.2	30.4	31.5
		3.0	4.20	18.6	22.8	26.5	29.8	32.8	35.5	38.0	40.4	42.5
		4.0	6.90	18.8	23.2	27.1	30.6	33.8	36.7	39.5	42.0	44.3
		5.0	10.30	19.0	23.5	27.5	31.1	34.4	37.5	40.3	43.0	45.5
		Airside Δ PS		0.01	0.02	0.03	0.03	0.04	0.06	0.07	0.08	0.10

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				200	275	350	425	500	575	650	725	800
4	One Row	1.0	0.30	12.0	13.6	14.9	15.9	16.7	17.3	18.2	19.0	19.7
		2.0	1.00	13.1	15.2	16.8	18.1	19.2	20.0	21.2	22.4	23.4
		4.0	3.20	13.7	16.1	17.9	19.5	20.8	21.8	23.3	24.6	25.9
		6.0	6.70	14.0	16.4	18.4	20.0	21.4	22.5	24.0	25.5	26.9
		Airside Δ PS		0.01	0.01	0.01	0.02	0.03	0.04	0.04	0.05	0.06
	Two Rows	1.0	0.60	16.7	20.2	23.0	25.4	27.3	28.9	30.3	31.6	32.7
		3.0	4.20	18.6	23.4	27.6	31.2	34.5	37.5	40.2	42.6	44.9
		4.0	6.90	18.8	23.8	28.2	32.1	35.6	38.8	41.8	44.5	47.0
		5.0	10.30	19.0	24.1	28.6	32.7	36.4	39.7	42.8	45.7	48.3
		Airside Δ PS		0.01	0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.12

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				500	645	790	935	1080	1225	1370	1515	1660
5	One Row	1.0	0.40	22.1	23.9	25.2	26.4	27.5	28.7	29.7	30.7	31.5
		2.0	1.30	25.6	28.2	30.2	32.0	33.7	35.6	37.3	38.9	40.3
		4.0	4.40	27.7	30.9	33.5	35.7	37.9	40.4	42.7	44.8	46.8
		6.0	9.00	28.5	32.0	34.8	37.2	39.6	42.3	44.9	47.2	49.4
		Airside Δ PS		0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.07	0.09
	Two Rows	1.0	0.80	31.9	35.5	38.2	40.3	42.0	43.4	44.5	45.5	46.3
		2.0	2.70	38.0	44.0	48.9	53.0	56.6	59.6	62.3	64.7	66.8
		3.0	5.60	40.3	47.3	53.3	58.5	63.1	67.1	70.7	74.0	77.0
		4.0	9.20	41.5	49.1	55.7	61.5	66.7	71.3	75.6	79.4	82.9
		Airside Δ PS		0.02	0.03	0.04	0.06	0.08	0.10	0.12	0.14	0.17

See Legend and Notes on page 68.

Performance data (cont)

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS (cont)

HOT WATER COIL DATA (cont)

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				500	625	750	875	1000	1125	1250	1375	1500
6	One Row	1.0	0.40	22.1	23.6	24.9	25.9	26.7	27.9	28.9	29.8	30.6
		2.0	1.30	25.6	27.8	29.7	31.3	32.6	34.3	35.9	37.4	38.7
		4.0	4.40	27.7	30.5	32.8	34.8	36.5	38.7	40.8	42.8	44.6
		6.0	9.00	28.5	31.5	34.1	36.2	38.0	40.5	42.8	45.0	47.0
		Airside Δ PS		0.01	0.02	0.02	0.03	0.04	0.04	0.05	0.06	0.07
	Two Rows	1.0	0.80	31.9	35.1	37.6	39.5	41.1	42.5	43.6	44.6	45.4
		2.0	2.70	38.0	43.2	47.6	51.4	54.7	57.6	60.1	62.4	64.5
		3.0	5.60	40.3	46.4	51.8	56.4	60.6	64.4	67.8	70.8	73.7
		4.0	9.20	41.5	48.2	54.0	59.2	63.9	68.2	72.1	75.7	79.0
		Airside Δ PS		0.02	0.03	0.04	0.05	0.07	0.08	0.10	0.12	0.14

UNIT SIZE	ROWS	FLOW RATE (gpm)	HEAD LOSS	AIRFLOW (cfm)								
				800	920	1040	1160	1280	1400	1520	1640	1760
7	One Row	1.0	0.40	25.3	26.3	27.1	28.2	29.1	29.9	30.7	31.4	32.0
		2.0	1.30	30.4	31.8	33.1	34.8	36.3	37.7	39.0	40.1	41.3
		4.0	4.40	33.7	35.5	37.2	39.3	41.3	43.2	44.9	46.5	48.0
		6.0	9.00	35.0	36.9	38.8	41.1	43.3	45.4	47.3	49.1	50.8
		Airside Δ PS		0.02	0.03	0.04	0.05	0.06	0.06	0.08	0.09	0.10
	Two Rows	1.0	0.80	38.4	40.2	41.6	42.8	43.9	44.8	45.5	46.2	46.8
		2.0	2.70	49.2	52.6	55.7	58.3	60.7	62.8	64.8	66.5	68.1
		3.0	5.60	53.7	58.0	61.9	65.3	68.5	71.4	74.1	76.6	78.8
		4.0	9.20	56.2	61.0	65.3	69.3	73.0	76.4	79.5	82.5	85.2
		Airside Δ PS		0.05	0.06	0.07	0.09	0.10	0.12	0.14	0.16	0.18

LEGEND

PS — Static Pressure Drop (in. wg)

NOTES:
1. Hot water coil capacities are in MBtuh (MBtuh = 1000 Btuh).
2. Btuh = 1.08 x cfm x ΔT (Temp rise across coil).
3. Data is based upon 180 F entering water and 55 F entering air.
4. Head Loss is in feet of water.
5. Tables are based upon a temperature difference of 125 F between entering air and entering water. For other temperature differences, multiply MBtuh values by factors below.
6. LAT (Leaving Air Temperature) = Entering Air Temp + air temp rise.
7. Air temperature rise = 927 x MBtuh/cfm.
8. Water temperature drop = 2.04 x MBtuh/gpm.
9. Connections: All coils are $^{5}/_{8}$-in. OD male solder.
10. Coils are not for steam application. Contact a Carrier representative for steam coil data.

CORRECTION FACTORS FOR OTHER ENTERING CONDITIONS

ΔT	50	60	70	80	90	100	115	125	140	150
Factor	0.40	0.48	0.56	0.64	0.72	0.80	0.88	1.00	1.12	1.20

NOTE: Do not select for discharge temperatures exceeding 120 F. In addition, ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air temperature stratification when heating from the ceiling (2001 Fundamentals, Chapter 32). If an inlet coil position is selected (45N only), maximum recommended coil leaving air temperature is 100 F to avoid decreased motor service life.

AHRI CERTIFICATION RATING POINTS

45K QUIET SERIES FAN POWERED TERMINAL UNITS DISCHARGE

UNIT SIZE	FAN CFM	FAN ONLY SOUND POWER					
		Octave Bands					
		2	3	4	5	6	7
2	400	65	59	54	46	41	43
3	700	63	62	62	56	57	57
4	1100	68	67	67	63	60	61
5	1600	70	68	67	67	64	64
6	2100	73	72	70	71	69	70
7	2800	80	78	73	75	73	75

45K QUIET SERIES FAN POWERED TERMINAL UNITS RADIATED

UNIT SIZE	INLET SIZE	PRIM. CFM	MIN Ps	FAN PLUS PRIMARY AT 1.5 IN. INLET					
				Octave Bands					
				2	3	4	5	6	7
2	8	400	0.10	66	57	55	50	47	43
3	10	700	0.10	66	60	57	52	46	45
4	12	1100	0.10	67	64	58	52	50	50
5	12	1600	0.10	69	64	64	58	53	50
6	14	2100	0.10	71	66	66	60	55	53
7	16	2800	0.10	77	69	70	64	59	57

UNIT SIZE	FAN CFM	FAN ONLY SOUND POWER					
		Octave Bands					
		2	3	4	5	6	7
2	400	64	54	50	46	40	33
3	700	65	57	52	48	41	37
4	1100	66	61	57	50	45	40
5	1600	68	62	61	57	49	45
6	2100	69	63	62	59	52	47
7	2800	74	68	66	63	58	54

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS DISCHARGE

UNIT SIZE	INLET SIZE	PRIM. CFM	MIN Δ Ps	SOUND POWER AT 1.5 IN. Δ Ps					
				Octave Bands					
				2	3	4	5	6	7
2	6	400	0.200	61	57	51	45	41	38
3	8	700	0.200	64	62	53	49	44	39
4	10	1100	0.200	69	65	57	55	50	44
5	12	1600	0.200	68	61	57	55	52	45
6	14	2100	0.200	69	62	60	57	53	46
7	16	2800	0.200	75	67	65	61	58	52

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS RADIATED

UNIT SIZE	INLET SIZE	PRIM. CFM	MIN Δ Ps	SOUND POWER AT 1.5 IN. Δ Ps					
				Octave Bands					
				2	3	4	5	6	7
2	6	400	0.200	54	48	45	39	37	35
3	8	700	0.200	62	55	50	44	40	32
4	10	1100	0.200	63	57	51	45	42	40
5	12	1600	0.200	65	58	53	48	44	41
6	14	2100	0.200	70	60	56	50	47	42
7	16	2800	0.200	74	67	65	62	61	59

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS FAN ONLY

UNIT SIZE	FAN WATTS	FAN CFM	FAN ONLY RADIATED SOUND POWER						FAN ONLY DISCHARGE SOUND POWER					
			Octave Bands						Octave Bands					
			2	3	4	5	6	7	2	3	4	5	6	7
2	280	400	66	61	58	53	49	45	65	64	62	57	53	50
3	300	700	71	69	64	59	53	52	69	69	68	62	60	59
4	350	800	67	65	61	57	51	50	66	65	65	59	58	56
5	655	1350	72	67	64	62	60	57	69	66	66	63	62	61
6	700	1550	73	71	67	63	59	56	71	71	69	65	63	62
7	1005	1800	75	72	69	67	63	61	74	72	71	68	67	66

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VAV Terminals
AHRI Standard 880

LEGEND

Ps — Static Pressure
ΔPs — Difference in Static Pressure from the Inlet to the Discharge

Notes for Sound Data Tables:

Air Conditioning, Heating, and Refrigeration Institute (AHRI) and ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) provide guidance in both measuring sound power levels (per AHRI 880), and in estimating the resultant room sound pressure, typically shown as an NC level (per AHRI 885). American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE) handbooks provide detailed acoustical guidance. Air Conditioning and Refrigeration Institute (AHRI) Standard 885 is an application standard which provides tables and equations for determining acoustical deduction based on the ASHRAE guides, as well as additional information provided by manufacturers.

All sound data shown by octave bands is raw data without any corrections for room absorption or duct attenuation. This Sound Power data is tested in accordance with AHRI Standard 880.

The NC values reflect a more accurate sound level estimate for typical office spaces or other applications. These NC levels are calculated based on procedures from AHRI Standard 885.

Performance data (cont)

45K QUIET SERIES FAN POWERED TERMINAL UNITS WITH PSC MOTOR

RADIATED SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		FAN ONLY							FAN + PRIMARY AT 0.5 ΔPs							FAN + PRIMARY AT 1.0 ΔPs						
						Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
		CFM	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
2	6	200	94	0.025	6.22	56	45	44	39	33	27	—	58	48	46	42	38	30	20	58	49	48	43	40	35	22
		275	130	0.047	11.76	59	48	46	42	36	29	21	61	51	49	44	40	33	24	61	51	50	45	42	37	24
		350	165	0.077	19.05	61	50	48	44	38	31	24	64	52	50	46	42	34	27	64	53	52	47	44	39	27
		425	201	0.113	28.09	63	51	49	45	40	33	26	65	54	52	48	43	36	29	65	55	53	48	45	40	29
		500	236	0.156	38.88	65	53	50	47	41	34	28	67	55	53	49	45	37	31	67	56	54	49	47	41	31
3	8	600	283	0.073	18.28	59	54	50	45	38	35	24	62	57	53	47	41	38	27	62	57	54	48	43	40	29
		700	330	0.100	24.88	61	56	52	47	41	37	26	63	58	54	49	43	39	29	63	59	56	50	44	42	30
		800	378	0.131	32.50	62	57	54	50	43	39	28	65	59	56	52	45	41	30	64	60	57	52	46	43	32
		900	425	0.165	41.13	64	58	55	52	45	41	30	66	60	55	53	45	41	30	66	61	58	54	47	45	33
		1000	472	0.204	50.78	65	59	57	53	46	43	31	67	59	57	53	46	43	31	67	62	59	56	48	46	34
4	10	700	330	0.040	10.08	59	58	50	44	38	33	27	61	58	53	46	41	36	27	61	61	54	47	44	41	30
		850	401	0.060	14.86	60	59	53	46	40	35	28	62	59	55	46	43	38	29	62	61	56	49	45	43	31
		1000	472	0.083	20.57	61	59	55	48	43	37	30	63	59	55	48	45	39	30	63	62	58	51	47	44	32
		1150	543	0.109	27.20	62	60	57	50	44	39	31	64	60	57	50	44	41	31	64	62	59	52	48	46	34
		1300	614	0.140	34.76	63	61	58	51	46	41	33	65	61	58	51	46	41	33	65	63	60	53	49	47	35
5	12	1100	519	0.047	11.76	60	54	56	51	43	38	31	63	57	58	54	47	42	33	64	59	60	54	49	46	35
		1260	595	0.062	15.43	62	56	57	52	45	40	32	65	58	59	55	48	43	34	65	60	61	56	50	47	36
		1425	673	0.079	19.74	64	57	59	54	47	42	34	66	59	59	56	49	45	34	66	61	62	57	50	48	37
		1590	750	0.099	24.57	65	58	60	56	48	44	35	67	58	60	56	48	44	35	67	62	63	58	51	49	38
		1750	826	0.120	29.77	66	60	61	57	50	46	37	66	60	61	57	50	46	37	66	63	64	57	52	50	39
6	14	1400	661	0.044	11.06	62	54	56	52	45	40	31	64	56	58	54	47	43	33	64	59	59	55	49	47	34
		1675	790	0.064	15.83	64	57	58	55	47	43	33	66	57	58	57	49	45	33	67	61	61	57	51	49	37
		1950	920	0.086	21.46	66	59	60	57	50	45	35	68	59	60	59	50	47	35	69	62	63	59	53	50	38
		2225	1050	0.112	27.93	68	61	62	59	52	47	37	68	61	62	59	52	47	37	70	64	64	61	54	52	40
		2500	1180	0.142	35.27	70	63	63	61	53	49	39	70	63	63	61	53	49	39	72	65	66	61	56	53	41
7	16	1500	708	0.029	7.14	68	57	57	53	46	41	32	68	59	57	55	48	45	32	70	59	59	55	48	48	34
		1840	868	0.043	10.75	69	60	60	56	50	45	35	69	62	60	58	52	47	35	72	62	62	58	52	50	37
		2175	1026	0.060	15.01	71	63	62	59	53	48	37	73	65	62	61	55	50	38	73	65	65	61	55	52	40
		2500	1180	0.080	19.84	72	65	64	61	55	51	39	74	67	66	63	57	51	41	74	67	66	63	57	54	42
		2850	1345	0.104	25.78	73	67	66	63	57	53	41	75	69	68	65	59	53	43	76	69	68	65	60	56	44

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
PSC — Permanent Split Capacitor
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. Radiated sound power is the noise emitted from the unit casing and induction port.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885	OCTAVE BANDS					
RADIATED	2	3	4	5	6	7
Environ. Effect	2	1	0	0	0	0
Mineral Tile Space/Ceiling Effect	16	18	20	26	31	36
Total Attenuation	18	19	20	26	31	36

45K QUIET SERIES FAN POWERED TERMINAL UNITS WITH ECM OPTION

RADIATED SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		FAN ONLY							FAN + PRIMARY AT 0.5 ΔPs							FAN + PRIMARY AT 1.0 ΔPs						
		CFM	L/s	in. wg	pa	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
						2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
3	6	350	165	0.077	19.05	54	55	42	36	29	23	24	59	59	48	41	38	32	28	58	60	51	43	42	39	29
		400	189	0.100	24.88	55	56	44	37	31	25	25	59	59	50	42	39	33	29	59	61	52	44	43	40	30
		450	212	0.127	31.49	56	56	45	39	32	27	25	60	60	51	44	40	34	29	60	61	53	45	44	41	31
		500	236	0.156	38.88	57	57	46	40	33	28	26	61	60	52	45	41	35	30	61	61	54	46	45	42	31
		550	260	0.189	47.05	57	57	47	41	35	29	26	62	61	52	45	41	36	30	61	62	55	47	45	43	32
	8	350	165	0.025	6.22	54	55	42	36	29	23	24	57	58	47	40	36	30	27	57	59	49	42	40	37	28
		500	236	0.051	12.70	57	57	46	40	33	28	26	60	59	50	43	39	34	29	60	60	52	45	43	40	30
		650	307	0.086	21.46	58	58	50	43	37	32	27	61	60	53	46	41	36	30	61	61	55	48	45	42	31
		825	389	0.139	34.56	60	59	52	46	40	35	28	63	61	55	48	44	38	31	63	62	57	50	47	44	32
		1000	472	0.204	50.78	61	59	55	48	43	37	30	64	62	57	50	45	40	32	64	63	59	52	48	46	34
	10	600	283	0.030	7.40	58	57	49	42	36	31	27	60	57	51	44	39	34	27	60	60	53	46	42	40	29
		800	378	0.053	13.16	60	59	52	46	40	34	28	62	59	54	47	42	37	29	62	61	55	48	45	42	31
		1000	472	0.083	20.57	61	59	55	48	43	37	30	63	59	55	48	45	39	30	63	62	58	51	47	44	32
		1200	566	0.119	29.61	63	60	57	50	45	40	32	65	60	57	50	45	41	32	64	63	59	53	48	46	34
		1400	661	0.162	40.31	64	61	59	52	47	42	34	66	61	59	52	47	42	34	66	63	61	54	50	47	36
6	12	500	236	0.010	2.43	47	39	44	35	29	23	—	52	46	48	43	37	34	22	53	50	50	44	40	39	24
		800	378	0.025	6.22	54	46	49	43	36	31	24	58	51	53	48	42	38	28	59	55	55	49	45	43	29
		1100	519	0.047	11.76	58	51	53	48	41	36	28	62	54	56	52	45	41	31	62	58	58	53	48	46	33
		1400	661	0.077	19.05	62	54	56	52	45	40	31	65	57	59	55	48	44	34	65	60	61	56	50	48	36
		1750	826	0.120	29.77	65	57	59	55	48	43	34	68	60	61	58	51	47	37	68	63	63	59	53	51	38
	14	600	283	0.008	2.03	49	42	46	38	32	26	—	53	46	49	44	37	34	23	54	50	51	44	40	39	25
		900	425	0.018	4.57	55	48	51	45	38	32	25	58	51	53	49	42	38	28	59	54	55	49	44	43	29
		1200	566	0.033	8.13	59	52	54	49	42	37	29	62	54	57	52	45	41	31	62	57	58	53	47	45	33
		1500	708	0.051	12.70	63	55	57	53	46	41	32	65	57	59	55	48	44	34	65	60	60	56	50	47	35
		2000	944	0.091	22.57	67	59	61	57	50	46	36	68	59	61	57	50	48	36	69	63	63	59	53	51	39
7	16	600	283	0.005	1.14	60	42	46	40	30	23	22	60	44	46	40	32	35	22	60	44	46	40	33	40	22
		1000	472	0.013	3.17	64	50	52	47	39	33	28	64	52	52	47	41	40	28	64	52	52	47	41	44	28
		1500	708	0.029	7.14	68	57	57	53	46	41	32	68	59	57	55	48	45	32	70	59	59	55	48	48	34
		2000	944	0.051	12.70	70	61	61	57	51	46	36	72	63	61	59	53	49	37	72	63	63	60	53	51	39
		2500	1180	0.080	19.84	72	65	64	61	55	51	39	74	67	66	63	57	51	41	74	67	66	63	57	54	42

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
ECM — Electrically Commutated Motor
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. Radiated sound power is the noise emitted from the unit casing and induction port.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885	OCTAVE BANDS					
RADIATED	2	3	4	5	6	7
Environ. Effect	2	1	0	0	0	0
Mineral Tile Space/Ceiling Effect	16	18	20	26	31	36
Total Attenuation	18	19	20	26	31	36

Performance data (cont)

45K QUIET SERIES FAN POWERED TERMINAL UNITS WITH PSC MOTOR

DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		FAN ONLY							FAN + PRIMARY AT 0.5 ΔPs							FAN + PRIMARY AT 1.0 ΔPs						
						Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
		CFM	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
2	6	200	94	0.025	6.22	60	55	51	43	37	36	—	62	57	53	45	39	39	—	62	58	54	45	39	39	—
		275	130	0.047	11.76	62	56	52	44	38	39	—	64	59	55	46	41	41	20	64	60	55	46	40	41	20
		350	165	0.077	19.05	63	58	53	45	39	41	—	65	61	55	47	42	43	—	66	62	56	47	42	43	—
		425	201	0.113	28.09	65	58	54	46	40	42	—	67	62	56	48	43	45	—	67	63	57	48	43	45	21
		500	236	0.156	38.88	65	59	54	46	41	44	—	68	63	57	49	43	46	21	68	64	57	48	43	46	22
3	8	600	283	0.073	18.28	60	59	58	52	53	53	—	61	61	60	54	55	55	—	62	63	60	54	55	55	20
		700	330	0.100	24.88	62	61	61	55	56	56	—	64	63	63	57	58	58	22	64	65	63	57	58	58	23
		800	378	0.131	32.50	64	63	63	58	58	58	22	65	65	65	60	60	60	24	66	66	65	60	60	60	24
		900	425	0.165	41.13	65	65	65	60	61	61	25	67	67	67	62	63	63	27	67	68	67	62	63	63	27
		1000	472	0.204	50.78	67	66	67	62	63	63	27	69	68	69	64	65	65	29	69	69	69	64	65	65	29
4	10	700	330	0.040	10.08	59	60	59	54	51	51	—	59	62	61	56	53	53	—	62	64	62	56	53	54	20
		850	401	0.060	14.86	62	62	62	57	54	55	—	62	65	64	59	56	57	22	64	66	65	59	57	58	23
		1000	472	0.083	20.57	63	65	65	60	57	58	22	63	67	67	62	59	60	24	66	68	67	62	60	61	26
		1150	543	0.109	27.20	65	66	67	63	60	61	25	65	68	69	65	62	63	27	67	70	69	65	62	64	28
		1300	614	0.140	34.76	67	68	69	65	62	63	27	67	70	71	67	64	66	30	69	71	71	67	64	66	30
5	12	1100	519	0.047	11.76	65	61	60	55	54	55	—	65	65	62	58	56	57	22	65	66	62	58	56	57	23
		1260	595	0.062	15.43	66	64	62	59	57	58	22	68	66	64	61	59	60	24	68	67	64	61	59	60	25
		1425	673	0.079	19.74	67	65	64	62	60	61	25	69	68	66	64	62	63	27	69	69	66	64	62	63	27
		1590	750	0.099	24.57	68	67	65	65	62	63	27	70	69	67	66	65	65	29	70	70	67	67	64	65	29
		1750	826	0.120	29.77	69	69	67	67	65	66	29	71	69	69	69	67	68	31	71	71	69	69	67	68	31
6	14	1400	661	0.044	11.06	67	66	64	61	60	61	25	69	68	66	63	62	61	26	70	68	66	63	62	63	27
		1675	790	0.064	15.83	69	69	66	65	63	64	28	70	70	68	67	65	66	30	72	71	68	67	65	66	30
		1950	920	0.086	21.46	70	71	68	69	66	67	31	72	71	70	71	68	69	33	73	72	70	71	68	69	33
		2225	1050	0.112	27.93	71	72	69	72	69	70	33	72	72	71	74	71	72	35	74	74	71	74	71	72	36
		2500	1180	0.142	35.27	71	74	70	74	71	72	36	73	74	72	76	73	74	38	74	74	72	76	73	74	38
7	16	1500	708	0.029	7.14	67	62	61	61	58	59	23	70	66	61	63	60	61	25	70	66	61	63	60	61	25
		1840	868	0.043	10.75	71	67	64	65	63	64	28	73	70	66	67	65	66	30	74	70	66	67	65	66	30
		2175	1026	0.060	15.01	74	71	68	69	67	68	32	74	73	69	71	69	70	34	76	74	69	71	69	70	34
		2500	1180	0.080	19.84	77	74	70	72	70	71	35	77	74	72	74	72	73	37	77	76	72	74	72	73	37
		2850	1345	0.104	25.78	79	77	73	75	73	74	38	79	77	75	77	75	76	40	79	79	75	77	75	76	40

