ENGINEERING SUBMITTAL DATA

ED 19140-1

SEPTEMBER 2025

PRECISELINE® AIR HANDLERS

HORIZONTAL AND VERTICAL INDOOR AIR HANDLERS

Models BCHD, BCVD, BCAD, BCHE, BCHU, BCVE, BCVU, BCVL, and BCVR
600 to 10,000 CFM

Hazard Identification

⚠ DANGER

Danger indicates a hazardous situation, which will result in death or serious injury if not avoided.

⚠ WARNING

Warning indicates a potentially hazardous situations, which can result in property damage, personal injury, or death if not avoided.

⚠ CAUTION

Caution indicates a potentially hazardous situations, which can result in minor injury or equipment damage if not avoided.

NOTICE

Notice indicates practices not related to physical injury.

NOTE: Indicates important details or clarifying statements for information presented.

Introduction

PreciseLine horizontal and vertical air handlers combine performance, versatility, and economy thanks to innovative and intentional design. The thermally-broke, double-wall cabinets allow PreciseLine units to supplement or anchor any project in the configurable/semi-custom air handler space.

Blower Coil Cabinets (Unit Sizes 006 – 020)

- 300-2,000 CFM
- Up to 3″ of TSP
- Max height of 18″ for plenum installation (for AVD)
- Dozens of coil configurations available

Light Air Handlers (Unit Sizes 030 – 050)

- 1,000-5,000 CFM
- Up to 5″ TSP
- Forward-curved and welded aluminum airfoil plenum fans available

Configurable Air Handlers (Unit Sizes 060 – 100)

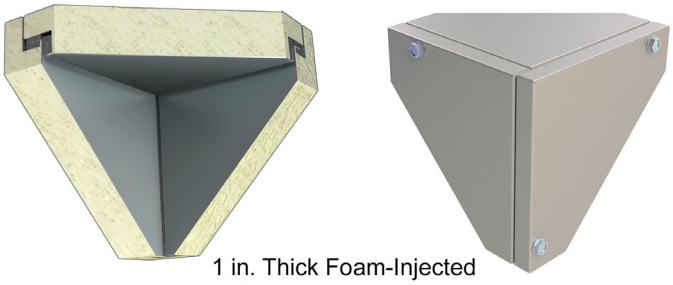
- 3,000-10,000 CFM
- Up to 5″ TSP
- Low-leak dampers come standard; optional economizer, exhaust fans, and final filter

Wall-to-Wall Innovation

Each PreciseLine air handler is designed to make the most of every inch occupied in your space with no concessions on efficiency, capacity, or performance.

Thermal Integrity

- Thermally-broke, double-wall design means no metal-to-metal conduction between interior and exterior panels and prevents risk of mold/mildew
- Durable foam-injected panel walls for R-6.5 thermal resistance, structural reinforcement, and sound dampening
- Fully gasketed for complete air seal



1 in. Thick Foam-Injected Cabinet Panel Insulation

No-Fuss Maintenance and Inspection

- Sheet metal interior for easy wipe-down
- Quarter-turn (toolless) panel door latches
- Slide-out rail for access to fan and coils (see page 7)
- Single-side access available on vertical units

Higher Capacity, Smaller Footprint

- Foam-injected panels allow for 1″ panel thickness with no compromise to thermal efficiency.
- Standard unit performance from 300 CFM to 10,000 CFM

Premium Features Available

- Mixing box with manual or modulating damper control
- High-efficiency, direct-drive EC motors
- Factory-integrated controls
- Welded aluminum airfoil plenum fans

Certifications

- Full compliance with ASHRAE 62.1-2010 for high indoor air quality
- Units are ETL and cETL listed
- Performance is AHRI 430 certified

Available Features

Table 1: Available Features Breakdown

	UNIT SIZES		
Cabinet	**006-020**	**030-050**	**060-100**
1″ double-wall paneling with R-6.5 rating	✓	✓	✓
Powder-coated finish	✓	✓	✓
AMCA 1 damper leakage rating			✓
Mixing box with manual, On/Off, or modulating damper control (excluding vertical unit sizes 006-020)	✓	✓	✓
Economizer			✓
Discharge plenum with sound reduction package	✓	✓	✓
2″ or 4″ filters available in MERV 4, 8, or 13	✓	✓	✓
Final filter			✓
Energy Recovery Wheel (vertical units only)			✓
Fans and Motor	**006-020**	**030-050**	**060-100**
Premium efficiency direct drive EC motors	✓	✓	✓
Single-phase power	✓		
Three-phase power		✓	✓
DWDI forward-curved supply fans	✓	✓	
Welded aluminum airfoil plenum fans		✓	✓
DWDI forward-curved exhaust fans			✓
Field-adjustable 3-speed fan control	✓		
Modulating fan control	✓	✓	✓
Capable of TSP up to 3.0″ w.g.	✓	✓	✓
Capable of TSP up to 5.0″ w.g.		✓	✓
Cooling	**006-020**	**030-050**	**060-100**
2, 4, or 6-row hydronic primary coil	✓	✓	✓
8-row hydronic primary coil		✓	✓
FPT field connections	✓		
Sweat field connections	✓	✓	✓
3-row DX and VRV cooling coils	✓	✓	✓
6-row DX cooling coils	✓	✓	✓
Factory-installed valve packages	✓		
Heating	**006-020**	**030-050**	**060-100**
1 or 2-row hydronic secondary heating coil (preheat or reheat)	✓	✓	✓
1-row steam secondary heating coil	✓	✓	✓
Electric heat with On/Off or SCR modulating control	✓	✓	✓
Controls	**006-020**	**030-050**	**060-100**
Digital-ready controls	✓	✓	✓
Factory-integrated controls	✓	✓	✓
Single-point power	✓	✓	✓

Sizes 006-020
(Vertical Model Shown)

Sizes 030-050
(Vertical Model Shown)

Sizes 060-100
(Horizontal Model Shown)

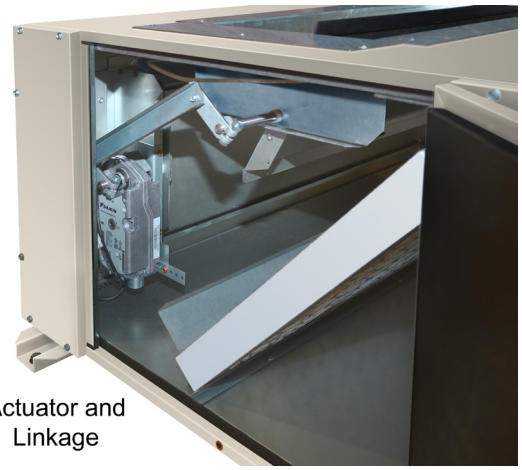
Double-Wall Cabinet Construction

Daikin Applied PreciseLine units utilize a galvanized double wall, 1-inch foam injected, thermally isolated panel. This panel construction means more thermal insulation, raising the cabinet's thermal resistance to R-6.5. This thermal resistance is more effective at keeping air cold in cooling mode and hot when in heating mode. PreciseLine's thermally insulated cabinetry helps keep insulation fibers from entering the air stream, reducing the chance of pathogens in the system, providing a cleanable surface, and increased panel rigidity for long-life. Foam injected insulation conforms to ASTM C1071 (including C665, UL 181 for erosion, and 25/50 rating for flame spread/smoke developed per ASTM E-84, UL 723 and NFPA 90A.

Mixing Box

The Daikin Applied branded air handling unit can be configured with an optional factory-installed mixing box. The mixing box is perfect for economizer operation, satisfying outdoor air requirements via mixing of indoor and outdoor air. The mix box is constructed of Daikin Applied's innovative 1-inch thick foam injected, double wall panel.

NOTICE
Unit sizes 060-100 have dual actuators.



Actuator and Linkage

The mix box duct collar is flush with the cabinet and easily bends out along the perforations by the installer, reducing time and labor.

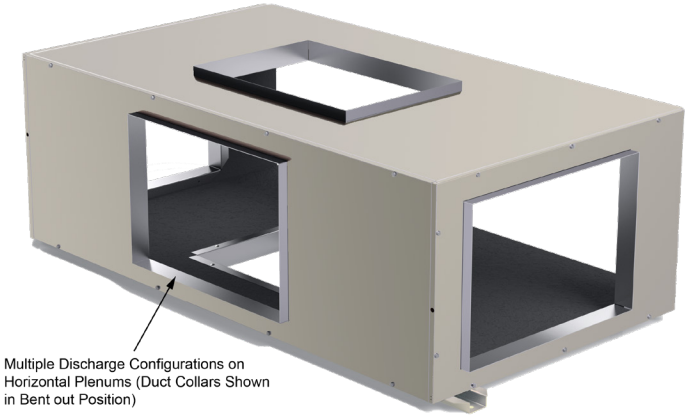
Damper Actuator

Damper actuators for mixing box control are factory-installed and wired. Control styles include 24 VAC (ON/OFF) and 0-10VDC fully modulating for economizing control. The damper actuators are spring return and field-reversible. A manual damper is also available for fixed damper applications. Coil freeze protection is the responsibility of the installing party and must be carefully considered when using this unit to condition outdoor air. Actuators listed under UL 873, CE, CSA, and C22.2.

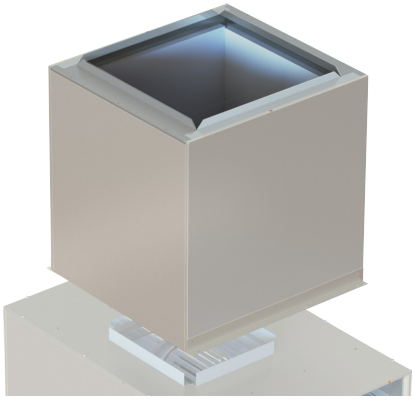
On unit sizes 006-20, the damper actuator is located on the side opposite the coils. On unit sizes 030-100, the damper actuator is located on the same side as the coils.

Discharge Plenum

Daikin Applied offers an optional discharge plenum, factory mounted and shipped assembled on the discharge end of the main unit. The plenum is available in multiple discharge configurations. The discharge plenum can also be ordered with an industry-leading sound-attenuation package, minimizing sound amplitude and improving sound quality.



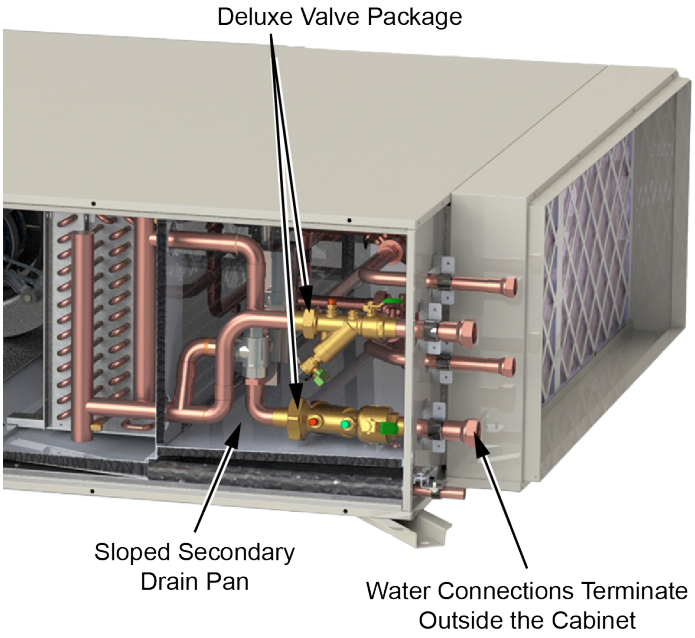
Multiple Discharge Configurations on Horizontal Plenums (Duct Collars Shown in Bent out Position)



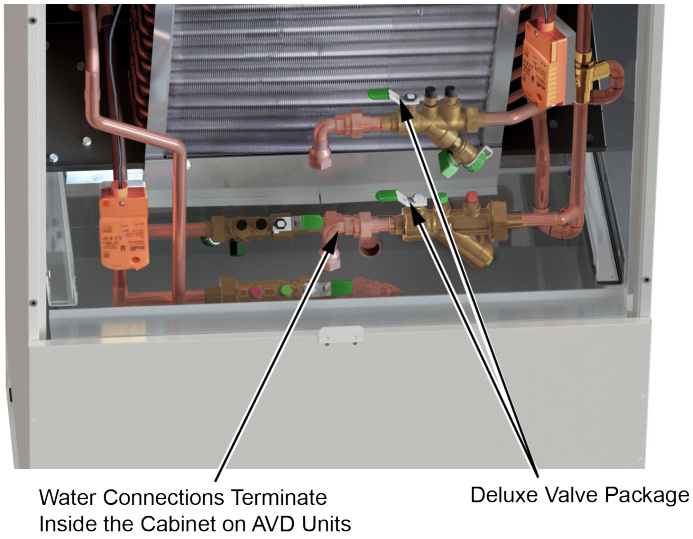
NOTE: Top Discharge Only

Factory-Installed Valve Packages

Factory valve and piping packages are available for both two-pipe and four pipe systems for unit sizes 020 and smaller. All factory assembled packages are leak tested and ship supported by an expandable foam agent. The valve packages are assembled inside the cabinet and water connections terminate outside the cabinet for quick field hook-up. Valve piping is easily accessible through a single panel, for easy service. A secondary sloped drain pain covers the span of the internal valve package making pipe insulation unnecessary for the piping package inside of the cabinet.

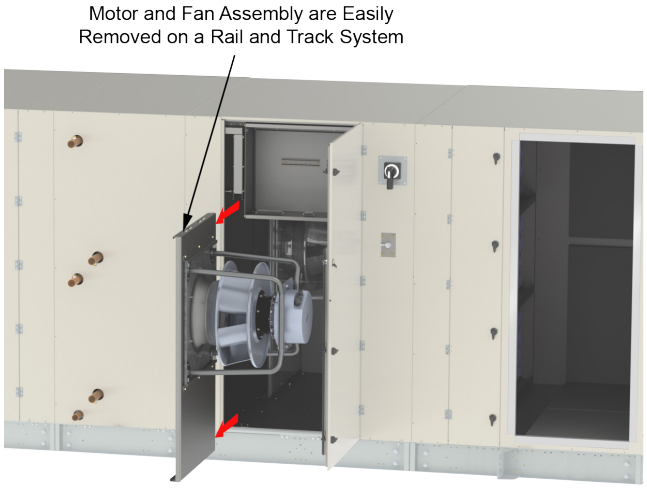


Valve packages provide added value by reducing installing contractors time. Connection points are pre-determined, allowing the building supply and return piping to be pre-installed before the arrival of the air handler.

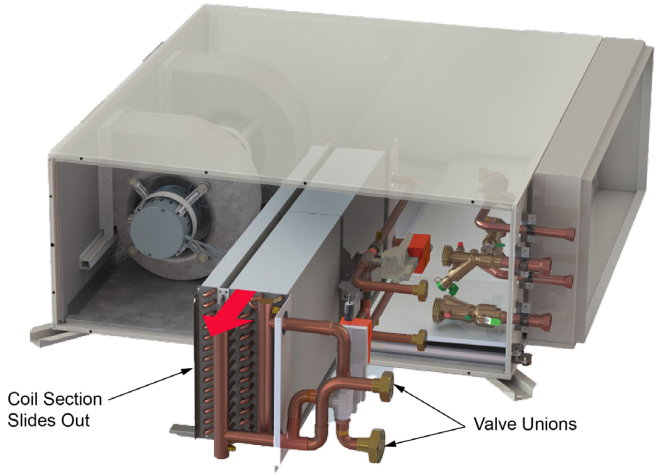


Slide-Out Fan Assembly and Coil Section

The DWDI forward-curved and plenum fans are installed on a sub-assembly that can slide out independently on a rail and track system for easy maintenance.



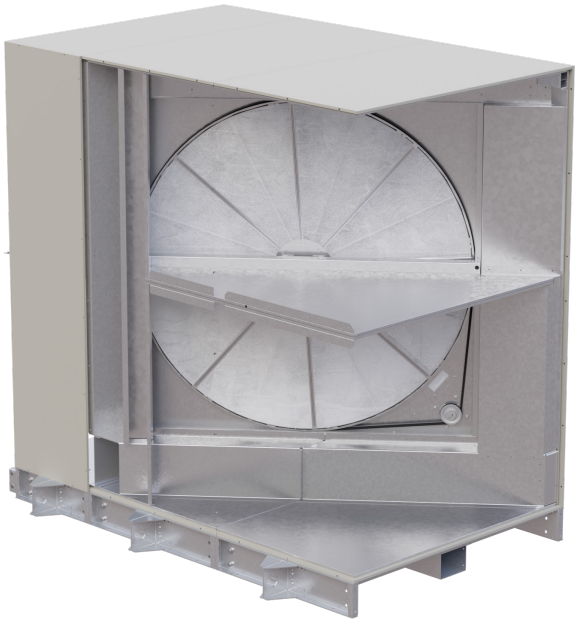
The coil section assembly slides out providing easy service and maintenance access. Valve package unions disconnect on the coil piping side, and the coil removed without disrupting the buildings supply and return water connections.



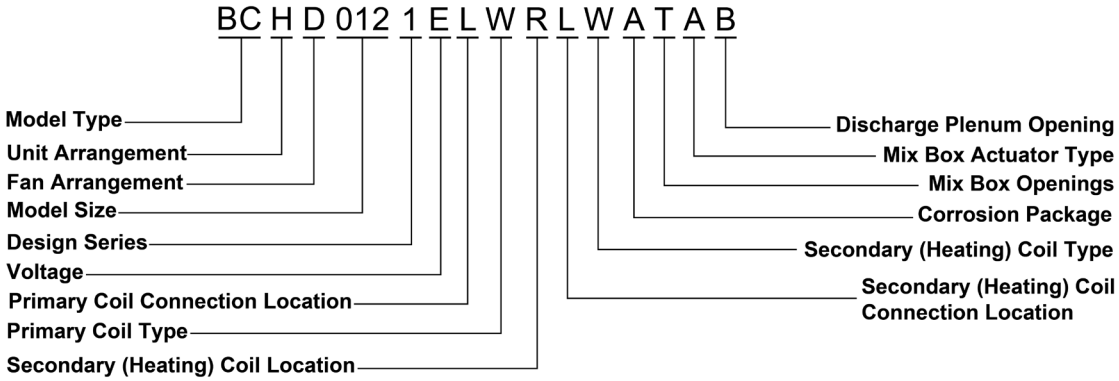
Energy Recovery Wheel

Daikin Applied energy wheels normally recover 70-75% of both sensible and latent energy. Energy recovery wheels are available for vertical unit sizes 060-100. Considerable energy savings can result:

- Provide twice as much summer energy recovery as sensible-only alternatives, such as run-around loops.
- Energy recovery can increase the air conditioning capacity by 25% if the minimum outdoor air design is 33%. The cost savings on mechanical heating and cooling components offset the additional investment of energy recovery.
- Winter humidification energy costs may be cut up to 60%.
- Winter latent energy recovery lowers the dew point of exhaust air, compared to sensible-only alternatives, and allows frost-free operation to a lower ambient temperature.
- Optional energy recovery wheel for increase efficiency for conditioning minimum outdoor air.
- Unitary design for installation/rigging cost savings.
- Single point power connection for decreased installation cost.
- Slide-out wheel cassette & track for easy maintenance and cleaning.
- Bypass dampers for increased efficiency during economizer operation.
- Integrated unit control for control coordination between rooftop unit and wheel that controls the wheel speed.
- Leaving wheel temperature sensors for wheel operation monitoring.
- Integrated unit control with optimum leaving wheel temperature control to prevent over-heating the outdoor air.
- Defrost options including ON/OFF control, constant speed frost prevention, variable speed frost prevention, and preheat.
- MERV 8 prefilters provided on outdoor and return air paths minimize dirt and cleaning.



Nomenclature



Category	Code	Description
Model Type	BC	Daikin Applied Air Handler
Unit Arrangement	H	Horizontal
	V	Vertical
	A	AVD / Compact Vertical (Unit Sizes 006-020)
Fan Arrangement	D	Draw Thru Forward-Curved Fan
	E	Draw Thru Plenum Fan, End Discharge
	U	Draw Thru Plenum Fan, Up Discharge
	R	Draw Thru Supply Fan / Direct Drive Plenum Fan, Right Side Discharge
	L	Draw Thru Supply Fan / Direct Drive Plenum Fan, Left Side Discharge
Model Size	006	Nominal 600 CFM
	008	Nominal 800 CFM
	010	Nominal 1,000 CFM
	012	Nominal 1,200 CFM
	016	Nominal 1,600 CFM
	018	Nominal 1,800 CFM
	020	Nominal 2,000 CFM
	030	Nominal 3,000 CFM
	040	Nominal 4,000 CFM
	050	Nominal 5,000 CFM
	060	Nominal 6,000 CFM
	080	Nominal 8,000 CFM
	100	Nominal 10,000 CFM
Design Series	1	1st Vintage
Voltage	A	115/60/1
	E	208/60/1
	G	460/60/1
	K	230/60/1
	P	277/60/1
	D	208/60/3
	L	230/60/3
	T	460/60/3
	W	575/60/3
Primary Coil Connection Location	L	Left Hand (Air Back of the Head)
	R	Right Hand (Air Back of the Head)
	C	Center

Category	Code	Description
Primary Coil Type	W	Chilled Water / Glycol
	D	DX / R-410A
	R	DX / R-32
	B	DX / R-454B
	V	VRV
Secondary (Heating) Coil Location	P	Preheat
	R	Reheat
	Y	None
Secondary (Heating) Coil Connection Location	L	Left Hand (Air Back of the Head)
	R	Right Hand (Air Back of the Head)
	Y	None
	C	Center
Secondary (Heating) Coil Type	W	Hot Water / Glycol
	Y	None
	S	Steam
Corrosion Package	A	(Coil Casing) Stainless / (Fin Coating) None / (Drip Pan Corrosion Pkg.) Stainless
	Y	(Coil Casing) Galvanized / (Fin Coating) None / (Drip Pan Corrosion Pkg.) Galvanized
Mix Box Openings	T	Top + Rear
	B	Bottom + Rear
	E	Economizer Top Return/End Top EA/End Bottom OA
	Y	None
Mix Box Actuator Type	T	ON/OFF
	A	0-10V Modulating
	C	On/Off Controller
	M	Manual
	Y	None
Discharge Plenum Opening	B	Bottom
	T	Top
	E	End
	Y	None - No Discharge Plenum
	R	Right Hand (Air Back of the Head)
	L	Left Hand (Air Back of the Head)
	F	Field Cut-Out (Has a Plenum)

NOTE: Not all code options shown.

Options and Accessories

Electric Heat (Option)

The optional factory-installed electric heat section consists of an open coil heater rack mounted to the units' primary coil. The heating coil is in the preheat position for horizontal units and the reheat position for vertical units. Electric heat is designed to operate only when the supply fan is running, heating the air as it passes through the heating elements. The electric heat section consists of the mounting rack, electric elements, contactor, optional SCR module and the manual and automatic reset thermal limits with multiple on-board control systems for safety. Electric heat comes pre-wired to the main control box for a single point power connection to the unit.

Available in a wide range from 1-133kW, these heating elements can be controlled with a 24 VAC ON/OFF signal, 4-stage ON/OFF signal (unit sizes 060-100), or with a 0-10VDC, fully modulating Silicone Controlled Rectifier (SCR).The SCR modulates the electric heat element which means no noisy relays clicking on and off, precise temperature control, increased thermal comfort and improved energy efficiency. Electric heat is available on 2-pipe systems only.

Unit sizes 060-100 require dual-point power for electric heat.

Post Electric Heater Accessory

Available in 15 kW-250 kW, post electric heaters can be used to supplement primary heating coils, elminating the need to spec large hydronic coils for the infrequent off design high load days.

Figure 1: Electric Heat Section (Reheat Coil Shown)

Figure 2: Electric Heat Section (Reheat Coil Shown)

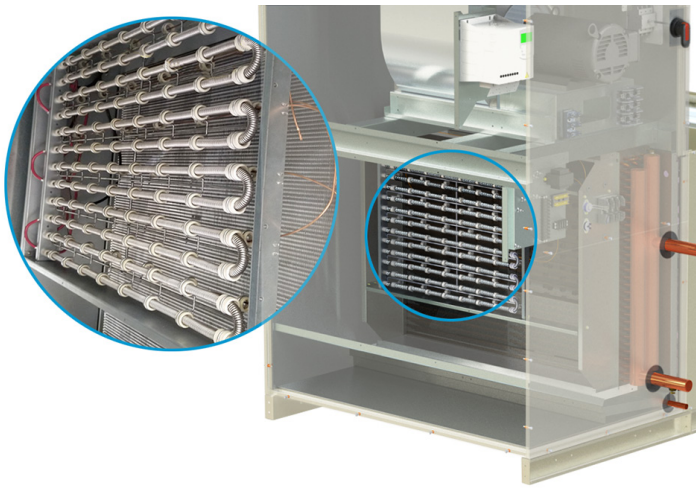


Figure 3: Electric Heat Section (Preheat Coil Shown)

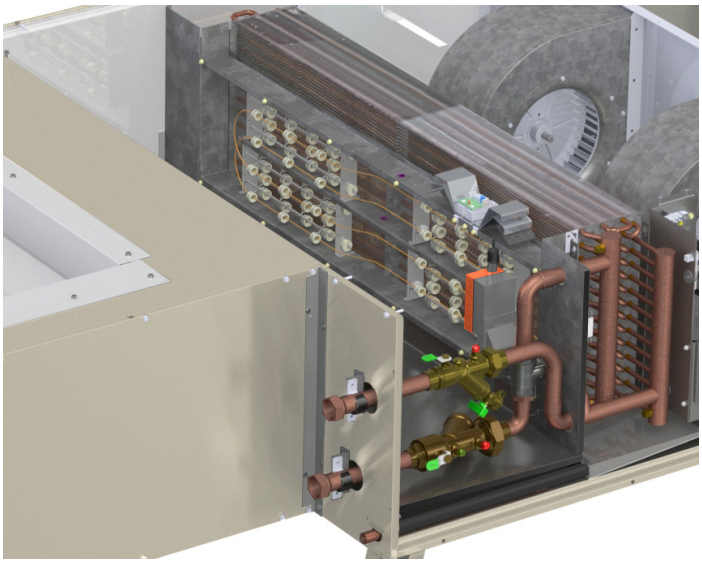
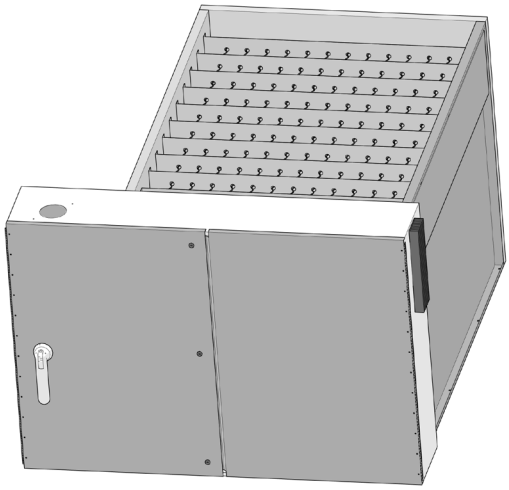
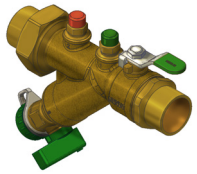


Figure 4: Post Electric Heater Accessory

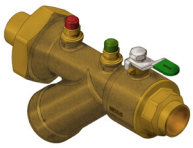


Shutoff and Ball Valves

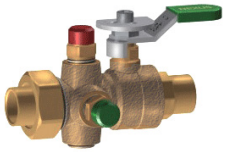
Shut-off Valve w/Y-Strainer



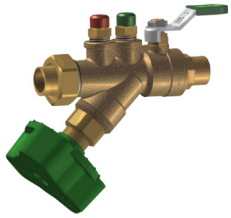
Autoflow Shut-off Valve w/Strainer



Shut-off Ball Valve



Manual Circuit Setter



The deluxe factory installed piping package includes a fully modulating 0-10VDC or 24V ON/OFF control valve (2-way/3-way), a water strainer with blowout, P/T ports, unions, shut-off isolation valves, and an auto-flow circuit setter. This control scheme matched with a fully modulating fan allows for maximum space comfort and energy efficiency.

All piping packages are installed with control valves, automatic and manual circuit setters, strainers, and shut-offs. The control valve and circuit setter are located on the return side of the coil (with the exception of size 006 and 008 vertical units). The strainer is located on the supply side of the coil. Several control valve types are available.

Control Valves

Two-Way On/Off (2-Position) Valves

2-Way, 0.50FPT, On/Off, 24V, NO

2-Way, 0.75FPT, On/Off, 24V, NC

2-Way, 0.50FPT, On/Off, 24V, *Adjustable to NO or NC

These valves will either be in a fully OPEN or fully CLOSED state in response to a 24 VAC signal from the controller. Normally Closed or Normally Open are available, both are of spring-return type. A method of relieving pump head pressure should be employed when selecting two-way valves.

Three-Way On/Off (2-Position) Valves

3-Way, 0.75FPT, 24Cv, On/Off, 24V, NC

3-Way, .050FPT, On/Off, 24V, *Adjustable to NO or NC

These valves will either be in a fully OPEN or fully CLOSED state in response to a 24 VAC signal from the controller. Normally Closed or Normally Open are available, both are of spring-return type. Three way valves are of the mixing type.