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
PSC — Permanent Split Capacitor
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. End discharge sound power is the noise emitted from the unit discharge into the duct.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885 DISCHARGE <300 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 8 x 8 x 1 in.	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, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885 DISCHARGE 300-700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 12 x 12 x 1 in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885 DISCHARGE >700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 15 x 15x 1 in.	2	3	9	25	17	12
End Reflection	9	5	2	0	0	0
Power Division (3 outlets)	5	5	5	5	5	5
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

45K QUIET SERIES FAN POWERED TERMINAL UNITS WITH ECM OPTION

DISCHARGE SOUND POWER DATA

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		FAN ONLY							FAN + PRIMARY AT 0.5 ΔPs							FAN + PRIMARY AT 1.0 ΔPs						
						Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
		CFM	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
3	6	350	165	0.077	19.05	51	51	49	41	38	36	—	55	56	53	45	43	41	—	56	59	53	45	43	42	—
		400	189	0.100	24.88	53	52	51	43	41	39	—	56	58	55	47	45	44	—	57	60	55	48	46	45	—
		450	212	0.127	31.49	54	54	53	46	43	42	—	58	59	56	50	47	46	—	59	61	57	50	48	47	—
		500	236	0.156	38.88	55	55	54	47	45	44	—	59	61	58	52	49	48	—	60	63	59	52	50	49	20
		550	260	0.189	47.05	56	57	56	49	46	46	—	60	62	59	53	51	50	—	61	64	60	54	51	51	22
	8	350	165	0.025	6.22	51	51	49	41	38	36	—	54	55	52	44	41	40	—	55	57	52	44	42	40	—
		500	236	0.051	12.70	55	55	54	47	45	44	—	58	59	57	50	48	47	—	59	61	58	51	48	48	—
		650	307	0.086	21.46	58	59	58	52	49	49	—	61	62	61	55	52	52	20	62	64	61	55	53	53	22
		825	389	0.139	34.56	61	62	62	57	54	54	—	64	65	65	59	57	57	22	64	67	65	60	57	58	24
		1000	472	0.204	50.78	63	65	65	60	57	58	22	66	68	67	63	60	61	25	67	69	68	63	61	62	27
	10	600	283	0.030	7.40	57	58	57	51	48	47	—	59	60	59	53	50	50	—	60	62	59	53	51	50	—
		800	378	0.053	13.16	61	62	61	56	53	53	20	61	64	63	58	55	56	23	63	65	64	58	56	56	25
		1000	472	0.083	20.57	63	65	65	60	57	58	22	63	67	67	62	59	60	24	66	68	67	62	60	61	26
		1200	566	0.119	29.61	66	67	67	63	60	62	26	66	69	69	65	63	64	28	68	70	70	66	63	65	29
		1400	661	0.162	40.31	67	69	70	66	63	65	29	67	71	72	68	65	67	31	70	72	72	68	66	68	32
6	12	500	236	0.010	2.43	60	53	54	38	40	41	—	63	57	56	41	43	43	—	65	57	57	41	43	43	—
		800	378	0.025	6.22	63	59	59	49	49	50	—	66	62	61	52	52	52	23	68	63	61	52	52	53	25
		1100	519	0.047	11.76	66	63	62	56	55	56	20	68	66	65	59	58	59	23	70	66	65	59	58	59	24
		1400	661	0.077	19.05	67	66	64	61	60	61	25	70	69	67	64	63	63	27	72	69	67	64	63	64	27
		1750	826	0.120	29.77	69	69	67	66	64	65	29	72	72	69	69	67	68	32	73	72	70	69	67	68	32
	14	600	283	0.008	2.03	61	55	56	42	44	45	—	63	58	57	45	45	45	—	65	58	58	45	46	45	—
		900	425	0.018	4.57	64	60	60	51	51	52	—	66	63	62	54	53	52	—	67	63	62	54	53	52	—
		1200	566	0.033	8.13	66	64	63	58	57	58	22	68	66	65	60	59	58	24	69	67	65	60	59	60	24
		1500	708	0.051	12.70	68	67	65	63	61	62	26	70	69	67	65	63	62	27	71	69	67	65	63	64	28
		2000	944	0.091	22.57	70	71	68	69	67	68	31	72	71	70	71	69	69	33	73	73	70	71	69	70	34
7	16	600	283	0.005	1.14	50	41	43	41	36	36	—	56	49	43	43	36	39	—	57	50	43	43	36	38	—
		1000	472	0.013	3.17	59	53	53	52	48	49	—	63	58	53	54	50	51	—	64	59	53	54	50	51	—
		1400	661	0.029	7.14	66	61	59	59	56	57	21	69	64	59	61	58	59	23	69	65	59	61	58	59	23
		1900	897	0.051	12.70	72	68	65	66	63	64	28	74	70	67	68	65	67	30	74	71	67	68	65	67	30
		2500	1180	0.080	19.84	77	74	70	72	70	71	35	77	74	72	74	72	73	37	77	76	72	74	72	73	37

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
ECM — Electrically Commutated Motor
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. End discharge sound power is the noise emitted from the unit discharge into the duct.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885 DISCHARGE <300 CFM	OCTAVE BANDS 2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 8 x 8 x 1 in.	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, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885 DISCHARGE 300-700 CFM	OCTAVE BANDS 2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 12 x 12 x 1 in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885 DISCHARGE >700 CFM	OCTAVE BANDS 2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 15 x 15x 1 in.	2	3	9	25	17	12
End Reflection	9	5	2	0	0	0
Power Division (3 outlets)	5	5	5	5	5	5
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

Performance data (cont)

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH PSC MOTOR

PRIMARY RADIATED SOUND POWER DATA — 100% PRIMARY

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		PRIMARY AT 0.5 ΔPs							PRIMARY AT 1.0 ΔPs							PRIMARY AT 2.0 ΔPs						
						Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
		CFM	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
2	6	100	47	0.013	3.1	35	29	26	23	23	23	—	37	31	29	26	27	28	—	39	33	31	29	31	33	—
		200	94	0.050	12.4	43	37	34	29	27	25	—	45	39	37	32	31	30	—	47	41	39	35	35	35	—
		300	142	0.113	28.0	48	42	39	33	30	27	—	50	44	41	36	34	32	—	52	46	44	39	38	37	—
		400	189	0.200	49.8	51	46	42	36	31	28	—	54	47	44	39	36	33	—	56	49	47	42	40	38	21
		500	236	0.313	77.8	54	48	44	38	33	28	—	56	50	47	41	37	33	21	58	52	49	44	41	38	24
3	8	180	85	0.013	3.3	35	33	32	26	22	21	—	39	37	36	30	26	28	—	42	40	40	33	30	34	—
		360	170	0.053	13.2	44	40	38	33	29	26	—	47	44	42	36	33	33	—	51	47	46	40	38	39	—
		540	255	0.119	29.6	49	44	41	37	33	29	—	52	48	45	40	38	36	—	56	51	49	44	42	42	23
		720	340	0.212	52.7	52	47	44	39	36	31	—	56	51	48	43	41	38	21	59	54	51	47	45	44	26
		900	425	0.331	82.3	55	50	45	42	39	33	—	59	53	49	45	43	39	24	62	56	53	49	48	46	28
4	10	290	137	0.014	3.5	39	34	32	25	19	16	—	43	37	35	29	22	21	—	47	40	38	32	26	26	—
		580	274	0.056	13.8	47	42	40	33	28	24	—	51	46	43	37	31	29	—	56	49	46	40	35	34	—
		870	411	0.125	31.1	52	47	44	38	33	29	—	57	51	47	42	37	34	21	61	54	50	45	40	39	25
		1160	547	0.222	55.3	56	51	47	42	37	32	21	60	54	51	45	41	37	25	64	58	54	48	44	42	28
		1450	684	0.348	86.5	59	54	50	44	40	34	24	63	57	53	48	43	39	27	67	61	56	51	47	44	31
5	12	420	198	0.014	3.4	38	37	34	32	26	20	—	41	40	38	35	30	25	—	44	43	42	38	33	30	—
		840	396	0.055	13.7	49	45	41	38	33	28	—	52	48	45	41	37	33	—	55	51	49	44	40	38	23
		1260	595	0.124	30.9	55	49	45	42	37	32	—	58	53	49	45	40	37	23	61	56	52	48	44	42	27
		1680	793	0.221	54.9	59	53	47	44	40	35	21	62	56	51	47	43	40	26	66	59	55	51	47	46	30
		2100	991	0.345	85.7	63	55	49	46	42	38	26	66	58	53	49	45	43	30	69	61	57	52	49	48	34
6	14	570	269	0.015	3.7	44	39	37	32	26	22	—	48	44	41	35	30	28	—	53	48	46	39	34	34	—
		1140	538	0.059	14.7	53	47	44	39	34	28	—	57	51	48	42	38	34	22	62	56	53	46	42	40	27
		1710	807	0.133	33.0	58	51	48	43	39	32	22	63	55	52	47	43	38	27	67	60	57	50	47	44	32
		2280	1076	0.236	58.7	62	54	51	46	42	35	25	67	58	55	50	46	41	30	71	63	60	53	50	47	36
		2850	1345	0.368	91.7	65	56	53	48	45	37	28	69	61	57	52	49	43	34	74	65	62	56	53	49	40
7	16	740	349	0.014	3.5	49	43	40	36	31	27	—	54	49	46	43	39	37	—	60	55	52	50	46	47	27
		1480	698	0.056	13.9	57	50	48	44	39	34	22	63	56	54	51	47	44	28	68	62	60	58	55	54	35
		2220	1048	0.126	31.3	62	55	52	48	44	38	26	68	60	58	55	52	48	33	73	66	64	62	60	58	40
		2960	1397	0.224	55.6	66	58	55	51	48	41	30	71	63	61	58	56	51	37	77	69	68	65	63	61	44
		3700	1746	0.349	86.9	68	60	58	54	51	44	33	74	66	64	61	58	54	40	80	72	70	68	66	64	47

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
PSC — Permanent Split Capacitor
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. Radiated sound power is the noise emitted from the unit casing and induction port.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885	RADIATED ATTENUATION VALUES					
	Octave Bands					
	2	3	4	5	6	7
Environ. Effect	2	1	0	0	0	0
Plenum/Room Effect	16	18	20	26	31	36
Total Attenuation	18	19	20	26	31	36

NOTE: Ceiling type — Mineral Fiber, $^5/_8$ in. — 35 lb/cu ft.

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH ECM OPTION

PRIMARY RADIATED SOUND POWER DATA — 100% PRIMARY

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		PRIMARY AT 0.5 ΔPs							PRIMARY AT 1.0 ΔPs							PRIMARY AT 2.0 ΔPs						
		CFM	L/s	in. wg	pa	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
						2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
4	6	100	47	0.013	3.1	35	29	26	23	23	23	—	37	31	29	26	27	28	—	39	33	31	29	31	33	—
		200	94	0.050	12.4	43	37	34	29	27	25	—	45	39	37	32	31	30	—	47	41	39	35	35	35	—
		300	142	0.113	28.0	48	42	39	33	30	27	—	50	44	41	36	34	32	—	52	46	44	39	38	37	—
		400	189	0.200	49.8	51	46	42	36	31	28	—	54	47	44	39	36	33	—	56	49	47	42	40	38	21
		500	236	0.313	77.8	54	48	44	38	33	28	—	56	50	47	41	37	33	21	58	52	49	44	41	38	24
	8	180	85	0.013	3.3	35	30	28	26	25	25	—	37	33	32	30	30	32	—	39	35	36	34	35	39	—
		360	170	0.053	13.2	44	39	36	33	30	28	—	47	42	40	37	35	35	—	49	45	44	41	41	41	—
		540	255	0.119	29.6	50	44	41	36	33	30	—	52	47	45	40	39	36	—	55	50	48	45	44	43	23
		720	340	0.212	52.7	54	48	44	39	36	31	—	56	51	48	43	41	38	22	59	54	52	47	46	44	26
		900	425	0.331	82.3	57	51	47	41	37	32	21	59	54	51	45	42	39	25	62	57	54	49	48	45	29
	10	290	137	0.014	3.5	39	34	32	25	19	16	—	43	37	35	29	22	21	—	47	40	38	32	26	26	—
		580	274	0.056	13.8	47	42	40	33	28	24	—	51	46	43	37	31	29	—	56	49	46	40	35	34	—
		870	411	0.125	31.1	52	47	44	38	33	29	—	57	51	47	42	37	34	21	61	54	50	45	40	39	25
		1160	547	0.222	55.3	56	51	47	42	37	32	21	60	54	51	45	41	37	25	64	58	54	48	44	42	28
		1450	684	0.348	86.5	59	54	50	44	40	34	24	63	57	53	48	43	39	27	67	61	56	51	47	44	31
7	12	420	198	0.014	3.4	43	38	36	30	24	21	—	47	42	39	33	27	26	—	52	45	42	36	31	31	—
		840	396	0.055	13.7	52	47	44	38	33	28	—	56	50	47	41	36	33	21	60	54	50	44	40	38	24
		1260	595	0.124	30.9	57	52	48	43	38	33	22	61	55	51	46	42	38	26	65	59	55	49	45	43	29
		1680	793	0.221	54.9	61	56	51	46	42	36	26	65	59	55	49	45	41	29	69	62	58	53	49	46	34
		2100	991	0.345	85.7	64	58	54	49	45	39	29	68	62	57	52	48	44	32	72	65	60	55	52	49	37
	14	570	269	0.015	3.7	44	39	37	32	26	22	—	48	44	41	35	30	28	—	53	48	46	39	34	34	—
		1140	538	0.059	14.7	53	47	44	39	34	28	—	57	51	48	42	38	34	22	62	56	53	46	42	40	27
		1710	807	0.133	33.0	58	51	48	43	39	32	22	63	55	52	47	43	38	27	67	60	57	50	47	44	32
		2280	1076	0.236	58.7	62	54	51	46	42	35	25	67	58	55	50	46	41	30	71	63	60	53	50	47	36
		2850	1345	0.368	91.7	65	56	53	48	45	37	28	69	61	57	52	49	43	34	74	65	62	56	53	49	40
	16	740	349	0.014	3.5	49	43	40	36	31	27	—	54	49	46	43	39	37	—	60	55	52	50	46	47	27
		1480	698	0.056	13.9	57	50	48	44	39	34	22	63	56	54	51	47	44	28	68	62	60	58	55	54	35
		2220	1048	0.126	31.3	62	55	52	48	44	38	26	68	60	58	55	52	48	33	73	66	64	62	60	58	40
		2960	1397	0.224	55.6	66	58	55	51	48	41	30	71	63	61	58	56	51	37	77	69	68	65	63	61	44
		3700	1746	0.349	86.9	68	60	58	54	51	44	33	74	66	64	61	58	54	40	80	72	70	68	66	64	47

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
ECM — Electrically Commutated Motor
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound power levels are in decibels, re: 10^{-12} watts.
3. Radiated sound power is the noise emitted from the unit casing and induction port.
4. Discharge (external) static pressure is 0.25 in. wg.
5. All sound data is based on tests conducted in accordance with AHRI Standard 880.
6. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885 DISCHARGE <300 CFM CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 8 x 8 x 1 in.	2	6	12	25	29	18
End Reflection	9	5	2	0	0	0
Power Division (2 outlets)	0	0	0	0	0	0
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885 DISCHARGE 300-700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 12 x 12 x 1 in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885 DISCHARGE >700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 15 x 15x 1 in.	2	3	9	25	17	12
End Reflection	9	5	2	0	0	0
Power Division (3 outlets)	5	5	5	5	5	5
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

Performance data (cont)

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH PSC MOTOR

PRIMARY DISCHARGE SOUND POWER DATA — 100% PRIMARY

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN ΔPs		PRIMARY AT 0.5 ΔPs							PRIMARY AT 1.0 ΔPs							PRIMARY AT 2.0 ΔPs						
						Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
		CFM	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
2	6	100	47	0.013	3.1	32	31	27	23	23	24	—	35	31	28	24	26	29	—	37	32	28	25	29	34	—
		200	94	0.050	12.4	44	43	39	33	30	28	—	47	44	39	34	33	32	—	49	45	40	36	36	37	—
		300	142	0.113	28.0	51	51	45	39	34	30	—	54	51	46	40	37	35	—	56	52	47	41	40	39	—
		400	189	0.200	49.8	57	56	50	43	36	31	—	59	57	51	44	40	36	—	61	57	51	46	43	41	—
		500	236	0.313	77.8	60	60	54	46	39	33	—	63	61	54	47	42	37	—	65	61	55	49	45	42	—
3	8	180	85	0.013	3.3	35	41	40	31	26	23	—	39	43	42	33	29	28	—	43	46	45	36	33	33	—
		360	170	0.053	13.2	47	49	45	38	32	28	—	51	52	47	40	36	33	—	55	55	50	43	39	37	—
		540	255	0.119	29.6	54	54	48	42	36	31	—	58	57	50	45	39	35	—	62	60	53	47	43	40	—
		720	340	0.212	52.7	59	58	50	45	39	33	—	63	60	53	48	42	37	—	67	63	55	50	46	42	—
		900	425	0.331	82.3	63	60	52	47	41	34	—	67	63	54	50	44	39	—	71	66	57	52	48	44	23
4	10	290	137	0.014	3.5	40	41	40	33	26	20	—	43	43	42	36	29	23	—	45	46	45	38	32	27	—
		580	274	0.056	13.8	53	51	47	43	37	30	—	56	53	49	45	40	34	—	58	56	52	48	43	37	—
		870	411	0.125	31.1	61	57	51	48	43	36	—	63	59	54	51	46	40	—	66	62	56	53	49	43	—
		1160	547	0.222	55.3	66	61	54	52	48	41	—	69	64	57	55	51	44	20	71	66	59	57	54	48	23
		1450	684	0.348	86.5	70	64	57	55	51	44	22	73	67	59	58	54	48	25	75	69	61	60	57	51	28
5	12	420	198	0.014	3.4	38	41	42	33	25	20	—	43	45	45	37	29	26	—	48	49	49	40	33	31	—
		840	396	0.055	13.7	48	47	47	42	35	28	—	53	51	51	45	39	34	—	58	55	54	48	43	39	—
		1260	595	0.124	30.9	54	51	50	46	41	33	—	59	55	54	49	45	38	—	64	59	57	53	49	44	—
		1680	793	0.221	54.9	58	53	53	50	45	36	—	63	57	56	53	49	42	—	68	61	59	56	53	47	—
		2100	991	0.345	85.7	61	55	54	52	48	39	—	66	59	57	55	52	44	—	71	63	61	59	56	50	23
6	14	570	269	0.015	3.7	45	41	39	34	27	21	—	49	46	44	38	31	26	—	54	50	48	42	35	32	—
		1140	538	0.059	14.7	54	48	46	43	37	31	—	59	53	51	47	42	36	—	63	58	56	51	46	41	—
		1710	807	0.133	33.0	59	53	51	48	44	36	—	64	58	56	52	48	41	—	68	62	60	56	52	47	—
		2280	1076	0.236	58.7	63	56	54	52	48	40	—	68	61	59	56	52	45	—	72	66	63	60	56	50	24
		2850	1345	0.368	91.7	66	58	56	54	51	43	—	71	63	61	58	55	48	22	75	68	66	62	60	53	28
7	16	740	349	0.014	3.5	47	43	43	38	31	23	—	52	47	47	42	35	28	—	56	51	51	45	38	32	—
		1480	698	0.056	13.9	58	52	50	47	42	35	—	62	56	55	51	46	39	—	67	60	59	54	49	44	—
		2220	1048	0.126	31.3	64	57	55	52	49	42	—	68	61	59	56	52	46	—	73	65	64	60	56	50	25
		2960	1397	0.224	55.6	68	61	58	56	53	46	—	73	65	63	60	57	51	25	77	69	67	63	60	55	31
		3700	1746	0.349	86.9	71	64	61	59	57	50	23	76	68	65	63	60	55	29	80	72	70	66	64	59	35

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
PSC — Permanent Split Capacitor
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound levels are primary air only, with fans turned off.
3. Sound power levels are in decibels, re: 10^{-12} watts.
4. End discharge sound power is the noise emitted from the unit discharge into the duct.
5. Discharge (external) static pressure is 0.25 in. wg.
6. All sound data is based on tests conducted in accordance with AHRI Standard 880.
7. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885 DISCHARGE <300 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 8 x 8 x 1 in.	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, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885 DISCHARGE 300-700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 12 x 12 x 1 in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885 DISCHARGE >700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 15 x 15x 1 in.	2	3	9	25	17	12
End Reflection	9	5	2	0	0	0
Power Division (3 outlets)	5	5	5	5	5	5
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH ECM MOTOR

PRIMARY DISCHARGE SOUND POWER DATA — 100% PRIMARY

UNIT SIZE	INLET SIZE (in.)	FLOW RATE		MIN Ps		PRIMARY AT 0.5 Ps							PRIMARY AT 1.0 Ps							PRIMARY AT 2.0 Ps						
		CFM	L/s	in. wg	pa	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
						2	3	4	5	6	7	NC	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
4	6	100	47	0.013	3.1	32	31	27	23	23	24	—	35	31	28	24	26	29	—	37	32	28	25	29	34	—
		200	94	0.050	12.4	44	43	39	33	30	28	—	47	44	39	34	33	32	—	49	45	40	36	36	37	—
		300	142	0.113	28.0	51	51	45	39	34	30	—	54	51	46	40	37	35	—	56	52	47	41	40	39	—
		400	189	0.200	49.8	57	56	50	43	36	31	—	59	57	51	44	40	36	—	61	57	51	46	43	41	—
		500	236	0.313	77.8	60	60	54	46	39	33	—	63	61	54	47	42	37	—	65	61	55	49	45	42	—
	8	180	85	0.013	3.3	35	41	40	31	26	23	—	39	43	42	33	29	28	—	43	46	45	36	33	33	—
		360	170	0.053	13.2	47	49	45	38	32	28	—	51	52	47	40	36	33	—	55	55	50	43	39	37	—
		540	255	0.119	29.6	54	54	48	42	36	31	—	58	57	50	45	39	35	—	62	60	53	47	43	40	—
		720	340	0.212	52.7	59	58	50	45	39	33	—	63	60	53	48	42	37	—	67	63	55	50	46	42	—
		900	425	0.331	82.3	63	60	52	47	41	34	—	67	63	54	50	44	39	—	71	66	57	52	48	44	23
	10	290	137	0.014	3.5	40	41	40	33	26	20	—	43	43	42	36	29	23	—	45	46	45	38	32	27	—
		580	274	0.056	13.8	53	51	47	43	37	30	—	56	53	49	45	40	34	—	58	56	52	48	43	37	—
		870	411	0.125	31.1	61	57	51	48	43	36	—	63	59	54	51	46	40	—	66	62	56	53	49	43	—
		1160	547	0.222	55.3	66	61	54	52	48	41	—	69	64	57	55	51	44	20	71	66	59	57	54	48	23
		1450	684	0.348	86.5	70	64	57	55	51	44	22	73	67	59	58	54	48	25	75	69	61	60	57	51	28
7	12	420	198	0.014	3.4	38	41	42	33	25	20	—	43	45	45	37	29	26	—	48	49	49	40	33	31	—
		840	396	0.055	13.7	48	47	47	42	35	28	—	53	51	51	45	39	34	—	58	55	54	48	43	39	—
		1260	595	0.124	30.9	54	51	50	46	41	33	—	59	55	54	49	45	38	—	64	59	57	53	49	44	—
		1680	793	0.221	54.9	58	53	53	50	45	36	—	63	57	56	53	49	42	—	68	61	59	56	53	47	—
		2100	991	0.345	85.7	61	55	54	52	48	39	—	66	59	57	55	52	44	—	71	63	61	59	56	50	23
	14	570	269	0.015	3.7	45	41	39	34	27	21	—	49	46	44	38	31	26	—	54	50	48	42	35	32	—
		1140	538	0.059	14.7	54	48	46	43	37	31	—	59	53	51	47	42	36	—	63	58	56	51	46	41	—
		1710	807	0.133	33.0	59	53	51	48	44	36	—	64	58	56	52	48	41	—	68	62	60	56	52	47	—
		2280	1076	0.236	58.7	63	56	54	52	48	40	—	68	61	59	56	52	45	—	72	66	63	60	56	50	24
		2850	1345	0.368	91.7	66	58	56	54	51	43	—	71	63	61	58	55	48	22	75	68	66	62	60	53	28
	16	740	349	0.014	3.5	47	43	43	38	31	23	—	52	47	47	42	35	28	—	56	51	51	45	38	32	—
		1480	698	0.056	13.9	58	52	50	47	42	35	—	62	56	55	51	46	39	—	67	60	59	54	49	44	—
		2220	1048	0.126	31.3	64	57	55	52	49	42	—	68	61	59	56	52	46	—	73	65	64	60	56	50	25
		2960	1397	0.224	55.6	68	61	58	56	53	46	—	73	65	63	60	57	51	25	77	69	67	63	60	55	31
		3700	1746	0.349	86.9	71	64	61	59	57	50	23	76	68	65	63	60	55	29	80	72	70	66	64	59	35