Two-Way Modulating Valves

2-Way, 0.50FPT, 16Cv, Modulating, 0-10VDC

Two-way modulating valves allow for finely-tuned water flow which improves space comfort control as well as energy management. Modulating valves respond to a 0-10VDC signal from your thermostat or terminal controller. The valve body operates as an equal-percentage flow type. A method of relieving pump head pressure should be employed when selecting two-way valves.

Selecting Correct Valve Characteristics

Daikin Select Tools™ is automatically configured to match the valve body size to the selected coil. Valve Cv can be automatically selected based on the pressure drop through the coil and required GPM or user selected for more versatility.

These valves will either be in a fully OPEN or fully CLOSED state in response to a 24 VAC signal from the controller. Normally Closed or Normally Open are available, both are of spring-return type. A method of relieving pump head pressure should be employed when selecting two-way valves.

Three-Way Fully Modulating Valves

3-Way, 0.50FPT, 16Cv, Modulating, 0-10VDC

Three-way modulating valves allow for finely-tuned water flow which improves space comfort control as well as energy management. Modulating valves respond to a 0-10VDC signal from your thermostat or terminal controller. The valve body operates as an equal-percentage flow type. A method of relieving pump head pressure should be employed when selecting three-way valves.

Valves (vertical unit sizes 006 and 008) can be field-adjusted to be normally open or normally closed. By adjusting the manual clip, Cv values for the valve can be altered.

Size	Clip Position for Cv Adjustment (2-Way Valves)							
	1	2	3	4	5	6	N	No Clip
1/2″	0.5	0.7	1.2	1.7	2.4	3.4	4.8	5.9

Filter Options for Horizontal Units

Tool-less filter access on all sizes of the main unit can be ordered as side, bottom or top removal, (right or left hand). Top and bottom filter access is available on horizontal units through an easily removed sliding plate. AVD units come with side, top, or internal access to the filter. Side filter access is through the slotted end plate that removes easily from tabs along the filter frame. Units with the optional mix box have hinged access doors with tool-less 1/4-turn door latch(es) and can be ordered as side filter access (right or left hand) or bottom access (horizontal only; not available with bottom return). Filter racks are factory configurable to accept 4", 2" or 2" + 2" filter options. Merv 4, Merv 8, and Merv 13 rated filters are available from the factory. Daikin Applied's PreciseLine air handler comes standard with a 2" Merv 4 filter to prevent construction dust and debris from entering the unit upon startup, installation, and storage.

Merv Rating	Filter Depth	
	2"	4"
4	Available	–
8	Available	Available
13	Available	Available

NOTE: For filter details refer to, Table 44 on page 56.

Figure 5: Unit Size 020 Bottom or Top Filter Access

Figure 6: Unit Size 020 Side Filter Access

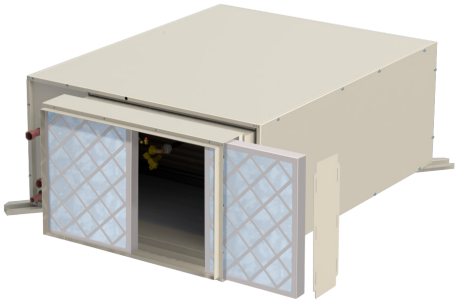


Figure 7: Unit Size 040 Bottom or Top Filter Access

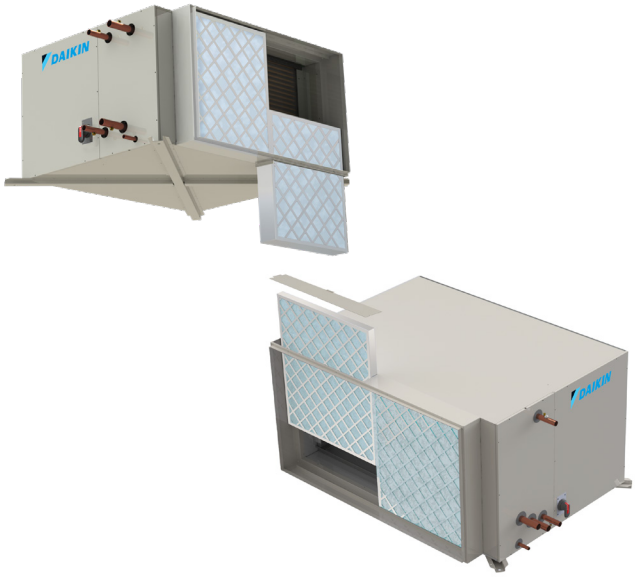


Figure 8: Unit Size 040 Side Filter Access

Figure 9: Unit Size 020 Optional Mixing Box with Side Filter Access

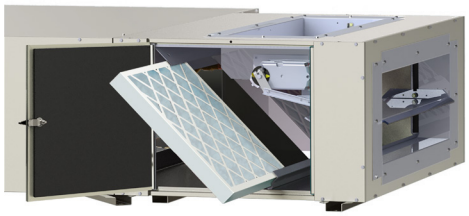


Figure 10: Optional Mixing Box Bottom Filter Access

Filter Options for Vertical Units

Note: If the unit has an internal filter and has its inlet ducted, the ducting will need to be removed to access the filter.

Toolless filter access on all sizes of the main unit can be ordered as side, bottom or top removal, (right or left hand). Top and bottom filter access is available on horizontal units through an easily removed sliding plate. AVD units come with side, top, or internal access to the filter. Side filter access is through the slotted end plate that removes easily from tabs along the filter frame. Units with the optional mix box have hinged access doors with tool-less 1/4-turn door latch(es) and can be ordered as side filter access (right or left hand) or bottom access (horizontal only; not available with bottom return). Filter racks are factory configurable to accept 4", 2" or 2" + 2" filter options. Merv 4, Merv 8, and Merv 13 rated filters are available from the factory. Daikin Applied's PreciseLine air handler comes standard with a 2" Merv 4 filter to prevent construction dust and debris from entering the unit upon startup, installation, and storage.

Merv Rating	Filter Depth	
	2"	4"
4	Available	–
8	Available	Available
13	Available	Available

NOTE: For filter details refer to, Table 45 on page 56.

Figure 11: Unit Sizes 006 - 020 External Filter Removal on Left Side

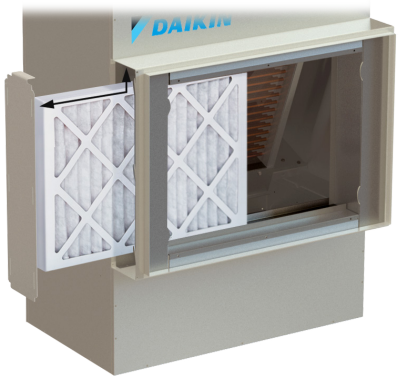


Figure 12: Unit Sizes 006 - 020 External Filter Removal on Right Side

Figure 13: Unit Sizes 006 - 020 Internal Filter Removal

Figure 14: Unit Sizes 030 - 050 Filter Access

Figure 15: Unit Sizes 030 - 050 Side Filter Access

Figure 16: Unit Sizes 060-100 Post / Discharge Filter Access

Figure 17: Unit Sizes 060-100 Pre-Filter Removal

Components

A2L Refrigerant Detection and Mitigation

A2L Refrigerant Detection System

UL 60335-2-40 requires all units with refrigerant charges of 64 oz or greater per circuit to have refrigerant leak detection/mitigation. To meet this requirement, all PreciseLine units using A2L refrigerant include a factory installed refrigerant leak detection system consisting of the following parts:

- Refrigerant Sensor(s) (quantity 2)
  R-32 Sensor Part Number: 910419801
  R-454B Sensor Part Number: 910483696
- A2L Refrigerant Detection Controller (quantity 1)
  Part Number: 910419225

The sensors are wired in a daisy chain configuration and terminated at the mitigation board. The A2L Main Control board connects to the MicroTech controller and signal alarms based on this system status.

Alarms

- Refrigerant Leak:
  - The Refrigerant Detection Controller will trigger a leak alarm when at least 1 sensor detects a refrigerant concentration above 15% of the refrigerant Lower Flammability Level (LFL).
  - Upon detection of a leak, the mitigation board ALM and CUST relays are energized and the alarm is indicated to the MicroTech unit controller.
- Refrigerant Sensor Fault:
  - The Refrigerant Detection Controller will trigger a fault alarm when any connected sensor is determined to be faulty (self-test failure, loss of communications, etc.).
  - Upon detection of a sensor fault, the fault is indicated to the MicroTech unit controller.

A2L Leak Mitigation

The MicroTech controller performs the following mitigation sequences to maintain safe operation in the event of an alarm condition:

Refrigerant Leak Detected

Upon notification from the refrigerant detection system that a leak was detected, the MicroTech controller will disable compressor operation immediately, turn the fan on at its highest speed, disable electric heat, and indicate a refrigerant leak alarm.

- The Refrigerant Detection Controller continue to monitor the refrigerant sensors in the system and notifies the MicroTech unit controller when no refrigerant has been detected for five minutes, allowing the unit to resume normal operation.

Sensor Fault Detected

A fault can be caused by a leak sensor malfunctioning or being disconnected or an A2L board malfunction.

Upon notification from the refrigerant detection system that a sensor fault was detected, the MicroTech controller will allow normal operation except that it will turn the fan on at its highest speed, to maintain adequate airflow through the system to dilute any of the leaked refrigerant, and indicate a sensor fault alarm.

A2L Refrigerant Detection Sensor and Board Service

- The sensors are not considered “Limited Life Sensors” and therefore, under normal operation, are not expected to be replaced within the life expectancy of the unit.
- The sensors have self-reporting diagnostics, which are monitored by the mitigation board. In the event that the sensor fails, the mitigation board will trigger a “Fault” alarm.
- There are no servicing nor maintenance requirements for the sensor(s) and board.

A2L Refrigerant Detection Sensor and Board Troubleshooting and Diagnostics

At power up, the Refrigerant Detection Controller display shows what sensors are detected (SX = 1 , sensor X is active and communicating), and what sensors are not detected (SX = 0, sensor X is not communicating or inactive). Where X, is the sensor number (from 1 to 8).

By pressing and holding the push button for:

- *Less than 2 seconds*
  The Refrigerant Detection Controller display shows the last 10 sensor faults (can be loss of communication or faulted state reported by a specific sensor). General configuration fault (Flt CFG) is also shown when the expected number of sensors does not match the number of sensors detected online.
- *More than 2 seconds and less than 5 seconds*
  The display shows sensor(s) status info:
  - The current LFL level.
  - Loss of communication or faulted state reported by a specific sensor.
- *More than 5 seconds and less than 10 seconds*
  The Refrigerant Detection Controller starts a mitigation test. The board will go into alarm mode and the MicroTech controller will begin the mitigation sequence. The mitigation test will last approximately 5 minutes.
- *More than 10 seconds*
  The display shows all the GID values supported by the sensor board.

Refrigerant Guidelines

(For Units with A2L Refrigerant)

⚠ WARNING

This unit contains either R-32 or R-454B refrigerant. Both are class A2L refrigerants that are flammable. This unit should only be installed, serviced, repaired, and disposed of by qualified personnel licensed or certified in their jurisdiction to work with the specific A2L refrigerant. Installation and maintenance must be done in accordance with this manual. Improper handling of this equipment can cause personal injury or equipment damage.

For installation only in locations not accessible to the general public.

Be aware that R-32 and R454B refrigerant may not contain an odor. Place in a well ventilated area to prevent accumulation of refrigerant. Excessive refrigerant leaks, in the event of an accident in a closed ambient space, can lead to oxygen deficiency.

Do not pierce or burn this unit.

Never use an open flame during service or repair. Never store in a room with continuously operating ignition sources (for example: open flames, an operating gas appliance, or and operating electric heater), where there is ignitable dust suspension in the air, or where volatile flammables such as thinner or gasoline are handled.

PreciseLine units should only be connected to appliances that are suitable for the air handling unit's designated refrigerant.

Only use pipes, nuts, and tools intended for exclusive use with the unit's designated A2L refrigerant in compliance with national codes (ASHRAE15 or IRC).

Do not mix air or gas other than the unit's designated A2L refrigerant in the refrigerant system.

Do not use means to accelerate the defrosting process or to clean, other than those recommended by the manufacturer.

⚠ WARNING

The appliance is designed to activate leak mitigation airflow in the event a refrigerant leak is detected. This is required to ensure dilution and prevent stagnation of any leaked refrigerant. Always ensure the supply fans are able to operate freely. Always maintain proper airflow and do not allow filters, air inlets, or air outlets to become blocked. Refer to Figure 33.

⚠ WARNING

The appliance shall be installed, operated, and stored in a room with a floor area not less than the Minimum Room Area.

Minimum Room Area

⚠ WARNING

Failure to maintain the required Minimum Room Area for leaked refrigerant dilution may result in property damage, serious personal injury, or death.

In the unlikely event of a refrigerant leak, the equipment leak detection system must activate the supply fans to a pre-set speed. This speed corresponds to an airflow that is always greater than 141 CFM. Though 141 CFM is the minimum required airflow rate to dilute any leaked refrigerant and prevent stagnation, the actual unit airflow may be much higher depending on configuration.

This unit contains an A2L refrigerant (R-32 or R-454B). The served indoor space must be larger than or equal to the Minimum Room Area as shown in Figure 19 or Figure 20. In the unlikely event of a refrigerant leak this room area must meet this requirement to ensure dilution and prevent stagnation of any leaked refrigerant.

The Refrigerant Charge of each unit should be determined and used to confirm the Minimum Room Area prior to installation.

Minimum Room Area Calculation (A2L Refrigerants)

⚠ WARNING

Never allow this unit to service room(s) in which the total room area does not meet the minimum room area requirement. This may lead to flammable or toxic conditions, causing equipment damage, serious personal injury, or death.

- Units installed with an A2L refrigerant must be evaluated for each circuit's total charge. Total refrigerant charge is calculated by adding the DX coil, field piping, and condenser charge together for a particular circuit.
- Using the circuit with the greater total charge (if applicable), the minimum allowable room area must be calculated and recorded on the unit safety label.

NOTICE

Use permanent marker that conforms to ASTM D-4236.

When the appliance is connected to an unventilated space the following rules shall apply to determine if connected spaces can be used in the Minimum Room Area calculation. The room area shall be defined as the room area enclosed by the projection to the floor of the walls, partitions and doors of the space in which the unit serves. Spaces connected by only drop ceilings, ductwork, or similar connections shall not be considered a single space. Rooms on the same floor and connected by an open passageway between the spaces can be considered a single room when determining compliance to Minimum Room Area, if the passageway complies with all of the following:

- It is a permanent opening.
- It extends to the floor.
- It is intended for people to walk through.

The area of the adjacent rooms, on the same floor, connected by a permanent opening in the walls and/or doors between occupied spaces, including gaps between the wall and the floor, can be considered a single room when determining compliance to the Minimum Room Area, provided all of the following are met:

- The minimum opening area connecting the spaces/rooms shall not be less than 0.0123 m^2.
- The area of any openings above 300 mm from the floor shall not be considered part of the minimum opening area.
- At least 50% of the minimum opening area shall be below 200 mm from the floor.

- Openings are permanent openings which cannot be closed.
- For openings extending to the floor the height shall not be less than 20 mm above the surface of the floor covering.
- A second higher opening shall be provided. The total size of the second opening shall not be less than 50% of the minimum opening area and shall be at least 1.5 m above the floor.

NOTICE

The requirement for the second opening can be met by drop ceilings, ventilation ducts, or similar arrangements that provide an airflow path between the connected rooms.

Altitude Considerations for Minimum Room Area

When the unit is installed at altitude above sea level the minimum room area must be adjusted by the multiplier shown in Table 2. This will increase the required minimum room area of the served space.

If the actual room area served by the appliance is not large enough to meet the Minimum Room Area additional measures such as mechanical ventilation of the space may need to be employed. Please contact Daikin Applied for additional information.

Table 2: Minimum Room Area Multipliers by Altitude

Altitude (Meters)	Minimum Room Area Multiplier
0	1
305	1.047
500	1.078
750	1.117
1000	1.156
1250	1.195
1500	1.234
1750	1.273
2000	1.312
2250	1.351
2500	1.39
2750	1.429
3000	1.468
3250	1.507
3500	1.546

Refrigerant Detection System Operation

The Refrigerant Detection System (RDS) is controlled by a refrigerant sensor(s), which is secured to a designated location(s) for active monitoring. If a leak is detected, compressor and electric heat operation is disabled and the supply fan blower fan is activated, providing airflow at or above the minimum required airflow to evacuate excess concentration. Once the time is over, the unit will resume its normal operation. If the sensors detect another refrigerant concentration excess, the unit will go back into mitigation mode and will repeat the same process.

Refrigerant Detection System and Sensors

For additional instructions on how to operate the RDS including how to activate a manual test of the RDS, refer to the unit controller manual.

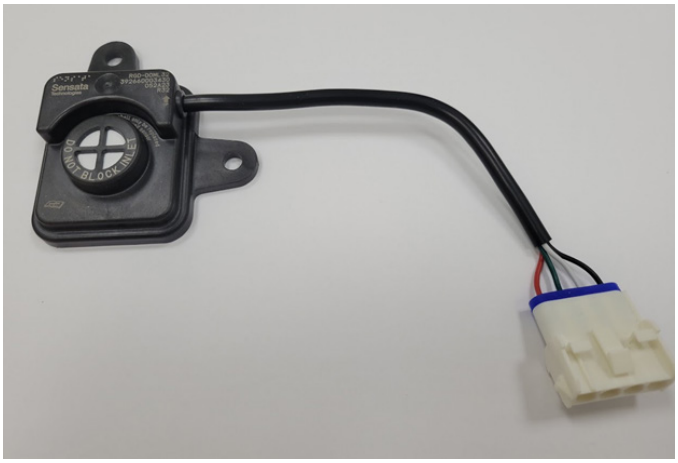
⚠ WARNING

This unit is equipped with a RDS. Only components and refrigerant detection sensors specified by Daikin Applied may be used for replacement and maintenance.

⚠ WARNING

Always ensure the refrigerant detection sensors installed in the equipment are free of debris and the inlet is not blocked. If replacing a refrigerant detection sensor, always install in the identical orientation as the original sensor.

Figure 18: Sample Refrigerant Detection Sensor



NOTE: Identify the sensor inlet marked “Do Not Block Inlet,” and ensure it is free of debris.

Figure 19: R-32 Refrigerant - Required Minimum Room Area Chart

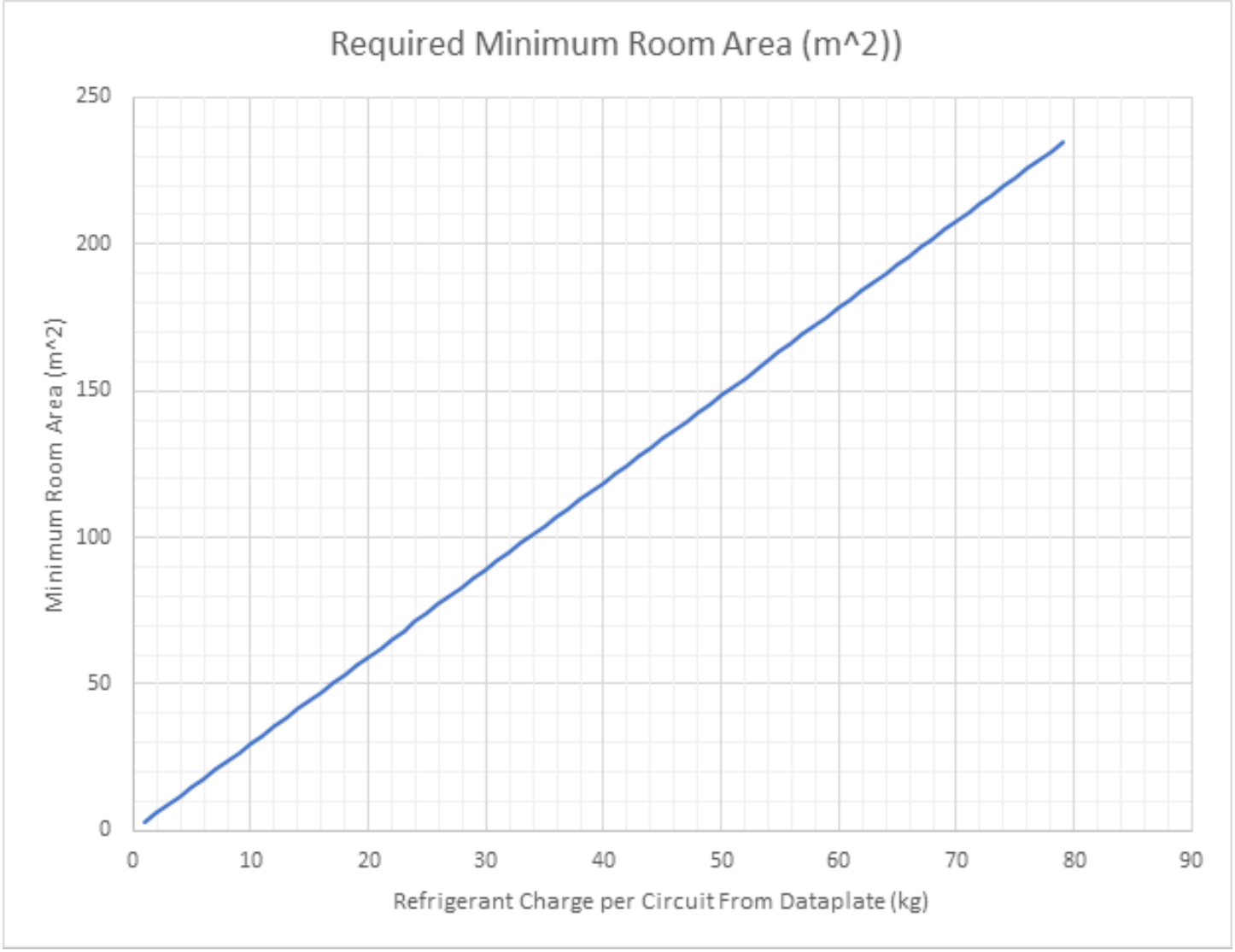
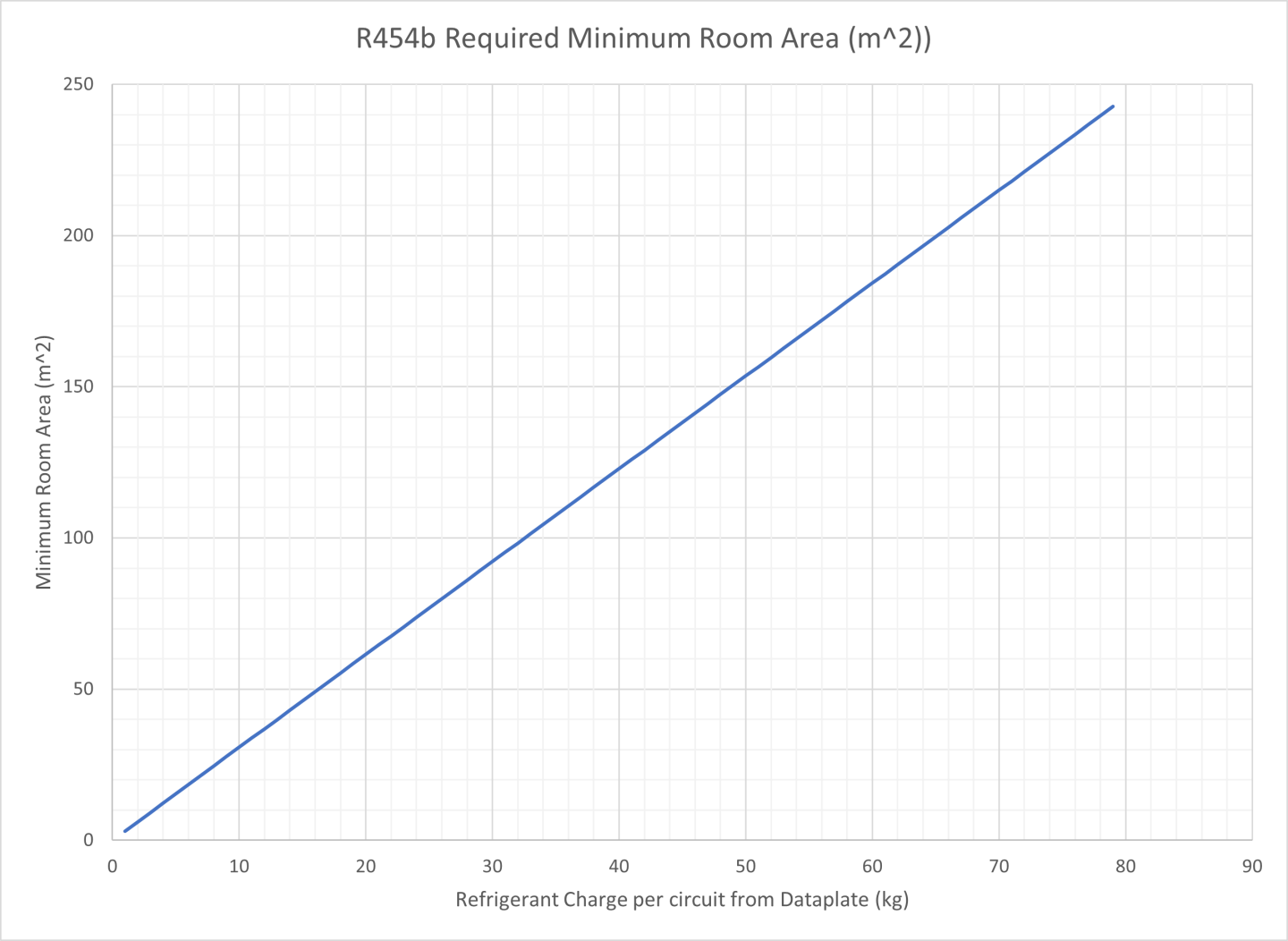


Figure 20: R454B Refrigerant - Required Minimum Room Area Chart



Performance Data

Coil Performance Data

Table 3: Horizontal Primary Coil Performance Data

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Cooling Performance				Heating Performance		
				Total Btu/h	Sensible Btu/h	GPM	Pressure Drop (ft H_2O)	Total Btu/h	GPM	Pressure Drop (ft H_2O)
006	600	2	12	8285	8262	1.6	1.2	38546	3.9	4.2
	600	4	12	19780	14993	3.8	9.1	58375	6.0	15.6
	600	6	12	26520	18016	5.1	23.3	66142	6.8	28.7
	600	6	16	29069	19152	5.6	27.5	69062	7.1	31.0
008	800	2	12	13411	12686	2.5	2.9	52336	5.3	8.0
	800	4	12	28563	20882	5.5	19.5	78334	8.0	28.9
	800	6	12	32768	22938	6.3	6.1	87502	9.0	8.0
	800	6	16	36106	24405	6.9	7.1	91537	9.4	8.7
010	1000	2	12	22596	19085	4.1	8.4	71854	7.1	16.1
	1000	4	12	36476	26570	7.0	6.0	101574	10.0	8.0
	1000	6	12	47218	31347	9.1	14.1	112881	11.2	14.3
	1000	6	16	51232	33140	9.8	16.1	116798	11.5	14.9
012	1200	2	12	24882	21488	4.5	9.9	80775	8.2	20.9
	1200	4	12	41192	30655	7.9	7.5	117189	11.9	10.9
	1200	6	12	54109	36483	10.3	17.6	132547	13.5	19.9
	1200	6	16	59299	38805	11.4	21.1	138342	14.1	21.5
016	1600	2	12	28010	26033	5.1	3.1	105752	10.8	8.0
	1600	4	12	58780	42443	11.3	16.4	157291	16.1	21.6
	1600	6	12	67038	46500	13.6	4.7	175003	18.0	5.0
	1600	6	16	73468	49340	14.7	5.4	183116	18.9	5.5
018	1800	2	12	38310	33023	7.0	6.1	115294	7.8	4.8
	1800	4	12	65041	47467	12.5	8.5	172429	11.7	4.8
	1800	6	12	80327	54413	15.4	6.8	195031	13.2	3.4
	1800	6	16	87830	57733	16.8	7.9	204398	13.8	3.7
020	2000	2	12	40566	35381	7.4	6.7	134189	13.7	13.7
	2000	4	12	69725	51524	13.4	9.6	195600	20.0	12.5
	2000	6	12	87523	59682	17.0	8.1	220097	22.6	8.7
	2000	6	16	95586	63274	18.3	9.2	229920	23.6	9.4
030	3000	2	12	59500	52417	10.9	3.5	199425	19.7	10.1
	3000	4	12	103472	76822	19.9	7.0	291924	28.8	12.4
	3000	6	12	135652	91362	25.9	16.7	330663	32.7	21.3
	3000	6	16	148418	97087	28.5	19.7	345344	34.1	23.0
	3000	8	12	150537	97997	29.4	11.8	340113	23.1	5.4
	3000	8	16	160769	102575	31.4	13.2	350496	23.8	5.7
040	4000	2	12	83419	71800	15.2	5.1	267202	26.3	14.8
	4000	4	12	142700	104367	27.4	10.2	390733	38.6	18.1
	4000	6	12	176943	120156	34.1	9.1	439636	43.5	9.7
	4000	6	16	193604	127593	37.1	10.6	459471	45.4	10.5
	4000	8	12	203791	132010	39.8	16.2	454552	30.9	7.2
	4000	8	16	217118	138007	42.4	18.1	468126	31.8	7.6