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
ECM — Electrically Commutated Motor
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions below)
Ps — Static Pressure
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound levels are primary air only, with fans turned off.
3. Sound power levels are in decibels, re: 10^{-12} watts.
4. End discharge sound power is the noise emitted from the unit discharge into the duct.
5. Discharge (external) static pressure is 0.25 in. wg.
6. All sound data is based on tests conducted in accordance with AHRI Standard 880.
7. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

APPLICATION ASSUMPTIONS

AHRI 885 DISCHARGE <300 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 8 x 8 x 1 in.	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, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885 DISCHARGE 300-700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 12 x 12 x 1 in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885 DISCHARGE >700 CFM	OCTAVE BANDS					
	2	3	4	5	6	7
Env Effect	2	1	0	0	0	0
Duct Lining, 5 ft, 15 x 15x 1 in.	2	3	9	25	17	12
End Reflection	9	5	2	0	0	0
Power Division (3 outlets)	5	5	5	5	5	5
5 ft, 8 in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

Performance data (cont)

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH PSC MOTOR

FAN SOUND POWER LEVELS — FAN ONLY

UNIT SIZE	FLOW RATE		RADIATED SOUND POWER							DISCHARGE SOUND POWER						
	CFM	L/s	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
			2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	150	71	44	50	44	36	30	22	—	57	54	53	45	39	35	—
	240	113	54	55	50	44	39	33	24	60	58	57	50	45	42	—
	325	153	61	58	54	49	44	40	29	63	61	59	54	50	46	—
	410	193	66	61	57	53	49	45	32	64	64	61	56	53	49	21
	500	236	70	63	60	56	52	49	35	65	65	63	58	56	52	24
3	300	142	51	47	43	35	33	31	—	54	54	53	45	44	37	—
	450	212	58	54	49	42	39	38	23	59	59	57	50	49	43	—
	600	283	63	58	53	48	44	43	28	63	62	59	54	52	47	—
	750	354	67	62	56	52	47	46	32	65	64	61	57	55	51	21
	910	429	71	65	59	56	51	50	36	68	66	63	59	57	54	23
4	370	175	58	59	51	43	38	36	28	57	60	57	49	46	41	—
	550	260	62	61	56	49	44	43	31	61	62	61	53	52	48	20
	735	347	65	63	59	54	48	48	34	64	64	63	57	56	52	21
	920	434	67	65	62	58	52	52	37	67	65	65	60	59	56	22
	1100	519	69	66	64	61	54	55	39	69	66	67	62	61	59	23
5	500	236	56	53	52	45	43	37	26	53	53	54	46	46	41	—
	800	378	61	57	56	52	50	45	31	59	58	59	53	52	49	—
	1100	519	64	60	59	56	55	51	34	62	61	62	58	57	55	—
	1400	661	67	62	61	60	58	55	36	65	63	65	61	60	59	23
	1700	802	69	64	63	62	61	59	38	67	65	67	64	63	62	26
6	750	354	65	66	58	52	48	42	37	67	66	64	57	54	52	24
	1000	472	67	68	61	56	51	46	38	68	68	65	60	57	55	25
	1275	602	69	69	63	58	54	50	40	69	69	67	62	59	58	27
	1540	727	70	70	65	61	57	53	41	70	70	68	63	61	60	28
	1800	849	71	70	67	62	59	56	42	71	71	69	65	63	61	29
7	750	354	62	60	58	51	47	42	33	60	59	60	54	51	48	—
	1060	500	66	64	62	56	52	48	37	65	63	63	58	56	54	—
	1375	649	69	67	64	60	56	53	40	68	66	66	62	60	59	23
	1700	802	71	69	66	63	60	57	42	71	69	68	65	63	63	26
	2000	944	73	71	68	66	62	60	44	73	71	70	67	66	65	29

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions on pages 76-77)
Ps — Static Pressure
PSC — Permanent Split Capacitor
— — Indicates an NC Level less than 20 Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound levels are 100% recirculated air with fan on.
3. Discharge (external) static pressure is 0.25 in. wg.
4. Sound power levels are in decibels, re: 10^{-12} watts.
5. End discharge sound power is the noise emitted from the unit discharge into the duct.
6. Radiated sound power is the noise emitted from the unit casing and induction port.
7. All sound data is based on tests conducted in accordance with AHRI Standard 880.
8. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS WITH ECM OPTION

FAN SOUND POWER LEVELS — FAN ONLY

UNIT SIZE	FLOW RATE		RADIATED SOUND POWER							DISCHARGE SOUND POWER						
	CFM	L/s	Octave Band Sound Power, Lw						Lp	Octave Band Sound Power, Lw						Lp
			2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
4	400	189	59	59	52	44	39	38	28	58	61	58	50	47	42	—
	525	248	61	61	55	48	43	42	31	61	62	60	53	51	47	21
	650	307	64	62	58	52	46	46	33	63	63	62	55	54	50	21
	775	366	65	64	60	55	49	49	35	65	64	64	58	56	53	22
	900	425	67	65	61	57	51	51	37	66	65	65	59	58	56	23
7	800	378	63	60	59	52	48	43	34	61	60	60	55	52	49	—
	1100	519	67	64	62	57	53	49	37	65	63	63	59	57	55	21
	1400	661	69	67	64	60	57	54	40	68	66	66	62	60	59	25
	1700	802	71	69	66	63	60	57	42	71	69	68	65	63	63	26
	2000	944	73	71	68	66	62	60	44	73	71	70	67	66	65	29

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
CFM — Air Volume (cubic feet per minute)
ECM — Electrically Commutated Motor
Lp — Room Sound Pressure
Lw — Sound Power
Min ΔPs — Minimum Static Pressure Required to Achieve Rated Airflow
NC — AHRI 885 Test Conditions (see Application Assumptions on pages 76-77)
Ps — Static Pressure
— — Indicates an NC Level less than 20
Sound Power Noise Criteria

NOTES:
1. ΔP is the difference in static pressure from the inlet to discharge.
2. Sound levels are 100% recirculated air with fan on.
3. Discharge (external) static pressure is 0.25 in. wg.
4. Sound power levels are in decibels, re: 10^{-12} watts.
5. End discharge sound power is the noise emitted from the unit discharge into the duct.
6. Radiated sound power is the noise emitted from the unit casing and induction port.
7. All sound data is based on tests conducted in accordance with AHRI Standard 880.
8. NC Application data based on AHRI 885 (2002 addendum — Appendix E).

Electrical data

45K QUIET SERIES FAN POWERED TERMINAL UNITS — kW RANGES

UNIT SIZE	MAXIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
2	5.0	5.0	5.0	5.0	5.0	5.0
3	5.0	8.0	8.0	8.0	8.0	8.0
4	5.0	9.0	10.0	12.0	14.0	14.0
5	4.5	9.0	10.0	12.0	14.0	20.0
6	4.5	8.5	10.0	12.0	14.0	25.0
7	3.5	8.5	9.0	11.0	14.0	25.0

STAGES	MINIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
1	.5	.5	.5	.5	1.5	1.5
2	1.0	1.0	1.0	1.0	1.5	1.5
3	1.5	1.5	1.5	1.5	1.5	1.5

NOTE: Three-stage heaters are not available with analog controls.

45N QUIET PARALLEL FAN POWERED TERMINAL UNITS — kW RANGES

UNIT SIZE	MAXIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
2	5.0	5.0	5.0	5.0	5.0	5.0
3	5.0	7.0	7.0	7.0	7.0	7.0
4	5.0	9.5	11.0	12.0	12.0	12.0
5	5.0	9.0	10.0	12.0	14.0	16.0
6	4.5	9.0	10.0	12.0	14.0	20.0
7	4.5	8.5	10.0	12.0	13.0	25.0

STAGES	MINIMUM kW					
	120 V	208 V	240 V	277 V	208/240 V	480 V
	Single Phase				3 Phase	
1	.5	.5	.5	.5	1.5	1.5
2	1.0	1.0	1.0	1.0	1.5	1.5
3	1.5	1.5	1.5	1.5	1.5	1.5

NOTES:
1. Three-stage heaters are not available with analog controls.
2. Pneumatic and digital controlled terminals are available with up to 3 stages of heat. Analog controlled terminals are available with 1 or 2 stages of heat only.
3. Heaters require a minimum of 0.03 in. wg downstream static pressure to ensure proper operation.
4. kW/Voltage ratings are sized not to exceed 48 amps so NEC (National Electrical Code) requirement for circuit fusing is not necessary.

$$\text{Single Phase – Amperes} = \frac{\text{Watts (kW x 1000)}}{\text{Line Voltage}}$$

$$\text{Three Phase – Amperes} = \frac{\text{Watts (kW x 1000)}}{\text{Line Voltage x 1.73}}$$

Electric heat selection — Specify electric duct heaters using voltage, kW and number of steps.

Select heater so that power (kW) matches available electric heat options. Tables show maximum, minimum and available kWs within those ranges. Rounding to the nearest whole number has negligible impact on discharge temperature. If the fan is selected for less than maximum speed, then the maximum operating kW would be lower than the maximum kW shown in the table. Calculate kW based on the available fan cfm. A minimum of 70 cfm is required per kW.

Total fan cfm/70 cfm = max allowable kW

The total kW required for the unit is based on the sum of both (A) room Btuh load and (B) the Btuh required to raise the entering-air temperature to the desired room air temperature.

$$\text{Total kW} = \text{room Btuh} + \Delta\text{ Btuh}$$

$$\text{room Btuh kW} = \frac{\text{room Btuh}}{3413}$$

$$\Delta\text{ Btuh kW} = \frac{\text{cfm x }\Delta t}{3160}$$

where Δt = desired room temp. – air entering electric heater (typically 70 F)

Determine what the desired discharge-air temperature will be. Do not select for discharge-air temperatures exceeding 120 F. In addition note that ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air temperature stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

$$\Delta t = (\text{LAT} - \text{EAT}) = \frac{\text{kW x 3160}}{\text{cfm}}$$

LAT = Discharge air temperature
EAT = Air temperature to heater

The desired heating airflow for the space can be verified by the following:

$$\text{cfm} = \frac{\text{kW x 3160}}{\Delta t}$$

ELECTRIC HEAT kW OPTIONS

UNIT	AVAILABLE kW
45K,N	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 11.0, 12.0, 13.0, 14.0, 15.0, 16.0, 17.0, 18.0, 19.0, 20.0, 22.0, 23.0, 24.0, 25.0

Model number nomenclature

45Q LOW PROFILE SERIES FAN POWERED TERMINALS

45Q C 1 0 1L 5 10 1 4440

45Q – Low Profile Series Flow Fan Powered Unit (Constant Volume)

Controls
A – Analog
C – CCN VAV Controls
D – BACnet VAV Controls
P – Pneumatic
N – No Controls

Sensor Type
1 – Linear Averaging
3 – Four Quadrant Linear Cross

Liner
0 – Standard (1/2-in. thick)
5 – Cellular
6 – ½ in. Foil Encapsulated Liner

Unit Casing
1L – Left Hand 20 Gage Steel

Unit Size
2
3 – available as DOAS Terminal
4
5 – available as DOAS Terminal

Inlet Size
06 – 6 in. Round
08 – 8 in. Round
10 – 10 in. Round
12 – 14 x 8 in. Rectangular

Voltage
1 – 120-1-60
2 – 208/240-1-60
3 – 277-1-60
4 – 120-1-60 with ECM Motor
5 – 208/240-1-60 with ECM Motor
6 – 277-1-60 with ECM Motor

Control Codes*
D00X – No Controls
13XX – Pneumatic
22XX – Analog
44XX – CCN VAV Controls
44XX – BACnet VAV Controls

45R LOW PROFILE PARALLEL FAN POWERED TERMINALS

45R A 1 0 1L 2 06 2 2311

45R – Low Profile Parallel Flow Fan Powered Unit (Variable Volume)

Controls
A – Analog
C – CCN VAV Controls
D – BACnet VAV Controls
P – Pneumatic
V – CCN VVT® Controls
B – BACnet VVT Controls
N – No Controls

Sensor Type
1 – Linear Averaging
3 – Four Quadrant Linear Cross

Liner
0 – Standard (1/2-in. thick)
5 – Cellular
6 – ½ in. Foil Encapsulated Liner

Unit Casing
1L – Left Hand 20 Gage Steel

Unit Size
2
4

Inlet Size
06 – 6 in. Round
08 – 8 in. Round
12 – 14 x 8 in. Rectangular

Voltage
1 – 120-1-60
2 – 208/240-1-60
3 – 277-1-60
4 – 120-1-60 with ECM Motor
5 – 208/240-1-60 with ECM Motor
6 – 277-1-60 with ECM Motor

Control Codes*
D00X – No Controls
14XX – Pneumatic
23XX – Analog
47XX – CCN VAV Controls
47XX – BACnet VAV Controls
88XX – CCN VVT Controls
88XX – BACnet VVT Controls

LEGEND

CCN — Carrier Comfort Network®
DOAS — Dedicated Outdoor Air Option
ECM — Electronically Commutated Motor
VAV — Variable Air Volume
VVT — Variable Volume and Temperature

*See pages 13 - 15 for complete control code number list.

Physical data

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WEIGHTS (lb)

Size	Base Unit	With Pneumatic Controls	With DDC or Analog Controls	With Electric Heat	With Hot Water Coils (1 Row/2 Row)
2	60	64	69	75	70/72
3	70	74	79	85	80/82
4	110	114	119	132	122/124
5	100	104	109	115	110/112

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT WEIGHTS (lb)

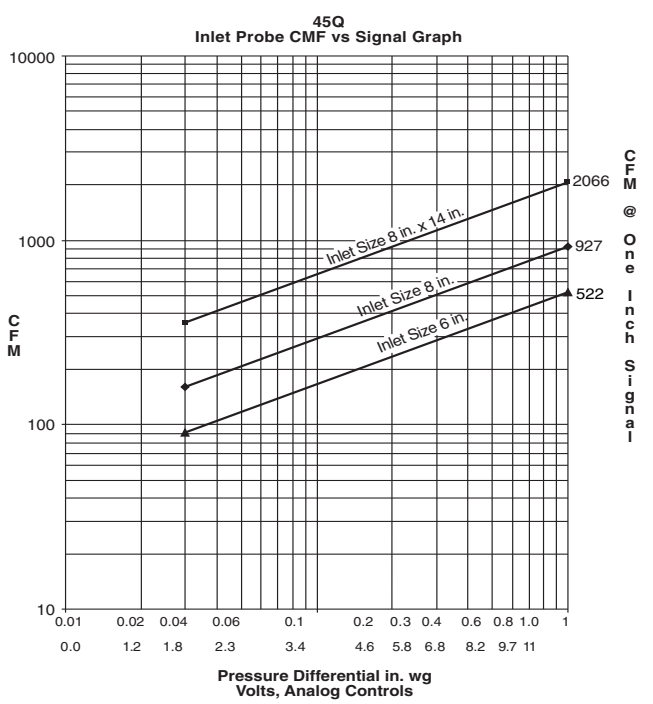
Size	Base Unit	With Pneumatic Controls	With DDC or Analog Controls	With Electric Heat	With Hot Water Coils (1 Row/2 Row)
2	80	84	89	95	88/90
4	90	94	99	110	98/100

DDC — Direct Digital Controls

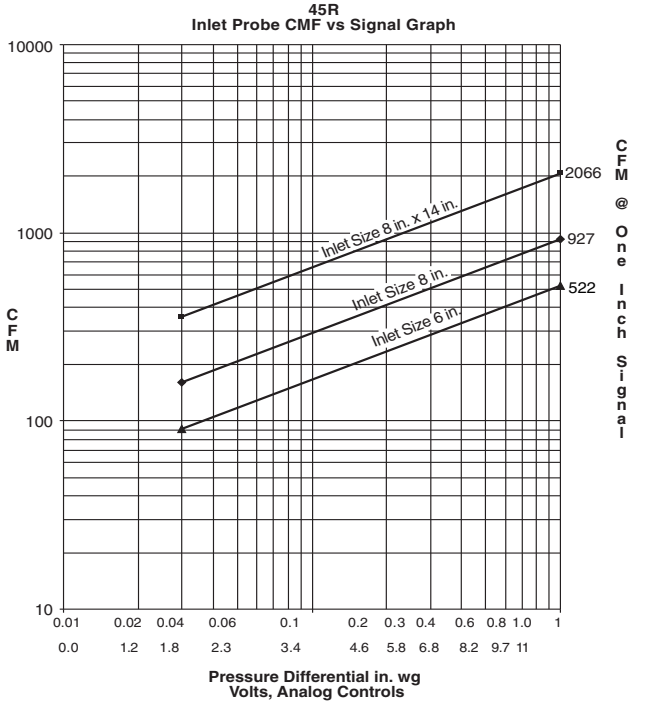
FILTER SIZES

UNIT SIZE	FILTER SIZE (in.)
45Q Sizes 2, 3	15 x 10
45Q Size 4	(2) 12 x 10
45Q Size 5	(2) 22 x 14 1/2
45R All	18 x 10

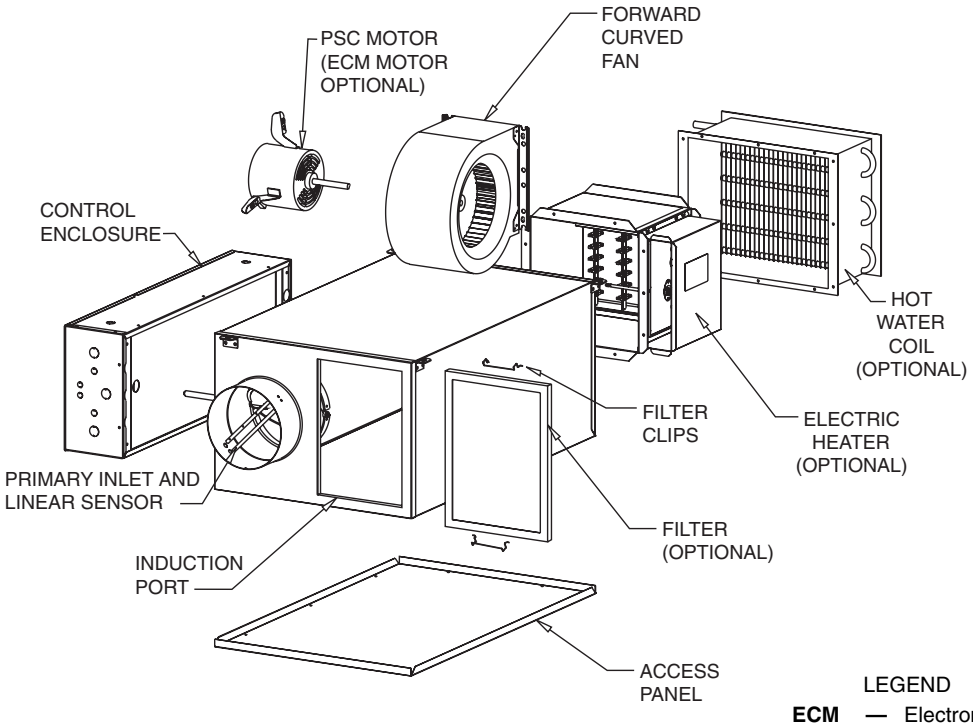
45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNIT — LINEAR PROBE CFM VS. SIGNAL GRAPH



45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT — LINEAR PROBE CFM VS. SIGNAL GRAPH



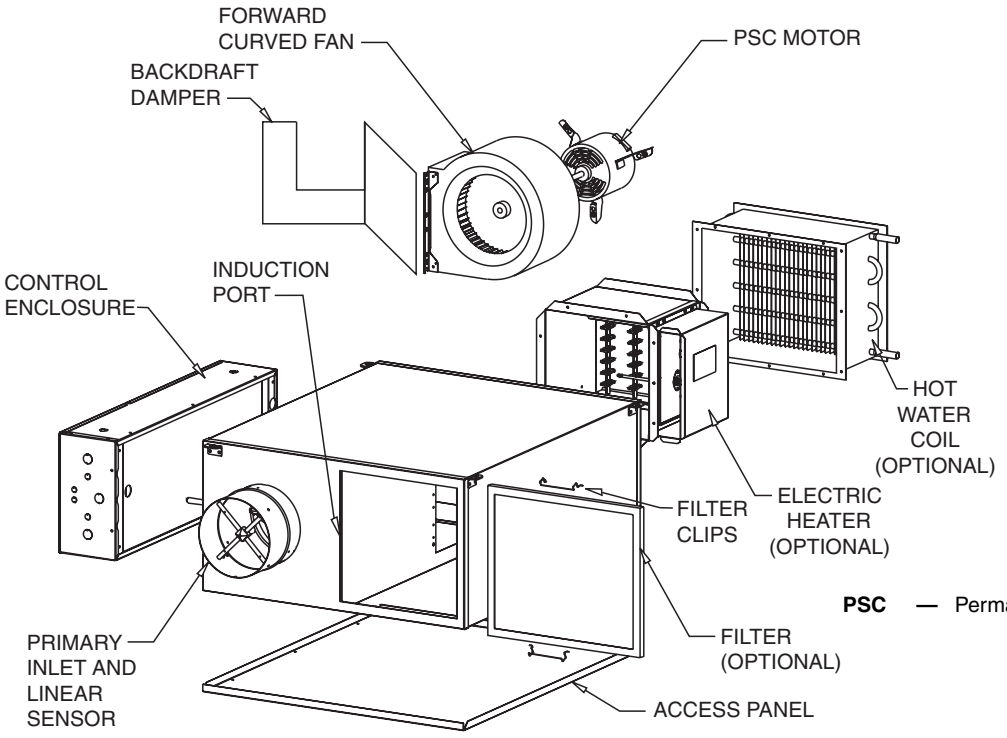
TYPICAL UNIT CONFIGURATION — 45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNIT



LEGEND

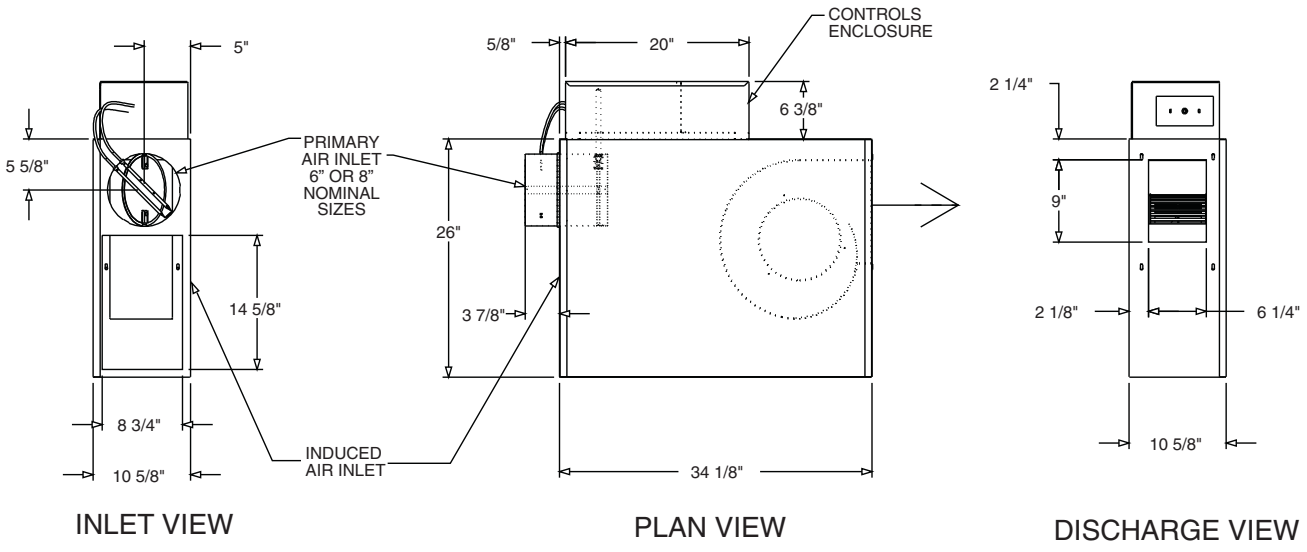
ECM — Electronically Commutated Motor
PSC — Permanent Split Capacitor