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Cooling Performance				Heating Performance		
				Total Btu/h	Sensible Btu/h	GPM	Pressure Drop (ft H_2O)	Total Btu/h	GPM	Pressure Drop (ft H_2O)
050	5000	2	12	109441	92070	19.9	8.1	337534	34.3	23.6
	5000	4	12	172338	127969	33.1	5.5	487418	49.5	7.7
	5000	6	12	226130	152283	43.2	13.5	551645	56.1	14.8
	5000	6	16	247378	161816	47.5	15.9	576028	58.6	16.0
	5000	8	12	258465	166654	50.4	23.9	569502	38.7	10.5
	5000	8	16	275388	174312	53.7	26.7	586203	39.9	11.0
060	6000	2	12	119001	104835	21.8	3.5	398849	19.7	20.2
	6000	4	12	206944	153644	39.8	7.0	583847	28.8	24.8
	6000	6	12	271304	182724	51.8	16.7	661326	32.7	42.6
	6000	6	16	296835	194173	57.0	19.7	690689	34.1	46.0
	6000	8	12	301074	195994	58.8	26.3	680226	23.1	10.7
	6000	8	16	321538	205151	62.8	29.5	700991	23.8	11.3
080	8000	2	12	166839	143600	30.4	5.1	534403	26.3	29.5
	8000	4	12	285400	208734	54.8	10.2	781467	38.6	36.2
	8000	6	12	353885	240313	68.2	9.1	879272	43.5	19.5
	8000	6	16	387208	255186	74.2	10.6	918941	45.4	21.0
	8000	8	12	407581	264019	79.6	16.2	909105	30.9	14.5
	8000	8	16	434237	276014	84.8	18.1	936252	31.8	15.2
100	10000	2	12	218881	184140	39.8	8.1	675068	34.3	47.2
	10000	4	12	344676	255939	66.2	5.5	974836	49.5	15.5
	10000	6	12	452261	304566	86.4	13.5	1103289	56.1	29.7
	10000	6	16	494756	323633	95.0	15.9	1152055	58.6	32.0
	10000	8	12	516931	333308	100.8	23.9	1139003	38.7	20.9
	10000	8	16	550777	348624	107.4	26.7	1172406	39.9	22.1

NOTE 1: Cooling Conditions: EAT = 80/67, EWT = 45, LWT = 55

NOTE 2: Heating Conditions: EAT = 70, EWT = 180, LWT = 160

Table 4: Horizontal Secondary Coil Performance Data

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Heating Performance		
				Total Btu/h	GPM	Pressure Drop (ft H_2O)
006	600	1	12	22847	1.6	11.1
	600	1	16	27674	1.9	15.0
	600	2	12	34341	2.3	1.6
	600	2	16	39822	2.7	2.2
008	800	1	12	30681	2.1	20.1
	800	1	16	37213	2.5	27.2
	800	2	12	47375	3.2	3.3
	800	2	16	54704	3.7	4.3
010	1000	1	12	39210	2.7	2.2
	1000	1	16	47120	3.2	3.0
	1000	2	12	66353	4.5	7.2
	1000	2	16	76002	5.2	9.3

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Heating Performance		
				Total Btu/h	GPM	Pressure Drop (ft H_2O)
012	1200	1	12	42106	2.9	2.5
	1200	1	16	51100	3.5	3.5
	1200	2	12	74395	5.1	9.0
	1200	2	16	85512	5.8	11.3
016	1600	1	12	57591	3.9	4.8
	1600	1	16	70294	4.8	7.0
	1600	2	12	96106	6.5	3.2
	1600	2	16	110893	7.5	4.1
018	1800	1	12	71362	4.9	7.9
	1800	1	16	86405	5.9	11.2
	1800	2	12	115608	7.9	5.0
	1800	2	16	132455	9.0	6.4
020	2000	1	12	74335	5.1	8.5
	2000	1	16	90144	6.1	11.9
	2000	2	12	123139	8.4	5.6
	2000	2	16	141713	9.6	7.2
030	3000	1	12	111161	7.6	6.2
	3000	1	16	135183	9.2	8.7
	3000	2	12	183660	12.5	4.4
	3000	2	16	211760	14.4	5.7
040	4000	1	12	149701	10.2	9.0
	4000	1	16	181940	12.3	12.8
	4000	2	12	246953	16.8	6.5
	4000	2	16	284843	19.4	8.5
050	5000	1	12	190133	13.0	13.8
	5000	1	16	231263	15.7	19.6
	5000	2	12	311141	21.1	9.7
	5000	2	16	358946	24.4	12.7
060	6000	1	12	222322	15.2	6.2
	6000	1	16	270365	18.4	8.7
	6000	2	12	367321	25.0	4.4
	6000	2	16	423521	28.8	5.7
080	8000	1	12	299402	20.4	9.0
	8000	1	16	363881	24.6	12.8
	8000	2	12	493905	33.6	6.5
	8000	2	16	569686	38.8	8.5
100	10000	1	12	380266	26.0	13.8
	10000	1	16	462525	31.4	19.6
	10000	2	12	622283	42.2	9.7
	10000	2	16	717893	48.8	12.7

NOTE 1: Heating Conditions: EAT = 70, EWT = 180, LWT = 150

Table 5: Vertical Primary Coil Performance Data - Unit Sizes 006-050

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Cooling Performance				Heating Performance		
				Total Btu/h	Sensible Btu/h	GPM	Pressure Drop (ft H_2O)	Total Btu/h	GPM	Pressure Drop (ft H_2O)
006	600	2	12	10384	9751	2.4	2.5	38546	3.9	4.2
	600	4	12	20354	15231	4.1	10.4	58375	6	15.6
	600	6	12	22634	16412	4.5	3.0	65245	6.8	4.4
	600	6	16	25421	17613	5.1	3.8	68317	7.1	4.7
008	800	2	12	16072	14127	3.6	5.0	52427	5.3	6.7
	800	4	12	21502	17968	4.3	1.5	76399	8	3.5
	800	6	12	32078	22656	6.4	4.4	87261	9	6.1
	800	6	16	35542	24168	7.1	5.3	91329	9.4	6.6
012	1200	2	12	25258	21627	5.7	6.8	81294	10.8	14.6
	1200	4	12	36969	28873	7.4	3.6	117392	16.1	11.0
	1200	6	12	51162	35229	10.2	9.1	132683	18	18.4
	1200	6	16	56333	37525	11.3	10.9	138468	18.9	20.1
016	1600	2	12	29250	26882	7	1.7	108048	13.7	4.5
	1600	4	12	55369	41072	11.1	6.8	158908	20	14.7
	1600	6	12	65316	45795	12.9	4.5	177265	22.6	9.8
	1600	6	16	72818	49067	14.6	5.6	184737	23.6	10.6
020	2000	2	12	40853	35652	9.5	3.2	140601	23.1	12.6
	2000	4	12	63352	48917	12.7	3.4	197631	26.3	10.4
	2000	6	12	87141	59521	17.4	8.3	224423	38.6	28.4
	2000	6	16	95856	63390	19.2	9.9	233321	43.5	35.2
030	3000	2	12	65773	55660	14.7	4.1	219457	45.4	36.9
	3000	4	12	102379	76467	20.5	5.2	294492	30.9	10.8
	3000	6	12	135945	91512	27.2	12.7	332094	34.3	17.3
	3000	6	16	148481	97120	29.7	14.9	348412	49.5	10.2
	3000	8	16	159545	102028	31.9	9.3	357445	56.1	38.7
040	4000	2	12	86452	73332	18.1	5.9	289056	58.6	39.6
	4000	4	12	140068	103293	28	8.1	388985	38.7	11.3
	4000	6	12	173928	118890	34.8	6.7	438217	43.5	6.8
	4000	6	16	191140	126533	38.2	7.9	458315	45.4	7.4
	4000	8	16	214869	136996	43	16.1	466495	30.9	5.1
050	5000	2	12	111359	93297	24.2	6.8	335266	34.3	10.2
	5000	4	12	176302	129673	35.3	8.8	488710	49.5	13.0
	5000	6	12	218061	148903	43.6	9.8	549724	56.1	7.1
	5000	6	16	239613	158466	47.9	11.7	574328	58.6	7.6
	5000	8	16	269144	171496	53.9	17.4	583644	38.7	5.0

NOTE 1: Cooling Conditions: EAT = 80/67, EWT = 45, LWT = 55

NOTE 2: Heating Conditions: EAT = 70, EWT = 180, LWT = 160

Table 6: Vertical Primary Coil Performance Data - Unit Sizes 060-100

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Cooling Performance			
				Total Btu/h	Sensible Btu/h	GPM	Pressure Drop (ft H_2O)
060	6000	2	12	147344	120002	29.5	3.9
	6000	4	12	228955	162865	45.8	16.8
	6000	6	12	272400	183239	54.8	12.6
	6000	8	12	298665	194955	59.8	8.1
060	6000	2	16	180326	140549	36.1	5.7
	6000	4	16	259528	177578	51.9	21.1
	6000	6	16	297195	194340	59.5	14.6
	6000	8	16	319416	204203	63.9	9.1
080	8000	2	12	191010	155671	38.2	6.2
	8000	4	12	280147	206591	56	7.9
	8000	6	12	347621	237682	69.5	6.5
	8000	8	12	402541	261808	80.6	14
080	8000	2	16	232217	181760	46.5	9
	8000	4	16	321428	226438	64.3	10.2
	8000	6	16	380691	252384	75.3	7.5
	8000	8	16	430076	274143	86	15.8
100	10000	2	12	242347	197303	45.5	6.5
	10000	4	12	385854	273022	77.2	26.3
	10000	6	12	435975	297745	87.2	9.6
	10000	8	12	504446	327825	100.9	15.1
100	10000	2	16	294603	230265	59	9.4
	10000	4	16	437495	297963	87.5	33.1
	10000	6	16	477031	315989	94.3	11.1
	10000	8	16	538631	343145	107.7	17

NOTE: Cooling Conditions: EAT = 80/67, EWT = 45, LWT = 55

Table 7: Vertical Turbo Spiral (Primary Coil) Performance Data - Unit Sizes 060-100

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Cooling Performance			
				Total Btu/h	Sensible Btu/h	GPM	Pressure Drop (ft H_2O)
060	6000	2	12	106594	92903	24.2	9.3
	6000	4	12	183735	142829	41.9	8.9
	6000	6	12	233048	164559	53.1	6.4
080	8000	2	12	142856	124337	32.4	13.6
	8000	4	12	244962	190385	55.8	12.8
	8000	6	12	306317	219086	69.8	8.8
100	10000	2	12	177950	155524	40.4	13.9
	10000	4	12	316911	242224	72.2	12.1
	10000	6	12	391676	278616	89.2	9

NOTE: Cooling Conditions: EAT = 80/67, EWT = 45, LWT = 55

Table 8: Vertical Secondary Coil Performance Data - Unit Sizes 006-050

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Heating Performance		
				Total Btu/h	GPM	Pressure Drop (ft H_2O)
006	600	1	12	20855	1.4	1.2
	600	2	12	34726	2.4	1.8
	600	2	16	39822	2.7	2.2
008	800	1	12	29043	2	2.9
	800	2	12	47804	3.3	2.9
	800	2	16	55135	3.8	3.7
012	1200	1	12	38550	2.6	0.7
	1200	2	12	71299	4.9	3.7
	1200	2	16	82196	5.6	4.7
016	1600	1	12	56894	3.9	1.6
	1600	2	12	93484	6.4	1.1
	1600	2	16	107930	7.4	1.5
020	2000	1	12	72252	4.9	2.7
	2000	2	12	119338	8.2	1.9
	2000	2	16	137497	9.4	2.5
030	3000	1	12	101901	6.9	0.6
	3000	2	12	184159	12.6	3.4
	3000	2	16	212101	14.5	4.5
040	4000	1	12	135748	9.2	0.9
	4000	2	12	244336	16.7	4.0
	4000	2	16	281953	19.3	5.2
050	5000	1	12	171113	11.6	0.9
	5000	2	12	307110	21	4.2
	5000	2	16	354011	24.2	5.4

NOTE: Heating Conditions: EAT = 70, EWT = 180, LWT = 150

Table 9: Vertical Secondary Coil Performance Data - Unit Sizes 060-100

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Heating Performance		
				Total Btu/h	GPM	Pressure Drop (ft H_2O)
060	6000	1	12	233318	24	1.7
	6000	2	12	380833	38.8	0.57
060	6000	1	16	283090	28.8	2.47
	6000	2	16	439107	44.8	0.74
080	8000	1	12	308314	31.7	2.42
	8000	2	12	506542	51.7	0.8
080	8000	1	16	375394	38.5	3.5
	8000	2	16	584716	59.7	1.03
100	10000	1	12	388568	39.9	2.61
	10000	2	12	636618	65	0.79
100	10000	1	16	472882	48.6	3.79
	10000	2	16	734461	75	1.02

NOTE: Heating Conditions: EAT = 70, EWT = 180, LWT = 160

Table 10: Horizontal DX Coil Performance Data - R-32

Unit Size	Circuits		Fin Height	Fin Length	CFM	FPI	Cooling					Heating				Connection Size	
							Total	Sensible	LAT		APD	Total	Sensible	LAT	APD		
	Number	Type							DB	WB				DB		Liquid	Suction
006	1	Normal	14	12.5	600	12	20076	14646	57.68	56.37	0.379	20735	10369	101.6	0.317	3/8	0.75
						16	22600	16066	55.51	54.87	0.518	22995	11499	105.05	0.4326	3/8	0.75
008	1	Normal	14	16.5	800	12	25958	19195	58.06	56.73	0.385	27259	9089	101.16	0.322	3/8	0.75
						16	29483	21150	55.82	55.16	0.525	30243	10083	104.57	0.4392	3/8	0.75
010	1	Normal	14	25	1000	12	36382	25830	56.38	55.33	0.29	36878	9221	103.72	0.2381	3/8	0.875
						16	40807	28196	54.21	53.72	0.4	40472	10119	107.01	0.3284	3/8	0.875
012	1	Normal	14	25	1200	12	40479	29423	57.58	56.27	0.379	41783	10447	101.84	0.317	3/8	0.875
						16	45671	32324	55.37	54.73	0.518	46304	11577	105.29	0.4326	3/8	0.875
016	1	Normal	14	33	1600	12	54392	39373	57.5	56.18	0.385	55837	11169	101.91	0.322	3/8	1.125
						16	61235	43224	55.29	54.65	0.525	61899	12381	105.38	0.4392	3/8	1.125
018	1	Normal	14	41.5	1800	12	62781	45216	57.03	55.87	0.327	64730	9249	102.89	0.2703	3/8	1.125
						16	70863	49588	54.81	54.25	0.449	71347	10193	106.25	0.3711	3/8	1.125
020	1	Normal	22	41.5	2000	12	66756	48745	57.71	56.4	0.382	69513	9932	101.78	0.319	3/8	1.125
						16	75614	53660	55.46	54.82	0.521	77042	11007	105.23	0.4352	3/8	1.125
030	1	Normal	22	39.5	3000	12	98689	72530	57.89	56.57	0.383	103955	9452	101.69	0.3204	1/2	1.375
						16	112086	79940	55.63	54.98	0.523	115222	10476	105.12	0.4371	1/2	1.375
	2	Interlaced	22	39.5	3000	12	98689	72530	57.89	56.57	0.383	103955	9452	101.69	0.3204	3/8	0.875
						16	112086	79940	55.63	54.98	0.523	115222	10476	105.12	0.4371	3/8	0.875
040	1	Normal	26	44.5	4000	12	135397	98212	57.55	56.23	0.384	139860	10760	101.98	0.3211	1/2	1.375
						16	152820	107956	55.32	54.67	0.524	154967	11921	105.43	0.4381	1/2	1.375
	2	Interlaced	26	44.5	4000	12	135397	98212	57.55	56.23	0.384	139860	10760	101.98	0.3211	1/2	1.125
						16	152820	107956	55.32	54.67	0.524	154967	11921	105.43	0.4381	1/2	1.125
050	1	Normal	28	51.5	5000	12	175738	126452	56.87	55.77	0.386	176375	12599	102.26	0.3226	5/8	1.625
						16	197618	138787	54.62	54.19	0.526	195429	13960	105.74	0.44	5/8	1.625
	2	Interlaced	28	51.5	5000	12	175738	126452	56.87	55.77	0.386	176375	12599	102.26	0.3226	1/2	1.375
						16	197618	138787	54.62	54.19	0.526	195429	13960	105.74	0.44	1/2	1.375
060	2	Normal	44	39.5	6000	12	201407	148020	57.44	56.33	0.383	208269	9468	101.74	0.3204	1/2	1.375
						16	228747	163142	55.13	54.7	0.523	230804	10492	105.18	0.4371	1/2	1.375
	4	Interlaced	44	39.5	6000	12	201407	148020	57.44	56.33	0.383	208269	9468	101.74	0.3204	3/8	0.875
						16	228747	163142	55.13	54.7	0.523	230804	10492	105.18	0.4371	3/8	0.875
080	2	Normal	52	44.5	8000	12	276321	200432	57.09	55.99	0.384	323582	12447	99.59	0.4566	1/2	1.375
						16	311877	220317	54.82	54.39	0.524	362585	13946	103.16	0.615	1/2	1.375
	4	Interlaced	52	44.5	8000	12	276321	200432	57.09	55.99	0.384	323582	12447	99.59	0.4566	1/2	1.125
						16	311877	220317	54.82	54.39	0.524	362585	13946	103.16	0.615	1/2	1.125
100	2	Normal	56	51.5	10000	12	351475	252904	56.87	55.77	0.386	353140	12613	102.29	0.3226	5/8	1.625
						16	395236	277573	54.62	54.19	0.526	391238	13973	105.78	0.44	5/8	1.625
	4	Interlaced	56	51.5	10000	12	351475	252904	56.87	55.77	0.386	353140	12613	102.29	0.3226	1/2	1.375
						16	395236	277573	54.62	54.19	0.526	391238	13973	105.78	0.44	1/2	1.375

NOTE 1: Capacity is based on 80/67°F DB/WB entering air and 45°F entering water temperatures. Total and sensible capacities are btu/h.

NOTE 2: Capacity is based on 70°F entering air and 115°F entering water temperatures. Total and sensible capacities are btu/h.

Table 11: Horizontal DX Coil Performance Data - R-454B

Unit Size	Circuits		Fin Height	Fin Length	CFM	FPI	Cooling					Heating				Connection Size	
							Total	Sensible	LAT		APD	Total	Sensible	LAT	APD		
	Number	Type							DB	WB				DB		Liquid	Suction
006	1	Normal	14	12.5	600	12	21248	15114	56.96	55.68	0.379	20694	10349	101.54	0.317	3/8	0.75
						16	23698	16514	54.83	54.2	0.518	22936	11468	104.96	0.4326	3/8	0.75
008	1	Normal	14	16.5	800	12	27978	20000	57.14	55.84	0.385	27207	9072	101.1	0.322	1/2	0.75
						16	31503	21973	54.88	54.24	0.525	30186	10064	104.51	0.4392	1/2	0.75
010	1	Normal	14	25	1000	12	38797	26814	55.48	54.46	0.29	36879	9221	103.73	0.2381	1/2	0.875
						16	43344	29253	53.25	52.76	0.4	40493	10124	107.03	0.3284	1/2	0.875
012	1	Normal	14	25	1200	12	42946	30410	56.83	55.54	0.379	41822	10457	101.87	0.317	1/2	0.875
						16	48149	33337	54.59	53.97	0.518	46351	11588	105.32	0.4326	1/2	0.875
016	1	Normal	14	33	1600	12	57283	40532	56.83	55.54	0.385	55917	11185	101.96	0.322	1/2	1.125
						16	64179	44429	54.61	53.97	0.525	61989	12398	105.43	0.4392	1/2	1.125
018	1	Normal	14	41.5	1800	12	67496	47119	56.06	54.93	0.327	64849	9266	102.95	0.2703	5/8	1.125
						16	75639	51562	53.8	53.26	0.449	71514	10218	106.33	0.3711	5/8	1.125
020	1	Normal	22	41.5	2000	12	71532	50656	56.84	55.55	0.382	69657	9952	101.85	0.319	5/8	1.125
						16	80389	55613	54.57	53.94	0.521	77250	11037	105.32	0.4352	5/8	1.125
030	1	Normal	22	39.5	3000	12	106357	75593	56.96	55.66	0.383	104271	9481	101.78	0.3204	5/8	1.375
						16	119847	83108	54.67	54.03	0.523	115652	10515	105.25	0.4371	5/8	1.375
	2	Interlaced	22	39.5	3000	12	106357	75593	56.96	55.66	0.383	104271	9481	101.78	0.3204	1/2	0.875
						16	119847	83108	54.67	54.03	0.523	115652	10515	105.25	0.4371	1/2	0.875
040	1	Normal	26	44.5	4000	12	143388	101413	56.81	55.52	0.384	140224	10787	102.06	0.3211	5/8	1.375
						16	161127	111357	54.54	53.91	0.524	155475	11960	105.55	0.4381	5/8	1.375
	2	Interlaced	26	44.5	4000	12	143388	101413	56.81	55.52	0.384	140224	10787	102.06	0.3211	1/2	1.125
						16	161127	111357	54.54	53.91	0.524	155475	11960	105.55	0.4381	1/2	1.125
050	1	Normal	28	51.5	5000	12	180011	127059	56.76	55.47	0.386	176751	12625	102.33	0.3226	7/8	1.625
						16	200643	138869	54.6	53.97	0.526	195904	13994	105.83	0.44	7/8	1.625
	2	Interlaced	28	51.5	5000	12	180011	127059	56.76	55.47	0.386	176751	12625	102.33	0.3226	5/8	1.375
						16	200643	138869	54.6	53.97	0.526	195904	13994	105.83	0.44	5/8	1.375
060	2	Normal	44	39.5	6000	12	212715	151187	56.96	55.66	0.383	209060	9504	101.86	0.3204	5/8	1.375
						16	239694	166216	54.67	54.03	0.523	231819	10538	105.33	0.4371	5/8	1.375
	4	Interlaced	44	39.5	6000	12	212715	151187	56.96	55.66	0.383	209060	9504	101.86	0.3204	1/2	0.875
						16	239694	166216	54.67	54.03	0.523	231819	10538	105.33	0.4371	1/2	0.875
080	2	Normal	52	44.5	8000	12	286776	202827	56.81	55.52	0.384	325089	12504	99.73	0.4566	5/8	1.375
						16	322253	222713	54.54	53.91	0.524	364331	14012	103.32	0.615	5/8	1.375
	4	Interlaced	52	44.5	8000	12	286776	202827	56.81	55.52	0.384	325089	12504	99.73	0.4566	1/2	1.125
						16	322253	222713	54.54	53.91	0.524	364331	14012	103.32	0.615	1/2	1.125
100	2	Normal	56	51.5	10000	12	360022	254119	56.76	55.47	0.386	354067	12645	102.38	0.3226	7/8	1.625
						16	401286	277737	54.6	53.97	0.526	392356	14013	105.88	0.44	7/8	1.625
	4	Interlaced	56	51.5	10000	12	360022	254119	56.76	55.47	0.386	354067	12645	102.38	0.3226	5/8	1.375
						16	401286	277737	54.6	53.97	0.526	392356	14013	105.88	0.44	5/8	1.375

NOTE 1: Capacity is based on 80/67°F DB/WB entering air and 45°F entering water temperatures. Total and sensible capacities are btu/h.

NOTE 2: Capacity is based on 70°F entering air and 115°F entering water temperatures. Total and sensible capacities are btu/h.

Table 12: Vertical DX Coil Performance Data - R-32

Unit Size	Rows	Circuits		Fin Height	Fin Length	CFM	FPI	Cooling					Heating				Connection Size	
								Total	Sensible	LAT		APD	Total	Sensible	LAT	APD		
		Number	Type							DB	WB				DB		Liquid	Suction
006	3	1	Normal	14	12.5	600	12	20076	14646	57.68	56.37	0.379	20735	10369	101.6	0.317	3/8	0.875
							16	22600	16066	55.51	54.87	0.518	22995	11499	105.05	0.4326	3/8	0.875
	6	1	Normal	14	12.5	600	12	28439	18629	51.61	51.21	0.759	26633	8877	110.59	0.6339	3/8	0.875
							16	30191	19391	50.45	50.05	1.036	27743	9247	112.28	0.8652	3/8	0.875
008	3	1	Normal	16	14.5	800	12	26008	19220	58.03	56.7	0.383	27306	9105	101.21	0.3198	3/8	0.875
							16	29518	21168	55.8	55.15	0.522	30306	10104	104.64	0.4364	3/8	0.875
	6	1	Normal	16	14.5	800	12	37950	24852	51.59	51.19	0.765	35479	8870	110.56	0.6397	3/8	0.875
							16	40321	25884	50.41	50.02	1.044	36970	9242	112.26	0.8727	3/8	0.875
012	3	1	Normal	18	18.5	1200	12	40219	29227	57.73	56.35	0.408	41671	13891	101.76	0.3428	3/8	1.125
							16	44914	31967	55.64	54.95	0.556	46290	15430	105.28	0.4665	3/8	1.125
	6	1	Normal	18	18.5	1200	12	56287	37004	51.8	51.4	0.816	52919	8820	110.33	0.6856	3/8	1.125
							16	60034	38629	50.56	50.17	1.111	55263	9210	112.11	0.933	3/8	1.125
016	3	1	Normal	20	23.5	1600	12	54790	39571	57.38	56.09	0.375	56199	11241	102.12	0.3134	3/8	1.125
							16	61541	43372	55.21	54.58	0.513	62243	12449	105.58	0.428	3/8	1.125
	6	1	Normal	20	23.5	1600	12	75999	49747	51.57	51.17	0.751	72022	12003	111.16	0.6269	3/8	1.125
							16	79976	51475	50.58	50.19	1.025	74781	12463	112.74	0.8559	3/8	1.125
020	3	1	Normal	20	29	2000	12	69906	50443	56.94	55.84	0.383	70166	11695	102.08	0.3198	3/8	1.375
							16	78473	55290	54.72	54.3	0.522	77754	12959	105.55	0.4364	3/8	1.375
	6	1	Normal	20	29	2000	12	95671	62473	51.43	51.04	0.765	89299	8930	110.83	0.6397	3/8	1.375
							16	101778	65141	50.21	49.83	1.044	92972	9297	112.51	0.8727	3/8	1.375
030	3	1	Normal	26	34.5	3000	12	100836	73523	57.59	56.32	0.366	105301	9574	102.1	0.3048	1/2	1.625
							16	114191	80874	55.35	54.72	0.5	116518	10594	105.52	0.4166	1/2	1.625
	2	Interlaced	26	34.5	3000	12	100836	73523	57.59	56.32	0.366	105301	9574	102.1	0.3048	3/8	0.875	
							16	114191	80874	55.35	54.72	0.5	116518	10594	105.52	0.4166	3/8	0.875
	6	2	Interlaced	26	34.5	3000	12	145610	94620	51.16	50.76	0.731	135231	10402	111.22	0.6096	3/8	1.125
							16	153772	98200	50.07	49.68	1	140399	10800	112.8	0.8333	3/8	1.125
040	3	1	Normal	30	38.5	4000	12	130413	96222	58	56.67	0.385	138307	9222	101.62	0.322	1/2	1.625
							16	148335	106123	55.74	55.08	0.525	153314	10222	105.05	0.4392	1/2	1.625
	2	Interlaced	30	38.5	4000	12	130413	96222	58	56.67	0.385	138307	9222	101.62	0.322	1/2	1.375	
							16	148335	106123	55.74	55.08	0.525	153314	10222	105.05	0.4392	1/2	1.375
	6	2	Interlaced	30	38.5	4000	12	192461	125429	51.32	50.93	0.77	179148	9953	110.96	0.644	1/2	1.375
							16	204094	130519	50.16	49.77	1.05	186380	10354	112.61	0.8785	1/2	1.375
050	3	1	Normal	38	38.5	5000	12	163933	120739	57.92	56.61	0.378	173750	9146	101.78	0.3154	5/8	1.625
							16	186382	133100	55.66	55.01	0.515	192461	10131	105.2	0.4305	5/8	1.625
	2	Interlaced	38	38.5	5000	12	163933	120739	57.92	56.61	0.378	173750	9146	101.78	0.3154	1/2	1.375	
							16	186382	133100	55.66	55.01	0.515	192461	10131	105.2	0.4305	1/2	1.375
	6	2	Interlaced	38	38.5	5000	12	239744	156427	51.39	50.99	0.755	225299	11858	111.21	0.6308	1/2	1.625
							16	252811	162130	50.35	49.96	1.031	233927	12312	112.78	0.861	1/2	1.625
060	3	2	Normal	40	43.5	6000	12	202350	147045	57.59	56.28	0.383	209819	10492	101.98	0.3198	1/2	1.375
							16	228644	161707	55.35	54.71	0.522	232460	11624	105.43	0.4364	1/2	1.375
	4	Interlaced	40	43.5	6000	12	202350	147045	57.59	56.28	0.383	209819	10492	101.98	0.3198	3/8	0.875	
							16	228644	161707	55.35	54.71	0.522	232460	11624	105.43	0.4364	3/8	0.875
	6	2	Interlaced	40	43.5	6000	12	283151	185756	51.69	51.29	0.765	270575	13528	111.24	0.6397	1/2	1.125
							16	297202	191846	50.76	50.37	1.044	280787	14039	112.8	0.8727	1/2	1.125
080	3	2	Normal	54	43.5	8000	12	273341	197614	57.41	56.12	0.376	281777	10839	102.21	0.3136	1/2	1.375
							16	308112	217020	55.19	54.56	0.513	311898	11997	105.65	0.4282	1/2	1.375
	4	Interlaced	54	43.5	8000	12	273341	197614	57.41	56.12	0.376	281777	10839	102.21	0.3136	1/2	1.125	
							16	308112	217020	55.19	54.56	0.513	311898	11997	105.65	0.4282	1/2	1.125
	6	2	Interlaced	54	43.5	8000	12	376618	247282	51.73	51.33	0.751	361585	13907	111.33	0.6273	1/2	1.375
							16	394503	255022	50.85	50.45	1.026	374887	14418	112.85	0.8565	1/2	1.375
100	3	2	Normal	68	43.5	10000	12	340150	246522	57.46	56.17	0.372	352255	10362	102.21	0.31	5/8	1.625
							16	384114	270914	55.23	54.6	0.508	389839	11467	105.65	0.4235	5/8	1.625
	4	Interlaced	68	43.5	10000	12	340150	246522	57.46	56.17	0.372	352255	10362	102.21	0.31	1/2	1.375	
							16	384114	270914	55.23	54.6	0.508	389839	11467	105.65	0.4235	1/2	1.375
	6	2	Interlaced	68	43.5	10000	12	475033	310933	51.57	51.17	0.743	452294	13303	111.36	0.6201	1/2	1.375
							16	498315	321047	50.64	50.25	1.015	468897	13791	112.88	0.8469	1/2	1.375

NOTE 1: Capacity is based on 80/67°F DB/WB entering air and 45°F entering water temperatures. Total and sensible capacities are btu/h.

NOTE 2: Capacity is based on 70°F entering air and 115°F entering water temperatures. Total and sensible capacities are btu/h.

Table 13: Vertical DX Coil Performance Data - R-454B

Unit Size	Rows	Circuits		Fin Height	Fin Length	CFM	FPI	Cooling					Heating				Connection Size	
								Total	Sensible	LAT		APD	Total	Sensible	LAT	APD		
		Number	Type							DB	WB				DB		Liquid	Suction
006	3	1	Normal	14	12.5	600	12	21248	15114	56.96	55.68	0.379	20694	10349	101.54	0.317	1/2	0.875
							16	23698	16514	54.83	54.2	0.518	22936	11468	104.96	0.4326	1/2	0.875
	6	1	Normal	14	12.5	600	12	29805	19222	50.7	50.31	0.759	26531	8844	110.44	0.6339	1/2	0.875
							16	31506	19975	49.56	49.17	1.036	27629	9210	112.11	0.8652	1/2	0.875
008	3	1	Normal	16	14.5	800	12	28000	20014	57.12	55.83	0.383	27255	9088	101.16	0.3198	1/2	0.875
							16	31502	21975	54.88	54.24	0.522	30231	10078	104.56	0.4364	1/2	0.875
	6	1	Normal	16	14.5	800	12	39845	25675	50.65	50.26	0.765	35346	8836	110.4	0.6397	1/2	0.875
							16	42160	26701	49.48	49.09	1.044	36821	9205	112.09	0.8727	1/2	0.875
012	3	1	Normal	18	18.5	1200	12	41311	29663	57.39	56.03	0.408	41651	13884	101.74	0.3428	1/2	1.125
							16	45622	32253	55.42	54.74	0.556	46230	15409	105.23	0.4665	1/2	1.125
	6	1	Normal	18	18.5	1200	12	59365	38336	50.78	50.39	0.816	52791	8799	110.23	0.6856	1/2	1.125
							16	63057	39970	49.54	49.16	1.111	55110	9185	112	0.933	1/2	1.125
016	3	1	Normal	20	23.5	1600	12	57528	40671	56.75	55.49	0.375	56282	11258	102.17	0.3134	1/2	1.125
							16	64295	44499	54.57	53.95	0.513	62327	12466	105.62	0.428	1/2	1.125
	6	1	Normal	20	23.5	1600	12	77617	50446	51.17	50.77	0.751	71822	11970	111.05	0.6269	5/8	1.125
							16	81286	52052	50.25	49.86	1.025	74526	12420	112.6	0.8559	5/8	1.125
020	3	1	Normal	20	29	2000	12	71723	50726	56.81	55.52	0.383	70291	11716	102.14	0.3198	5/8	1.375
							16	80111	55497	54.62	53.99	0.522	77883	12981	105.61	0.4364	5/8	1.375
	6	1	Normal	20	29	2000	12	100873	64741	50.4	50.01	0.765	89196	8919	110.78	0.6397	5/8	1.375
							16	106983	67466	49.15	48.77	1.044	92806	9280	112.44	0.8727	5/8	1.375
030	3	1	Normal	26	34.5	3000	12	108323	76524	56.67	55.43	0.366	105600	9601	102.19	0.3048	1/2	1.625
							16	121722	83960	54.41	53.8	0.5	116916	10630	105.64	0.4166	1/2	1.625
	2	Interlaced	26	34.5	3000	12	108323	76524	56.67	55.43	0.366	105600	9601	102.19	0.3048	1/2	0.875	
							16	121722	83960	54.41	53.8	0.5	116916	10630	105.64	0.4166	1/2	0.875
	6	2	Interlaced	26	34.5	3000	12	151152	97042	50.42	50.03	0.731	135009	10385	111.15	0.6096	5/8	1.125
							16	159317	100678	49.31	48.93	1	140070	10774	112.7	0.8333	5/8	1.125
040	3	1	Normal	30	38.5	4000	12	140968	100435	57.04	55.74	0.385	138788	9254	101.73	0.322	7/8	1.625
							16	159074	110502	54.74	54.1	0.525	153965	10265	105.2	0.4392	7/8	1.625
	2	Interlaced	30	38.5	4000	12	140968	100435	57.04	55.74	0.385	138788	9254	101.73	0.322	5/8	1.375	
							16	159074	110502	54.74	54.1	0.525	153965	10265	105.2	0.4392	5/8	1.375
	6	2	Interlaced	30	38.5	4000	12	200979	129145	50.47	50.08	0.77	178942	9941	110.91	0.644	5/8	1.375
							16	212763	134390	49.28	48.89	1.05	186029	10335	112.53	0.8785	5/8	1.375
050	3	1	Normal	38	38.5	5000	12	177272	126068	56.94	55.66	0.378	174389	9180	101.9	0.3154	7/8	1.625
							16	199970	138647	54.64	54.02	0.515	193310	10175	105.36	0.4305	7/8	1.625
	2	Interlaced	38	38.5	5000	12	177272	126068	56.94	55.66	0.378	174389	9180	101.9	0.3154	5/8	1.375	
							16	199970	138647	54.64	54.02	0.515	193310	10175	105.36	0.4305	5/8	1.375
	6	2	Interlaced	38	38.5	5000	12	246332	159288	50.87	50.47	0.755	224861	11834	111.13	0.6308	7/8	1.625
							16	258634	164710	49.87	49.49	1.031	233291	12278	112.67	0.861	7/8	1.625
060	3	2	Normal	40	43.5	6000	12	215652	152374	56.78	55.49	0.383	210483	10525	102.08	0.3198	1/2	1.375
							16	241737	167067	54.54	53.91	0.522	233323	11667	105.56	0.4364	1/2	1.375
	4	Interlaced	40	43.5	6000	12	215652	152374	56.78	55.49	0.383	210483	10525	102.08	0.3198	1/2	0.875	
							16	241737	167067	54.54	53.91	0.522	233323	11667	105.56	0.4364	1/2	0.875
	6	2	Interlaced	40	43.5	6000	12	286771	187314	51.45	51.05	0.765	269881	13493	111.13	0.6397	5/8	1.125
							16	143385	93657	51.45	51.05	0.765	279836	13991	112.65	0.8727	5/8	1.125
080	3	2	Normal	54	43.5	8000	12	289097	203941	56.69	55.42	0.376	282636	10871	102.31	0.3136	7/8	1.375
							16	324461	223725	54.43	53.81	0.513	313041	12041	105.78	0.4282	7/8	1.375
	4	Interlaced	54	43.5	8000	12	289097	203941	56.69	55.42	0.376	282636	10871	102.31	0.3136	5/8	1.125	
							16	324461	223725	54.43	53.81	0.513	313041	12041	105.78	0.4282	5/8	1.125
	6	2	Interlaced	54	43.5	8000	12	379889	248687	51.57	51.17	0.751	360583	13868	111.22	0.6273	5/8	1.375
							16	395910	255637	50.78	50.38	1.026	373530	14366	112.7	0.8565	5/8	1.375
100	3	2	Normal	68	43.5	10000	12	361468	255072	56.67	55.42	0.372	353477	10397	102.33	0.31	7/8	1.625
							16	406441	280073	54.39	53.78	0.508	391358	11511	105.79	0.4235	7/8	1.625
	4	Interlaced	68	43.5	10000	12	361468	255072	56.67	55.42	0.372	353477	10397	102.33	0.31	5/8	1.375	
							16	406441	280073	54.39	53.78	0.508	391358	11511	105.79	0.4235	5/8	1.375
	6	2	Interlaced	68	43.5	10000	12	481738	313827	51.3	50.9	0.743	451169	13269	111.26	0.6201	7/8	1.375
							16	502909	323065	50.46	50.06	1.015	467333	13745	112.74	0.8469	7/8	1.375

NOTE 1: Capacity is based on 80/67°F DB/WB entering air and 45°F entering water temperatures. Total and sensible capacities are btu/h.

NOTE 2: Capacity is based on 70°F entering air and 115°F entering water temperatures. Total and sensible capacities are btu/h.

Table 14: Vertical Steam Coil Performance Data

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	EAT	PSI	Heating Performance	
				DB		Total Btu/h	Pressure Drop (PSI)
006	600	1	10	55	5	30049.0	0.18
008	800	1	10	55	5	41468.0	0.16
012	1200	1	10	55	5	61975.0	0.16
016	1600	1	10	55	5	87533.0	0.14
020	2000	1	10	55	5	106985.0	0.15
030	3000	1	10	55	5	151774.0	0.15
040	4000	1	10	55	5	202671.0	0.15
050	5000	1	10	55	5	258119.0	0.15

Table 15: Horizontal Steam Coil Performance Data

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	EAT	PSI	Heating Performance	
				DB		Total Btu/h	Pressure Drop (PSI)
006	600	1	10	55	5	22229.0	0.36
008	800	1	10	55	5	33948.0	0.26
010	1000	1	10	55	5	54590.0	0.14
012	1200	1	10	55	5	57961.0	0.19
016	1600	1	10	55	5	80691.0	0.17
018	1800	1	10	55	5	97625.0	0.14
020	2000	1	10	55	5	101153.0	0.16
030	3000	1	10	55	5	153469.0	0.16
040	4000	1	10	55	5	207617.0	0.15
050	5000	1	10	55	5	264380.0	0.14
060	6000	1	10	55	5	306938	0.16
080	8000	1	10	55	5	415234	0.15
100	10000	1	10	55	5	528760	0.14

Heating Data

Table 16: Horizontal Minimum Allowable Air Volume with Electric Heat (Unit Sizes 006-020)

Unit Size	006	008	010	012	016	018	020
kW	Air Volume - CFM						
0.41	300	400	600	600	800	1000	1000
0.5	300	400	600	600	800	1000	1000
0.82	300	400	600	600	800	1000	1000
1	300	400	600	600	800	1000	1000
1.64	300	400	600	600	800	1000	1000
2	300	400	600	600	800	1000	1000
2.45	300	400	600	600	800	1000	1000
3	300	400	600	600	800	1000	1000
3.27	300	400	600	600	800	1000	1000
4	300	400	600	600	800	1000	1000
4.09	300	400	600	600	800	1000	1000
4.91	300	400	600	600	800	1000	1000
5	300	400	600	600	800	1000	1000
6	-	400	600	600	800	1000	1000
6.54	-	400	600	600	800	1000	1000
7.36	-	425	600	600	800	1000	1000
8	-	460	600	600	800	1000	1000
8.18	-	470	600	600	800	1000	1000
9	-	515	600	600	800	1000	1000
9.81	-	570	600	600	800	1000	1000
10	-	575	600	600	800	1000	1000
10.6	-	-	-	-	800	1000	1000
11	-	-	-	-	800	1000	1000
11.3	-	-	-	-	800	1000	1000
12	-	-	-	-	800	1000	1000
13	-	-	-	-	800	1000	1000

Table 17: Horizontal Minimum Allowable Air Volume With Electric Heat (Unit Sizes 030-100)

Unit Size	Forward-Curved Fan Units			Plenum Fan Units					
	030	040	050	030	040	050	060	080	100
kW	Air Volume - CFM			Air Volume - CFM					
7.36	1500	2000	2500	1800	2400	3000	-	-	-
9	1500	2000	2500	1800	2400	3000	-	-	-
15	1500	2000	2500	1800	2400	3000	-	-	-
17	-	-	-	-	-	-	3600	-	-
18	1500	2000	2500	1800	2400	3000	-	-	-
19	-	-	-	-	-	-	3600	-	-
20	-	-	-	-	-	-	3600	-	-
21	1500	2000	2500	1800	2400	3000	-	-	-
24	1500	2000	2500	1800	2400	3000	-	-	-
25	-	-	-	-	-	-	-	4800	-
28.9	-	-	-	-	-	-	-	4800	6000
30	-	2000	2500	-	2400	3000			
32	-	-	-	-	-	-	-	4800	6000
34.4	-	-	-	-	-	-	3600	-	-
36	-	2060	2500	-	2400	3000	-	-	-
38	-	-	-	-	-	-	3600	-	-
39	-	2250	2500	-	2400	3000	-	-	-
40	-	-	-	-	-	-	3600	-	-
43.4	-	-	-	-	-	-	-	4800	6000
48	-	-	-	-	-	-	-	4800	6000
50	-	-	-	-	-	-	-	4800	-
57	-	-	-	-	-	-	3600	4800	6000
60	-	-	-	-	-	-	3600	-	-
63	-	-	-	-	-	-	3603	4800	6000
65	-	-	-	-	-	-	-	4800	6000
75	-	-	-	-	-	-	4290	4800	-
95	-	-	-	-	-	-	5433	6000	6000
105	-	-	-	-	-	-	-	6005	-
133	-	-	-	-	-	-	-	-	7607

NOTE: Limits are based on greater value of either:
1. 250 FPM face velocity across the electric heating coil or
2. Entering Air of 70°F and a maximum of 125°F LAT

Table 18: Vertical Minimum Allowable Air Volume With Electric Heat

Unit Size	006	008	012	016	020
kW	Air Volume - CFM				
0.82	300	-	-	-	-
1	300	400	-	-	-
1.64	-	400	600	-	-
2	300	400	600	800	1000
2.45	300	-	-	-	-
3	300	-	-	-	-
3.27	-	400	600	800	1000
4	300	400	600	800	1000
4.8	-	400	600	-	-
4.91	300	-	-	-	-
6	345	-	-	-	-
6.54	-	400	600	800	1000
8	-	460	600	800	1000
8.18	-	470	600	800	1000
9.6	-	550	600	800	1000
10	-	575	600	800	1000
12	-	-	-	800	1000
19.2	-	-	-	-	1100

Unit Size	Forward-Curved Fan Units			Plenum Fan Units		
	030	040	050	030	040	050
kW	Air Volume - CFM			Air Volume - CFM		
6.8	1500	2000	2500	1800	2400	3000
9	1500	2000	2500	1800	2400	3000
11.3	1500	2000	2500	1800	2400	3000
13.5	1500	2000	2500	1800	2400	3000
15	1500	2000	2500	1800	2400	3000
18	1500	2000	2500	1800	2400	3000
21	1500	2000	2500	1800	2400	3000
24	1500	2000	2500	1800	2400	3000
39	2235	2235	2500	1800	2400	3000

NOTE: Limits are based on greater value of either:
1. 250 FPM face velocity across the electric heating coil or
2. Entering Air of 70°F and a maximum of 125°F LAT

Table 19: Horizontal Electric Heat kW Options by Unit Size

Unit Size	Voltage	Horizontal kW												
006	120/60/1	0.5	1.0	2.0	3.0	4.0	-	-	-	-	-	-	-	-
	208/60/1	0.4	0.8	1.6	2.5	3.3	4.1	4.9	-	-	-	-	-	-
	230/60/1	0.5	1.0	2.0	3.0	4.0	5.0	6.0	-	-	-	-	-	-
	277/60/1	-	1.0	2.0	3.0	4.0	5.0	6.0	-	-	-	-	-	-
	460/60/1	-	1.0	-	3.0	-	-	6.0	-	-	-	-	-	-
008	120/60/1	0.5	1.0	2.0	3.0	4.0	5.0	-	-	-	-	-	-	-
	208/60/1	0.4	0.8	1.6	2.5	3.3	4.1	4.9	6.5	8.2	-	-	-	-
	230/60/1	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0		10.0	-	-	-
	277/60/1	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	-	10.0	-	-	-
	460/60/1	-	-	2.0	-	4.0	5.0	-	8.0	-	10.0	-	-	-
010	120/60/1	0.5	1.0	2.0	3.0	4.0	5.0	-	-	-	-	-	-	-
	208/60/1	0.4	0.8	1.6	2.5	3.3	4.1	4.9	6.5	8.2	-	-	-	-
	230/60/1	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	-	10.0	-	-	-
	277/60/1	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	-	10.0	-	-	-
	460/60/1	-	-	2.0	-	4.0	5.0	-	8.0	-	10.0	-	-	-
012	120/60/1	0.5	1.0	2.0	3.0	4.0	5.0	-	-	-	-	-	-	-
	208/60/1	0.4	0.8	1.6	2.5	3.3	4.1	4.9	6.5	8.2	-	-	-	-
	230/60/1	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	-	10.0	-	-	-
	277/60/1	0.5	1.0	2.0	3.0	4.0	5.0	6.0	8.0	-	10.0	-	-	-
	460/60/1	-	-	2.0	-	4.0	5.0	-	8.0	-	10.0	-	-	-
016	120/60/1	-	1.0	2.0	-	4.0	5.0	-	-	-	-	-	-	-
	208/60/1	-	0.8	1.6	-	3.3	-	4.9	6.5	8.2	-	-	-	-
	230/60/1	-	1.0	2.0	-	4.0	-	6.0	8.0	-	10.0	-	-	-
	277/60/1	-	1.0	2.0	-	4.0	-	6.0	8.0	-	10.0	-	12.0	13.0
	460/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	12.0	16.0	20.0
018	120/60/1	-	1.0	2.0	-	4.0	5.0	-	-	-	-	-	-	-
	208/60/1	-	0.8	1.6	-	3.3	-	4.9	6.5	8.2	9.0	-	-	-
	230/60/1	-	1.0	2.0	-	4.0	-	6.0	8.0	-	10.0	11.0	-	-
	277/60/1	-	1.0	2.0	-	4.0	-	6.0	8.0	-	10.0	-	12.0	13.0
	460/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	12.0	17.0	20.0
020	120/60/1	-	1.0	2.0	-	4.0	5.0	-	-	-	-	-	-	-
	208/60/1	-	0.8	1.6	-	3.3	-	4.9	6.5	8.2	9.0	-	-	-
	230/60/1	-	1.0	2.0	-	4.0	-	6.0	8.0	-	10.0	11.0	-	-
	277/60/1	-	1.0	2.0	-	4.0	-	6.0	8.0	-	10.0	-	12.0	13.0
	460/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	12.0	-	20.0
030	208/60/3	6.8	11.3	13.5	-	-	-	-	-	-	-	-	-	-
	240/60/3	9.0	15.0	18.0	-	-	-	-	-	-	-	-	-	-
	460/60/3	9.0	15.0	18.0	21.0	24.0	-	-	-	-	-	-	-	-
	575/60/3	9.0	15.0	18.0	21.0	24.0	-	-	-	-	-	-	-	-
040	208/60/3	6.8	11.3	13.5	-	-	-	-	-	-	-	-	-	-
	240/60/3	9.0	15.0	18.0	-	-	-	-	-	-	-	-	-	-
	460/60/3	9.0	15.0	18.0	21.0	24.0	30.0	36.0	39.0	-	-	-	-	-
	575/60/3	9.0	15.0	18.0	21.0	24.0	30.0	36.0	39.0	-	-	-	-	-
050	208/60/3	6.8	11.3	13.5	-	-	-	-	-	-	-	-	-	-
	240/60/3	9.0	15.0	18.0	-	-	-	-	-	-	-	-	-	-
	460/60/3	9.0	15.0	18.0	21.0	24.0	30.0	36.0	39.0	-	-	-	-	-
	575/60/3	9.0	15.0	18.0	21.0	24.0	30.0	36.0	39.0	-	-	-	-	-
060	208/60/3	17.2	-	-	-	34.4	-	-	57	-	-	-	-	-
	240/60/3	19	-	-	-	38	-	-	63	-	-	-	-	-
	460/60/3	-	20	-	-	-	40	-	63	-	75	-	-	-
	575/60/3	-	20	-	-	-	40	-	63	-	75	-	-	-
080	208/60/3	-	-	-	28.9	-	-	43.4	57	-	-	-	-	-
	240/60/3	-	-	-	32	-	-	48	63	-	-	-	-	-
	460/60/3	-	-	25	-	-	-	50	-	-	75	-	105	-
	575/60/3	-	-	25	-	-	-	50	-	-	-	95	105	-
100	208/60/3	-	-	-	28.9	-	-	43.4	57	-	-	-	-	-
	240/60/3	-	-	-	32	-	-	48	63	-	-	-	-	-
	460/60/3	-	-	-	32	-	-	-	-	65	-	95	-	133
	575/60/3	-	-	-	32	-	-	-	-	65	-	95	-	133

Vertical Electric Heat kW Options - Unit Sizes 006-050

Unit Size	Voltage	Vertical kW												
006	120/60/1	-	1	2	-	4	-	-	-	-	-	-	-	-
	208/60/1	-	0.8	-	2.5	3.3	-	4.9	-	-	-	-	-	-
	230/60/1	-	1.0	-	3.0	4.0	-	6.0	-	-	-	-	-	-
	277/60/1	-	1.0	-	3.0	4.0	-	6.0	-	-	-	-	-	-
	460/60/1	-	1.0	-	3.0	-	-	6.0	-	-	-	-	-	-
008	120/60/1	-	1.0	2.0	-	4.0	-	-	-	-	-	-	-	-
	208/60/1	-	-	1.6	-	3.3	-	-	6.5	8.2	-	-	-	-
	230/60/1	-	-	2.0	-	4.0	-	-	8.0	-	10.0	-	-	-
	277/60/1	-	-	2.0	-	4.0	-	-	8.0	-	10.0	-	-	-
	460/60/1	-	-	2.0	-	4.0	5.0	-	8.0	-	10.0	-	-	-
012	120/60/1	-	-	2.0	-	4.0	-	-	-	-	-	-	-	-
	208/60/1	-	-	1.6	-	3.3	-	-	6.5	8.2	-	-	-	-
	230/60/1	-	-	2.0	-	4.0	-	-	8.0	-	10.0	-	-	-
	277/60/1	-	-	2.0	-	4.0	-	-	8.0	-	10.0	-	-	-
	460/60/1	-	-	2.0	-	4.0	5.0	-	8.0	-	10.0	-	-	-
016	120/60/1	-	-	2.0	-	4.0	-	-	-	-	-	-	-	-
	208/60/1	-	-	-	-	3.3	-	-	6.5	8.2	-	-	-	-
	230/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	-	-	-
	277/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	12.0	-	-
	460/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	12.0	-	-
020	120/60/1	-	-	2.0	-	4.0	-	-	-	-	-	-	-	-
	208/60/1	-	-	-	-	3.3	-	-	6.5	8.2		-	-	-
	230/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	-	-	-
	277/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	12.0	-	-
	460/60/1	-	-	-	-	4.0	-	-	8.0	-	10.0	12.0	-	20.0
030	208/60/3	6.8	11.3	13.5	-	-	-	-	-	-	-	-	-	-
	240/60/3	9.0	15.0	18.0	-	-	-	-	-	-	-	-	-	-
	460/60/3	9.0	15.0	-	21.0	24.0	-	-	-	-	-	-	-	-
	575/60/3	9.0	15.0	-	21.0	24.0	-	-	-	-	-	-	-	-
040	208/60/3	6.8	11.3	13.5	-	-	-	-	-	-	-	-	-	-
	240/60/3	9.0	15.0	18.0	-	-	-	-	-	-	-	-	-	-
	460/60/3	9.0	15.0	-	21.0	24.0	-	-	39.0	-	-	-	-	-
	575/60/3	9.0	15.0	-	21.0	24.0	-	-	39.0	-	-	-	-	-
050	208/60/3	6.8	11.3	13.5	-	-	-	-	-	-	-	-	-	-
	240/60/3	9.0	15.0	18.0	-	-	-	-	-	-	-	-	-	-
	460/60/3	9.0	15.0	-	21.0	24.0	-	-	39.0	-	-	-	-	-
	575/60/3	9.0	15.0	18.0	21.0	24.0	-	-	39.0	-	-	-	-	-

Table 20: Vertical Defrost Electric Heat kW Options - Unit Sizes 060-100

Unit Size	Voltage	Vertical kW												
060	208/60/3	15	30	50	-	-	-	-	-	-	-	-	-	-
	240/60/3	15	30	50	-	-	-	-	-	-	-	-	-	-
	460/60/3	15	30	50	59	70	-	-	-	-	-	-	-	-
	575/60/3	15	30	50	59	70	-	-	-	-	-	-	-	-
080	208/60/3	15	30	50	59	-	-	-	-	-	-	-	-	-
	240/60/3	15	30	50	59	-	-	-	-	-	-	-	-	-
	460/60/3	15	30	50	59	70	90	-	-	-	-	-	-	-
	575/60/3	15	30	50	59	70	90	-	-	-	-	-	-	-
100	208/60/3	15	30	50	59	-	-	-	-	-	-	-	-	-
	240/60/3	15	30	50	59	-	-	-	-	-	-	-	-	-
	460/60/3	15	30	50	59	70	90	110	-	-	-	-	-	-
	575/60/3	15	30	50	59	70	90	110	-	-	-	-	-	-

Table 21: Vertical Defrost Post Electric Heat kW Options - Unit Sizes 060-100

Unit Size	Voltage	Vertical kW												
060	208/60/3	15	30	50	60	70	90	110	125	-	-	-	-	-
	240/60/3	15	30	50	60	70	90	110	125	-	-	-	-	-
	460/60/3	15	30	50	60	70	90	110	125	150	-	-	-	-
	575/60/3	15	30	50	60	70	90	110	125	150	-	-	-	-
080	208/60/3	15	30	50	60	70	90	110	125	-	-	-	-	-
	240/60/3	15	30	50	60	70	90	110	125	-	-	-	-	-
	460/60/3	15	30	50	60	70	90	110	125	150	175	200	-	-
	575/60/3	15	30	50	60	70	90	110	125	150	175	200	-	-
100	208/60/3	15	30	50	60	70	90	110	125	-	-	-	-	-
	240/60/3	15	30	50	60	70	90	110	125	-	-	-	-	-
	460/60/3	15	30	50	60	70	90	110	125	150	175	200	250	-
	575/60/3	15	30	50	60	70	90	110	125	150	175	200	250	-

Table 22: Horizontal Unit - Heater Amps

Horizontal Heater Amps											
kW	120V/1Ø	230V/1Ø	277V/1Ø	460V/1Ø	kW	240V/3Ø	460V/3Ø	575V/3Ø	kW	208V/1Ø†	208V/3Ø†
0.5	4.17	2.17	1.81	-	**0.5**	1.20	0.63	0.50	**0.41**	1.97	-
1	8.33	4.35	3.61	2.17	**1**	2.41	1.26	1.00	**0.82**	3.94	-
2	16.67	8.70	7.22	4.35	**2**	4.81	2.51	2.01	**1.64**	7.88	-
3	25.00	13.04	10.83	6.52	**3**	7.22	3.77	3.01	**2.45**	11.78	-
4	33.33	17.39	14.44	8.70	**4**	9.62	5.02	4.02	**3.27**	15.72	-
5	41.67	21.74	18.05	10.87	**5**	12.03	6.28	5.02	**4.09**	19.66	-
6	-	26.09	21.66	13.04	**6**	14.43	7.53	6.02	**4.91**	23.61	-
8	-	34.78	28.88	17.39	**8**	19.25	10.04	8.03	**6.54**	31.44	-
10	-	43.48	-	21.74	**9**	21.65	11.30	9.04	**6.80**	-	35.38
11	-	47.83	39.71	-	**10**	24.06	12.55	10.04	**8.18**	39.33	-
12	-	-	43.32	26.09	**11**	26.46	13.81	11.04	**9.00**	43.27	-
13	-	-	46.93	-	**12**	28.87	15.06	12.05	**9.81**	47.16	-
18	-	-	-	39.13	**13**	31.27	16.32	13.05	**10.63**	51.11	-
21	-	-	-	45.65	**15**	36.08	18.83	15.06	**11.30**	-	54.33
					18	43.30	22.59	18.07	**13.50**	-	64.90
					19	45.70	-	-	**17.2**	-	47.70
					20	-	24.10	19.20	**28.9**	-	80.30
					21	-	26.36	21.09	**34.4**	-	95.40
					24	-	30.12	24.10	**43.4**	-	120.50
					25	-	30.10	-	**57**	-	158.10
					30	-	37.65	30.12			
					36	-	45.18	36.15			
					39	-	48.95	39.16			
					40	-	48.1	38.5			
					48	115.5	-	-			
					50	-	60.1	-			
					60	-	72.2	57.7			
					63	151.6	-	-			
					65	-	-	62.5			
					75	-	90.2	72.2			
					95	-	-	91.4			
					105	-	126.3	1.1			
					133	-	160	128			

NOTE: † Indicates that 208V single and three phase applications make use of a de-rated 230/240V heater.