TYPICAL UNIT CONFIGURATION — 45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT



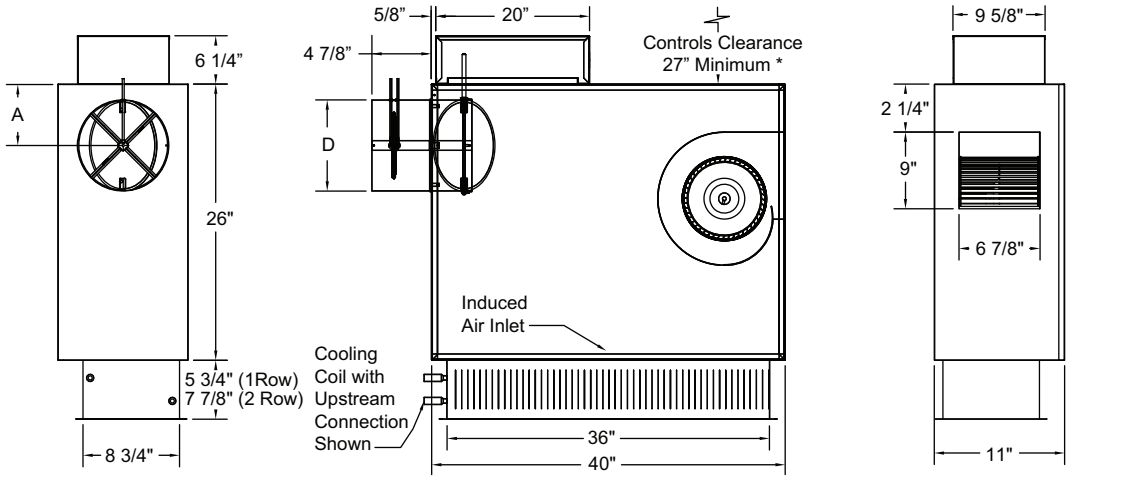
PSC — Permanent Split Capacitor

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT COOLING ONLY WITH ELECTRONIC CONTROLS, SIZES 2 AND 3



INLET VIEW PLAN VIEW DISCHARGE VIEW

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 3 DOAS

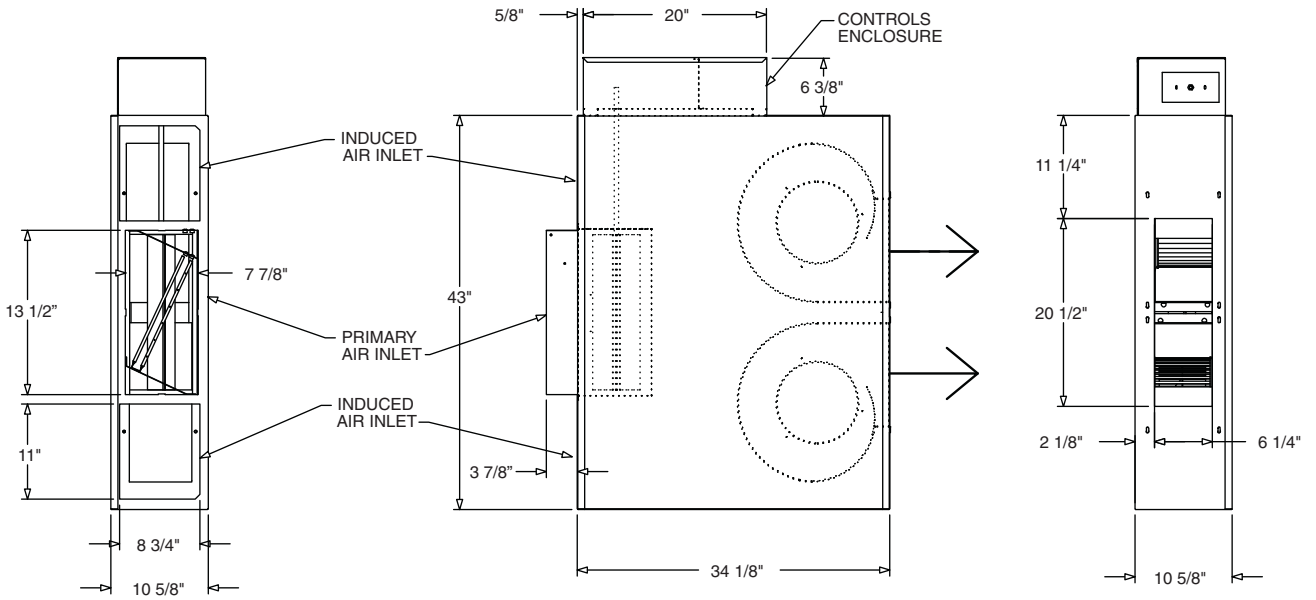


INLET VIEW PLAN VIEW DISCHARGE VIEW

* Check NEC for unit clearance requirements.

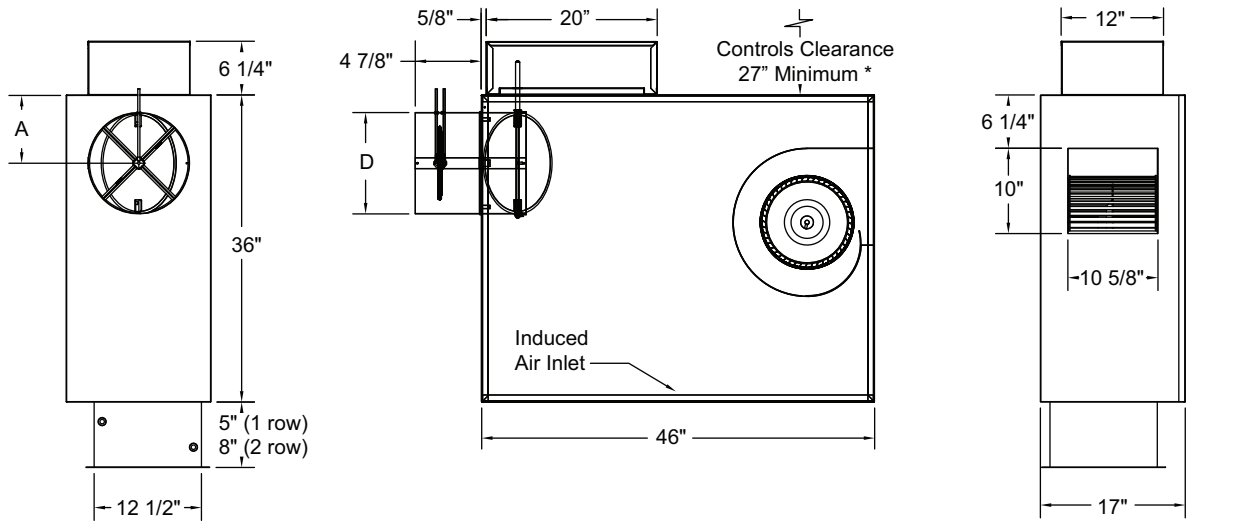
UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
3	230	5	$5^{7}/_{8}$
	920	6	$7^{7}/_{8}$

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 4



INLET VIEW PLAN VIEW DISCHARGE VIEW

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 5



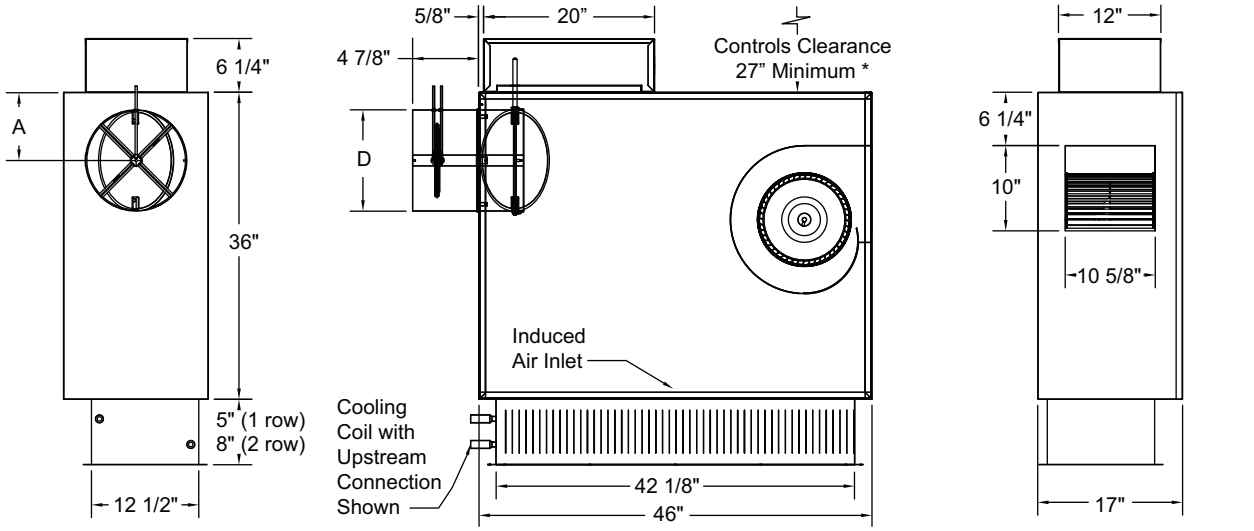
INLET VIEW PLAN VIEW DISCHARGE VIEW

* Check NEC for unit clearance requirements.

UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
5	515	5	$5^{7}/_{8}$
	920	6	$7^{7}/_{8}$
	1430	7	$9^{7}/_{8}$

Dimensions (cont)

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 5 DOAS

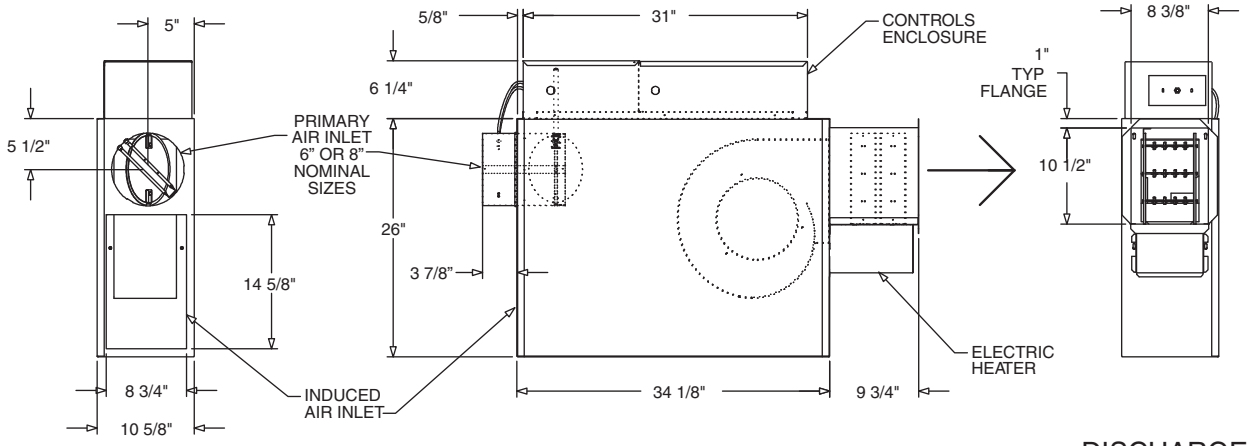


INLET VIEW PLAN VIEW DISCHARGE VIEW

* Check NEC for unit clearance requirements.

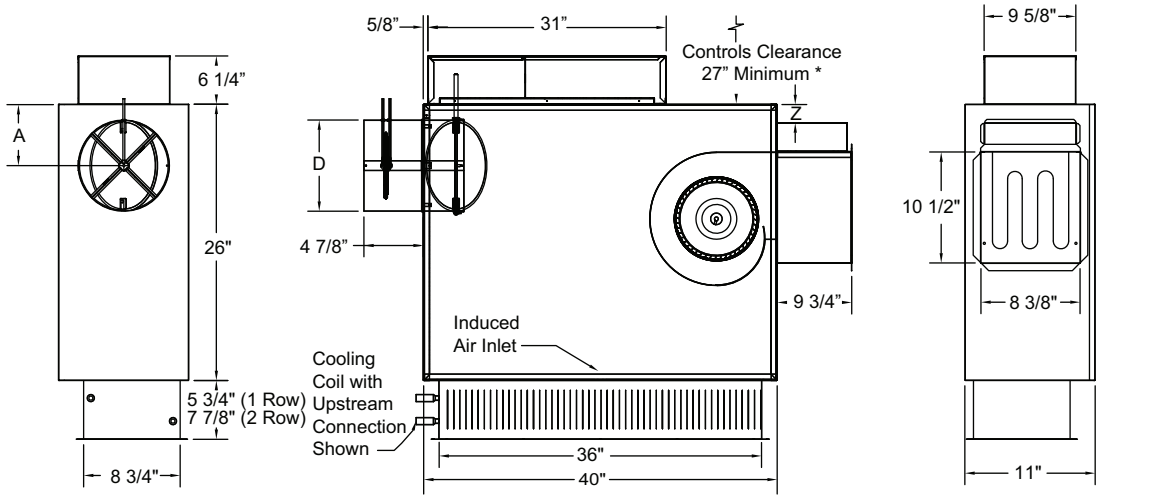
UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
5	515	5	5 7/8
	920	6	7 7/8
	1430	7	9 7/8

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZES 2 AND 3



INLET VIEW PLAN VIEW DISCHARGE VIEW

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 3 DOAS

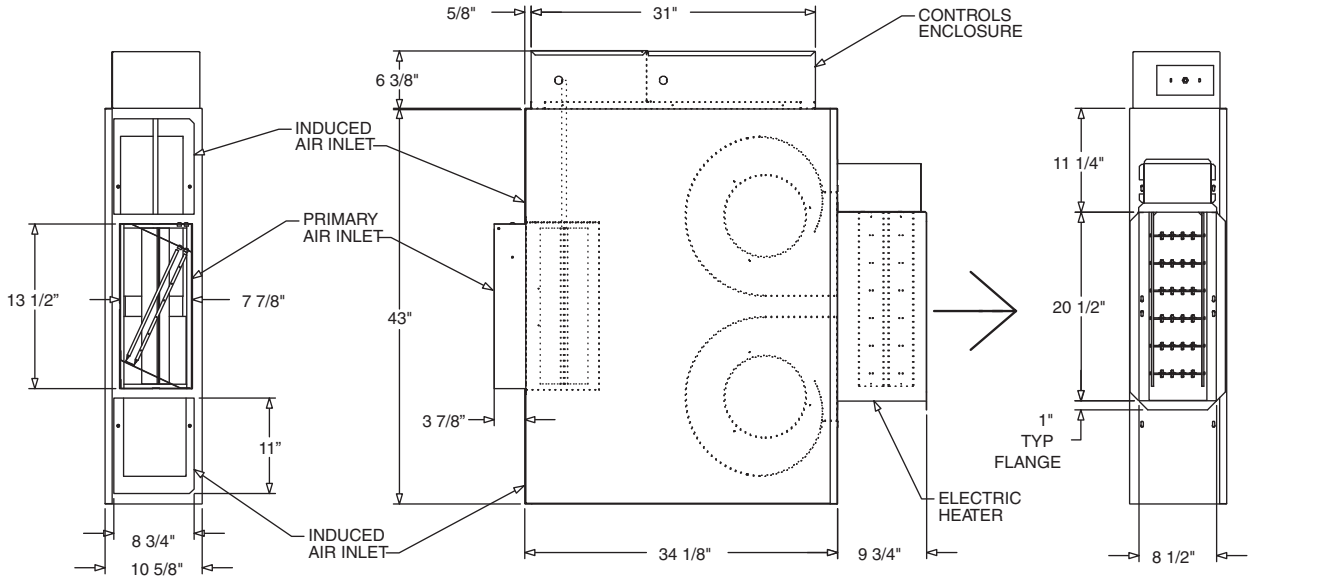


INLET VIEW PLAN VIEW DISCHARGE VIEW

* Check NEC for unit clearance requirements.

UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
3	515	5	$6^{7}/_{8}$
	920	6	$7^{7}/_{8}$

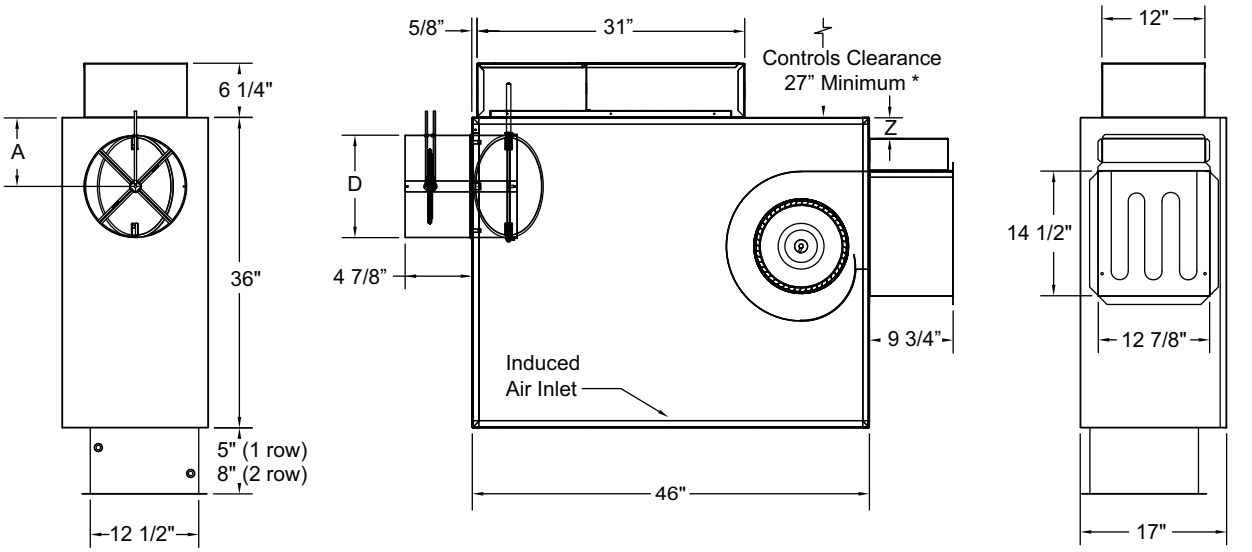
45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 4



INLET VIEW PLAN VIEW DISCHARGE VIEW

Dimensions (cont)

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 5

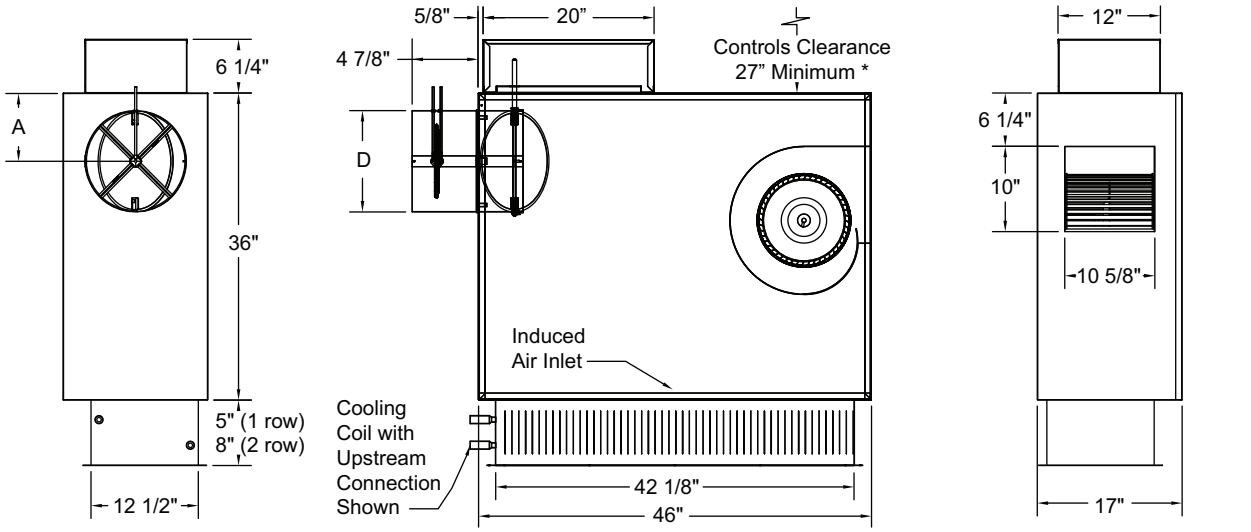


INLET VIEW PLAN VIEW DISCHARGE VIEW

* Check NEC for unit clearance requirements.

UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
5	515	5	$5^{7}/_{8}$
	920	6	$7^{7}/_{8}$
	1430	7	$9^{7}/_{8}$

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 5 DOAS

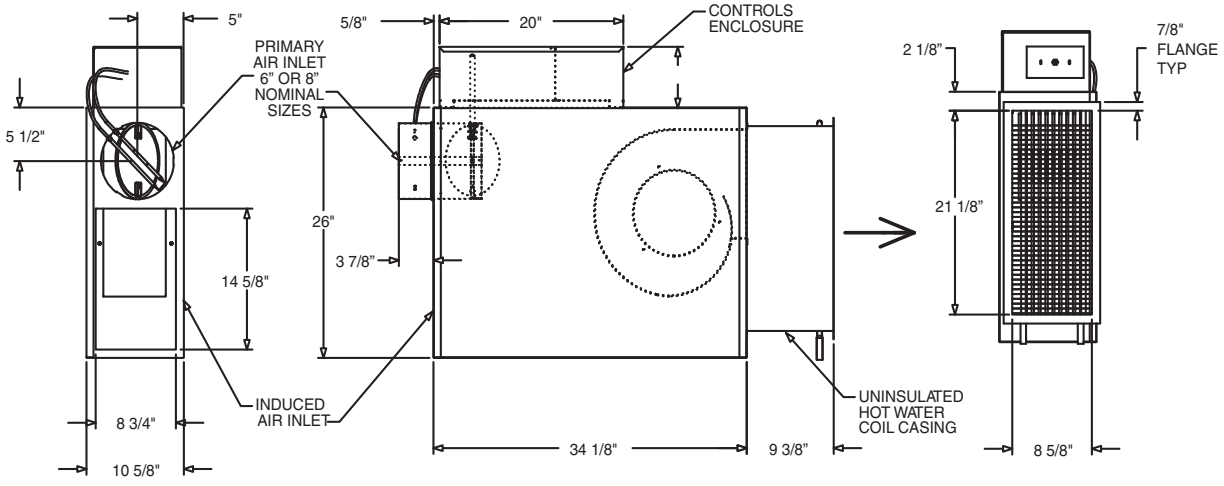


INLET VIEW PLAN VIEW DISCHARGE VIEW

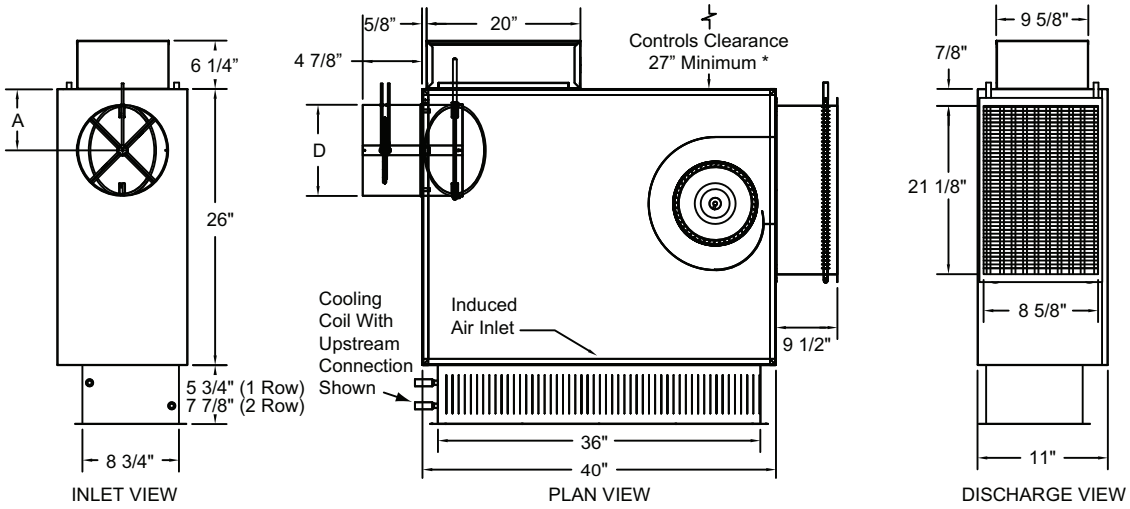
* Check NEC for unit clearance requirements.

UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
5	515	5	$5^{7}/_{8}$
	920	6	$7^{7}/_{8}$
	1430	7	$9^{7}/_{8}$

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZES 2 AND 3



45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 3 DOAS

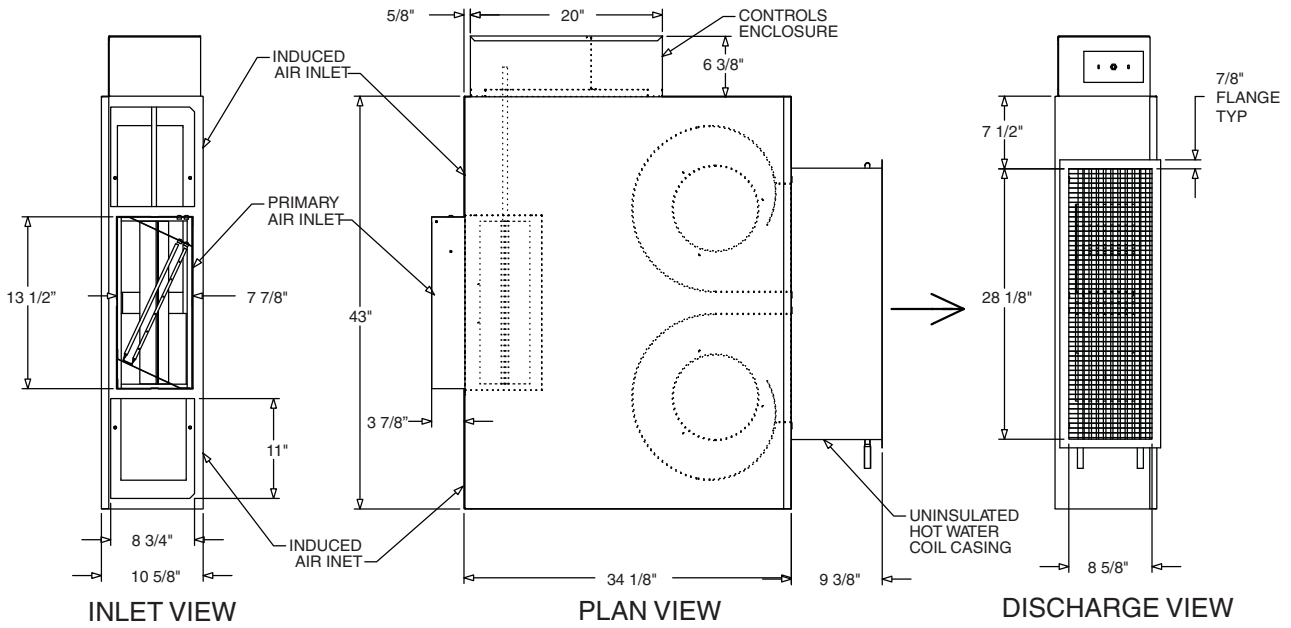


* Check NEC for unit clearance requirements.

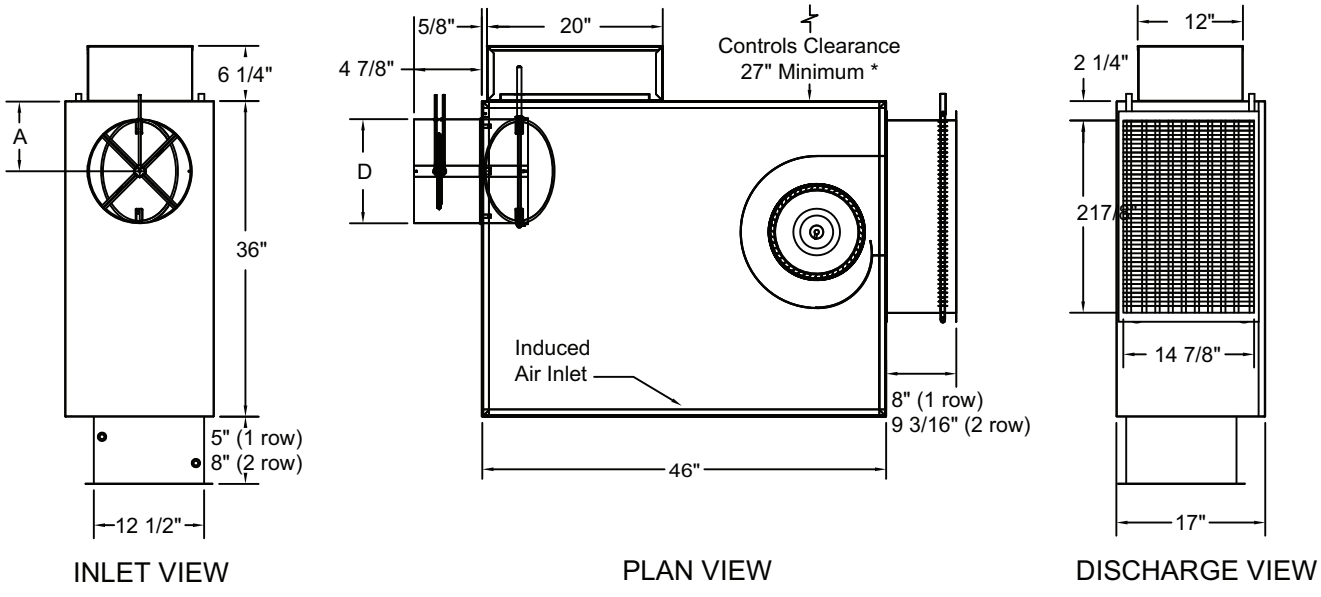
UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
3	515	5	$5^{7}/_{8}$
	920	6	$7^{7}/_{8}$

Dimensions (cont)

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 4



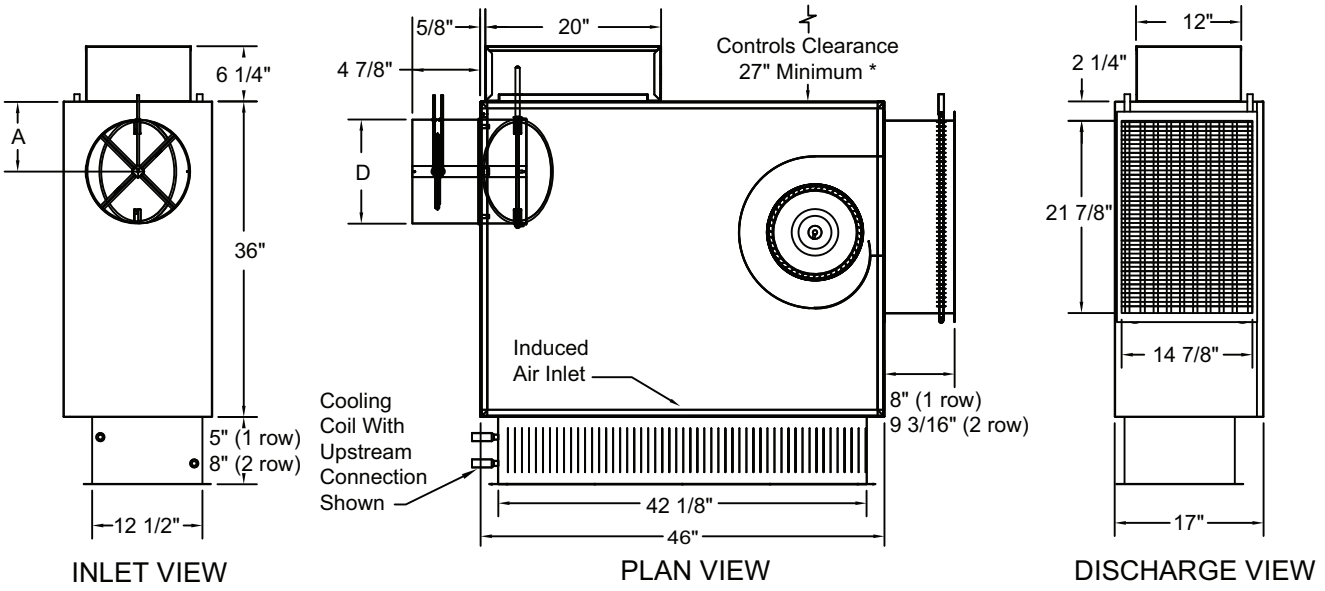
45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 5



* Check NEC for unit clearance requirements.

UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
5	515	5	$5^{7}/_{8}$
	920	6	$7^{7}/_{8}$
	1430	7	$9^{7}/_{8}$

45Q — LOW PROFILE SERIES FAN POWERED TERMINAL UNIT WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 5 DOAS



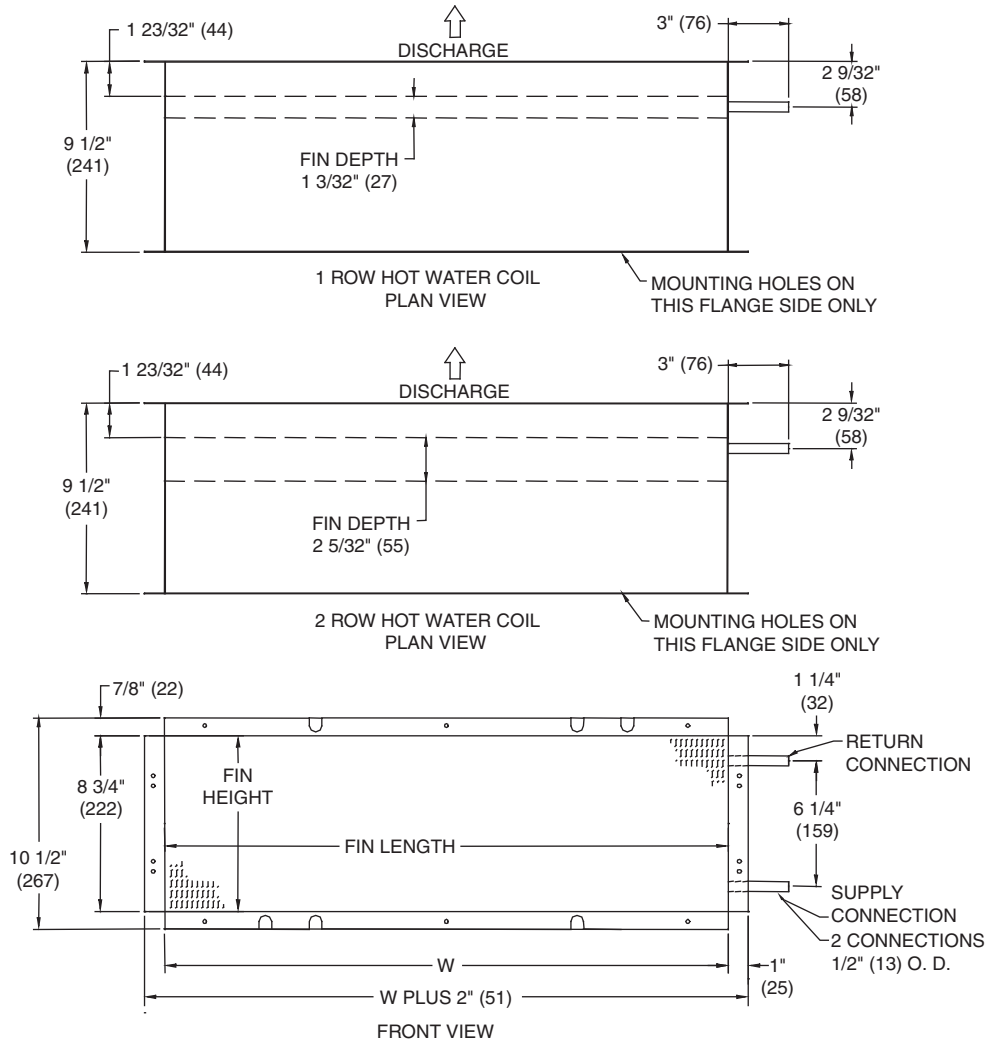
INLET VIEW PLAN VIEW DISCHARGE VIEW

* Check NEC for unit clearance requirements.

UNIT SIZE	MAXIMUM PRIMARY CFM	DIMENSION (in.)	
		A	D
5	515	5	5 7/8
	920	6	7 7/8
	1430	7	9 7/8

Dimensions (cont)

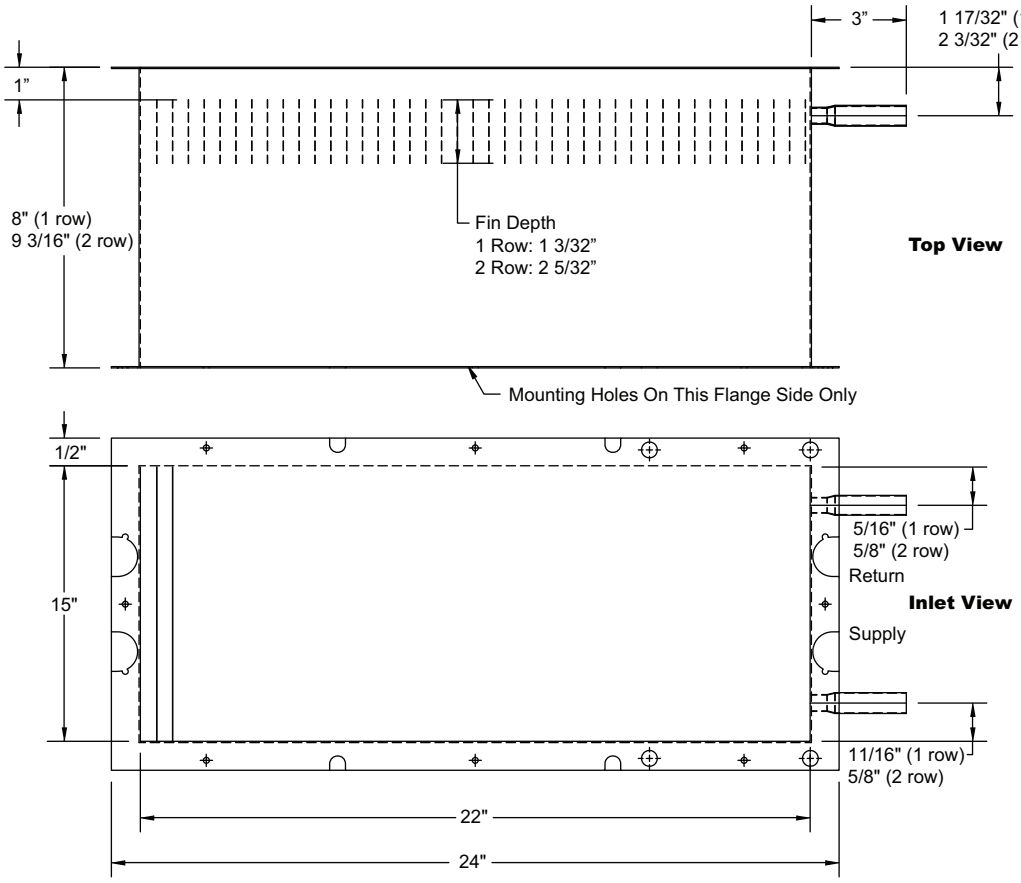
HOT WATER HEAT COIL FOR 45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS — SIZES 2-4



NOTE: Dimensions are given in inches. Dimensions in () are in millimeters.

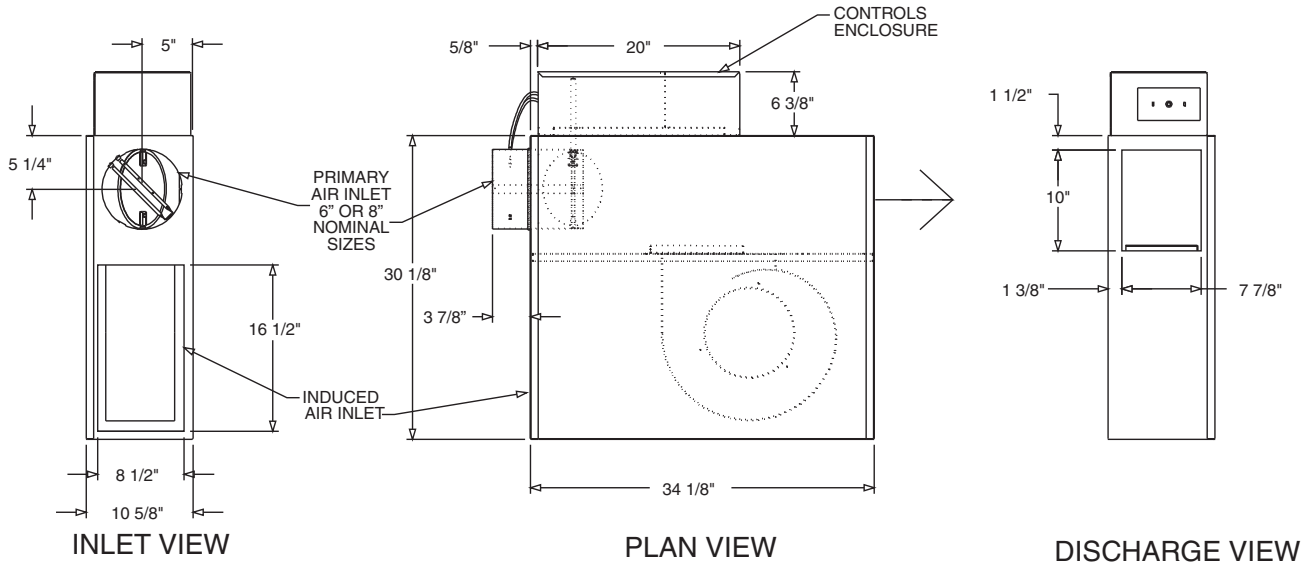
UNIT SIZE	DIMENSION (in.)
	W
2	21
3	
4	28

HOT WATER HEAT COIL FOR 45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS — SIZE 5

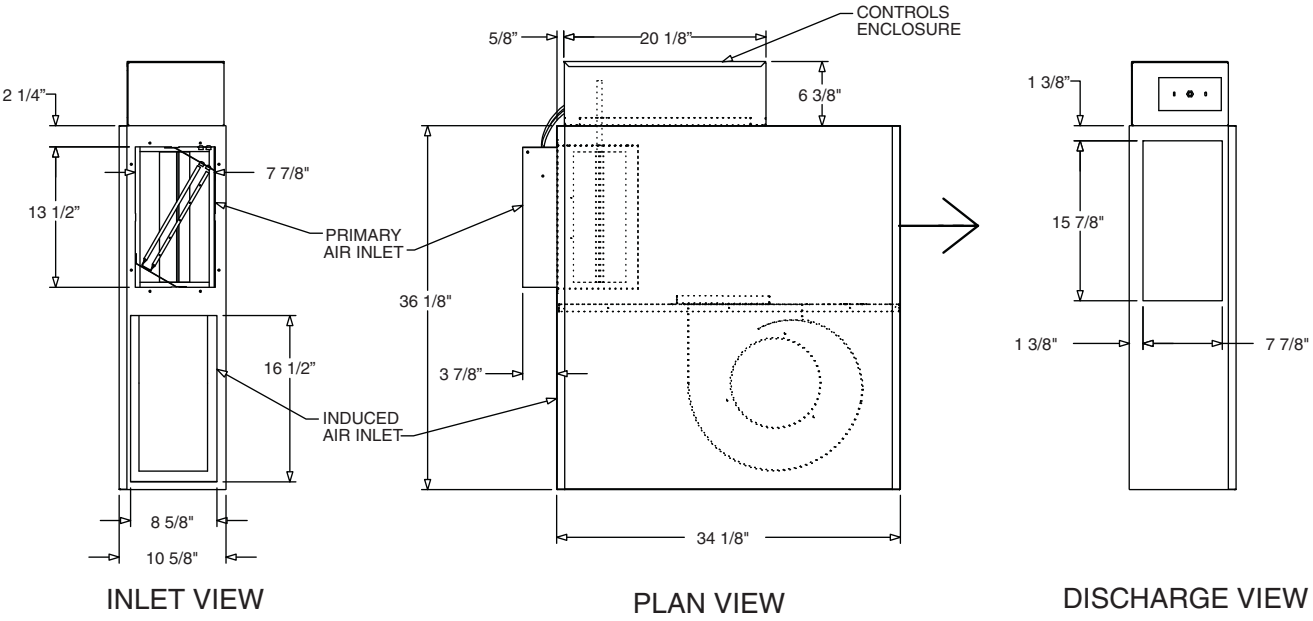


Dimensions (cont)

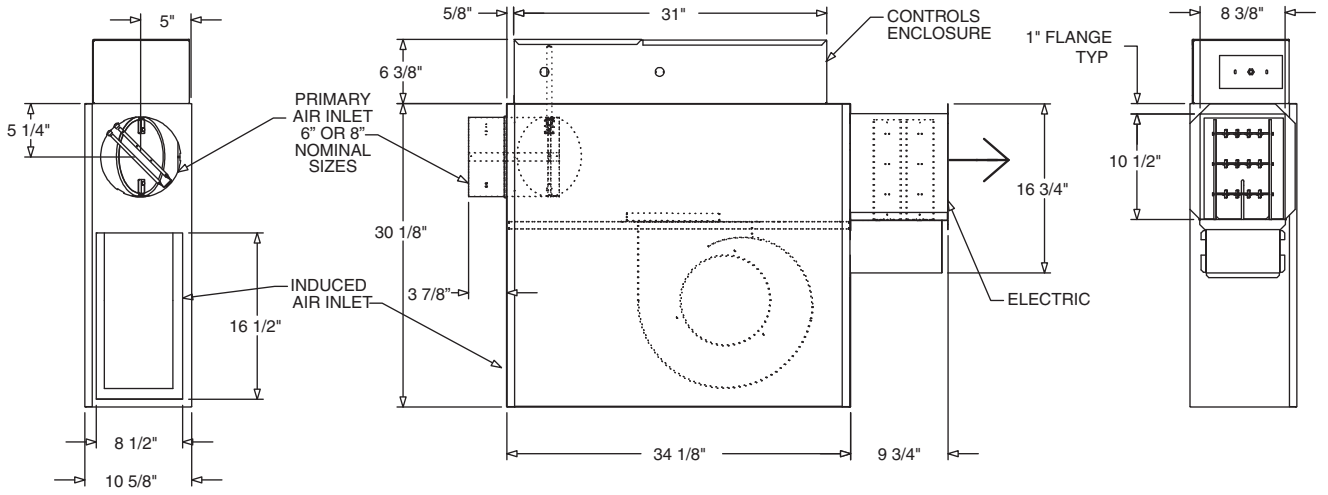
45R — LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT
COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 2