Table 23: Vertical Unit - Heater Amps - Unit Sizes 006-050

Vertical Heater Amps (Unit Sizes 006-050)											
kW	**115V/1Ø**	**230V/1Ø**	**277V/1Ø**	**480V/1Ø**	**kW**	**240V/3Ø**	**480V/3Ø**	**600V/3Ø**	**kW**	**208V/1Ø†**	**208V/3Ø†**
1	8.7	4.3	3.6	2.1	**9**	21.7	10.8	8.7	**0.82**	3.9	-
2	17.4	8.7	7.2	4.2	**15**	36.1	18.0	14.4	**1.64**	7.9	-
3	-	13.0	10.8	6.3	**18**	43.3	-	-	**2.45**	11.8	-
4	34.8	17.4	14.4	8.3	**21**	-	25.3	20.2	**3.27**	15.7	-
5	-	-	-	10.87	**24**	-	28.9	23.1	**4.09**	19.7	-
6	-	26.1	21.7	12.5	**39**	-	46.9	37.5	**4.91**	23.6	-
8	-	34.8	28.9	16.7					**6.54**	31.5	-
10	-	43.5	36.1	20.83					**6.80**	-	18.8
12	-	-	43.3	25.0					**8.18**	39.3	-
19.2	-	-	-	40.0					**11.3**	-	31.3
									13.5	-	37.5

NOTE: † Indicates that 208V single and three phase applications make use of a de-rated 230/240V heater.

Table 24: Vertical Unit - Defrost Heater Amps - Unit Sizes 060-100

Vertical Heater Amps (Unit Sizes 060-100)				
kW	**208V/3Ø**	**230V/3Ø**	**480V/3Ø**	**575V/3Ø**
15	34.05	37.65	18.83	15.06
30	68.10	75.31	37.65	30.12
50	113.51	125.51	62.76	50.20
59	133.94	148.10	74.05	59.24
70	-	-	87.86	70.29
90	-	-	112.96	90.37
110	-	-	138.06	110.45

NOTE: † Indicates that 208V single and three phase applications make use of a de-rated 230/240V heater.

Table 25: Vertical Unit - Post Heater Amps - Unit Sizes 060-100

Vertical Heater Amps (Unit Sizes 060-100)				
kW	**208V/3Ø**	**230V/3Ø**	**480V/3Ø**	**575V/3Ø**
15	34.05	37.65	18.83	15.06
30	68.10	75.31	37.65	30.12
50	113.51	125.51	62.76	50.20
59	136.21	150.61	75.31	60.25
70	158.91	175.72	87.86	70.29
90	204.31	225.92	112.96	90.37
110	249.71	276.12	138.06	110.45
125	283.76	313.78	156.89	125.51
150	-	-	188.27	150.61
175	-	-	219.64	175.72
200	-	-	251.02	200.82
250	-	-	313.78	251.02

NOTE: † Indicates that 208V single and three phase applications make use of a de-rated 230/240V heater.

Energy Recovery Wheel Performance Data

Table 26: Pressure Drop Through Energy Recovery Wheel (in H_20)

	Wheel Diameter (in)	46			52			58		
	Efficiency	Low	Medium	High	Low	Medium	High	Low	Medium	High
Airflow (CFM)	1000	-	-	0.32	-	-	-	-	-	-
	2000	0.36	0.43	0.61	0.26	0.31	0.44	0.22	0.27	0.38
	3000	0.53	0.64	0.91	0.38	0.46	0.65	0.32	0.39	0.55
	4000	0.71	0.85	1.21	0.50	0.61	0.86	0.42	0.51	0.72
	5000	0.88	1.06	-	0.62	0.75	1.07	0.52	0.63	0.90
	6000	1.04	-	-	0.74	0.90	-	0.62	0.76	1.07
	7000	-	-	-	0.87	1.05	-	0.72	0.88	1.25
	8000	-	-	-	0.99	1.20	-	0.82	1.00	-
	9000	-	-	-	1.11	-	-	0.92	1.12	-
	10000	-	-	-	-	-	-	1.02	1.25	-
	11000	-	-	-	-	-	-	1.12	-	-

Table 27: Energy Recovery Wheel Sizes and Airflows

Wheel Diameter (in)	Wheel Effciency	Min Airflow (CFM)	Max Airflow (CFM)	Material	Option of Bypass Damper	Bypass Damper Airflow (CFM)
46	High	866	4410	Polymer	Yes	5205
	Medium	1076	5960	Polymer	Yes	5205
	Low	1050	6800	Polymer	Yes	5205
52	High	1233	5950	Polymer	No	N/A
	Medium	1522	8475	Polymer	No	N/A
	Low	1500	9800	Polymer	No	N/A
58	High	1470	7100	Polymer	No	N/A
	Medium	1811	10200	Polymer	No	N/A
	Low	1800	11000	Polymer	No	N/A

Table 28: Energy Recovery Wheel Performance

			Summer Conditions					Winter Conditions				
Wheel Diameter (in)	Efficiency	Outside and Exhaust Airflow (CFM)	Wheel LDB (F)	Wheel LWB (F)	Recovery Capacity (Btu/hr)	Sensible Efficiency	Total Efficiency	Wheel LDB (F)	Wheel LWB (F)	Recovery Capacity (Btu/hr)	Sensible Efficiency	Total Efficiency
46	Low	3000	81.2	68.5	114711	67.7	66.0	58.6	50.7	118044	68.5	67.3
	Medium	3000	80.4	68.0	120152	71.9	69.1	59.8	51.5	123623	72.0	70.5
	High	3000	79.7	67.4	126976	75.6	73.1	61.2	52.4	130682	76.0	74.6
52	Low	4000	81.0	68.3	155604	68.9	67.1	59.0	51.0	160075	69.6	68.5
	Medium	4000	80.2	67.8	162724	73.1	70.2	60.2	51.7	167432	73.2	71.6
	High	4000	81.0	68.3	171732	68.9	67.1	59.0	51.0	176673	69.6	68.5
58	Low	5000	81.1	68.3	192825	68.3	66.6	58.9	50.9	198395	69.0	67.9
	Medium	5000	80.3	67.9	201810	72.5	69.7	60.1	51.6	207641	72.6	71.1
	High	5000	79.6	67.3	213127	76.1	73.6	61.5	52.5	219301	76.5	75.0

NOTE 1: Summer conditions based on 95°F DB and 78°F WB outdoor air temperature and 75°F DB and 63°F WB return air temperature.

NOTE 2: Winter conditions based on 35°F DB and 33°F WB outdoor air temperature and 70°F DB and 58°F WB return air temperature.

Electrical Data

Field Power Wiring

⚠ DANGER

Improper ground may result in severe injury or death.

Check grounding nut tightness before connecting power to the external junction box.

⚠ DANGER

Hazardous voltage. Can cause severe injury or death. Disconnect electric power before servicing equipment. More than one disconnect may be required to de-energize the unit.

Wiring must comply with all applicable codes and ordinances. The warranty is voided if wiring is not in accordance with these specifications. An open fuse or starter indicates a short, ground, or overload. Before replacing a fuse or resetting a starter, identify the trouble and correct.

According to the National Electric Code, a disconnecting means shall be located within sight of and readily accessible from the air conditioning equipment. Power leads must be over-current protected at the point of distribution. The maximum allowable overcurrent protection (MROPD) appears on the unit nameplate.

Supply Power Wiring

1. Allowable voltage tolerances:
   a. 60 Hertz
      – Nameplate 208V: Min. 187V, Max. 229V
      – Nameplate 230V: Min. 207V, Max. 253V
      – Nameplate 460V: Min. 414V, Max. 506V
      – Nameplate 575V: Min. 518V, Max. 633V
2. Minimum Circuit Ampacity (MCA) Calculation is based on the following formulas:

   Unit Sizes 006-050:
   Unit MCA = 1.25 (heater FLA + motor loads)

   Unit Sizes 060-100*:
   Unit MCA = 1.25 (motor loads + transformer load)

   *Electric heat equipped units have dual-source power and MCA/MROPD is calculated separately.

   Electric Heat Section MCA = 1.25 x heater FLA
3. MROPD is calculated per UL 1995 methodology.
4. Size wires in accordance with Table 310-16 or 310-19 of the National Electrical Code.
5. Wires should be sized for a maximum of 3% voltage drop.

Electrical Installation

1. Electrical service to the fan must correspond to the rated voltage on the motor nameplate and be in conformance with the National Electric Code and local restrictions.
2. The unit metal frame must be connected to the building electrical ground and all wiring must be in conformance with the national electric code and local restrictions.

NOTICE

All field wiring penetrations, for both power and controls wiring, must only be made at the factory designated locations on the top, side, or bottom panels. These locations are identified on the panels with a 3/16" pilot hole, and are shown in the following drawings.

3. To make a field wiring connection, use a hole saw to penetrate the double wall panel at the designated locations and install up to a 1″ electrical conduit bulkhead connector as shown below. Route the power wires through the conduit connector to the disconnect box and the wire to the control box inside the cabinet.
4. All units are provided with a safety disconnect switch. Unit sizes 006 – 020 are available as single phase only and are provided with a two pole switch. Three phase units, unit sizes 030 – 050, are provided with a three pole switch.
5. Optional factory provided over current protection is available on all units with a maximum operating current less than or equal to 48 amps. This protection is provided with fuses located on the unit main power circuit. Units with a maximum operating current greater than 48 amps are provided with factory installed fusing on the electric heat circuit only.
6. All field provided controllers must be powered by the unit transformer.
7. All grounds, both AC and DC, are to be consolidated at the unit.
8. A DC common input is not included on the unit. Accordingly, the AC ground and DC ground are the same. Any field provided controller must be compatible with this.

Electric Heat Control

1. Electric heat control can be factory configured for either on-off or analog control.
2. On-off control requires a 24VAC signal applied to terminal EH 24+ to cycle the electric heat elements.
3. Analog control uses an SCR control module to power the electric elements and requires a 0-10VDC signal applied to terminal EH 0-10V, to modulate heat output.

Valve Control

1 Valve control can be factory configured for either on-off or analog control.
2. On-off control requires a 24VAC signal applied to terminal VLV1 24+ or VLV2 24+ to control the valve.
3. Analog control requires a 0-10VDC signal, applied to terminal VLV1 0-10V or VLV2 0-10V to modulate the valve.

Motor Controls

1. Unit sizes 006 – 020 ship with an EC motor factory configured for either three speed or analog control.
2. The three speed control option provides three separate field adjustable motor speeds that can be activated by applying a 24VAC signal to the appropriate terminal. This allows fan control with a conventional three position fan switch or fan coil style thermostat. The speed terminals in the unit, CALL 1, CALL 2, and CALL 3 correspond to the low, medium and high speed terminals on the switch. Speed adjustment is made at the EVO board by turning the dial adjacent to the speed terminal to change the motor's RPM for that speed.

3. The analog speed control option requires a 0-10VDC signal applied to terminal FAN 0-10V on terminal block TB4 to control motor RPM. 0.0VDC turns the fan off. 1.0VDC is the threshold for turning on the fan and induces the minimum motor RPM. 10.0VDC runs the motor at maximum RPM.

NOTICE

Design may call for lower than a 10VDC max signal.

4. Unit sizes 030 – 050 are provided with a factory installed VFD programmed for analog motor speed control. A 0-10VDC signal applied to terminal FAN 0-10V on terminal block TB4 allows motor RPM to be adjusted. VFD settings are programmed at the factory, with motor information inputted.

Damper Control

1. Damper control can be factory configured for either on-off or analog control.
2. On-off control requires a 24VAC signal applied to terminal ACT 24+ to cycle the damper.
3. Analog control requires a 0-10VDC signal applied to terminal ACT 0-10V to modulate the damper.

Field Control Wiring

⚠ DANGER

LOCKOUT/TAGOUT all power sources prior to wiring or servicing the unit. Electrical shock hazard that may cause severe injury or death. Connect only low voltage NEC Class II circuits to terminal blocks TB2, TB3, TB4, TB5, and TB12. Reinstall and secure all protective front panels when the wiring installation is complete.

PreciseLine units are available with several control schemes which may require low voltage field wiring. Use the Unit Specific Electrical Schematics to determine which control connections will be required for installation. Check unit specific electrical documentation in the door of the control panel. Table 29 and Table 30 show the possible field connections that can be made.

NOTICE

Possible field connections listed have no effect on unit function unless a factory installed controller or a field installed controller with the necessary controls logic is used with the unit.

PreciseLine units operate with 115V and 24V control circuit power. All field control wiring connections are made at the class II terminal blocks TB2, TB4, and TB12 which is located in the Low Voltage Control Panel.

NOTICE

The installation of all field wiring, must comply with all applicable local codes and ordinances. The warranty may be limited or certain aspects excluded if the field wiring is not in accordance with these standards.

If a single conduit containing 24V and 115V wiring is run above the roofline between units, consider the 24V wiring within as an NEC Class I wiring system.

Emergency Stop

The terminals TB12-T10 & TB2-Ground on unit sizes 006-050 and TB2/TB3-299 & TB2/TB3-236 on unit sizes 060-100 can be used for any field supplied component that requires a unit emergency stop. When these terminals are used, the factory installed jumper must be removed.

A2L Leak Detection (Unit Sizes 006-050)

On all units with A2L refrigerant coils, the terminals TB5-A2LR1COM & TB5-A2LR1SIG are intended to provide indication of an A2L refrigerant leak. The terminals will be a closed circuit under normal operating conditions. These terminals will open when an A2L refrigerant leak is detected. 24VAC or Ground can be connected to TB5-A2LR1CF depending on the type required to provide indication of an A2L refrigerant leak.

A2L Sensor Problem (Unit Sizes 006-050)

On units with A2L refrigerant coils and DDC ready controls option, the terminals TB5-A2LR2COM & TB5-A2LR2SIG are intended to provide indication of an A2L refrigerant sensor problem. The terminals will be a closed circuit under normal operating conditions. These terminals will open when an A2L refrigerant sensor problem is detected. 24VAC or Ground can be connected to TB5-A2LR2 COM depending on the type required to provide indication of an A2L refrigerant sensor problem.

A2L Leak Detection (Unit Sizes 060-101)

On all units with A2L refrigerant coils, the terminals TB2/3-310, 311, and 312 are intended to provide indication of an A2L refrigerant leak. The terminals 310 and 312 will be a closed circuit and terminals 310 and 311 will be an open circuit under normal operating conditions. The terminals 310 and 312 will be an open circuit and terminals 310 and 311 will be a closed circuit when an A2L refrigerant leak is detected. 24VAC or Ground can be connected to terminal 310 depending on the type required to provide indication of an A2L refrigerant leak.

A2L Sensor Problem (Unit Sizes 060-100)

On units with A2L refrigerant coils and DDC ready controls option, the terminals TB2/3-313, 314, and 315 are intended to provide indication of an A2L refrigerant sensor problem. The terminals 313 and 315 will be a closed circuit and terminals 313 and 314 will be an open circuit under normal operating conditions. The terminals 313 and 315 will be an open circuit and terminals 313 and 314 will be a closed circuit when an A2L refrigerant sensor problem is detected. 24VAC or Ground can be connected to terminal 313 depending on the type required to provide indication of an A2L refrigerant sensor problem.

Table 29: Potential Field Connections and Locations (Unit Sizes 006-050)

	Label	Description	Signal
TB12	T1	Freezestat	24VAC Contact Closure
	T2	Condensate Overflow	Discrete Contact Closure
	T3	Space Humidity Sensor	0-10 VDC Input
	T4	Compressor 2	24VAC Output
	T5	Discharge Air Temperature	Thermistor Input
	T6	Airflow Switch	24VAC Contact Closure
	T7	Entering Water Temp / Leaving Coil Temp	Thermistor Input
	T8	Duct Static Pressure	0-10 VDC Input
	T9	Duct Static Pressure Power	24 VDC Supply
	T10	Emergency Stop	Discrete Contact Closure
	T11	Remote Space Sensor (CE-)	Remote Space Sensor Communications (CE-)
	T12	Remote Space Sensor (CE+)	Remote Space Sensor Communications (CE+)
TB5	A2LR1 CF	A2L Leak Signal Common	Output Common
	A2LR1 NO	A2L Leak Signal Normally Open	24VAC or Discrete Output
	A2LR2 CF	A2L Sensor Error Signal Common	Output Common
	A2LR2 NO	A2L Sensor Error Normally Open	24VAC or Discrete Output
TB4	T1	Supply Fan Signal	0-10 VDC Output
	T2	Compressor 1 or Valve 1	24VAC Output / 0-10 VDC Output
	T3	Electric Heat or Valve 2	24VAC Output / 0-10 VDC Output
	T4	Outside Air Damper	0-10 VDC Output
TB2	24+	Supply Voltage	24VAC Output Supply
	Common	Supply Voltage Common	Ground

NOTE: Possible field connections listed have no effect on unit function unless a factory installed controller or a field installed controller with the necessary controls logic is used with the unit.

Table 30: Potential Field Connections and Locations (Unit Sizes 060-100)

	Label	Description	Signal
TB2 or TB3	24V	Supply Voltage	24VAC Output Supply
	N24	Supply Voltage Common	Ground
	236	Sensor Common	Sensor Common
	+24V	Sensor Power MCB	24VDC Supply MCB
	+24V-A	Sensor Power EXP-A	24VDC Supply EXP-A
	202	Condensate Overflow Switch	Discrete Contact Closure
	208	Outdoor Air Humidity	0-10VDC Input
	208E	Space Humidity Sensor	0-10VDC Input
	208G	Return Air Humidity Sensor	0-10VDC Input
	210	Remote Integrated Thermostat	CTX
	212	Remote Integrated Thermostat	CTX
	213	Space CO2	0-10VDC Input
	220	Freeze Stat	24VAC Contact Closure
	222	SCR Electric Heat/Electric Heat Stage 1	0-10VDC Output/24VAC Output
	223	Electric Heat Stage 2	24VAC Output
	224	Electric Heat Stage 3	24VAC Output
	225	Electric Heat Stage 4	24VAC Output
	228C	Hot Water Valve Output	24VAC Output
	232A	Main Dirty Filter Switch	Discrete Contact Closure
	247	Entering Water Temp/Leaving Coil Temp	Thermistor Input
	249	Compressor 1/Vlv1 On Off/Chilled Water Vlv	24VAC Output
	251	Compressor 2	24VAC Output
	254	Compressor 3	24VAC Output
	256	Compressor 4	24VAC Output
	267	Supply Fan Signal	0-10VDC Output
	275	Exhaust Fan Signal	0-10VDC Output
	277	Outdoor Air Damper	0-10VDC Output
	281	Discharge Air Temp	Thermistor Input
	282	Return Air Temp	Thermistor Input
	297	Outdoor Air Temp	Thermistor Input
	299	Emergency Stop	Discrete Contact Closure
	2120	Air Flow Switch	24VAC Contact Closure
	2124	Duct Static Pressure	0-10VDC Input
	2130	Damper End Switch	Discrete Contact Closure
	2133	Return Air Damper	0-10VDC Output
	2140	VAV Box Output	24VAC Output
	2150	Mod Chilled Water Vlv/Mod Changeover Vlv	0-10VDC Output
	222	Modulating Hot Water Valve Output	0-10VDC Output
	302	Energy Recovery/OA Filter Switch	Discrete Contact Closure
	306	Energy Recovery Wheel On/Off	24VAC Output
	305	Bypass Damper CCW (Bypass)	24VAC Output
	301	Bypass Damper CW (Not Bypass)	24VAC Output
	300	Defrost 2 Position HW Valve	24VAC Output
	300	Defrost Electric Heat Stage 1	24VAC Output
	308	Supply Air Leaving Wheel Temperature (ER_LWT)	Thermistor Input
	309	Exhaust Air Exiting Wheel Temperature (ER_EWT)	Thermistor Input
	307	Energy Recovery Wheel Rotation Switch	Discrete Contact Closure
	303	Defrost Modulating Heating Valve	0-10VDC Output
	303	Defrost SCR Electric Heat	0-10VDC Output
	304	ERW VFD	0-10VDC Output
	310	A2L Leak Signal Common	Output Common
	311	A2L Leak Signal Normally Closed	24VAC or Discrete Output
	312	A2L Leak Signal Normally Open	24VAC or Discrete Output
	313	A2L Sensor Error Signal Common	Output Common
	314	A2L Sensor Error Normally Closed	24VAC or Discrete Output
	315	A2L Sensor Error Normally Open	24VAC or Discrete Output
	GND	Main Unit Ground	Ground

NOTE 1: TB2 is for horizontal units. TB3 is for vertical units.

NOTE 2: If Daikin Applied is not providing a controller, Sensor Common is wired to Main Unit Ground with WIRE-123A. If field-installed controls require a different ground, this wire may need to be removed (if present).

NOTE 3: Possible field connections listed have no effect on unit function unless a factory installed controller or a field installed controller with the necessary controls logic is used with the unit.

Example Wiring Diagrams

Figure 21: 3 Phase Power, SCR Electric Heat, No Valve, Modulating Damper, VFD Fan

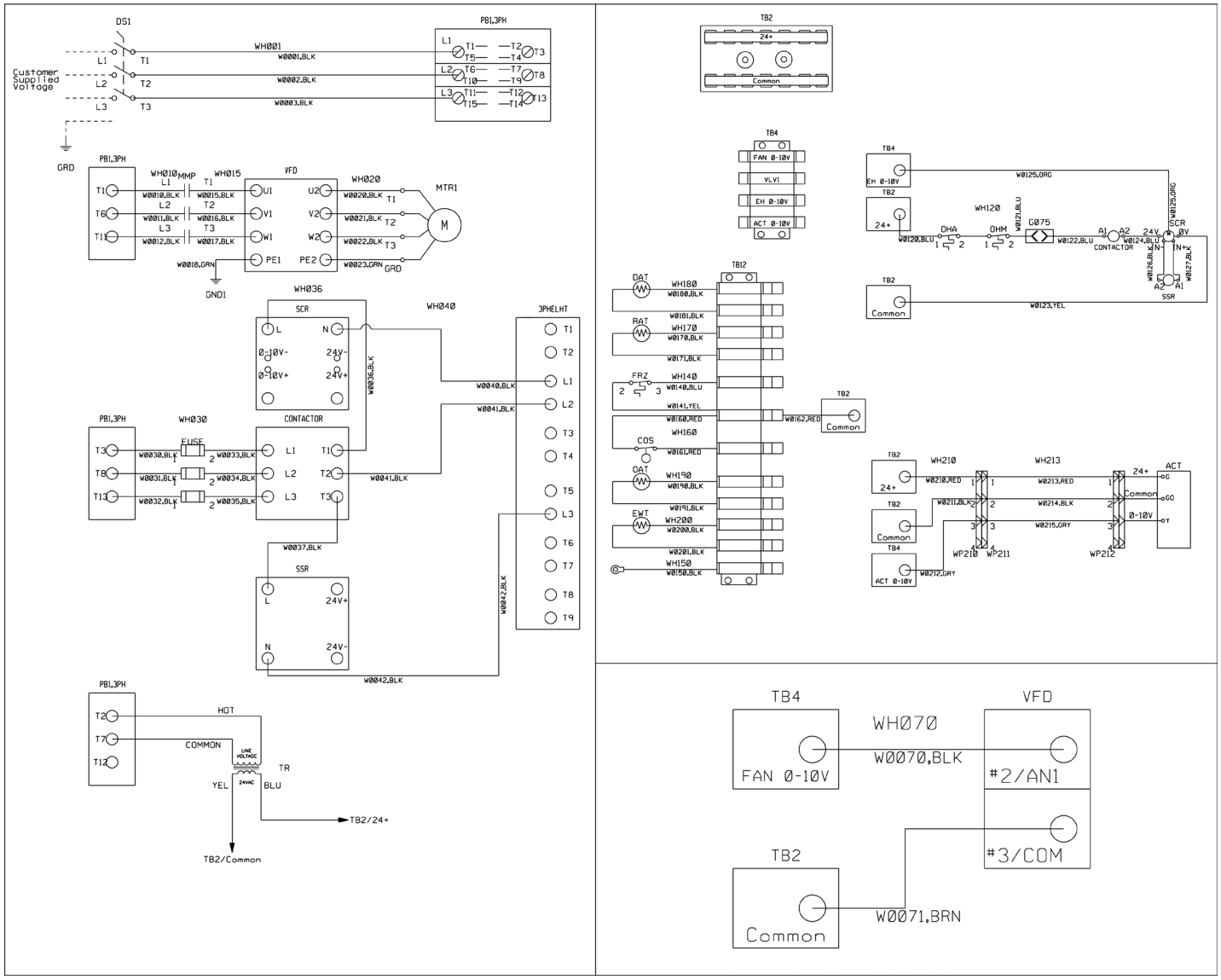


Figure 22: 1 Phase Power, SCR Electric Heat, Modulating Valve, Modulating Damper, Modulating Fan

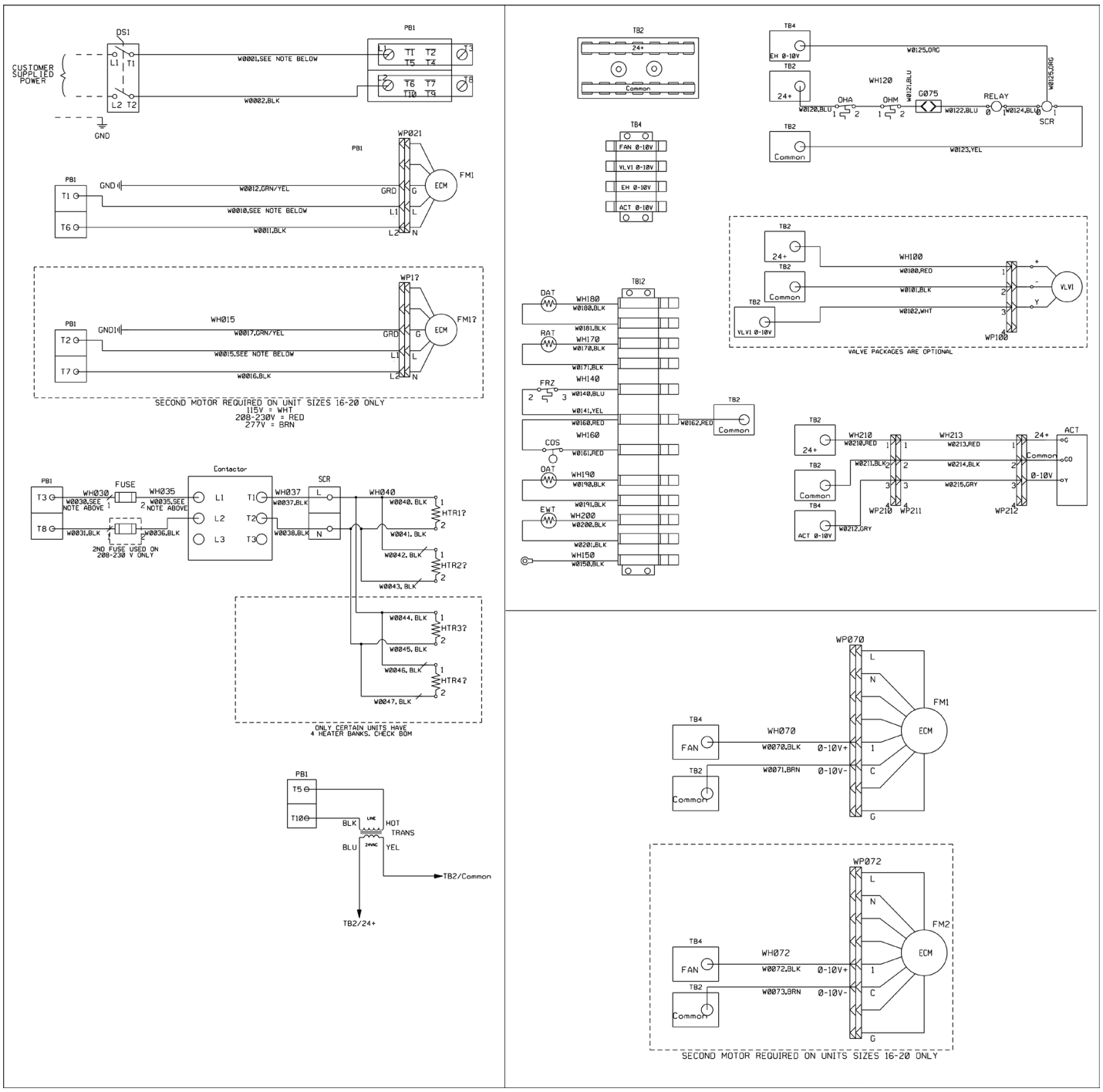


Figure 23: 1 Phase Power, On-Off Electric Heat, On-Off Valve, On-Off Damper, 3-Speed Fan