45R — LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT
COOLING ONLY WITH ELECTRONIC CONTROLS, SIZE 4

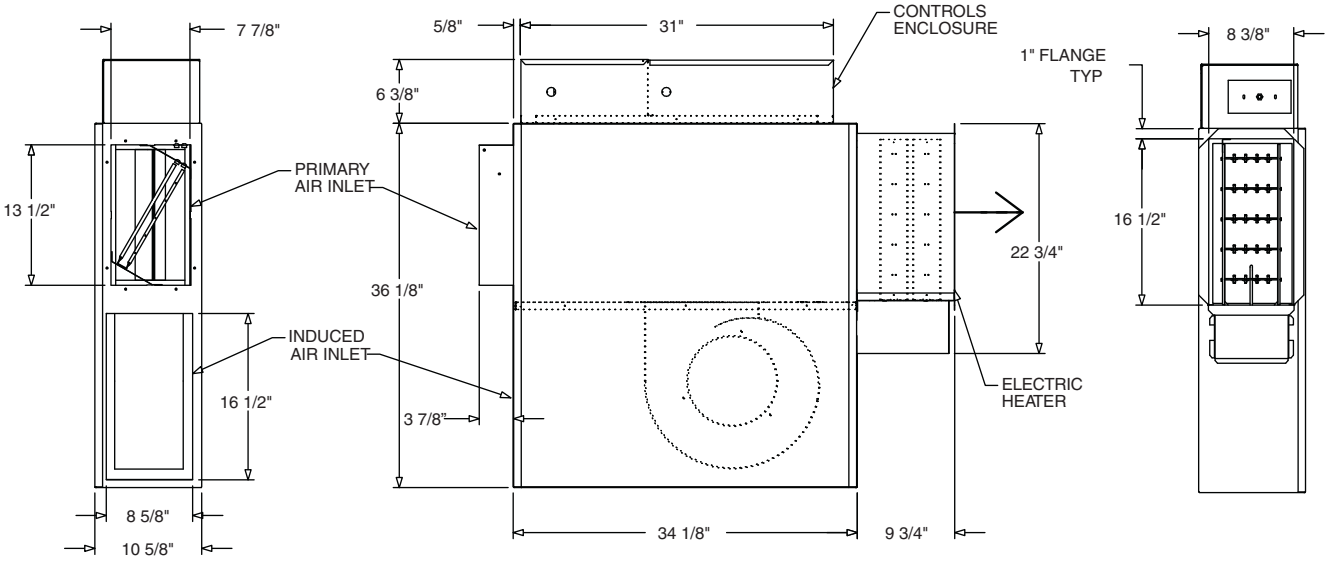


45R — LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 2



INLET VIEW PLAN VIEW DISCHARGE VIEW

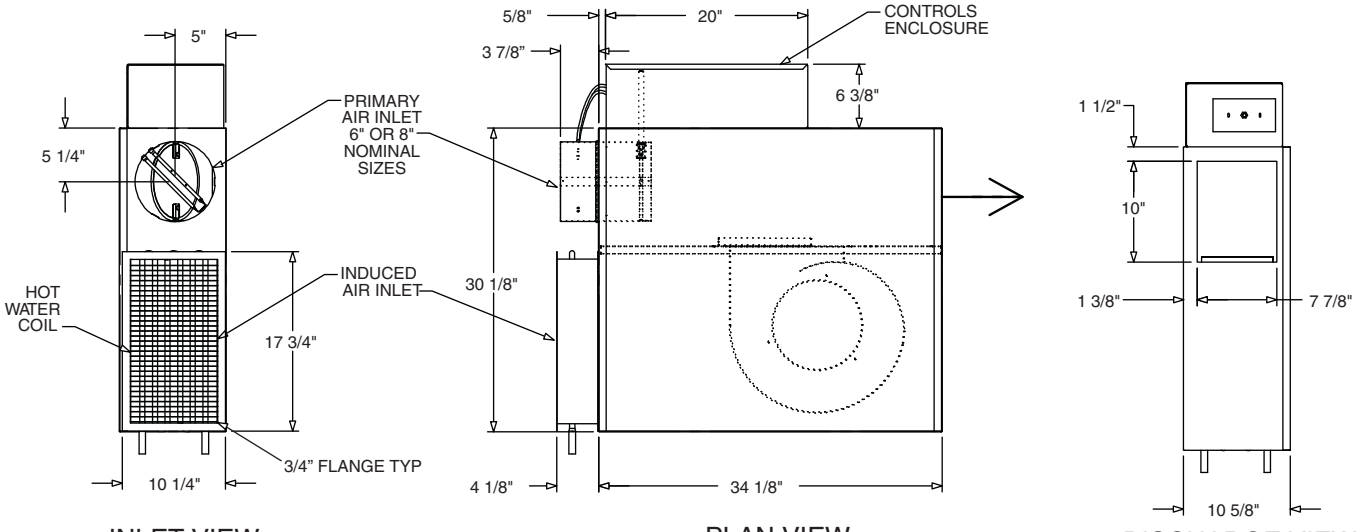
45R — LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT WITH ELECTRIC HEAT AND ELECTRONIC CONTROLS, SIZE 4



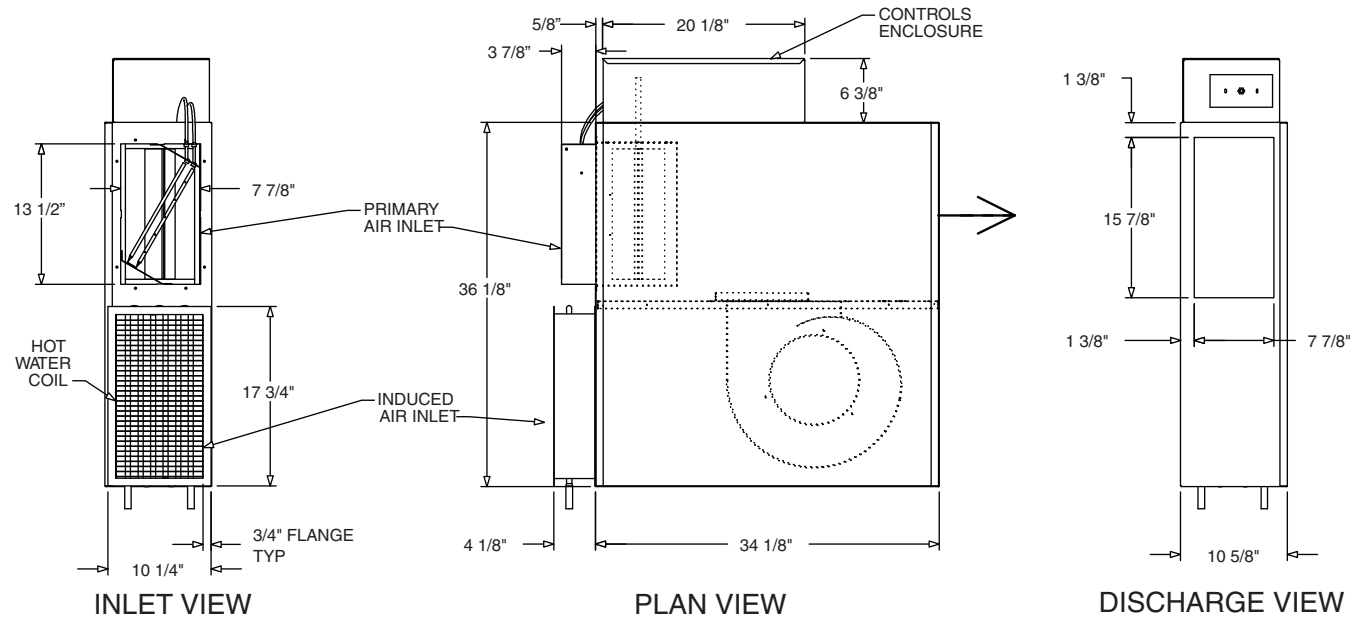
INLET VIEW **PLAN VIEW** **DISCHARGE VIEW**

Dimensions (cont)

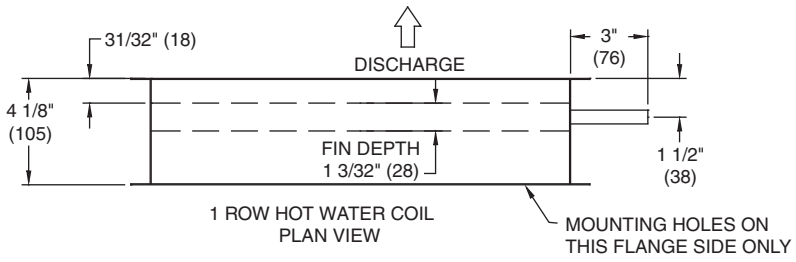
45R — LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 2

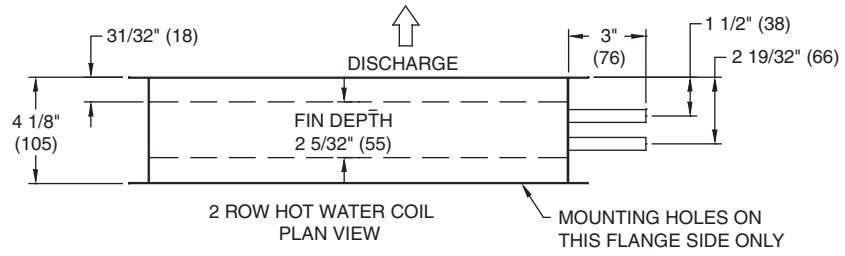


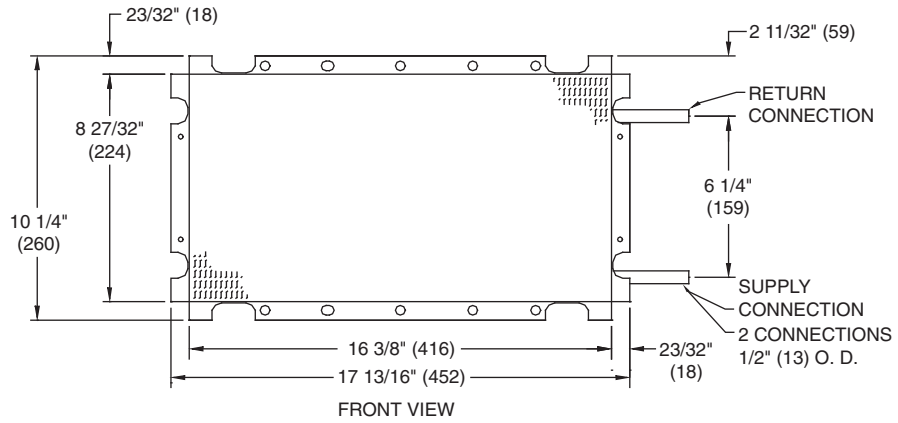
45R — LOW PROFILE PARALLEL FAN POWERED TERMINAL UNIT WITH HOT WATER HEAT AND ELECTRONIC CONTROLS, SIZE 4



HOT WATER HEAT COIL FOR 45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS — SIZES 2 AND 4







NOTE: Dimensions are given in inches. Dimensions in () are in millimeters.

Performance data

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS

UNIT SIZE 45Q	INLET SIZE (in.)	MOTOR HP	MOTOR AMPS			FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)			MINIMUM Ps. (in. wg)
			120V	208/230V	277V	Max	Min	Max	Min	Min CCN	
2	6	1/6	2.8	1.5	1.1	840	310	522	90	52	0.04
	8	1/6	2.8	1.5	1.1	840	310	840	160	93	0.06
3	8	1/4	4.1	2.2	1.6	1090	520	927	160	93	0.07
4	8 x 14	(2) 1/6	6.9	3.7	2.7	1650	800	1650	358	207	0.10
5	6	1/2	8.5	4.6	4.7	1550	400	515	90	52	0.04
	8	1/2	8.5	4.6	4.7	1550	400	920	160	93	0.06
	10	1/2	8.5	4.6	4.7	1550	400	1430	250	105	0.09

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS

UNIT SIZE 45R	INLET SIZE (in.)	MOTOR HP	MOTOR AMPS			FAN AIRFLOW (cfm)		PRIMARY AIRFLOW (cfm)			MINIMUM Ps (in. wg)		
			120V	208/230V	277V	Max	Min	Max	Min	Min CCN	None or Elec. Heat	1 Row Hot Water	2 Rows Hot Water
2	6	1/6	2.8	1.5	1.0	620	250	522	90	52	0.10	0.10	0.10
	8	1/6	2.8	1.5	1.0	620	250	927	160	93	0.18	0.18	0.18
4	8 x 14	1/4	3.9	2.1	1.4	830	450	2066	358	207	0.17	0.17	0.17

LEGEND

CCN — Carrier Comfort Network®
DDC — Direct Digital Controls
Ps — Static Pressure

NOTES:
1. 45Q maximum primary airflow (cfm) is set by the maximum induced airflow, which may vary as a function of downstream pressure. Maximum airflow shown is based on the maximum induced airflow (Fan airflow) or 1.00 in. wg velocity pressure at inlet probe, whichever is less.
2. 45R maximum primary airflow (cfm) is based on 1.00 in. wg velocity pressure signal (VP), per inlet size, using a standard linear averaging sensor.
3. Minimum recommended primary airflow (cfm) is based on 0.03 in. wg differential pressure of the linear inlet flow sensor, or 0 airflow. 0.03 in. wg is equal to 15% to 20% of the nominal flow rating of the terminal. Less than 15% to 20% may result in greater than +5% control of box flow.
4. 45R maximum fan airflow (cfm) is based on 0.25 in. wg external (Downstream) static pressure, and 45Q maximum fan airflow is based on 0.10 in. wg downstream static pressure (see page 103 for complete fan curves).
5. 45Q or 45R minimum fan airflow (cfm) is based on maximum external (downstream) static pressure 0.60 in. wg.
6. Minimum primary airflow (cfm) listed is for all controls except CCN, which is shown separately with lower available minimum CFMs. Some DDC controls supplied by others may have different limitations.
7. Minimum pressure, Ps (in. wg) on 45R water coil units is based on coil located on induction port.
8. Do not select discharge temperature exceeding 120 F. In addition, ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

AHRI CERTIFICATION RATING POINTS

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS — DISCHARGE

UNIT SIZE	FAN CFM	FAN WATTS	FAN ONLY SOUND POWER					
			2	3	4	5	6	7
2	700	300	60	60	62	61	61	58
3	925	440	63	62	65	64	63	61
4	1400	750	75	61	62	60	60	58

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS — RADIATED

UNIT SIZE	INLET SIZE	PRIM. CFM	MIN Ps	FAN PLUS PRIMARY AT 1.5 IN. WG INLET					
				2	3	4	5	6	7
2	8	700	0.08	67	66	62	60	54	50
3	8	925	0.07	74	73	68	65	59	53
4	8x14	1400	0.07	76	73	69	65	58	51

UNIT SIZE	FAN CFM	FAN WATTS	FAN ONLY SOUND POWER					
			2	3	4	5	6	7
2	700	300	62	55	55	52	46	35
3	925	440	66	60	60	58	51	45
4	1400	750	65	61	61	60	52	44

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS — DISCHARGE

UNIT SIZE	INLET SIZE	PRIM. CFM	MIN ∆ Ps	SOUND POWER AT 1.5 IN. WG ∆ Ps					
				2	3	4	5	6	7
2	8	700	0.059	67	68	63	58	54	49
4	8x14	1575	0.076	72	71	70	65	63	56

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS — RADIATED

UNIT SIZE	INLET SIZE	PRIM. CFM	MIN ∆ Ps	SOUND POWER AT 1.5 IN. WG ∆ Ps					
				2	3	4	5	6	7
2	8	700	0.059	64	62	59	56	53	48
4	8x14	1575	0.076	70	66	63	55	51	46

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS — FAN ONLY

UNIT SIZE	FAN CFM	FAN WATTS	RADIATED SOUND POWER						DISCHARGE SOUND POWER					
			Fan Only						Fan Only					
			2	3	4	5	6	7	2	3	4	5	6	7
2	600	275	63	60	60	57	50	39	61	57	59	57	50	49
4	800	385	64	65	65	62	56	47	61	59	63	60	54	53

LEGEND

Ps — Static Pressure
∆Ps — Difference in static pressure from the inlet to the discharge

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS
DISCHARGE SOUND POWER DATA

UNIT SIZE 45Q	INLET SIZE	FLOW RATE		MIN ΔP_s		FAN ONLY							FAN + PRIMARY AT 0.5 ΔP_s							FAN + PRIMARY AT 1.0 ΔP_s						
						Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p
		CFM	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
2	8	400	189	0.025	6.22	51	54	57	54	52	45	—	53	54	57	54	52	45	—	55	56	57	54	52	45	—
		500	236	0.039	9.72	55	56	59	57	55	50	—	57	56	59	57	55	50	—	59	59	61	59	55	50	—
		600	283	0.056	14.00	58	58	61	59	59	54	—	60	60	62	59	59	54	—	62	62	63	61	60	54	—
		700	330	0.077	19.05	60	60	62	61	61	58	22	63	63	64	61	61	58	22	65	65	65	64	63	58	23
		800	378	0.100	24.88	62	61	63	63	64	61	25	65	65	66	63	64	61	25	67	67	67	65	66	61	25
3	8	550	260	0.026	6.45	56	57	60	58	56	51	—	59	59	62	60	58	51	—	62	61	63	61	59	53	—
		550	260	0.026	6.45	56	57	60	58	56	51	—	59	59	62	60	58	51	—	62	61	63	61	59	53	—
		700	330	0.042	10.45	59	59	62	60	59	56	20	63	63	65	63	62	58	22	65	65	66	64	63	59	23
		850	401	0.062	15.41	62	61	64	63	62	60	24	66	65	67	66	66	62	26	69	68	69	67	67	63	27
		927	438	0.074	18.34	63	62	65	64	63	61	25	67	67	69	67	67	64	28	70	69	70	68	68	65	29
4	8 x 14	800	378	0.024	5.85	72	54	55	53	52	46	26	72	54	55	53	52	46	26	72	59	55	53	53	46	26
		975	460	0.035	8.69	73	57	58	55	55	50	25	73	57	58	55	55	50	25	73	61	58	55	55	50	25
		1250	590	0.057	14.28	75	60	61	58	59	56	27	75	60	61	58	59	56	27	75	64	61	58	59	56	27
		1425	673	0.075	18.56	75	62	62	60	61	58	28	75	62	62	60	61	58	28	75	65	62	60	61	58	28
		1650	779	0.100	24.88	76	63	64	62	63	62	30	76	63	64	62	63	62	30	76	67	64	62	63	62	30

UNIT SIZE 45Q	INLET SIZE	FLOW RATE		MIN ΔP_s		FAN ONLY							FAN + PRIMARY AT 0.75 ΔP_s							FAN + PRIMARY AT 1.5 ΔP_s						
						Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p
		CFM	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
5	6	500	236	0.004	0.99	56	54	52	54	48	39	—	56	54	52	54	48	39	—	56	54	52	54	48	39	—
		700	330	0.016	3.98	60	59	57	59	54	48	—	60	59	58	59	54	48	—	60	59	57	59	54	48	—
		1000	472	0.036	8.94	65	63	63	65	60	56	20	65	63	63	65	60	56	20	65	63	63	65	60	56	20
		1300	614	0.064	15.90	68	67	67	69	65	62	26	68	67	67	69	65	62	26	68	67	67	69	65	62	26
		1500	708	0.100	24.85	70	69	69	71	68	66	30	70	69	69	71	68	66	30	70	69	69	71	68	66	30
	8	500	236	0.004	0.99	56	54	52	54	48	39	—	56	54	52	54	48	39	—	56	56	52	54	48	39	—
		700	330	0.016	3.98	60	59	57	59	54	48	—	60	59	57	59	54	48	—	60	59	57	59	54	48	—
		1000	472	0.036	8.94	65	63	63	65	60	56	20	65	63	63	65	60	56	20	65	63	63	65	60	56	20
		1300	614	0.064	15.90	68	67	67	69	65	62	26	68	67	67	69	65	62	26	68	67	67	69	65	62	26
		1500	708	0.100	24.85	70	69	69	71	68	66	30	70	69	69	71	68	66	30	70	69	69	71	68	66	30
	10	500	236	0.004	0.99	56	54	52	54	48	39	—	56	54	52	54	48	39	—	56	56	52	54	48	39	—
		700	330	0.016	3.98	60	59	57	59	54	48	—	60	59	57	59	54	48	—	60	59	57	59	54	48	—
		1000	472	0.036	8.94	65	63	63	65	60	56	20	65	63	63	65	60	56	20	65	63	63	65	60	56	20
		1300	614	0.064	15.90	68	67	67	69	65	62	26	68	67	67	69	65	62	26	68	67	67	69	65	62	26
		1500	708	0.100	24.85	70	69	69	71	68	66	30	70	69	69	71	68	66	30	70	69	69	71	68	66	30

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
NC — Application data from AHRI 885
L_p — Minimum Static Air Pressure to Achieve Rated Airflow
— — Indicates Level Less Than 20

NOTES:
1. ΔP_s is the difference in static pressure from inlet to discharge.
2. Sound power levels are in decibels, re 10^{-12} watts.
3. End discharge sound power is the noise emitted from the unit discharge into the duct.
4. All Sound Data are based upon tests conducted in accordance with AHRI 880.

Performance data (cont)

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS (cont)
RADIATED SOUND POWER DATA

UNIT SIZE 45Q	INLET SIZE	FLOW RATE		MIN ΔP_s		FAN ONLY							FAN + PRIMARY AT 0.5 ΔP_s							FAN + PRIMARY AT 1.0 ΔP_s						
						Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p
		CFM	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
2	8	400	189	0.025	6.22	53	48	49	45	36	24	23	58	54	53	51	44	38	28	60	57	55	53	47	44	30
		500	236	0.039	9.72	57	51	51	48	40	28	26	61	57	56	54	47	40	30	62	60	57	55	49	45	32
		600	283	0.056	14.00	60	53	53	50	43	32	28	64	60	58	56	49	41	33	64	62	59	57	51	46	35
		700	330	0.077	19.05	62	55	55	52	46	35	29	66	62	59	57	51	42	35	66	64	61	59	52	47	36
		800	378	0.100	24.88	64	57	56	54	48	38	31	67	63	61	59	52	43	36	68	66	63	60	54	48	38
3	8	550	260	0.026	6.45	57	53	54	51	44	35	29	63	62	59	57	50	41	34	66	64	61	58	51	43	36
		550	260	0.026	6.45	57	53	54	51	44	35	29	63	62	59	57	50	41	34	66	64	61	58	51	43	36
		700	330	0.042	10.45	61	57	57	54	47	39	32	66	65	62	60	53	45	38	69	68	64	61	54	47	39
		850	401	0.062	15.41	65	59	59	57	50	43	34	69	68	65	62	56	48	40	71	70	66	63	57	50	42
		927	438	0.074	18.34	66	60	60	58	51	45	35	70	69	66	63	57	50	41	73	72	67	64	58	52	43
4	8 x 14	800	378	0.024	5.85	58	53	55	51	44	33	30	63	59	57	54	47	38	32	67	64	60	57	50	43	35
		975	460	0.035	8.69	61	56	57	54	47	37	32	66	62	60	57	50	40	35	69	66	62	59	52	45	38
		1250	590	0.057	14.28	64	59	60	58	51	42	35	68	65	62	58	53	44	37	72	69	65	62	55	47	41
		1425	673	0.075	18.56	66	61	61	60	53	45	36	70	66	64	60	53	45	39	74	71	66	63	56	49	42
		1650	779	0.100	24.88	67	63	62	62	55	48	38	72	68	65	62	55	48	41	75	72	68	65	58	51	44

UNIT SIZE 45Q	INLET SIZE	FLOW RATE		MIN ΔP_s		FAN ONLY							FAN + PRIMARY AT 0.75ΔP_s							FAN + PRIMARY AT 1.5 ΔP_s						
						Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p
		CFM	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
5	6	500	236	0.004	0.99	58	53	52	48	40	28	26	58	53	52	48	40	31	26	58	53	52	48	40	32	26
		700	330	0.016	3.98	62	57	56	52	45	35	30	62	57	56	52	45	37	30	62	57	56	52	45	38	30
		900	425	0.036	8.94	64	60	59	55	49	40	34	64	60	59	55	49	40	34	64	60	59	55	49	42	34
		1100	519	0.064	15.90	66	62	61	58	52	44	36	66	62	61	58	52	44	36	66	62	61	58	52	44	36
		1300	614	0.100	24.85	68	64	63	60	54	48	38	68	64	63	62	54	48	38	68	64	63	60	54	48	38
	8	500	236	0.011	2.76	58	53	52	48	40	28	26	58	53	52	48	40	35	26	58	55	52	48	40	36	26
		700	330	0.022	5.41	62	57	56	52	45	35	30	62	57	56	52	45	39	30	62	57	56	52	45	40	30
		1000	472	0.044	11.04	65	61	60	57	50	43	35	65	61	60	57	50	43	35	65	61	60	57	50	44	35
		1200	566	0.075	18.66	67	63	62	59	53	46	37	67	63	62	59	53	46	37	67	63	62	59	53	46	37
		1400	661	0.100	24.85	69	65	64	61	56	49	39	69	65	64	61	56	49	39	69	65	64	61	56	49	39

LEGEND

AHRI — Air Conditioning, Heating, and Refrigeration Institute
NC — Application data from AHRI 885
L_p — Minimum Static Air Pressure to Achieve Rated Airflow
— — Indicates Level Less Than 20

NOTES:
1. ΔP_s is the difference in static pressure from inlet to discharge.
2. Sound power levels are in decibels, re 10^{-12} watts.
3. End discharge sound power is the noise emitted from the unit discharge into the duct.
4. All Sound Data are based upon tests conducted in accordance with AHRI 880.

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS

PRIMARY DISCHARGE SOUND POWER LEVELS — 100% PRIMARY AIR

UNIT SIZE 45R	INLET SIZE	FLOW RATE		MIN ΔP_s		PRIMARY AT 0.5 ΔP_s							PRIMARY AT 1.0 ΔP_s							PRIMARY AT 2.0 ΔP_s						
						Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p
		CFM	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
2	6	150	71	0.008	2.1	43	44	42	37	28	17	—	46	46	45	40	30	21	—	49	49	49	43	33	25	—
		240	113	0.022	5.4	49	49	47	43	35	25	—	52	52	51	46	38	29	—	55	54	54	48	41	33	—
		325	153	0.040	9.9	52	53	51	46	40	31	—	56	55	54	49	43	35	—	59	58	58	52	45	39	—
		410	193	0.063	15.8	55	56	54	49	44	35	—	58	58	57	52	46	39	—	62	60	61	55	49	43	—
		500	236	0.094	23.5	58	58	56	51	47	38	—	61	60	59	54	50	42	—	64	63	63	57	52	46	20
	8	300	142	0.011	2.7	50	46	49	44	39	29	—	55	51	53	48	42	33	—	59	57	57	52	44	37	—
		450	212	0.024	6.1	54	52	52	48	44	36	—	59	58	57	51	47	40	—	64	63	61	55	50	43	21
		600	283	0.043	10.8	58	56	55	50	48	40	—	63	62	59	54	51	44	—	68	68	63	58	54	48	26
		750	354	0.068	16.9	60	60	57	52	51	44	—	65	65	61	56	54	48	23	70	71	65	60	57	51	29
		910	429	0.100	24.9	63	63	59	54	53	47	—	68	69	63	58	56	51	26	73	74	67	61	59	54	33
4	8 x 14	800	378	0.020	4.9	56	54	53	48	44	35	—	61	60	59	53	50	42	—	66	65	65	59	56	49	22
		1000	472	0.031	7.7	59	57	55	50	47	38	—	64	62	61	56	53	45	—	69	68	68	62	59	52	25
		1250	590	0.048	12.0	61	59	58	53	50	42	—	66	65	64	59	56	49	22	71	71	70	64	62	56	29
		1500	708	0.069	17.3	63	61	60	55	53	45	—	68	67	66	61	59	52	24	73	73	72	67	65	59	31
		1800	849	0.100	24.9	65	64	62	57	55	48	20	70	69	68	63	61	55	27	75	75	74	69	67	61	34

PRIMARY RADIATED SOUND POWER LEVELS — 100% PRIMARY AIR

UNIT SIZE 45R	INLET SIZE	FLOW RATE		MIN ΔP_s		PRIMARY AT 0.5 ΔP_s							PRIMARY AT 1.0 ΔP_s							PRIMARY AT 2.0 ΔP_s						
						Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p	Sound Power Octave Bands						L_p
		CFM	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
2	6	150	71	0.008	2.1	44	43	40	36	35	29	—	46	44	43	38	36	32	—	47	46	45	40	38	35	—
		240	113	0.022	5.4	49	47	44	40	38	32	—	51	49	47	42	39	35	21	53	51	49	43	41	38	23
		325	153	0.040	9.9	53	50	47	43	40	34	21	55	52	49	44	41	37	23	56	54	52	46	43	40	26
		410	193	0.063	15.8	56	53	49	44	41	35	23	57	54	51	46	43	38	25	59	56	53	48	45	41	28
		500	236	0.094	23.5	58	54	50	46	43	36	24	60	56	53	47	44	39	27	61	58	55	49	46	42	30
	8	300	142	0.011	2.7	44	43	41	38	32	26	—	51	49	45	41	36	31	—	58	54	49	45	40	37	23
		450	212	0.024	6.1	50	48	47	44	39	32	21	56	53	50	47	43	38	25	63	59	54	51	47	44	29
		600	283	0.043	10.8	53	51	51	48	44	37	25	60	56	54	52	48	43	29	67	62	58	55	52	48	33
		750	354	0.068	16.9	56	53	54	52	47	41	28	63	59	57	55	51	46	32	70	64	61	59	55	52	36
		910	429	0.100	24.9	59	55	56	54	50	44	31	66	61	60	58	54	49	35	72	66	64	62	58	55	39
4	8 x 14	800	378	0.020	4.9	56	54	50	43	37	31	24	62	60	55	46	41	36	29	68	66	59	50	44	40	36
		1000	472	0.031	7.7	57	55	52	45	40	34	26	63	61	57	49	43	38	31	69	67	61	52	47	43	37
		1250	590	0.048	12.0	59	56	54	47	43	36	28	65	62	59	51	46	41	34	71	67	63	54	49	46	39
		1500	708	0.069	17.3	60	57	55	49	45	38	30	66	62	60	53	48	43	35	72	68	65	56	51	48	40
		1800	849	0.100	24.9	61	57	57	51	47	41	32	67	63	62	55	50	45	37	73	69	67	58	54	50	42

FAN SOUND POWER LEVELS — FAN ONLY

UNIT SIZE 45R	FLOW RATE		RADIATED SOUND POWER L_w							DISCHARGE SOUND POWER L_w						
			Octave Bands						L_P	Octave Bands						L_P
	CFM	L/s	2	3	4	5	6	7	NC	2	3	4	5	6	7	NC
2	300	142	45	52	52	53	48	40	26	52	49	54	50	43	36	—
	375	177	48	56	54	55	51	43	29	55	51	55	52	45	40	—
	450	212	50	58	56	57	53	45	31	58	53	57	54	47	43	—
	525	248	52	61	58	59	55	47	33	60	55	58	56	49	46	—
	600	283	53	62	60	60	57	49	35	61	57	59	57	50	49	—
4	460	217	59	56	57	53	45	34	32	54	51	56	52	44	39	—
	525	248	60	58	59	55	48	37	34	56	53	57	54	47	43	—
	600	283	61	60	61	57	50	40	36	57	55	59	56	49	46	—
	725	342	63	63	64	60	54	45	39	60	58	62	59	52	51	—
	800	378	64	65	65	62	56	47	40	61	59	63	60	54	53	—

LEGEND

AHRI— Air Conditioning, Heating, and Refrigeration Institute
NC — Application data from AHRI 885 (see Application Assumptions on page 102)
L_p — Minimum Static Air Pressure to Achieve Rated Airflow
L_w — Sound Power (dB)
— — Indicates Level Less Than 20

NOTES:
1. ΔP_s is the difference in static pressure from the terminal discharge to the room.
2. Radiated sound power is the noise transmitted through the casing walls.
3. Discharge sound power is the noise emitted from the unit discharge into the downstream duct.
4. All Sound Data are based upon tests conducted in accordance with AHRI 880.

Performance data (cont)

45Q LOW PROFILE SERIES AND 45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS

APPLICATION ASSUMPTIONS

AHRI 885 RADIATED	RADIATED SOUND APPLICATION ASSUMPTIONS (dB)					
	Octave Bands					
	2	3	4	5	6	7
Environ. Effect	2	1	0	0	0	0
Plenum/Room Effect	16	18	20	26	31	36
Total Attenuation	18	19	20	26	31	36

NOTE: Ceiling type — Mineral Fiber, $^5/_8$ in.-35 lb/cu. ft

AHRI 885 DISCHARGE < 300 cfm	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, 8x8x1-in.	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, 8-in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	24	28	39	53	59	40

AHRI 885 DISCHARGE 300-700 cfm	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, 12x12x1-in.	2	4	10	20	20	14
10 in. End Reflection	9	5	1	0	0	0
Power Division (2 outlets)	3	3	3	3	3	3
5-ft, 8-in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	27	29	40	51	53	39

AHRI 885 DISCHARGE > 700 cfm	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, 15x15x1-in.	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, 8-in. Flex Duct	6	10	18	20	21	12
Space Effect	5	6	7	8	9	10
Total Attenuation	29	30	41	51	52	39

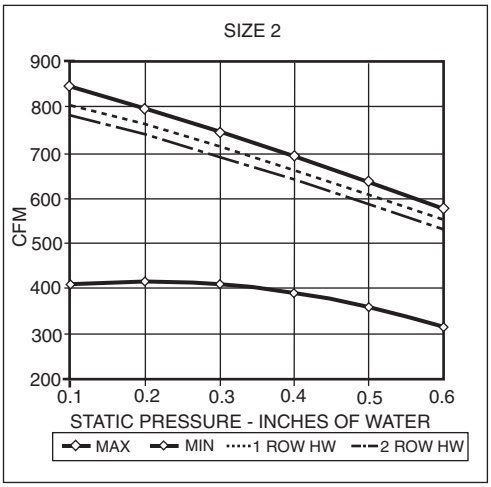
Notes for Sound Data Tables:

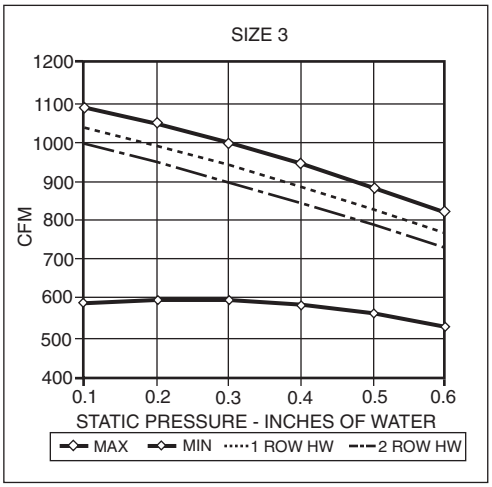
Both AHRI and ASHRAE (American Society of Heating, Refrigerating and Air Conditioning Engineers) provide guidance in both measuring sound power levels (per AHRI 880), and in estimating the resultant room sound pressure, typically shown as an NC level (per AHRI 885 — 2002 addendum — Appendix E). The ASHRAE handbooks provide detailed acoustical guidance. For applications, AHRI Standard 885 is an application standard which provides tables and equations for determining acoustical deduction based on the ASHRAE guides, as well as additional information provided by manufacturers.

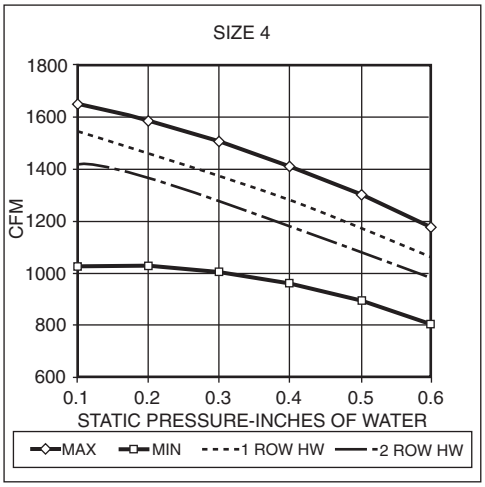
All sound data shown by octave bands is raw data without any corrections for room absorption or duct attenuation. This sound power data is tested in accordance with AHRI Standard 880.

The NC values reflect a more accurate sound level estimate for typical office spaces or other applications. These NC levels are calculated based on procedures from AHRI Standard 885.

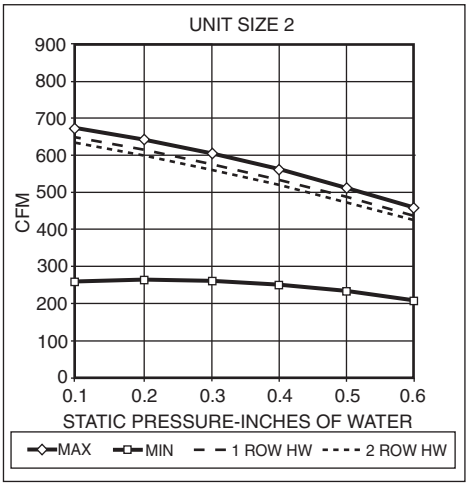
45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS
AIRFLOW VS. DOWNSTREAM STATIC PRESSURE

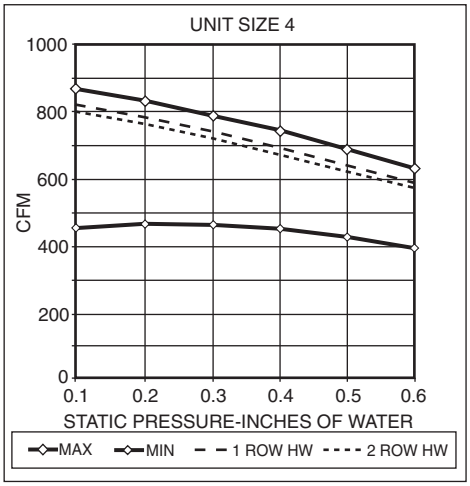






45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS
AIRFLOW VS. DOWNSTREAM STATIC PRESSURE





Performance data (cont)

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS

WATER COIL PERFORMANCE DATA

SIZE	ROWS	GPM	HEAD LOSS	AIR FLOW, CFM								
				400	450	500	550	600	650	700	750	800
2	One Row	1.0	0.20	12.8	13.4	14.1	14.6	15.1	15.6	16.1	16.5	16.9
		2.0	0.50	14.4	15.3	16.1	16.9	17.6	18.2	18.9	19.4	20.0
		4.0	1.80	15.5	16.5	17.5	18.4	19.2	20.0	20.8	21.5	22.2
		6.0	3.80	15.9	17.0	18.0	19.0	19.9	20.7	21.6	22.3	23.1
		Airside Δ P_s (in. wg)		0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10	0.11
	Two Rows	1.0	0.40	22.0	23.2	24.3	25.2	26.1	26.9	27.6	28.3	28.9
		3.0	2.50	27.0	29.0	30.8	32.5	34.0	35.5	36.9	38.2	39.4
		5.0	6.10	28.3	30.5	32.5	34.4	36.2	37.9	39.5	41.0	42.5
		7.0	11.10	28.9	31.2	33.3	35.4	37.3	39.1	40.8	42.4	44.0
		Airside Δ P_s (in. wg)		0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19	0.22

SIZE	ROWS	GPM	HEAD LOSS	AIR FLOW, CFM								
				500	570	640	710	780	850	920	990	1060
3	One Row	1.0	0.20	14.1	14.8	15.5	16.1	16.7	17.2	17.7	18.1	18.5
		2.0	0.50	16.1	17.2	18.1	19.0	19.8	20.5	21.2	21.9	22.5
		4.0	1.80	17.5	18.7	19.9	20.9	21.9	22.8	23.7	24.5	25.3
		6.0	3.80	18.0	19.4	20.6	21.7	22.8	23.8	24.7	25.6	26.4
		Airside Δ P_s (in. wg)		0.05	0.06	0.08	0.09	0.11	0.13	0.15	0.17	0.19
	Two Rows	1.0	0.40	24.3	25.6	26.7	27.7	28.6	29.4	30.2	30.8	31.4
		3.0	2.50	30.8	33.1	35.2	37.2	39.0	40.6	42.1	43.6	44.9
		5.0	6.10	32.5	35.2	37.6	39.8	41.9	43.9	45.7	47.5	49.1
		7.0	11.10	33.3	36.1	38.7	41.1	43.4	45.5	47.5	49.3	51.1
		Airside Δ P_s (in. wg)		0.09	0.12	0.14	0.17	0.21	0.24	0.28	0.31	0.35

SIZE	ROWS	GPM	HEAD LOSS	AIR FLOW, CFM								
				900	985	1070	1155	1240	1325	1410	1495	1580
4	One Row	1.0	0.20	20.2	20.8	21.4	22.0	22.5	22.9	23.4	23.8	24.1
		2.0	0.60	24.2	25.1	26.0	26.8	27.6	28.3	29.0	29.7	30.3
		4.0	2.10	26.9	28.1	29.2	30.3	31.3	32.2	33.1	34.0	34.8
		6.0	4.20	28.0	29.3	30.5	31.7	32.8	33.8	34.8	35.8	36.7
		Airside Δ P_s (in. wg)		0.08	0.10	0.11	0.13	0.15	0.17	0.18	0.20	0.23
	Two Rows	1.0	0.40	33.4	34.3	35.2	35.9	36.6	37.2	37.8	38.3	38.7
		3.0	2.80	46.9	49.0	50.9	52.7	54.4	56.0	57.5	58.9	60.2
		5.0	6.80	50.7	53.3	55.6	57.9	60.0	61.9	63.8	65.6	67.3
		7.0	12.40	52.6	55.4	57.9	60.4	62.7	64.9	66.9	68.9	70.8
		Airside Δ P_s (in. wg)		0.16	0.19	0.21	0.25	0.28	0.31	0.35	0.39	0.43

SIZE	ROWS	GPM	HEAD LOSS	AIR FLOW, CFM								
				400	500	600	700	800	900	1000	1100	1200
5	Two Row	1.0	0.3	-3.9	-4.3	-4.6	-4.9	-5.1	-5.3	-5.4	-5.5	-5.7
		2.0	0.9	-4.7	-5.3	-5.9	-6.3	-6.8	-7.1	-7.4	-7.7	-8.0
		3.0	1.9	-5.0	-5.7	-6.4	-7.0	-7.5	-8.0	-8.4	-8.8	-9.2
		4.0	3.2	-5.1	-6.0	-6.7	-7.4	-8.0	-8.5	-9.0	-9.5	-9.9
		Airside Δ P_s (in. wg)		0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07
	Four Row	1.0	0.5	-5.2	-5.7	-6.2	-6.5	-6.7	-6.9	-7.0	-7.2	-7.3
		2.0	1.8	-6.1	-7.1	-8.0	-8.8	-9.4	-9.9	-10.4	-10.8	-11.1
		3.0	3.6	-6.4	-7.6	-8.7	-9.7	-10.5	-11.3	-11.9	-12.6	-13.1
		4.0	6.0	-6.5	-7.8	-9.0	-10.1	-11.1	-12.0	-12.8	-13.6	-14.2
		Airside Δ P_s (in. wg)		0.02	0.03	0.04	0.05	0.06	0.08	0.10	0.11	0.13
	Six Row	1.0	0.4	-5.7	-6.3	-6.8	-7.1	-7.3	-7.4	-7.6	-7.7	-7.7
		2.0	1.5	-6.6	-7.9	-8.9	-9.8	-10.6	-11.2	-11.7	-12.1	-12.5
		4.0	5.1	-7.0	-8.5	-9.9	-11.2	-12.5	-13.6	-14.6	-15.5	-16.4
		6.0	10.5	-7.0	-8.6	-10.2	-11.6	-13.0	-14.3	-15.5	-16.7	-17.7
		Airside Δ P_s (in. wg)		0.03	0.04	0.06	0.08	0.10	0.12	0.14	0.17	0.20

NOTES:
1. All data is based on: 65.0 F entering water, 180.0 F entering air, at an altitude of 0 ft above sea level.
2. Program calculations assume 0% glycol.
3. Head loss is in feet of water.
4. Coil performance is in MBtuh.
5. Delta T = temperature rise across the coil.
6. Refer to Carrier electronic selection program or table at right for correction factors for other conditions.

CORRECTION FACTORS FOR OTHER ENTERING CONDITIONS

DELTA T	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.7	0.79	0.88	1	1.07	1.2	1.3

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS

WATER COIL PERFORMANCE DATA

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIR FLOW, CFM								
				280	320	360	400	440	480	520	560	600
2	One Row	1.0	0.10	8.4	8.8	9.2	9.7	10.1	10.5	10.8	11.1	11.4
		2.0	0.50	9.2	9.7	10.3	10.8	11.3	11.8	12.2	12.7	13.1
		4.0	1.70	9.7	10.3	10.9	11.6	12.1	12.7	13.2	13.7	14.2
		6.0	3.40	9.9	10.5	11.2	11.8	12.5	13.0	13.6	14.1	14.6
		Airside ΔP_s (in. wg)		0.03	0.03	0.04	0.05	0.06	0.07	0.08	0.09	0.10
	Two Rows	1.0	0.30	14.9	15.9	16.8	17.6	18.4	19.0	19.7	20.2	—
		3.0	2.30	17.4	18.8	20.1	21.4	22.5	23.6	24.6	25.5	—
		5.0	5.70	18.0	19.5	21.0	22.3	23.6	24.8	25.9	27.0	—
		7.0	10.30	18.3	19.9	21.4	22.8	24.1	25.4	26.5	27.7	—
		Airside ΔP_s (in. wg)		0.05	0.06	0.08	0.09	0.11	0.13	0.15	0.17	—

UNIT SIZE	ROWS	GPM	HEAD LOSS	AIR FLOW, CFM								
				450	490	530	570	610	650	690	730	770
4	One Row	1.0	0.10	10.2	10.5	10.9	11.2	11.5	11.8	12.0	12.3	12.5
		2.0	0.50	11.4	11.9	12.4	12.8	13.2	13.5	13.9	14.2	14.5
		4.0	1.70	12.3	12.8	13.3	13.8	14.3	14.7	15.1	15.5	15.9
		6.0	3.40	12.6	13.2	13.7	14.2	14.7	15.2	15.6	16.1	16.5
		Airside ΔP_s (in. wg)		0.06	0.07	0.08	0.09	0.10	0.12	0.13	0.14	0.16
	Two Rows	1.0	0.30	18.5	19.2	19.8	20.4	20.9	21.4	21.9	22.3	—
		3.0	2.30	22.8	23.8	24.8	25.7	26.6	27.5	28.3	29.0	—
		5.0	5.70	23.9	25.1	26.2	27.2	28.2	29.2	30.1	30.9	—
		7.0	10.30	24.4	25.7	26.8	27.9	29.0	30.0	31.0	31.9	—
		Airside ΔP_s (in. wg)		0.12	0.13	0.15	0.18	0.20	0.22	0.25	0.27	—

NOTES:
1. All data is based on: 65.0 F entering water, 180.0 F entering air, at an altitude of 0 ft above sea level.
2. Program calculations assume 0% glycol.
3. Head loss is in feet of water.
4. Coil performance is in MBtuh.
5. Delta T = temperature rise across the coil.
6. Refer to Carrier electronic selection program or table at right for correction factors for other conditions.

CORRECTION FACTORS FOR OTHER ENTERING CONDITIONS

DELTA T	50	60	70	80	90	100	115	125	140	150
Factor	0.44	0.52	0.61	0.7	0.79	0.88	1	1.07	1.2	1.3

Electrical data

45Q LOW PROFILE SERIES FAN POWERED TERMINAL UNITS WITH ELECTRIC HEAT — kW RANGES

UNIT SIZE	MAXIMUM kW				
	120 V	208/240 V	277 V	208 V	480 V
	Single Phase			3 Phase	
2	4.0	6.0	6.0	6.0	6.0
3	4.0	8.0/ 9.0	9.0	9.0	9.0
4	4.0	8.0/10.0	12.0	14.0	14.0
5	4.5	9.0/10.0	12.0	14.0	17.5

STAGES	MINIMUM kW				
	120 V	208/240 V	277 V	208 V	480 V
	Single Phase			3 Phase	
1	0.5	1.0	1.0	1.5	2.5
2	1.0	1.5	1.5	1.5	2.5
3	1.5	2.0	2.5	1.5	2.5

LEGEND

kW — Heating Capacity (kilowatts)

NOTES:
1. Three-stage heaters are not available with analog or VVT® electronic controls.
2. Pneumatic and digital controlled terminals are available with up to 3 stages of heat. Analog and VVT electronic controlled terminals are available with 1or 2 stages of heat only.
3. Heaters require a minimum of 0.03 in. wg downstream static pressure to ensure proper operation.

45R LOW PROFILE PARALLEL FAN POWERED TERMINAL UNITS WITH ELECTRIC HEAT — kW RANGES

UNIT SIZE	MAXIMUM kW				
	120 V	208/240 V	277 V	208 V	480 V
	Single Phase			3 Phase	
2	4.0	6.0	6.0	6.0	6.0
4	4.0	9.0/10.0	12.0	14.0	14.0

STAGES	MINIMUM kW				
	120 V	208/240 V	277 V	208 V	480 V
	Single Phase			3 Phase	
1	0.5	1.0	1.0	1.5	2.5
2	1.0	1.5	1.5	1.5	2.5
3	1.5	2.0	2.5	1.5	2.5

4. kW/Voltage ratings are sized not to exceed 48 amps so NEC code requirement for circuit fusing is not necessary.

$$\text{Single Phase — Amperes} = \frac{\text{Watts (kW x 1000)}}{\text{Line Voltage}}$$

$$\text{Three Phase — Amperes} = \frac{\text{Watts (kW x 1000)}}{\text{Line Voltage x 1.73}}$$

Electric heat selection — Specify electric duct heaters using voltage, kW and number of steps.

Select heater so that power (kW) matches available electric heat options. Tables show maximum, minimum and available kW's within those ranges. Rounding to the nearest whole number has negligible impact on discharge temperature. If the fan is selected for less than maximum speed, then the maximum operating kW would be lower than the maximum kW shown in the table. Calculate kW based on the available fan cfm. A minimum of 70 cfm is required per kW.