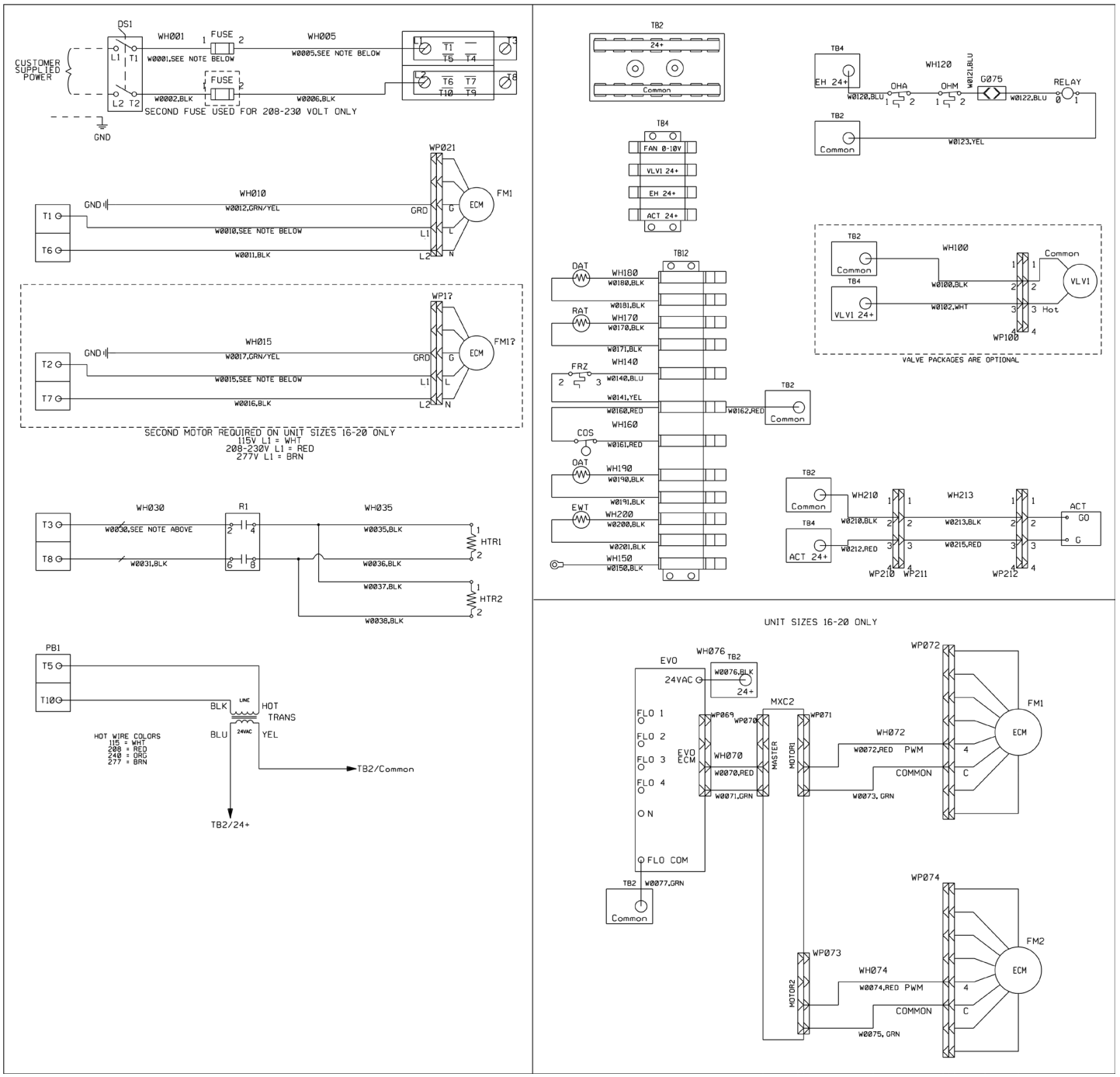


Figure 24: 3-Phase Power, Welded Aluminum Airfoil Plenum Fan, On-Off Electric Heat, On/Off Damper, Fused with MicroTech Controller for Unit Sizes 006-050

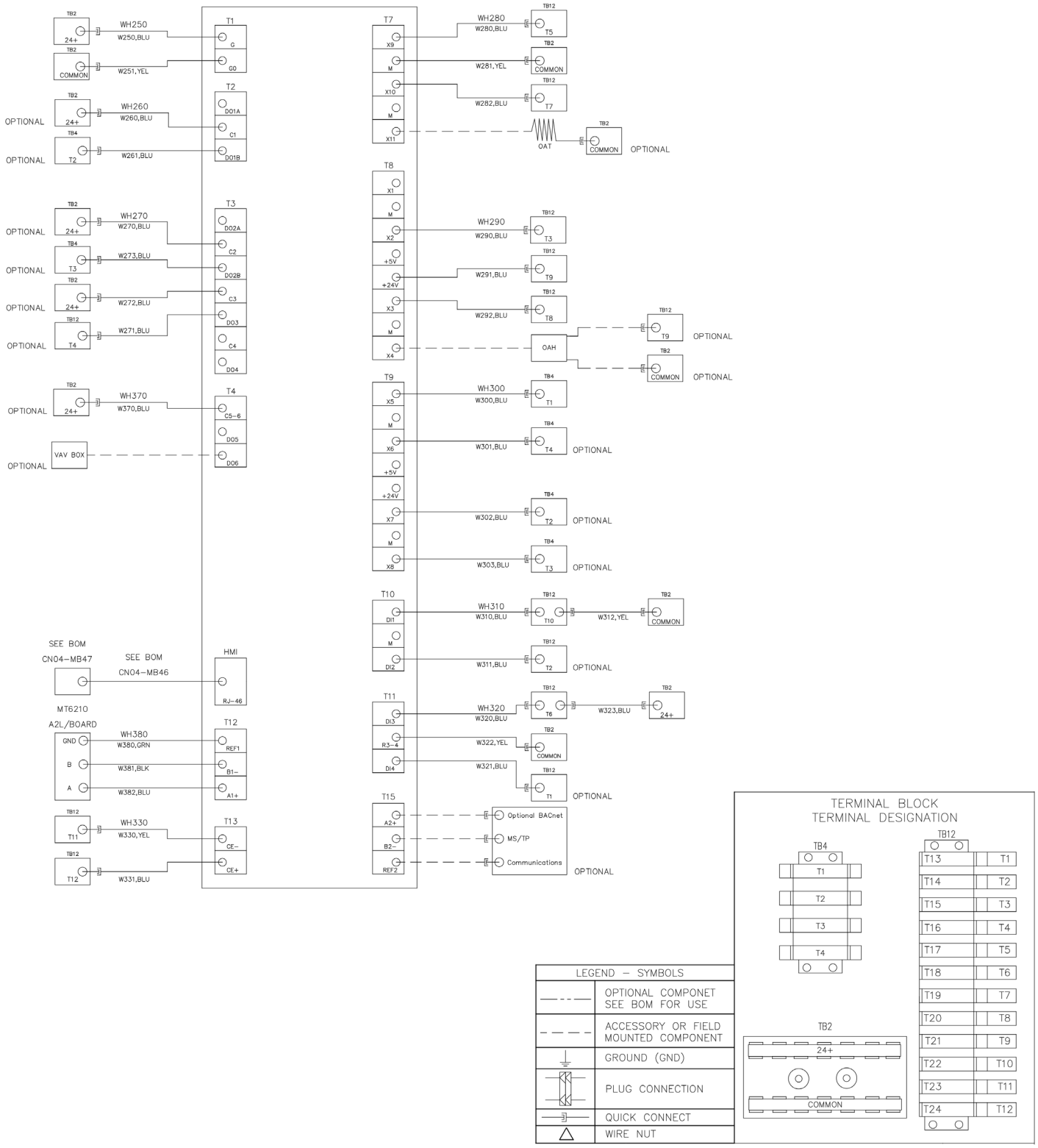


Figure 25: A2L Mitigation Board Controller for Unit Sizes 006-050

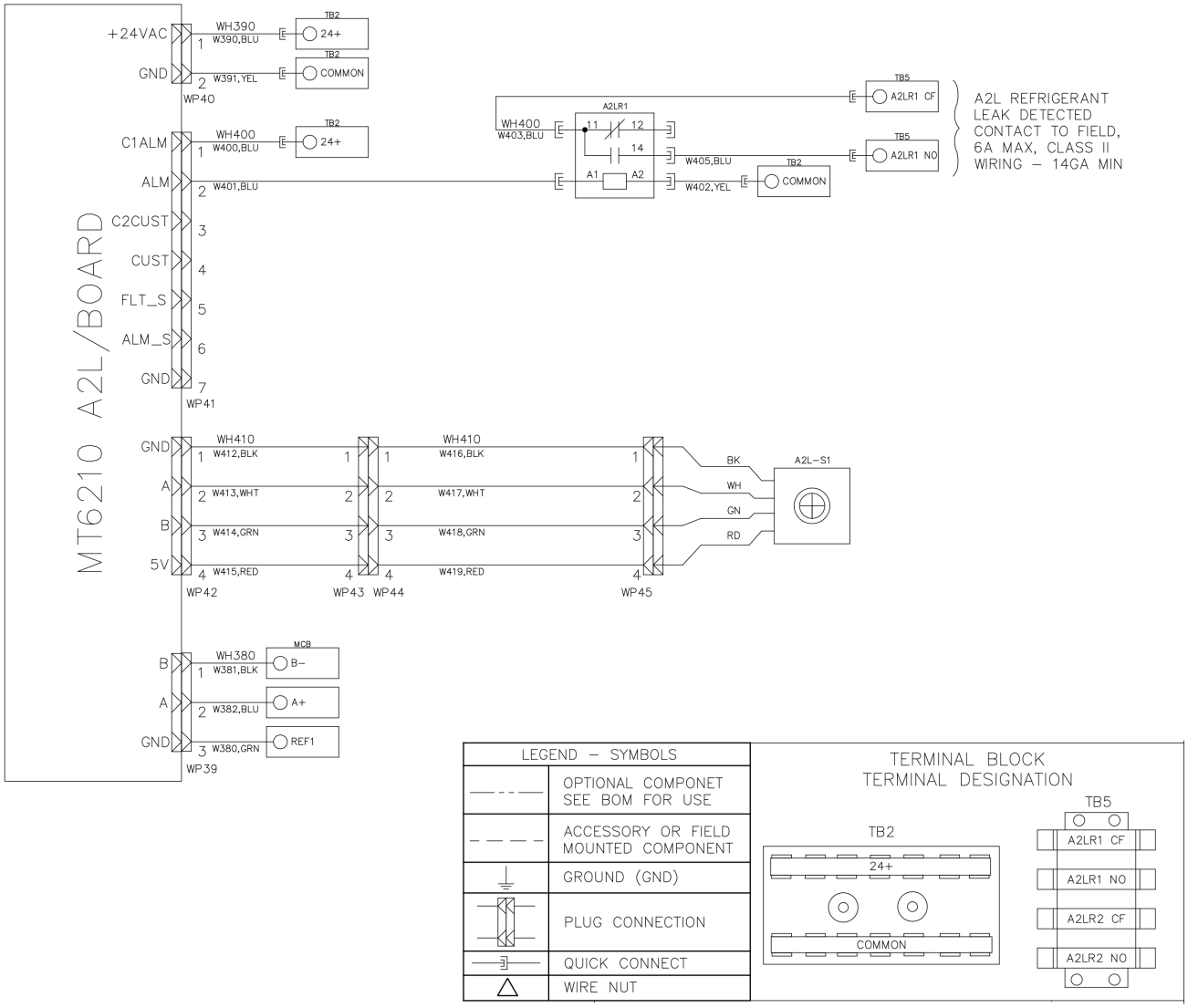


Figure 26: MicroTech Controller for Unit Sizes 060-100 with Optional Energy Recovery Wheel

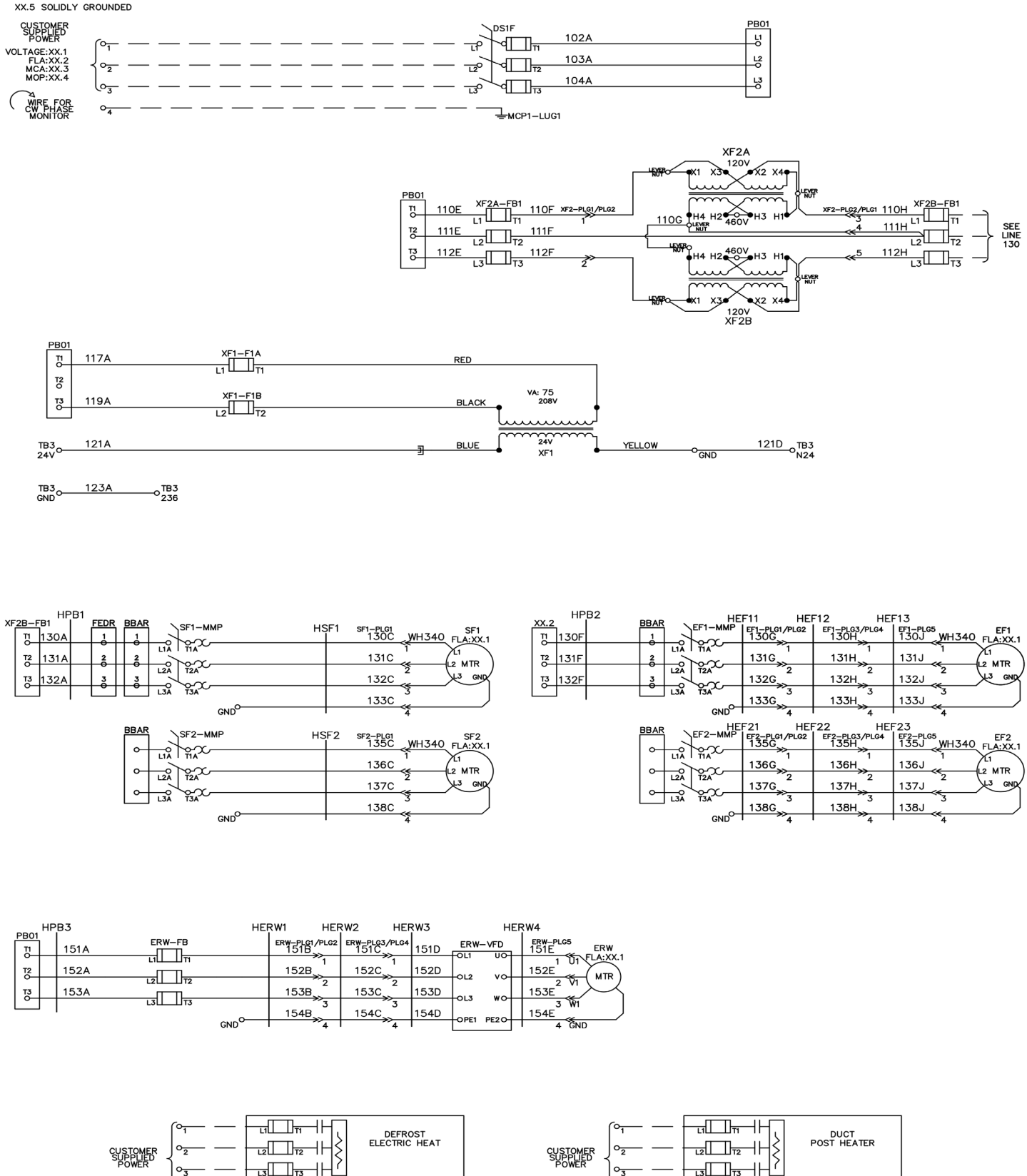


Figure 27: MicroTech Controller for Unit Sizes 060-100 with Optional Energy Recovery Wheel

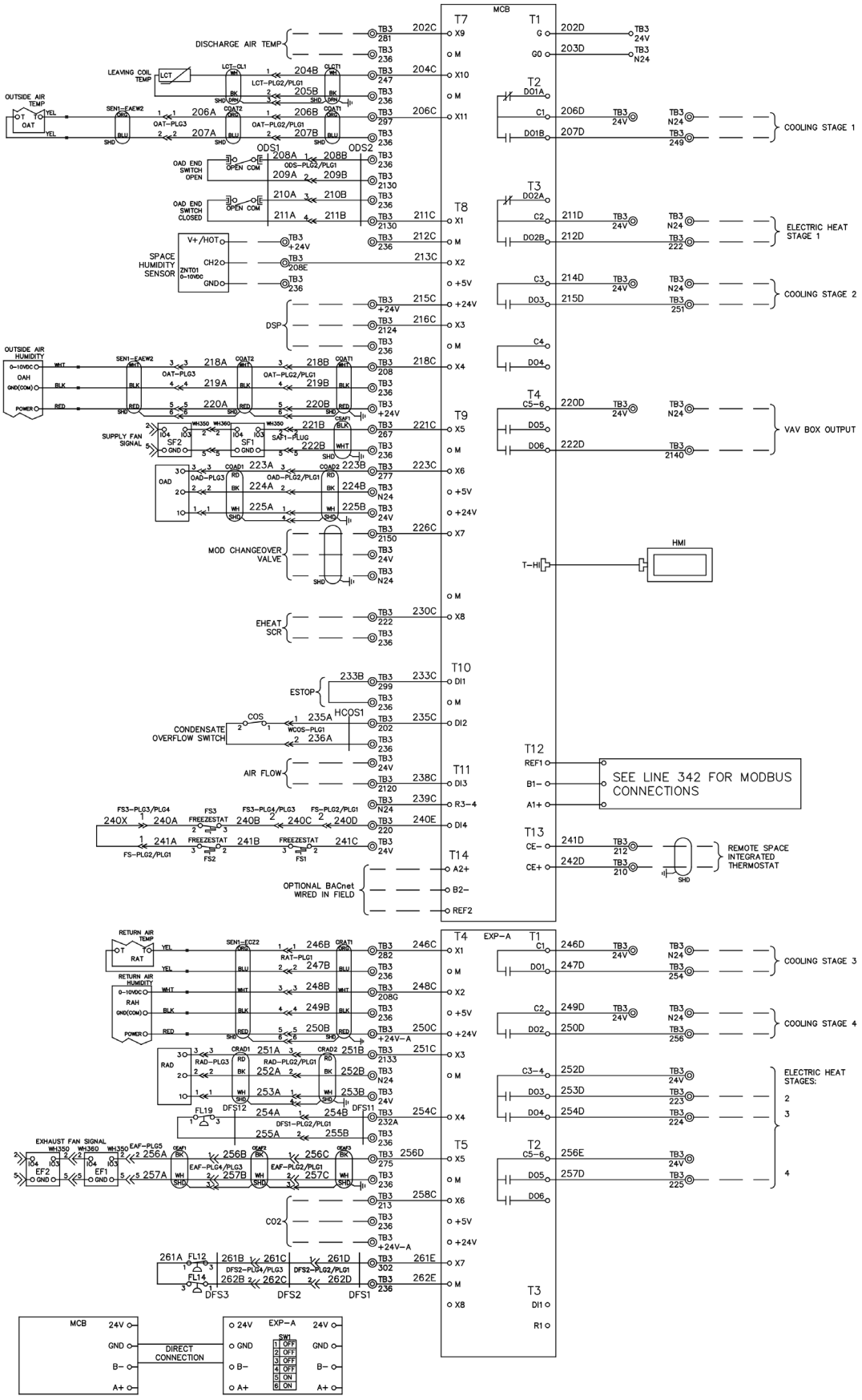
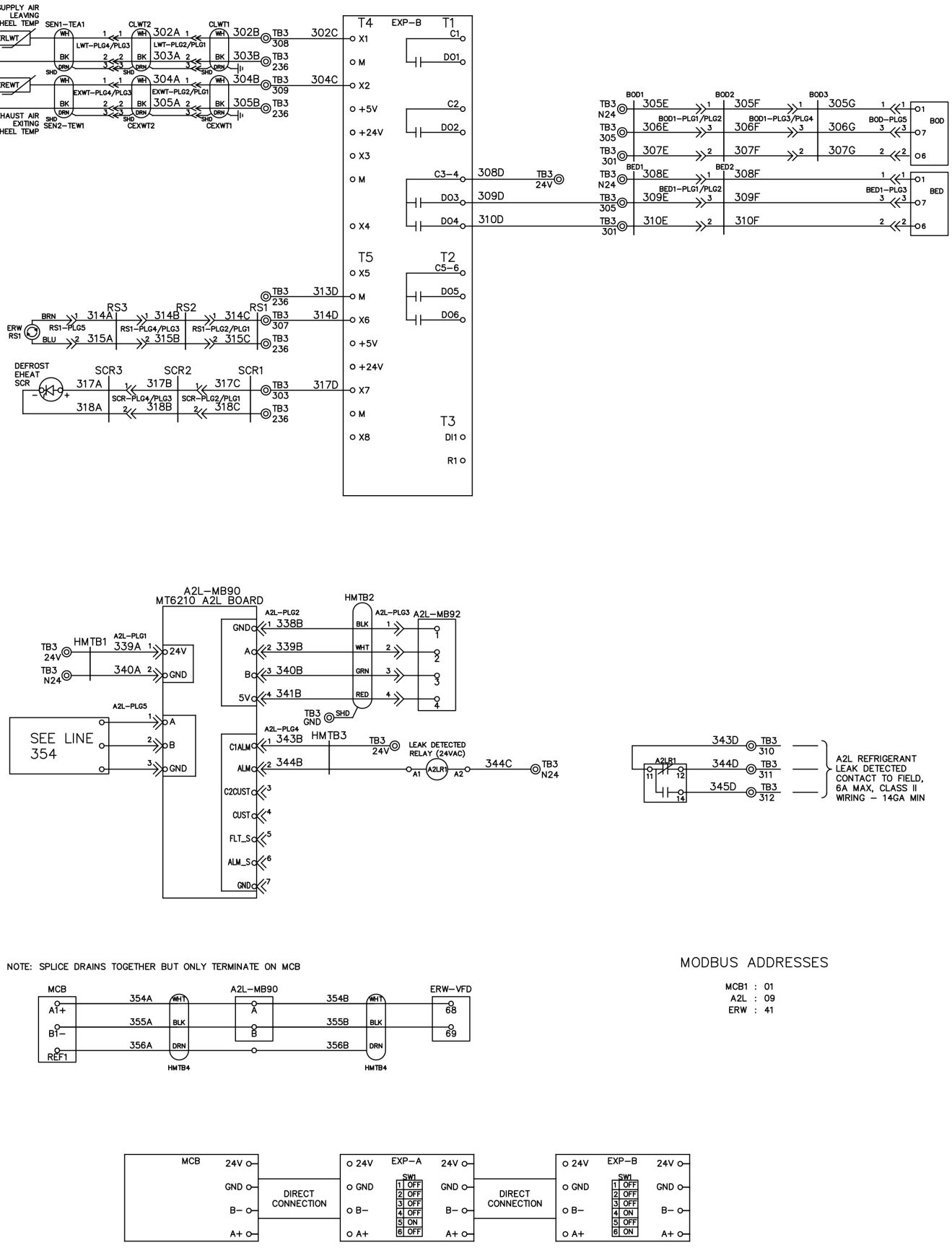


Figure 28: MicroTech Controller for Unit Sizes 060-100 with Optional Energy Recovery Wheel & A2L Controller



Wiring Schematics Legend for "Example Wiring Diagrams"

LEGEND			
A2L	Leak Detection Control Board	**OAT**	Outside Air Temperature Sensor
A2LR1-2	A2L Relays	**OHA**	Automatic High Temp Cutout Switch
ACT	Mixing Box Damper Actuator	**OHM**	Manual High Temp Cutout Switch
BBSF-EF	BusBar Supply-Exhaust	**PB1**	Main Power Distribution Block
BED	Bypass Exhaust Air Damper	**PB2**	Electric Heat Power Distribution Block
BOD	Bypass Outside Air Damper	**PB3**	24VAC Power Distribution Block
C500	MicroTech 4 Lite Controller	**R1-2**	Electric Heater Power Relay
CON	Energy Wheel Motor Contactor	**R3**	Electric Heater Control Relay
COS	Condensate Overflow Switch/Sensor	**RAD**	Return Air Damper
DAT	Discharge Air Temperature Sensor	**RAT**	Return Air Temperature Sensor
DS	Disconnect Switch	**RS1**	Rotational Switch
EB	MicroTech I/O Expansion Board	**SF1-2**	Supply Fan Motor
EF1-3	Exhaust Fan Motor	**TB2-3**	24VAC Terminal Block
ERW	Energy Recovery Wheel	**TB4**	EC Motor Control Terminal Block
EWT	Entering Water Temperature	**TB5**	A2L Terminal Block
EXP-A	MicroTech I/O Expansion Board	**TB6**	No Controls Terminal Block
EXP-B	MicroTech I/O Expansion Board	**TB12**	Sensor & Control Signals Terminal Block
FM1-2	Fan Motor	**TR**	Control Transformer
FLxx	Dirty Filter Switch	**TS1-2**	Thermal Switch (Intermediate Electric Heat)
FRZ	Freeze Alarm Switch	**TS3**	Thermal Switch (Automatic Change Over)
FS1-3	Freeze Alarm Switch	**VSV1-2**	Coil Valve Actuator (Primary or Secondary)
FSW	Fan 3-Speed Switch	**WHxxx**	Wire Harness
G075	Quick Connect Splice	**WNxxx**	Wire Nut
HTR1-4	Electric Heater Elements	**WPxxx**	Wire Plug
LVB	Low Voltage Control Board	**Wxxx**	Wire
MCB	Main Control Board (C500)	**XF1**	Control Transformer
NCB	Network Communication Board	**XF2A-B**	Buck Boost Transformers
OAD	Outside Air Damper		

NOTE 1: Devices may or may not be on unit.

NOTE 2: Wiring diagrams are typical, always defer to the wiring diagram provided with the unit.