Total fan cfm/70 cfm = max allowable kW

The Total kW required for the unit is based on the sum of both (A) room Btuh load and (B) the Btuh required to raise the entering air temperature to the desired room air temperature. Total kW = room Btuh + ΔBtuh

$$\text{room Btuh kW} = \frac{\text{room Btuh}}{3413}$$

$$\Delta\text{ Btuh kW} = \frac{\text{cfm x } \Delta t}{3160}$$

where Δt = desired room temp. – air entering electric heater (typically 70 F)

Determine what the desired discharge air temperature will be. Do not select for discharge air temperatures exceeding 120 F. In addition note that ASHRAE recommends a maximum discharge temperature of 90 F to avoid room air temperature stratification when heating from the ceiling (2001 Fundamentals, Chapter 32).

$$\Delta t = (\text{LAT} - \text{EAT}) = \frac{\text{kW x } 3160}{\text{cfm}}$$

LAT = Discharge air temperature
EAT = Air temperature to heater

The desired heating airflow for the space can be verified by the following:

$$\text{cfm} = \frac{\text{kW x } 3160}{\Delta t}$$

ELECTRIC HEAT kW OPTIONS

UNIT	AVAILABLE kW
45Q,R	0.5, 1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5, 11.0, 11.5, 12.0, 12.5, 13.0, 13.5, 14.0, 17.5

Guide specifications — 45J units

Series Variable Air Volume Terminal Units Fan-Powered

HVAC Guide Specifications

Size Range: **90 to 3900 cfm**
Carrier Model Number (45J Units):
45JA (Analog Electronic Control)
45JC (CCN VAV Electronic Control [DDC, CCN])
45JD (BACnet VAV)
45JN (No Control or DDC by Others)
45JP (Pneumatic Control)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

A. Fan-powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.

B. The induced air fan shall operate continuously during central system operation. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (PIC direct digital electronic) (analog electronic) (pneumatic) pressure independent velocity controller maintains the minimum primary airflow setting by modulating the damper. The staged electric heating coil or hot water coil, if supplied, is energized (activated). As room temperature begins to rise, the heating coil is deenergized (deactivated). As room temperature rises above the set point, the primary air damper will modulate to maintain room temperature. When the room temperature calls for maximum cooling, the velocity controller maintains the maximum primary airflow setting. To prevent the fan/motor from running in the backward direction, the unit induced air fan shall be field wired so that it is electrically or pneumatically interlocked with the central system fan.

1.02 QUALITY ASSURANCE:

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

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

1.03 DELIVERY AND STORAGE:

Units shall be stored and handled as per manufacturer's recommendations.

*Registered trademark of DuPont.

Part 2 — Products

2.01 EQUIPMENT:

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.

B. Unit Cabinet:

1. Constructed of 22 gage (20 gage optional) zinc-coated steel. All primary air inlet collars shall accommodate standard flex duct sizes. Unit discharge shall be rectangular, suitable for flanged duct connection.
2. Unit casing shall be lined with dual density, $1/2$-in. thick, $1\,1/2$ lb density fiberglass insulation that meets UL 181 and NFPA 90A (1-in. thick, 3 lb density optional).
3. (Optional) Foil Encapsulated Insulation:

   Unit casing shall be lined with foil reinforced, wrapped edges, $1/2$-in. or 1-in. thick, $1\,1/2$ lb density fiberglass insulation that meets UL 181 and NFPA 90.
4. (Optional) Cellular Insulation:

   Unit casing shall be lined with $3/8$-in. thick, smooth surface, closed-cell elastometric thermal insulation for fiber free application.

C. Damper Assembly:

The primary air damper assembly shall be constructed of heavy gage galvanized steel with solid shaft rotating in Delrin* bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blades shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

D. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR (fan speed controller). Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

E. Electrical Requirements:

Units shall have a single connection for power, and operate on 120,208/240 or 277 vac (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240 v 3-wire or 480 v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

F. Controls:
   1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points ± 5% of the unit's capacity at any inlet pressure up to 6 in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
   2. Sensor Type:
      a. The unit shall be equipped with an amplified linear averaging flow probe located horizontally across the inlet. The sensor will provide a differential pressure signal amplified to equal 3 times the velocity pressure with an accuracy of at least ± 10% throughout the range of 350 to 2600 fpm inlet duct velocity, depending on the controller employed.
      b. The unit shall be equipped with a four quadrant linear cross sensor. This is a multi-point center averaging, inlet flow sensor, available for use with pneumatic, analog electric and digital electric control type units.

G. Special Features:
   1. Electric Heating Coil:
      a. Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20 gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic insulators. The integral control panel shall be housed in a NEMA 1 enclosure, with hinged access door for access to all controls and safety devices.
      b. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. (OPTIONAL) Electric coils shall include fused or non-fused door interlocking disconnect switch, mercury contactors, fuse block, dust-tight enclosure construction, all mounted and/or wired within the control enclosure.
   2. Hot Water Coil:

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

Guide specifications — 45M units

Parallel Variable Air Volume Terminal Units Fan-Powered

HVAC Guide Specifications

Size Range: **90 to 3700 cfm**
Carrier Model Number (45M Units):
45MA (Analog Electronic Control)
45MC (CCN VAV Electronic Control)
45MD (BACnet VAV)
45MN (No Control or DDC by Others)
45MP (Pneumatic Control)
45MV (CCN VVT®)
45MB (BACnet VVT)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

A. Fan-powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.

B. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (PIC direct digital electronic) (analog electronic) (pneumatic) pressure independent velocity controller shall maintain the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (hot water coil), if supplied, shall be energized (activated). As room temperature begins to rise, the heating coil shall be deenergized (deactivated). As room temperature calls for maximum cooling, the velocity controller shall maintain the maximum primary airflow setting.

1.02 QUALITY ASSURANCE:

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

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

1.03 DELIVERY AND STORAGE:

Units shall be stored and handled as per manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT:

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.

B. Unit Cabinet:

1. Constructed of 22 gage (20 gage optional) zinc-coated steel. All primary air inlet collars shall accommodate standard flex duct sizes. Unit discharge shall be rectangular, suitable for flanged duct connection.
2. Unit casing shall be lined with dual density, $1/2$-in. thick, $1\,1/2$ lb density fiberglass insulation that meets UL 181 and NFPA 90A (1-in. thick, 3 lb density optional).
3. (Optional) Foil Encapsulated insulation:

   Unit casing shall be lined with foil reinforced, wrapped edges, $1/2$-in. or 1-in. thick, $1\,1/2$ lb density fiberglass insulation that meets UL 181 and NFPA 90.
4. (Optional) Cellular Insulation:

   Unit casing shall be lined with $3/8$-in. thick, smooth surface, closed-cell elastometric thermal insulation for fiber free application.

C. Damper Assembly:

The primary air damper assembly shall be constructed of heavy gage galvanized steel with solid shaft rotating in Delrin bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blades shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

D. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, multi-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR (fan speed controller). Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

E. Electrical Requirements:

Units shall have a single connection for power, and operate on 120,208/240 or 277 vac (standard) single-phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240 v 3-wire or 480 v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

F. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points ±5% of the unit's capacity at any inlet pressure up to 6-in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. Sensor Type:

   a. The unit shall be equipped with an amplified

linear averaging flow probe located horizontally across the inlet. The sensor will provide a differential pressure signal amplified to equal 3 times the velocity pressure with an accuracy of at least ± 10% throughout the range of 350 to 2600 fpm inlet duct velocity, depending on the controller employed.

b. The unit shall be equipped with a four quadrant linear cross sensor. This is a multi-point center averaging, inlet flow sensor, available for use with pneumatic, analog electric and digital electric control type units.

G. Special Features:

1. Electric Heating Coil:

a. Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20 gage zinc coated steel. Elements shall be nickel chrome and supported by ceramic insulators. The integral control panel shall be housed in a NEMA 1 enclosure, with hinged access door for access to all controls and safety devices.

b. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. (OPTIONAL) Electric coils shall include fused or non-fused door interlocking disconnect switch, mercury contactors, fuse block, dust tight enclosure construction, all mounted and/or wired within the control enclosure.

2. Hot Water Coil:

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

Guide specifications — 45K,N units

Series and Parallel Fan Powered VAV Terminal Units

HVAC Guide Specifications

Size Range: **90 to 3100 Nominal Cfm (45K)**
90 to 3300 Nominal Cfm (45N)

Carrier Model Number (45K Units):

45KA (Analog Electronic Control)
45KC (CCN VAV Electronic Control)
45KD (BACnet VAV)
45KN (No Control or DDC by Others)
45KP (Pneumatic Control)

Carrier Model Number (45N Units):

45NA (Analog Electronic Control)
45NC (CCN VAV Electronic Control)
45ND (BACnet VAV)
45NN (No Control or DDC by Others)
45NP (Pneumatic Control)
45NV (CCN VVT®)
45NB (BACnet VVT)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

Variable air volume control box for installation in a ceiling that permits access to the unit. Manufacturer shall supply unit(s) of the design, number, size and performance as shown on equipment drawings and schedules. Unit(s) are for use in conjunction with air distribution manifolds, distribution ductwork and ceiling mounted diffusers.

1.02 QUALITY ASSURANCE:

A. Insulation shall meet NFPA 90A requirements for flame spread and smoke generation and UL 181 requirements for anti-erosion, corrosion and fungus properties.

B. Hot water coils, when specified, shall be tested for leakage at 400 psig with the coil submerged in water.

C. Electric heating coils, when specified shall be UL or ETL listed and designed to comply with UL Standard 1096, UL 1995 and CSA C22.2 No. 236.95.

D. Sound power levels shall be AHRI certified in accordance with the requirements of AHRI 880, latest edition.

1.03 DELIVERY AND STORAGE:

Units shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

2.01 Equipment

A. General:

Factory-assembled, externally powered, variable air volume control terminal. Unit shall be complete with a PSC (permanent split capacitor) motor, damper assembly, flow sensor, externally mounted volume controller, collars for duct connection and all required features. Control box shall be clearly marked with an identification label that lists such information as nominal cfm, maximum and minimum factory-set airflow limits, coil type and coil hand, where applicable.

B. Unit Cabinet:

1. Constructed of 20-gage galvanized steel with round inlet collar and rectangular discharge with flanged duct connection. All primary air inlet collars shall accommodate standard flex duct sizes.
2. Unit shall be insulated with $1/2$-in. thick, $1\,1/2$-lb equivalent density mat-faced insulation that meets the requirements of UL 181 and NFPA 90A.
3. Optional 1-in. thick insulation (alternative to Item 2): Unit casing shall be lined with dual density, 1-in. thick, 3-lb density fiberglass insulation that meets UL 181 and NFPA 90A.
4. Optional foil encapsulated insulation (alternative to Item 2): unit casing shall be lined with nylon reinforced foil-wrapped exposed edges, either 1-in. or $1/2$-in. thick, $1\,1/2$-lb density fiberglass insulation that meets UL 181 and NFPA 90A.
5. Optional Steriliner insulation (alternative to Item 2): unit casing shall be lined with $3/16$-in. thick, 4-lb density, rigid board insulation with nylon reinforced foil covering insulation fibers that meets UL 181 and NFPA 90A. Liner shall be attached to unit casing by insulation adhesive and full-seam-length Z-strips to enclose and seal the insulation cut edges.
6. No liner (alternative to Item 2): Unit casing shall be equipped with no internal insulation liner.
7. Optional Sterilwall insulation (alternative to Item 2): unit casing shall be lined with $1/2$-in. thick, $1\,1/2$-lb density insulation, meeting UL 181 and NFPA 90A, enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.
8. Optional cellular insulation (alternative to Item 2): Unit casing shall be lined with $3/8$-in. thick, smooth surface, closed-cell elastomeric thermal insulation for fiber free application.
9. Optional perforated wall insulation (alternative to Item 2): Unit casing shall be lined with $1/2$-in. or 1-in. thick, $1\,1/2$-lb dual density fiberglass insulation. Additional options shall include desity foil reinforced fiberglass insulation or rigid board insulation with fiber reinforced foil covering. Insulation shall meet UL 181 and NFPA 90A, and shall be enclosed between the unit casing and a non-perforated internal sheet metal cover extending over the fiberglass insulation, as well as covering the liner cut edges.

C. Unit Electrical Motors:

Unit electrical motors shall be 120, 208/240, or 277-volt, multi-voltage, single-speed, single-phase, permanently lubricated PSC type. Optional 277-volt, single-phase ECM (electronically commutated motor) fan motors shall be available with either a VCU (visually controlled unit) (factory/field set, field adjustable) or ACU (analog controlled unit) (remote set and adjusted) fan speed controller (45K sizes 4, 6, and 7, 45N sizes 4 and 7). Units shall be available with fused fan motors.

D. Damper Assembly:

The control air damper assembly shall be constructed of heavy gage galvanized steel with solid shaft rotating in Delrin bearings. Damper shaft shall be marked on the end to indicate damper position. Damper blade shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

E. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points ±5% of the unit's capacity at any inlet pressure up to 6 in. wg. The controllers shall be capable of resetting between factory-set or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand.
2. Sensor Type:
   a. The unit shall be equipped with an amplified linear averaging flow probe located horizontally across the inlet. The sensor will provide a differential pressure signal amplified to equal 3 times the velocity pressure with an accuracy of at least ± 10% throughout the range of 350 to 2600 fpm inlet duct velocity, depending on the controller employed.
   b. The unit shall be equipped with a four quadrant linear cross sensor. This is a multi-point center averaging, inlet flow sensor, available for use with pneumatic, analog electric and digital electric control type units.

F. Special Features:

1. Hot Water Heating Coil:

Hot water coil casing shall be constructed with minimum 20 gage galvanized steel with flanged discharge for attachment to downstream ductwork. The hot water coil may also be factory attached to the upstream side of the induced air inlet (45N only). Coils shall be factory-installed on the terminal unit.

   a. Fins shall be rippled and corrugated heavy gage aluminum, mechanically bonded to tubes.
   b. Tubes shall be copper with minimum wall thickness of 0.016 in. and with male solder header connections. Coils shall be leak tested to 400 psig.
   c. Number of coil rows and circuits shall be selected to provide performance as required by the plans. Coil performance data shall be based on tests run in accordance with AHRI Standard 410.

2. Electric Heating Coil:

The terminal unit manufacturer shall supply electric coils and they shall be UL listed. Construct coil casing with minimum of 22-gage zinc-coated steel. Elements shall be nickel chrome and supported by ceramic isolators. The integral control panel shall be housed in a NEMA 1 enclosure, with hinged access door for access to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. (OPTIONAL) Electric coils shall include manual reset, fused or non-fused door interlocking disconnect switch, mercury contactors, thermal cutout, fuse block, dust-tight enclosure construction, all mounted and/or wired within the control enclosure.

Guide specifications — 45Q units

Constant Volume Series Flow Terminal Fan Powered Units

HVAC Guide Specifications

Size Range: **90 to 2000 cfm**

Carrier Model Number (45Q Units):

45QA (Analog Electronic Control)

45QC (CCN VAV Electronic Control)

45QD (BACnet VAV)

45QN (No Control or DDC by Others)

45QP (Pneumatic Control)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

A. Fan powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing.

B. The induced air fan shall operate continuously during central system operation. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (direct digital electronic) (analog electronic) (pneumatic) pressure independent velocity controller maintains the minimum primary airflow setting by modulating the damper. The staged electric heating coil or hot water coil, if supplied, is energized (activated). As room temperature begins to rise, the heating coil is deenergized (deactivated). As room temperature rises above the set point, the primary air damper will modulate to maintain room temperature. When the room temperature calls for maximum cooling, the velocity controller maintains the maximum primary airflow setting. To prevent the fan/motor from running in the backward direction, the unit induced air fan shall be field wired so that it is electrically or pneumatically interlocked with the central system fan.

1.02 QUALITY ASSURANCE

A. Terminals shall be tested in accordance with AHRI Standard 880, latest edition.

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

1.03 DELIVERY AND STORAGE

Units shall be stored and handled as per manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing with a low height physical dimension of $10^5/_8$ inches.

B. Unit Cabinet:

1. Constructed of 20 gage zinc-coated steel. All primary air inlet collars shall accommodate standard flex duct sizes. Unit discharge shall be round or rectangular, suitable for flanged duct connection.
2. Unit casing shall be lined with dual density, $^1/_2$-in. thick, $1^1/_2$ lb density fiberglass insulation that meets UL 181 and NFPA 90A.
3. (Optional) Foil Encapsulated Insulation:

   Unit casing shall be lined with foil reinforced, wrapped edges, $^1/_2$-in. thick, $1^1/_2$ lb density fiberglass insulation that meets UL 181 and NFPA 90.
4. (Optional) Cellular Insulation:

   Unit casing shall be lined with $^3/_8$-in. thick, smooth surface, closed-cell elastomeric thermal insulation for fiber free application.

C. Damper Assembly:

The primary air damper assembly shall be constructed of heavy gage steel with solid shaft rotating in Delrin bearings. Damper blades shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

D. Fan(s):

Fan(s) shall be of the forward curve, centrifugal type. The fan motor shall be single speed, single-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR (fan speed controller). Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

E. Electrical Requirements:

Units shall have single connection for power, and operate on 120,208/240 or 277 vac (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240 v 3-wire or 480 v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

F. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points ± 5% of the unit's capacity at any inlet pressure up to 6 in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand. The unit shall be equipped with an amplified cross flow sensor. The sensor will provide a differential pressure signal amplified to equal at least 2 times the velocity pressure with an accuracy of at least ± 10% throughout the range of 350 to 2600 fpm inlet duct velocity, depending on the controller employed.
2. Sensor Type:
   a. The unit shall be equipped with an amplified linear averaging flow probe located horizontally across the inlet. The sensor will provide a differential pressure signal amplified to equal 3 times the velocity pressure with an accuracy of at least ± 10% throughout the range of 350 to 2600 fpm inlet duct velocity, depending on the controller employed.
   b. The unit shall be equipped with a four quadrant linear cross sensor. This is a multi-point center averaging, inlet flow sensor, available for use with pneumatic, analog electric and digital electric control type units.

G. Special Features:

1. Electric Heating Coil:

   Electric coils shall be supplied by the terminal unit manufacturer and shall be UL listed. Construct coil casing with minimum of 20-gage zinc coated steel. Elements shall be 80/20 nickel chrome and supported by ceramic insulators. The integral control panel shall be housed in a NEMA 1 enclosure, with hinged access door for access to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. Electric coils shall include fused or non-fused door interlocking disconnect switch, manual reset cutout, mercury contactors, fuse block, dust-tight enclosure construction, all mounted and/or wired within the control enclosure.
2. Hot Water Coil:

   Hot water coil casing shall be constructed with minimum 20 gage galvanized steel. Coils shall be factory installed on the terminal unit. Fins shall be rippled and corrugated heavy gage aluminum, mechanically bonded to tubes. Tubes shall be copper with minimum wall thickness of 0.016 in. and with male solder header connections. Coils shall be leak tested to 400 psig. Number of coil rows shall be selected to provide performance as required by the plans. Coil performance data shall be based on tests run in accordance with AHRI Standard 410.
3. Dedicated Outdoor Air Option (DOAS):
   a. Units shall operate in a similiar manner as a conventional unit but equipped with a cooling coil on the induced air inlet, which is designed to handle the sensible loads in the space. The primary inlet is supplied with filtered conditioned outdoor air providing ventiliation air and latent removal to the space. Ideal for chilled beam and water source head pump systems.
   b. Coil offered in two, four, or six row coils, which are constructed of 10 aluminum fins per inch with 7/8 in. OD sweat type. Water leak tested to 400 psig.

Guide specifications — 45R units

Parallel Flow Terminal Fan Powered Units

HVAC Guide Specifications

Size Range: **90 to 2060 cfm**

Carrier Model Number (45R Units):

45RA (Analog Electronic Control)

45RC (CCN VAV Electronic Control)

45RD (BACnet VAV)

45RN (No Control or DDC by Others)

45RP (Pneumatic Control)

45RV (CCN VVT)

45RB (BACnet VVT)

Part 1 — General

1.01 SYSTEM DESCRIPTION:

Fan powered terminal unit shall be completely factory assembled and wired, with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing. Primary airflow controller shall compensate for central system pressure fluctuations. When room temperature requires maximum heating, the (direct digital electronic) (analog electronic) (pneumatic) pressure independent velocity controller shall maintain the minimum primary airflow setting by modulating the damper. The induction fan shall run and the staged electric heating coil (hot water coil), if supplied, shall be energized (activated). As room temperature begins to rise, the heating coil shall be deenergized (deactivated). As room temperature calls for maximum cooling, the velocity controller shall maintain the maximum primary airflow setting.

1.02 QUALITY ASSURANCE:

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

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

1.03 DELIVERY AND STORAGE

Units shall be stored and handled as per manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

A. General:

Factory assembled, externally powered, horizontal fan powered terminal unit with blower, blower motor, mixing plenum and primary air damper contained in a single unit housing with a low height physical dimension of $10^5/_8$ inches.

B. Unit Cabinet:

1. Constructed of 20 gage zinc-coated steel. All primary air inlet collars shall accommodate standard flex duct sizes. Unit discharge shall be round or rectangular, suitable for flanged duct connection.
2. Unit casing shall be lined with dual density, $^1/_2$-in. thick, $1^1/_2$ lb density fiberglass insulation that meets UL 181 and NFPA 90A.
3. (Optional) Foil Encapsulated Insulation:

   Unit casing shall be lined with foil reinforced, wrapped edges, $^1/_2$-in. thick, $1^1/_2$ lb density fiberglass insulation that meets UL 181 and NFPA 90.
4. (Optional) Cellular Insulation:

   Unit casing shall be lined with $^3/_8$-in. thick, smooth surface, closed-cell elastomeric thermal insulation for fiber free application.

C. Damper Assembly:

The primary air damper assembly shall be constructed of heavy gage steel with solid shaft rotating in Delrin bearings. Damper blades shall incorporate a flexible gasket for tight airflow shutoff and operate over a full 90 degrees.

D. Fan(s):

Fan shall be of the forward curve, centrifugal type. The fan motor shall be single speed, single-voltage (120, 208/240, 277), 60 cycle, single phase, energy efficient design, permanently lubricated, using permanent split capacitor for starting and be specifically designed for use with an SCR (fan speed controller). Motor must have thermal overload protection. The fan motor shaft shall be connected directly to the fan and the entire fan assembly shall be isolated from the unit casing to prevent transmission of vibration.

E. Electrical Requirements:

Units shall have a single connection for power, and operate on 120,208/240 or 277 vac (standard) single phase, 60 Hz power as shown on the equipment schedule. Units with three-phase electric heat shall be factory wired for single point performance (including 208/240 v 3-wire or 480 v 4-wire). When specified and coordinated, units shall be wired and shipped with proportionally connected phasing.

Guide specifications — 45R units (cont)

F. Controls:

1. Units shall have pressure-independent pneumatic, electronic, or communicating controls, as specified, capable of maintaining required airflow set points ± 5% of the unit's capacity at any inlet pressure up to 6 in. wg. The controllers shall be capable of resetting between factory or field-set maximum and minimum (>350 fpm inlet duct velocity) set points to satisfy the room thermostat demand. The unit shall be equipped with a center point cross-mounted flow sensor. The sensor will provide a differential pressure signal amplified to equal at least 2 times the velocity pressure with an accuracy of at least ± 10% throughout the range of 350 to 2600 fpm inlet duct velocity, depending on the controller employed.
2. Sensor Type:
   a. The unit shall be equipped with an amplified linear averaging flow probe located horizontally across the inlet. The sensor will provide a differential pressure signal amplified to equal 3 times the velocity pressure with an accuracy of at least ± 10% throughout the range of 350 to 2600 fpm inlet duct velocity, depending on the controller employed.
   b. The unit shall be equipped with a four quadrant linear cross sensor. This is a multi-point center averaging, inlet flow sensor, available for use with pneumatic, analog electric and digital electric control type units.

G. Special Features:

1. Electric Heating Coil:

   The terminal unit manufacturer shall supply electric coils and shall be UL listed. Construct coil casing with minimum of 20-gage zinc coated steel. Elements shall be 80/20 nickel chrome and supported by ceramic insulators. The integral control panel shall be housed in a NEMA 1 enclosure, with hinged access door for access to all controls and safety devices. Electric coils shall contain a primary automatic reset thermal cutout and differential pressure airflow switch for proof of airflow. Electric coils shall include fused or non-fused door interlocking disconnect switch, manual reset cutout, mercury contactors, fuse block, dust-tight enclosure construction, all mounted and/or wired within the control enclosure.
2. Hot Water Coil:

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