Hot Wire Colors	**MMP/Fuse**
115V = WHT	575V = Fuse
208V = RED	208/240/480V = MMP
240V = ORG	
277V = BRN	
480V = BLK/RED	
575V = BLK	

Physical Data Tables

Component Weights

Table 31: Horizontal Component Weights (Unit Sizes 006-050)

Component	Rows	FPI	Weight — lbs (kg)									
			006	008	010	012	016	018	020	030	040	050
Coil (Wet)	1	12	6 (3)	7 (4)	9 (5)	9 (5)	10 (5)	11 (5)	11 (5)	20 (10)	26 (12)	33 (15)
	1	16	7 (4)	7 (4)	9 (5)	9 (5)	11 (5)	12 (6)	12 (6)	21 (10)	28 (13)	35 (16)
	2	12	9 (5)	10 (5)	13 (6)	13 (6)	17 (8)	19 (9)	19 (9)	33 (15)	43 (20)	53 (25)
	2	16	9 (5)	11 (5)	14 (7)	14 (7)	18 (9)	21 (10)	21 (10)	36 (17)	46 (21)	57 (26)
	4	12	13 (6)	16 (8)	23 (11)	23 (11)	28(13)	35 (16)	35 (16)	57 (26)	77 (35)	93 (43)
	4	16	14 (7)	17 (8)	24 (11)	24 (11)	30 (14)	38 (18)	38 (18)	61 (28)	84 (39)	101 (46)
	6	12	18 (9)	23 (11)	31 (15)	31 (15)	41 (19)	49 (23)	49 (23)	78 (36)	106 (49)	128 (59)
	6	16	19 (9)	25 (12)	34 (16)	34 (16)	44 (20)	54 (25)	54 (25)	85 (39)	115 (53)	140 (64)
	8	12	-	-	-	-	-	-	-	100 (46)	134 (61)	164 (75)
	8	16	-	-	-	-	-	-	-	109 (50)	147 (67)	179 (82)
Coil (Dry)	1	12	5 (3)	6 (3)	7 (4)	7 (4)	8 (4)	9(5)	9(5)	16 (8)	20 (10)	25 (12)
	1	16	5 (3)	6 (3)	7 (4)	7 (4)	8 (4)	10 (5)	10 (5)	17 (8)	22 (10)	27 (13)
	2	12	7 (4)	8 (4)	10 (5)	10 (5)	12 (6)	14 (7)	14 (7)	24 (11)	32 (15)	39 (18)
	2	16	7 (4)	8 (4)	11 (5)	11 (5)	14 (7)	16 (8)	16 (8)	27 (13)	35 (16)	43 (20)
	4	12	10 (5)	12 (6)	16 (8)	16 (8)	20 (10)	25 (12)	25 (12)	41 (19)	55 (25)	65 (30)
	4	16	11 (5)	13 (6)	18 (9)	18 (9)	23 (11)	28 (13)	28 (13)	46 (21)	61 (28)	73 (34)
	6	12	13 (6)	16 (8)	23 (11)	23 (11)	29 (14)	35 (16)	35 (16)	56 (26)	75 (35)	91 (42)
	6	16	14 (7)	18 (9)	25 (12)	25 (12)	33 (15)	40 (19)	40 (19)	63 (29)	84 (39)	102 (47)
	8	12	-	-	-	-	-	-	-	72 (33)	95 (44)	116 (53)
	8	16	-	-	-	-	-	-	-	81 (37)	107 (49)	131 (60)
DX Normal	3	12	9(5)	11 (5)	15 (7)	15 (7)	19 (9)	23 (11)	23 (11)	38 (18)	49 (23)	60 (28)
	3	16	10 (5)	12 (6)	17 (8)	17 (8)	21 (10)	25 (12)	25 (12)	42 (20)	54 (25)	66 (30)
DX Interlaced	3	12	-	-	-	-	-	-	-	36 (17)	47 (22)	58 (27)
	3	16	-	-	-	-	-	-	-	40 (19)	52 (24)	64 (30)
Standard Cabinet (FC Fans)	-	-	180 (82)	260 (118)	324 (147)	324 (147)	440 (200)	530 (241)	530 (241)	490 (223)	585 (266)	730 (332)
Standard Cabinet (Plenum Fans)	-	-	-	-	-	-	-	-	-	457 (208)	618 (281)	743 (338)
Mixing Box	-	-	22 (10)	32 (15)	40 (18)	40 (18)	54 (25)	54 (25)	65 (30)	68 (31)	72 (33)	90 (41)
Discharge Plenum	-	-	20 (9)	29 (13)	36 (16)	36 (16)	49 (22)	49 (22)	59 (27)	63 (29)	67 (30)	81 (37)
Primary Valve Package	-	-	6 (3)	6 (3)	9 (4)	9 (4)	10 (5)	12 (5)	12 (5)	-	-	-
Heating Valve Package	-	-	4 (2)	4 (2)	6 (3)	6 (3)	6 (3)	8 (4)	8 (4)	-	-	-
VRV	3	12	9 (5)	11 (5)	15 (7)	15 (7)	18 (9)	22(10)	22 (10)	-	47 (22)	58 (27)
	3	10	-	-	-	-			-	36 (16)	-	-

Table 32: Horizontal Component Weights (Unit Sizes 060-100)

Component	Rows	FPI	Weight — lbs (kg)		
			060	080	100
Coil (Wet)	1	12	40 (18)	52 (24)	66 (30)
	1	16	42 (19)	56 (25)	70 (32)
	2	12	66 (30)	86 (39)	106 (48)
	2	16	72 (33)	92 (42)	114 (52)
	4	12	114 (52)	154 (70)	186 (84)
	4	16	122 (55)	168 (76)	20 (9)
	6	12	156 (71)	20 (9)	24 (11)
	6	16	170 (77)	22 (10)	28 (13)
	8	12	20 (9)	26 (12)	32 (15)
	8	16	20 (9)	28 (13)	34 (15)
Coil (Dry)	1	12	32 (15)	40 (18)	50 (23)
	1	16	34 (15)	44 (20)	54 (24)
	2	12	48 (22)	64 (29)	78 (35)
	2	16	54 (24)	70 (32)	86 (39)
	4	12	82 (37)	110 (50)	130 (59)
	4	16	92 (42)	122 (55)	146 (66)
	6	12	112 (51)	150 (68)	182 (83)
	6	16	126 (57)	168 (76)	20 (9)
	8	12	144 (65)	190 (86)	22 (10)
	8	16	162 (73)	20 (9)	26 (12)
DX Normal	3	12	76 (34)	98 (44)	120 (54)
	3	16	84 (38)	108 (49)	132 (60)
DX Interlaced	3	12	72 (33)	94 (43)	116 (53)
	3	16	80 (36)	104 (47)	128 (58)
VRV	3	12	-	94 (43)	116 (53)
	3	10	72 (33)	-	-
Discharge Plenum	-	-	239 (108)	250 (113)	270 (122)
Discharge Plenum with Post Filter	-	-	307 (139)	352 (160)	378 (171)
Fan Section	-	-	422 (191)	415 (188)	457 (207)
Single Supply Fan Weight	-	-	110 (50)	110 (50)	110 (50)
Dual Supply Fan Weight	-	-	220 (100)	220 (100)	220 (100)
Coil Section	-	-	130 (59)	140 (64)	166 (75)
Prefilter	-	-	234 (106)	263 (119)	267 (121)
Mixbox	-	-	380 (172)	439 (199)	460 (209)
Economizer	-	-	406 (184)	454 (206)	479 (217)
Electric Heat	-	-	329 (149)	332 (151)	362 (164)
Exhaust Air/Outdoor Air	-	-	333 (151)	377 (171)	422 (191)

Table 33: Vertical Component Weights (Unit Sizes 006-050)

Component	Rows	FPI	Weight—lbs (kg)							
			006	008	012	016	020	030	040	050
Coil (Wet)	1	12	6 (3)	8 (4)	9 (5)	12 (6)	13 (6)	22 (10)	28 (13)	38 (18)
	1	14	7 (4)	8 (4)	10 (5)	12 (6)	13 (6)	22 (10)	29 (14)	39 (18)
	1	16	7 (4)	8 (4)	10 (5)	12 (6)	14 (7)	23 (11)	30 (14)	40 (19)
	2	12	10 (5)	11 (5)	14 (7)	19 (9)	21 (10)	36 (17)	47 (22)	59 (27)
	2	14	10 (5)	11 (5)	14 (7)	19 (9)	22 (10)	37 (17)	48 (22)	61 (28)
	2	16	10 (5)	11 (5)	15 (7)	20 (10)	23 (11)	39 (18)	50 (23)	63 (29)
	4	12	13 (6)	17 (8)	23 (11)	30 (14)	37 (17)	61 (28)	80 (37)	101 (46)
	4	14	14 (7)	17 (8)	24 (11)	32 (15)	39 (18)	63 (29)	83 (38)	105 (48)
	4	16	14 (7)	18 (9)	25 (12)	33 (15)	40 (19)	65 (30)	86 (40)	109 (50)
	6	12	18 (9)	23 (11)	32 (15)	44 (20)	52 (24)	87 (40)	109 (50)	138 (63)
	6	14	18 (9)	24 (11)	33 (15)	45 (21)	54 (25)	90 (41)	113 (52)	143 (65)
	6	16	19 (9)	25 (12)	34 (16)	47 (22)	56 (26)	94 (43)	118 (54)	149 (68)
	8	12	-	-	-	-	-	109 (50)	137 (63)	174 (79)
	8	14	-	-	-	-	-	114 (52)	143 (65)	181 (83)
	8	16	-	-	-	-	-	119 (54)	150 (69)	189 (86)
Coil (Dry)	1	12	5 (3)	6 (3)	7 (4)	9 (5)	10 (5)	17 (8)	22 (10)	29 (14)
	1	14	5 (3)	6 (3)	8 (4)	9 (5)	10 (5)	18 (9)	23 (11)	30 (14)
	1	16	5 (3)	6 (3)	8 (4)	10 (5)	11 (5)	19 (9)	24 (11)	31 (15)
	2	12	7 (4)	8 (4)	10 (5)	14 (7)	16 (8)	27 (13)	35 (16)	44 (20)
	2	14	8 (4)	9 (5)	11 (5)	15 (7)	17 (8)	28 (13)	36 (17)	46 (21)
	2	16	8 (4)	9 (5)	11 (5)	15 (7)	17 (8)	30 (14)	38 (18)	48 (22)
	4	12	10 (5)	12 (6)	17 (8)	22 (10)	27 (13)	44 (20)	56 (26)	71 (33)
	4	14	10 (5)	13 (6)	18 (9)	23 (11)	28 (13)	46 (21)	59 (27)	75 (35)
	4	16	11 (5)	14 (7)	19 (9)	25 (12)	30 (14)	49 (23)	63 (29)	79 (36)
	6	12	13 (6)	17 (8)	23 (11)	31 (15)	37 (17)	61 (28)	77 (35)	97 (44)
	6	14	14 (7)	18 (9)	24 (11)	33 (15)	39 (18)	65 (30)	81 (37)	103 (47)
	6	16	14 (7)	19 (9)	25 (12)	35 (16)	42 (20)	68 (31)	86 (40)	109 (50)
	8	12	-	-	-	-	-	77 (35)	97 (44)	122 (56)
	8	14	-	-	-	-	-	82 (38)	103 (47)	130 (59)
	8	16	-	-	-	-	-	86 (40)	109 (50)	138 (63)
DX Normal	3	12	9 (5)	11 (5)	15 (7)	20 (10)	24 (11)	-	-	-
	3	14	9 (5)	12 (6)	16 (8)	21 (10)	25 (12)	-	-	-
	3	16	9 (5)	12 (6)	17 (8)	22 (10	26 (12)	-	-	-
	6	12	14 (7)	19 (9)	26 (12)	35 (16)	42 (20)	67 (31)	85 (39)	107 (49)
	6	14	15 (7)	20 (10)	27 (13)	37 (17)	44 (20)	71 (33)	90 (41)	113 (52)
	6	16	16 (8)	21 (10)	28 (13)	39 (18)	47 (22)	74 (34)	94 (43)	119 (54)
DX Interlaced	3	12	-	-	-	-	-	36 (17)	48 (22)	60 (28)
	3	14	-	-	-	-	-	38 (18)	50 (23)	63 (29)
	3	16	-	-	-	-	-	40 (19)	52 (24)	66 (30)
	6	12	-	-	-	-	-	64 (30)	84 (39)	107 (49)
	6	14	-	-	-	-	-	68 (31)	89 (41)	113 (52)
	6	16	-	-	-	-	-	71 (33)	93 (43)	119 (54)
Standard Cabinet (FC Fans)	-	-	119 (54)	119 (54)	119 (54)	170 (78)	170 (78)	315 (143)	336 (153)	373 (170)
Standard Cabinet (Plenum Fans)	-	-	-	-	-	-	-	272 (124)	332 (151)	340 (155)
Mixing Box	-	-	-	-	-	-	-	88 (40)	97 (44)	105 (48)
Discharge Plenum	-	-	20 (10)	23 (11)	25 (12)	33 (15)	35 (16)	48 (22)	52 (24)	56 (26)
Primary Valve Package	-	-	6 (3)	6 (3)	9 (4)	10 (5)	12 (5)	-	-	-
Heating Valve Package	-	-	4 (2)	4 (2)	6 (3)	6 (3)	8 (4)	-	-	-

Table 34: Vertical Component Weights (Unit Sizes 060-100)

Component	Weight — lbs (kg)		
	060	080	100
Fan Supply Section	233 (106)	217 (98)	213 (97)
Single Supply Fan Weight	172 (78)	172 (78)	172 (78)
Dual Supply Fan Weight	272 (123)	272 (123)	272 (123)
Coil Section	221 (100)	271 (123)	279 (126)
Prefilter	98 (44)	101 (46)	123 (56)
Mixing box	653 (296)	637 (289)	635 (288)
Economizer End	691 (313)	669 (303)	658 (298)
Economizer	691 (313)	658 (298)	646 (293)
Post-Electric Heater	560 (254)	560 (254)	560 (254)
Exhaust Air/Outdoor Air	359 (163)	360 (163)	356 (162)
Single EA Fans	191 (87)	191 (87)	191 (87)
Dual EA Fans	315 (143)	315 (143)	315 (143)

Table 35: Vertical 3/8 in Coil Weights (Unit Sizes 060-100)

	Unit Size	Coil Type	Rows	Circuit Pattern	Coil Weight lbs (kg)	
					12 FPI	16 FPI
Cooling	060	CW	2	Half	47.4 (21.5)	50.3 (22.8)
		CW	4	Half	65.7 (29.8)	71.5 (32.4)
		CW	4	Three Quarter	65.4 (29.7)	71.3 (32.3)
		CW	6	Half	83.3 (37.8)	92.1 (41.8)
		CW	6	Three Quarter	83.6 (37.9)	92.4 (41.9)
		CW	8	Three Quarter	101.5 (46.1)	113.2 (51.4)
		CW	8	Single	101.7 (46.1)	113.4 (51.4)
	080	CW	2	Half	58.1 (26.4)	62.1 (28.2)
		CW	4	Half	83.8 (38.0)	91.7 (41.6)
		CW	4	Three Quarter	83.9 (38.1)	91.8 (41.6)
		CW	6	Three Quarter	108.4 (49.2)	120.2 (54.6)
		CW	6	Single	108.5 (49.2)	120.4 (54.6)
		CW	8	Three Quarter	131.5 (59.6)	147.3 (66.8)
		CW	8	Single	132.8 (60.3)	148.6 (67.4)
	100	CW	2	Half	69.3 (31.4)	74.2 (33.7)
		CW	4	Half	101.0 (45.8)	110.9 (50.3)
		CW	4	Three Quarter	101.4 (46.0)	111.3 (50.5)
		CW	6	Three Quarter	130.7 (59.3)	145.6 (66.1)
		CW	6	Single	146.1 (66.3)	161.0 (73.1)
		CW	8	Single	162.2 (73.6)	182.1 (82.6)
Heating	060	HW	1	Half	31.7 (14.4)	58.3 (26.4)
		HW	2	Half	41.1 (18.6)	72.0 (32.6)
		HW	2	Single	41.0 (18.6)	71.8 (32.6)
	080	HW	1	Half	38.9 (17.7)	71.1 (32.2)
		HW	2	Half	51.7 (23.4)	89.5 (40.6)
		HW	2	Single	51.6 (23.4)	89.4 (40.6)
	100	HW	1	Half	46.8 (21.2)	84.9 (38.5)
		HW	2	Half	62.5 (28.4)	107.8 (48.9)
		HW	2	Single	63.1 (28.6)	108.9 (49.4)
Defrost	060	HW	1	Half	31.7 (14.4)	58.3 (26.4)
		HW	2	Half	41.1 (18.6)	72.0 (32.6)
		HW	2	Single	41.0 (18.6)	71.8 (32.6)
	080	HW	1	Half	38.9 (17.7)	71.1 (32.2)
		HW	2	Half	51.7 (23.4)	89.5 (40.6)
		HW	2	Single	51.6 (23.4)	89.4 (40.6)
	100	HW	1	Half	46.8 (21.2)	84.9 (38.5)
		HW	2	Half	62.5 (28.4)	107.8 (48.9)
		HW	2	Single	63.1 (28.6)	108.9 (49.4)

Table 36: Vertical 5/8 in Turbo Spiral Coil Weights (Unit Sizes 060-100)

	Unit Size	Coil Type	Rows	Circuit Pattern	FPI	Weight lbs (kg)
Turbo Spiral	060	CW	2	Q	12	56 (26)
		CW	4	H	12	92 (42)
		CW	6	L	12	126 (57)
	080	CW	2	Q	12	73 (33)
		CW	4	H	12	120 (54)
		CW	6	L	12	165 (75)
	100	CW	2	Q	12	92 (42)
		CW	4	H	12	152 (69)
		CW	6	L	12	211 (96)

Table 37: Energy Recovery Weights

Component	Weight lbs (kg)
Electric Heat Defrost	180 (82)
ERW Section, 46 in	498 (226)
ERW, 46 in	185 (84)
ERW Section, 52 in	610 (276)
ERW, 52 in	220 (100)
ERW Section, 58 in	932 (423)
ERW, 58 in	320 (145)

Fan and Motor Data

Table 38: Horizontal Fan and Motor Data - Unit Sizes 006-050 (Forward-Curved Fans)

Forward-Curved Fan Data										
Unit Size	006	008	010	012	016	018	020	030	040	050
Fan Quantity	1	1	1	1	2	2	2	1	1	1
Fan Type	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI
Fan Size	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	10″ X 10″	12″ X 12″	12″ X 12″
Maximum RPM	2065	2065	2065	2065	2065	2065	2065	2100	1800	1800
Class	1	1	1	1	1	1	1	2	2	2
EC Motors	1	1	1	1	2*	2*	2*	–	–	–
Poly Phase Motors	–	–	–	–	–	–	–	1	1	1
1/3 HP	X	X			X					
1/2 HP	X	X	X	X	X	X	X			
3/4 HP	X	X	X	X	X	X	X			
1 HP			X	X		X	X			
1½ HP								X		
2 HP								X	X	
3 HP								X**	X	
5 HP									X**	X
7½ HP										X**

* Motors are the same HP

** HP is limited by VFD size

Table 39: Horizontal Fan and Motor Data - Unit Sizes 060-100 (Forward-Curved Exhaust Fans)

Forward-Curved Fan Data			
Unit Size	060	080	100
Fan Quantity	1 or 2	2 or 3	2 or 3
Fan Type	DWDI	DWDI	DWDI
Fan Size	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″
Maximum RPM	2065	2065	2065
Class	1	1	1
EC Motors	1 or 2	2 or 3	2 or 3
Poly Phase EC Motors	1 or 2	2 or 3	2 or 3
Motor 1/2 HP	X	X	X
Motor 1 HP	X	X	X

Table 40: Horizontal Fan and Motor Data - Unit Sizes 030-050 (Plenum Supply Fans)

Plenum Fan Data			
Unit Size	030	040	050
Fan Quantity	1	2	2
Fan Size	355 mm	355 mm	355 mm
Maximum RPM	3300	3300	3300
EC Motors	1	2	2
Poly Phase EC Motors	1	2	2
Motor 4.42 HP	X	X	X

Table 41: Horizontal Fan and Motor Data - Unit Sizes 060-100 (Plenum Supply Fans)

Plenum Fan Data			
Unit Size	**060**	**080**	**100**
Fan Quantity	1 or 2	1 or 2	1 or 2
Fan Size	450 mm	450 mm	450 mm
Maximum RPM	2600	2600	2600
EC Motors	1 or 2	1 or 2	1 or 2
Poly Phase EC Motors	1 or 2	1 or 2	1 or 2
Motor 3.7 HP	X	X	X
Motor 6.63 HP	X	X	X

Table 42: Vertical Fan and Motor Data - Unit Sizes 006-050 (Forward-Curved Fans)

Forward-Curved Fan Data								
Unit Size	**006**	**008**	**012**	**016**	**020**	**030**	**040**	**050**
Fan Quantity	1	1	1	2	2	1	1	1
Fan Type	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI	FC, DWDI
Fan Size	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	9.5″ X 4.5″	10.5″ x 10.5″	12.5″ x 12.5″	12.5″ x 12.5″
Maximum RPM	2065	2065	2065	2065	2065	2100	1800	1800
Class	1	1	1	1	1	2	2	2
EC Motors	1	1	1	2[1]	2[1]	-	-	-
Poly Phase Motors	-	-	-	-	-	1	1	1
Motor 1/3 HP	X	X		X				
Motor 1/2 HP	X	X	X	X	X			
Motor 3/4 HP	X	X	X	X	X			
Motor 1 HP			X		X			
Motor 1½ HP[2]						X		
Motor 2 HP[2]						X	X	
Motor 3 HP[2]						X	X	
Motor 5 HP							X	X
Motor 7½ HP								X

[1] Motors are the same HP
[2] HP is limited by VFD size

Table 43: Vertical Fan and Motor Data - Unit Sizes 030-100 (Plenum Supply Fans)

Plenum Fan Data						
Unit Size	**030**	**040**	**050**	**060**	**080**	**100**
Fan Quantity	1	2	2	1	1	1
				2	2	2
Fan Size	355 mm	355 mm	355 mm	355 mm	355 mm	355 mm
				450 mm	450 mm	450 mm
Maximum RPM	3300	3300	3300	3300	3300	3300
				2600	2600	2600
EC Motors	1	2	2	-	-	-
Poly Phase EC Motors	1	2	2	3	3	3
Motor 2.25 HP				-	-	-
Motor 3.7 HP				X	X	X
Motor 4.42 HP	X	X	X	X	X	X
Motor 6.63 HP				X	X	X

Filter Data

Table 44: Horizontal Filter Data for Main Unit and Optional Mixing Box Sections

Main Unit Filters														
Unit Size	**006**	**008**	**010**	**012**	**016**	**018**	**020**	**030**	**040**	**050**	**060**	**080**	**100**	
Quantity	1	1	2	2	2	2	2	2	2	2	4	6	3	6
Height (inches)	17.69							25.38	29.75	28.00	24.00	18.00	20.00	20.00
Width (inches)	12.13	17.13	13.75		17.94	22.25		21.88	24.50	27.81	24.00	24.00	16.00	20.00
Nom. Face Velocity (FPM)	421	393	296	355	363	329	366	389	395	408	375	444	429	
(Optional) Mixing Box Filters														
Quantity	1	1	2	2	2	2	2	2	2	2	4	6	3	
Height (inches)	18.50							23.50	27.50	29.50	24.00	24.00	16.00	
Width (inches)	12.50	17.50	12.75		17.00	21.25		23.25	25.75	29.25	24.00	18.00	20.00	

Table 45: Vertical Filter Data for Main Unit and Optional Mixing Box/Economizer, Energy Recovery Wheel, and Exhaust Sections

External Filters												
Unit Size	**006**	**008**	**012**	**016**	**020**	**030**	**040**	**050**	**060**	**080**	**100**	
Quantity	1	1	1	2	2	2	2	2	4	2	4	6	8
										4	8	12	16
Height	12	12	18	16	16	25	12	20	20	18	12	18	18
Width	24	24	24	20	20	20	24	24	24	24	24	24	24
Nom. Face Velocity (FPM)	300	400	300	360	450	432	375		375	375		444	429
Internal Filter Rack													
Quantity	1	1	1	2	2	-	-	-	-	-	-	-	-
Height	12	18	20	16	16	-	-	-	-	-	-	-	-
Width	20	24	24	20	20	-	-	-	-	-	-	-	-
(Optional) Mixing Box/Economizer Filters													
Quantity	-	-	-	-	-	2	4	4	2	4	6	8	
									4	8	12	16	
Height	-	-	-	-	-	24	16	20	18	12	18	18	
Width	-	-	-	-	-	20	20	20	24	24	24	24	
(Optional) Energy Recovery Wheel Filter													
Quantity	-	-	-	-	-	-	-	-	4		4	4	
Height	-	-	-	-	-	-	-	-	18		18	18	
Width	-	-	-	-	-	-	-	-	24		24	24	
(Optional) Exhaust Section Filter													
Quantity	-	-	-	-	-	-	-	-	1	2	4	4	
Height	-	-	-	-	-	-	-	-	12	16	17.13	18	
Width	-	-	-	-	-	-	-	-	20	20	17.69	24	

Table 46: Filter Pressure Drop

	Clean Pressure Drop				
Face Velocity (Feet per minute)	**100**	**200**	**300**	**400**	**500**
2″ Filter					
Merv 4	0.02	0.04	0.08	0.11	0.16
Merv 8	0.02	0.07	0.12	0.19	0.27
Merv 13	0.08	0.17	0.27	0.37	0.48
4″ Filter					
Merv 8	0.01	0.03	0.06	0.1	0.14
Merv 13	0.02	0.07	0.12	0.19	0.27

Unit Selection

A mechanical heating, ventilation, and cooling system realizes thermal comfort and high efficiency through accurate space design and thoughtful equipment selection. Variations and limitations of centralized air handler systems and de-centralized fan coil systems are not outlined in this manual but must be fully understood. Design conditions and load calculations are not discussed in detail in this catalog but can be further explored and studied in the ASHRAE Guide. This catalog includes AHRI-certified ratings which a design engineer may make use of in initial system design and equipment specification.

A mechanical system designer must select the unit types best suited to the overall system before the actual unit sizes can be determined. The factors that generally influence this decision are: intended building usage, building layout, architectural and aesthetic values, economics, geographical location, and type of maintenance service available. The general results may be a mixture of unit types within a given system. Daikin Applied manufactures fan coil units to meet many needs including ThinLine, OptiLine, and Economy models. For Daikin Applied product information, please go to www.DaikinApplied.com.

Basic Design Data

Prior to selecting individual unit sizes, a design engineer must fix or determine the following factors:

- Inside and outside wet and dry bulb design temperatures
- Total and sensible heat gains and losses of the area to be served
- Ventilation air
- Properties of the heating and cooling medium
- Available electric power service
- Any special design requirements of the building or system

Unit Size

The capacity ratings presented in this catalog are provided for initial unit selection only. Water cooling and heating capacities, unit air flow, static pressure and glycol solutions are all incorporated into Daikin Select Tools (DST) to provide the best possible selection. Consult your Daikin Applied representative for a selection tailored to specific applications. Unit sizes for the ideal system should be selected by calculating peak load requirements due to unusually high occupancy or severe climatic conditions and with fans operating at high speed. Ordinary day-to-day cooling and heating requirements are then achieved at low and medium speeds. The initial unit selection should be checked for air volume in the design system and the cooling capacities checked against actual operating conditions. While units selected on the basis of sensible load will generally meet the total cooling load, total load should be checked in all cases. The unit size is generally selected on the basis of matching the sensible cooling capacity of the unit with the calculated requirements when operating at high speed.

Coil Types

Standard coils are designed to meet both cooling and heating requirements in a typical system. Multiple primary coil options are available to meet the total and sensible requirements of any application. Heating requirements for systems are generally met by specifying entering water temperature and leaving water temperature, allowing a water flow rate to be calculated.

Four-pipe and Two-pipe systems are available. Daikin Applied offers two coil options for preheat or reheat.

Four-Pipe Systems

Four-Pipe systems refer to a piece of air handling equipment that utilizes two distinct coils. One of the coils only operates in a cooling mode, and the other coil only operates in a heating mode. The advantage to this system setup is the ability to let the unit choose whether to employ cooling or heating mode at any one instant. During the shoulder seasons when space loads change based on sun exposure, occupant activity, plug loads, and other factors, some thermal spaces may require cooling while others require heating. Because the unit has two distinct coils piped to the chiller and boiler systems individually, the unit can choose which system to use.

Two-Pipe Systems

Two-Pipe systems refer to a piece of air handling equipment that utilizes a single coil. This coil can operate as a cooling only coil, a cooling and heating coil, or a heating coil. The "two-pipe" designation comes from how typically only two fluid pipes, one supply and one return, are run to each unit. The advantage to this system is first cost. Only one set of pipes (one return, one supply) to the unit is necessary. This effectively cuts the piping material cost in half.

Four and Two-Pipe Performance Measurements

All performance data is given assuming nominal cabinet airflow, which is achievable with up to 1.5" of external static pressure.

Cooling performance is based on 80/67°F (27/19°C) entering air temperature, 45°F (7°C) entering chilled water temperature with a 10°F (5.5°C) temperature rise.

Heating performance is based on 70°F (21°C) entering air temperature, 180°F (82°C) entering hot water temperature with a 30°F (17°C) temperature drop.

For other conditions and/or unit configurations, refer to DST or talk to your local Daikin Applied representative.

Electrical Data

Calculations to realize MCA (Maximum Circuit Ampacity) and MROPD (Maximum Rated Overcurrent Protection Device) are explained in this section. MROPD (Maximum Rated Overcurrent Protection Device), MOP (Maximum Overcurrent Protection), MFS (Maximum Fuse Size) are synonymous in this section.

The minimum circuit ampacity (MCA) is the minimum conductor size required for a field-wired product. The MROPD (Maximum Rated Overcurrent Protection Device), MOP (Maximum Overcurrent Protection), or MFS (Maximum Fuse Size) is the maximum fuse or circuit breaker size required to properly protect the equipment. The MROPD will always be greater than the MCA for any given supply circuit.

The circuit's required fusing or HACR (Heating, Air-Conditioning and Refrigeration) type circuit breaker size is determined from the circuit's MCA and calculated MROPD.

$$\text{Heater Amps} = \left(\frac{\text{Heater kW x 1000}}{\text{Heater Voltage}} \right)$$

NOTICE

Use 120V heater voltage for 115V units. Use 240V heater voltage for 230V units.

MCA = 1.25 x (Heater Amps + all motor FLAs)

Calculated MROPD = 2.25 x (Largest Motor FLAs) + Other Motor FLA's + Electric Heater Amps

The circuit's MROPD is the next standard size fuse smaller than the calculated MROPD if that standard fuse sizes is greater than the MCA.

If the MCA is greater than the next standard size fuse smaller than the calculated MROPD, the circuit's MROPD is the next standard size fuse larger than the MCA.

If the circuit's MROPD is smaller than 15A, it shall be rounded up to 15A.

The temperature of the air leaving the unit (LAT) which is dependent on the entering air temperature (EAT), electric heat capacity (kW), and the air volume (CFM), must not exceed 125°F (52°C). The minimum allowable air volume for various combinations of EAT and kW are provided in Table 16 on page 30 or may be calculated using the equation below.

LAT = (kW × 3145.622 ÷ CFM) + EAT

Electric Heat Safety

Overcurrent Protection

Optional factory provided over current protection is available on all units with a maximum operating current less than or equal to 48 amps. This protection is provided with fuses located on the unit main power circuit. Units with a maximum operating current greater than 48 amps will come with factory-installed fusing on the electric heat circuit.

Thermal (Over Temperature) Protection

All units with electric heat are provided with at least two thermal protection devices. The primary thermal protection device is an automatic limit switch which opens when it reaches a temperature of 150°F (66°C). The switch will reset itself when the temperature drops below 110°F (43°C). The secondary thermal protection device is a manual reset thermal cutout. This switch opens when it reaches 180°F (82°C) for horizontal units and 210°F (99°C) for vertical units, but must be reset manually after the over temperature issue has been resolved. Units provided with the SCR type electric heat control have an additional automatic thermal protection built into the SCR controller. This switch opens the circuit when the temperature reaches 170°F (77°C).

Valve Package Selections

All factory-installed valve packages are configurable through DST for GPM, Cv, and control type. Factory-installed valve packages ship with foam inserts for added support. Factory-installed valve packages include unions for easy removal of cooling and heating coils.

The optional factory-installed deluxe valve package includes a temperature control valve, a ball shut off valve with supply strainer, P/T port and clean out, and an automatic flow control valve with ball shut off and P/T ports. The temperature control valve is a flow ball valve with SS ball and stem and is selectable as 2-way or 3-way. The valve flow coefficient and connection ports are appropriately sized for the selected flow rate. The control actuator can be configured for spring return on-off normally closed to the coil, spring return on-off normally open to the coil, or non-spring return 0-10VDC modulating control. A strainer and ball shut off valve assembly and an automatic flow control valve and shut off assembly are also available. The piping schematic examples are shown in Figure 29 through Figure 35.

On vertical units sizes 006 and 008, the control valve can be selected as either 2-way or 3-way, N.O. or N.C., and have a manually adjustable Cv ranging from 0.5 to 5.9. See Figure 30.

NOTICE

These valves are located on the supply side, adjacent to the coil, in contrast with other configurations being located on the return side.

Figure 29: Basic 2-Way Valve Package

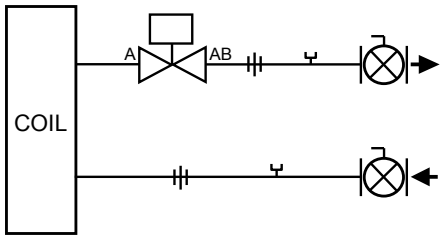


Figure 30: Basic 2-Way Valve Package Available for Vertical Unit Sizes 006-008 with Manually Adjustable Cv

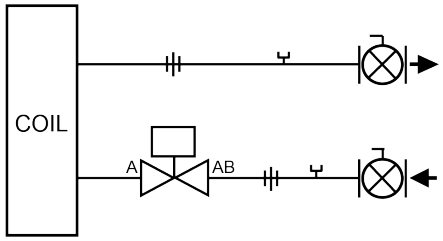


Figure 31: Basic 3-Way Valve Package

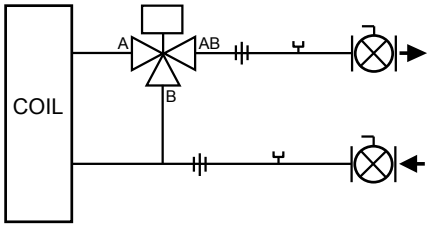


Figure 32: Deluxe 2-Way Valve Package (Auto CS)

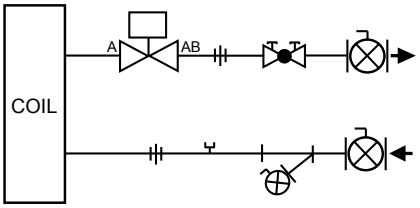


Figure 33: Deluxe 3-Way Valve Package (Auto CS)

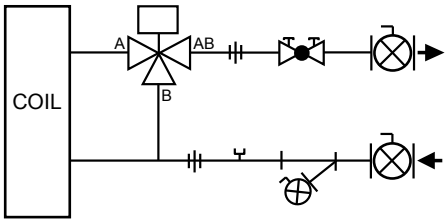


Figure 34: Deluxe 2-Way Valve Package (Manual CS)

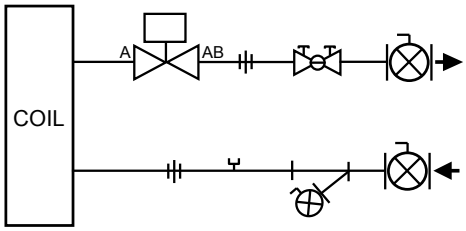


Figure 35: Deluxe 3-Way Valve Package (Manual CS)

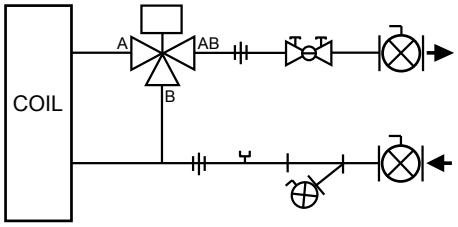


Table 47: Components Key for Schematics

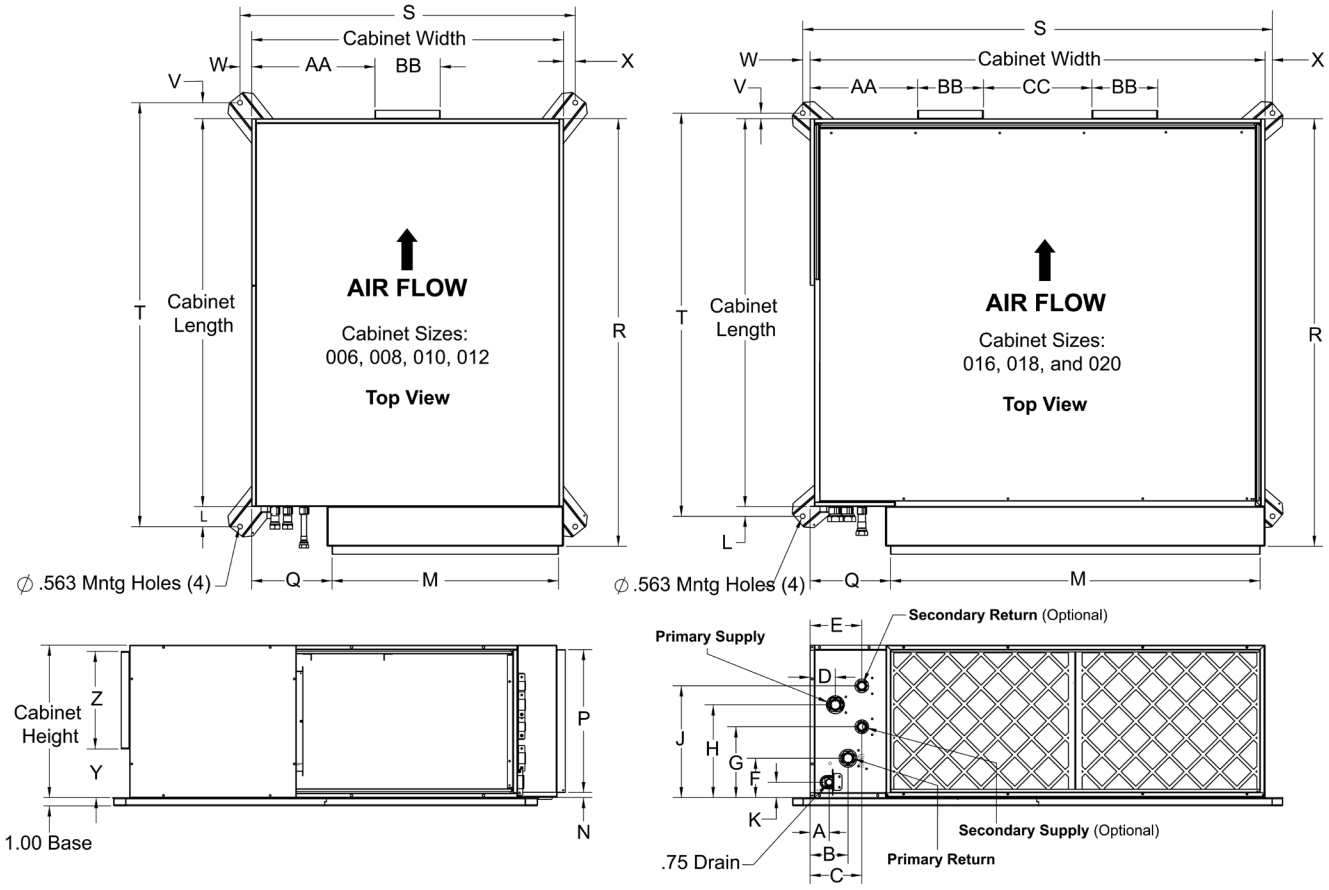
	**Manual Shutoff Ball Valve with Memory Stop:** Used on return line for limiting water flow.
	**2-Way, ON/OFF Valve:** Turn ON or OFF water flow to the coil in response to 24V or line voltage signal.
	**3-Way, ON/OFF Valve:** Bypass water flow away from coil in response to 24V or line voltage signal. Includes fixed orifice for balancing.
	**PT Port:** For connecting a pressure or temperature gauge.
	**Y-Strainer:** Removable screen filters out small particles from supply line during normal system operation.
	**Auto Circuit Setter:** Pressure-compensated, automatic flow control.
	**Manual Circuit Setter:** Pressure-compensated, manual flow control.
	**Union:** For easy removal of piping from coil.

NOTE: Daikin Applied 3-way valves are equipped with a fixed balance orifice in the bypass line, eliminating the need for a separate balancing valve.

Dimensional Drawings

Size 006-050 Horizontal Unit Dimensions

Figure 36: Left-Hand, Single and Dual Fan (Unit Sizes 006-020)



Overall Cabinet Dimensions
006 = 43L × 24W × 18H
008 = 43L × 29W × 18H
010 & 012 = 46L × 37W × 18H
016 = 46L × 45.5W × 18H
018 & 020 = 46L × 54W × 18H

NOTE 1: Dimensions shown in inches.

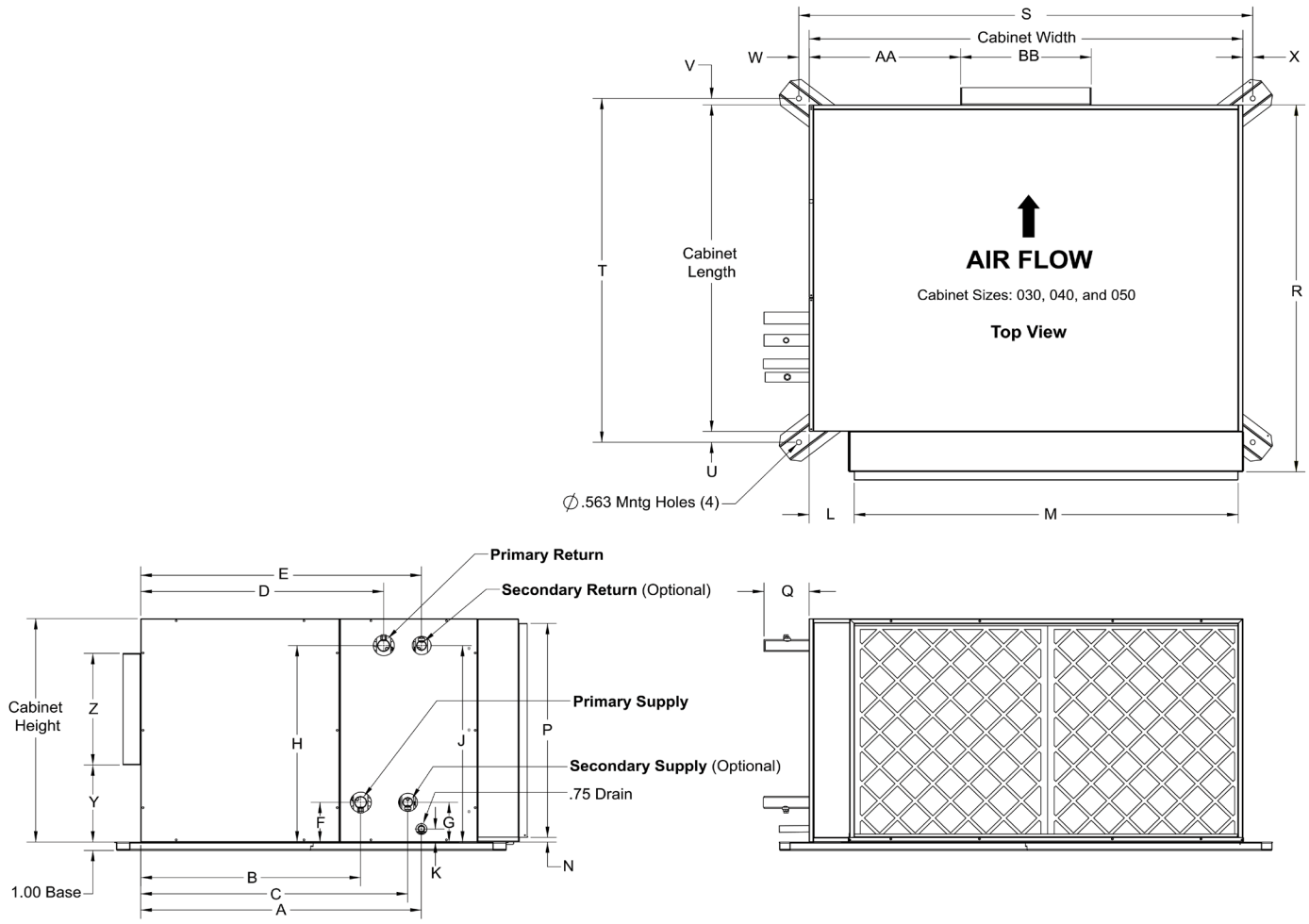
NOTE 2: Left hand unit shown. Right hand unit same as left but opposite.

Table 48: Dimension Letter Reference for Figure 36 on page 60

Dimension	006	008	010	012	016	018	020
A	2.26	2.28	2.18	2.18	2.60	2.25	2.25
B	4.01	4.51	4.26	4.26	4.52	4.50	4.50
C	5.75	6.45	6.24	6.24	6.15	6.19	6.19
D	2.51	3.00	2.76	2.76	3.02	3.00	3.00
E	5.75	6.42	6.24	6.24	6.15	6.15	6.15
F	5.45	5.42	4.67	4.67	4.67	4.67	4.67
G	7.42	7.40	8.13	8.13	8.38	8.38	8.38
H	11.03	10.77	11.15	11.15	11.03	11.03	11.03
J	13.85	13.32	13.26	13.26	13.27	13.27	13.27
K	1.83	1.80	1.83	1.83	1.83	1.83	1.83
L	1.70	1.38	2.42	2.42	1.79	1.18	1.18
M	11.61	16.61	26.87	26.87	35.27	43.87	43.87
N	0.67	0.59	0.60	0.60	0.60	0.60	0.60
P	16.97	16.97	16.97	16.97	16.97	16.97	16.97
Q	9.56	9.53	9.53	9.53	9.63	10.67	10.67
R Bottom Access	47.70	47.70	50.70	50.70	50.70	50.70	50.70
R Side Access	49.50	49.50	53.90	53.90	52.50	52.50	52.50
S	24.79	29.77	39.80	39.80	47.89	55.80	55.80
T	45.90	45.25	50.34	50.34	48.97	47.87	47.87
V	1.19	0.87	1.90	1.90	1.23	0.67	0.67
W	0.38	0.38	1.39	1.39	1.19	0.87	0.87
X	0.38	0.38	1.39	1.39	1.19	0.87	0.87
Y	5.77	5.77	5.77	5.77	5.77	5.77	5.77
Z	11.59	11.59	11.59	11.59	11.59	11.59	11.59
AA	8.13	10.63	14.63	14.63	9.24	12.74	12.74
BB	7.73	7.75	7.75	7.75	7.75	7.82	7.82
CC	0.00	0.00	0.00	0.00	11.53	12.88	12.88

NOTE: Dimensions shown in inches.

Figure 37: Left-Hand, Single Fan (Unit Sizes 030-050)



NOTE 1: Dimensions shown in inches.

NOTE 2: Refer to submittal drawings in Daikin Select Tools for piping connection dimensions.

NOTE 3: Left hand unit shown. Right hand unit same as left but opposite.

NOTE 4: Preheat option shown. Reheat option available.

Table 49: Dimension Letter Reference for Hanger Brackets

Dimension	030	040	050
R Bottom Access	42.65	45.72	45.66
R Side Access	44.40	47.40	47.40
L	1.26	1.16	0.87
S	51.23	56.02	62.59
T	40.01	42.80	42.22
V	0.74	0.63	0.35
W	1.15	1.01	0.80
X	1.12	1.01	0.80

NOTE: Dimensions shown in inches.

Table 50: Hydronic Unit Dimensions - Dimension Letter Reference for Figure 37 on page 62

Unit Size	Dimension	2-Row Cooling / Primary				4-Row Cooling / Primary				6-Row Cooling / Primary				8-Row Cooling / Primary
		Preheat		Reheat		Preheat		Reheat		Preheat		Reheat		
		1-Row	2-Row	1-Row	2-Row	1-Row	2-Row	1-Row	2-Row	1-Row	2-Row	1-Row	2-Row	
030	A	32	32	32	32	32	32	32	32	32	32	32	32	32.12
	B	24	24	24	24	24	24	24	24	24.81	24.81	24	24	24.81
	C	30.13	30.13	28.12	28.12	30.13	30.13	28.12	28.12	30.13	30.13	29	29	-
	D	25.5	26.56	25.12	25.12	26.56	26.56	25.12	25.12	27.41	27.41	25.12	25.12	29.16
	E	31.5	31.5	29.62	29.62	31.5	31.5	30.69	30.69	31.5	31.5	31.5	31.5	-
	G	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	-
	J	22.86	22.86	22.86	22.86	22.86	22.86	22.86	22.86	22.86	22.86	22.86	22.86	-
040	A	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12
	B	27	27	27	27	27.87	27.87	27	27	27.87	37.87	27	27	27.83
	C	33.12	33.12	31.12	33.12	33.12	33.12	32	31.12	33.12	33.12	32	32	-
	D	28.5	28.5	28.5	28.5	30.5	30.5	28.5	28.5	30.5	30.5	28.25	28.25	32.16
	E	34.5	34.5	32.67	34.5	34.5	34.5	34.62	32.62	34.5	34.5	34.62	34.62	-
	G	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	-
	J	26.87	26.87	26.87	26.87	26.87	26.87	26.87	26.87	26.87	26.87	26.87	26.87	-
050	A	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12	35.12
	B	27	27	27.68	27.68	27	27	27.68	27.68	27.87	27.87	27.75	27.75	27.79
	C	33.87	33.87	31.12	31.12	33.87	33.87	31.25	31.25	33.82	33.82	33.87	33.87	-
	D	29	29	29.12	29.12	29.68	29.68	29.12	29.12	30.37	30.37	30.43	30.43	32.12
	E	35.44	35.44	33	33	35.31	35.31	33.82	33.82	35.25	35.25	35.31	35.31	-
	G	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	4.62	-
	J	28.87	28.87	28.87	28.87	28.87	28.87	28.87	28.87	28.87	28.87	28.87	28.87	-

NOTE: Dimensions shown in inches.

Table 51: Hydronic Unit Dimensions - Dimension Letter Reference for Figure 37 on page 62

Dimension	Unit Size		
	030	040	050
F	4.62	4.62	4.62
H	22.86	26.87	28.87
K	1.61	1.61	1.61
M	43.34	48.45	54.96
N	0.57	0.55	0.55
P	24.9	28.92	30.94
Q	5.08	5.01	5.5
Y (FC Fans)	9.73	9.51	10.25
Y (Plenum Fans)	4.94	7.97	6.95
Z (FC Fans)	11.47	13.53	13.53
Z (Plenum Fans)	27.13	14.06	18.13
AA (FC Fans)	23.35	22.64	22.64
AA (Plenum Fans)	10.93	6.47	10.43
BB (FC Fans)	13.21	15.62	15.62
BB (Plenum Fans)	16.13	41.06	40.13

NOTE: Dimensions shown in inches.

Table 52: DX Unit Dimensions - Dimension Letter Reference for Figure 37 on page 62

Unit Size	Dimension	Single Circuit DX				Interlaced DX			
		Preheat		Reheat		Preheat		Reheat	
		1-Row	2-Row	1-Row	2-Row	1-Row	2-Row	1-Row	2-Row
030	B	25.69	25.61	23.95	23.88	24.3	24.3	23.88	23.88
	C	30.16	30.07	29.83	29.76	30.07	30.07	28.45	28.45
	D	-	-	25.04	25.42	25.62	25.61	25.09	25.43
	E	31.24	31.61	-	-	31.28	31.61	29.76	29.76
	F	4.35	4.35	4.61	4.62	5.35	5.35	4.61	4.62
	G	4.62	4.65	4.35	4.35	4.62	4.62	5.35	5.35
	H	-	-	22.86	22.87	9.35	9.35	22.86	22.87
	J	22.87	22.87	-	-	22.87	22.87	9.35	9.35
040	B	28.69	28.7	26.97	26.97	27.26	27.26	26.97	26.97
	C	33.16	33.16	32.85	32.85	33.16	33.16	31.41	31.41
	D	-	-	28.29	28.52	28.7	28.7	28.29	28.52
	E	34.48	34.7	-	-	34.48	34.7	32.85	32.85
	F	4.35	4.35	5.65	4.62	5.35	5.35	5.62	4.62
	G	5.62	4.62	4.39	4.35	5.62	4.62	5.35	5.35
	H	-	-	25.38	26.87	9.35	9.35	25.37	26.87
	J	25.37	26.87	-	-	25.37	26.87	9.35	9.35
050	B	28.69	28.68	27.68	26.9	27.13	27.12	27.68	26.9
	C	33.87	33.09	32.84	32.83	33.87	33.09	31.27	31.26
	D	-	-	29.13	29.24	30.25	30.24	29.13	29.24
	E	35.32	35.43	-	-	35.32	35.43	34.4	34.39
	F	4.35	4.35	4.62	4.62	5.35	5.35	4.62	4.62
	G	4.62	4.62	4.35	4.35	4.62	4.62	5.35	5.35
	H	-	-	28.87	28.87	7.35	7.35	28.87	28.87
	J	28.87	28.87	-	-	28.87	28.87	7.35	7.35

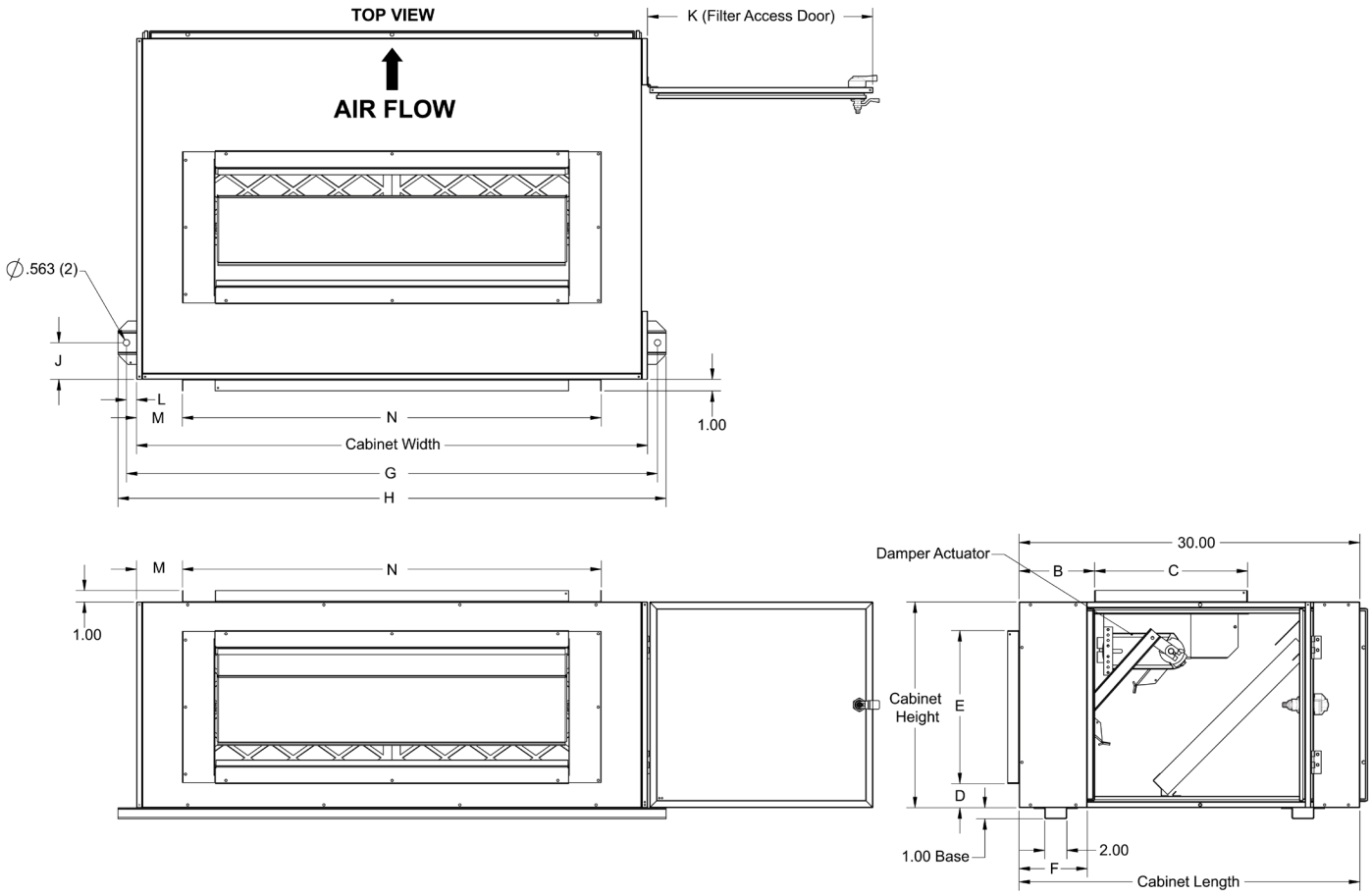
NOTE: Dimensions shown in inches.

Table 53: DX Unit Dimensions - Dimension Letter Reference for Figure 37 on page 62

Dimension	Unit Size		
	030	040	050
A	32.1	35.1	35.1
K	1.61	1.61	1.61
M	43.34	48.45	54.96
N	0.57	0.55	0.55
P	24.9	28.92	30.94
Q	5.08	5.01	5.50
Y (FC Fans)	9.73	9.51	10.25
Y (Plenum Fans)	4.94	7.97	6.95
Z (FC Fans)	11.47	13.53	13.53
Z (Plenum Fans)	27.13	14.06	18.13
AA (FC Fans)	23.35	22.64	22.64
AA (Plenum Fans)	10.93	6.47	10.43
BB (FC Fans)	13.21	15.62	15.62
BB (Plenum Fans)	16.13	41.06	40.13

NOTE: Dimensions shown in inches.

Figure 38: Horizontal Mixing Box – Top and End Damper, Left Hand Unit Sizes 006–020 and Right Hand Unit Sizes 030–050 – Side Filter Access



NOTE 1: Dimensions shown in inches.

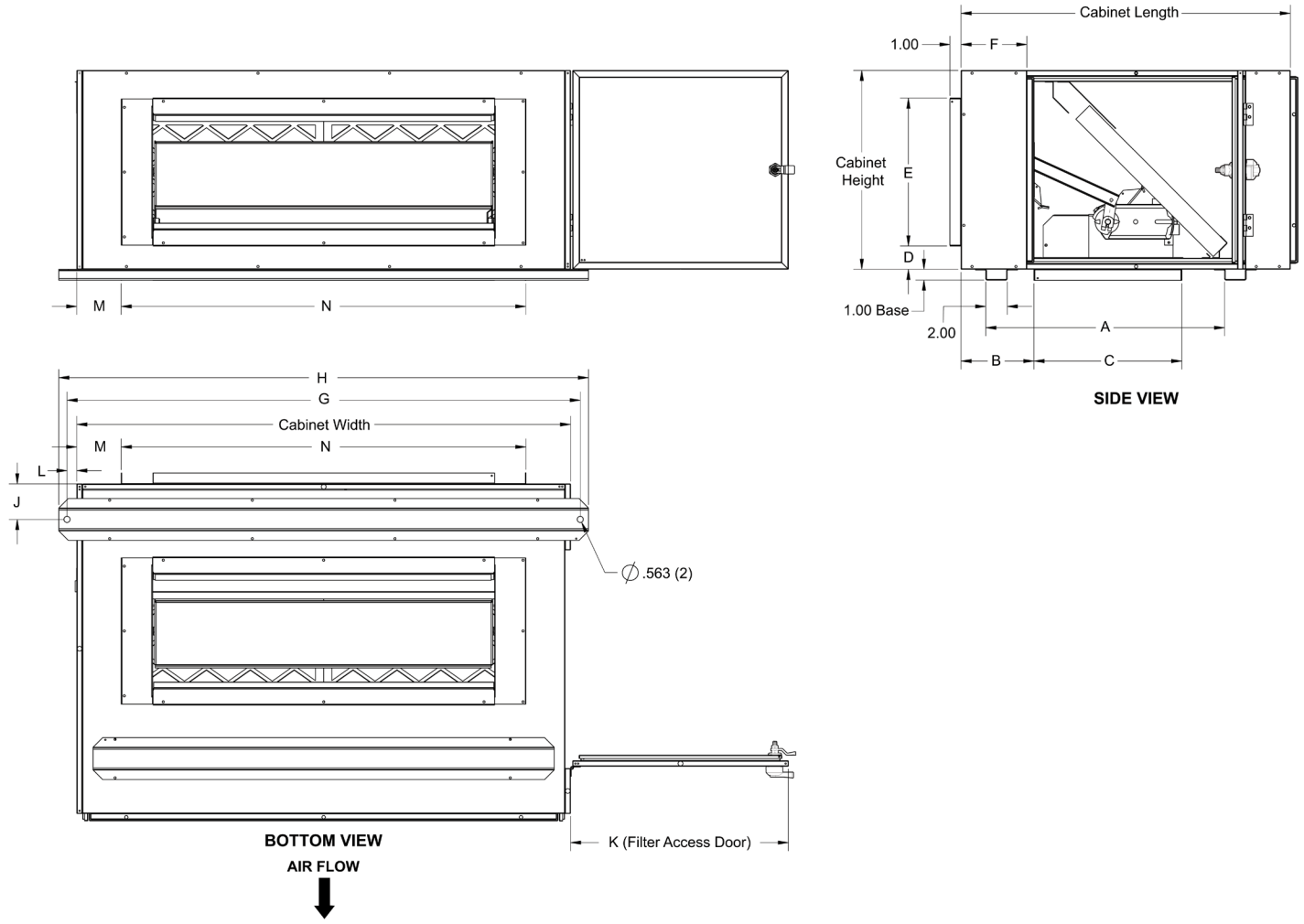
NOTE 2: Dimensions for right hand cabinet unit sizes 006-020 and cabinet unit sizes 030-050 with side access filters are similar but opposite.

Table 54: Mixing Box Dimension Letter Reference

Cabinet	006	008	010	012	016	018	020	030	040	050
B	6.64	6.64	6.64	6.64	6.64	6.64	6.64	5.54	5.54	5.54
C	13.47	13.47	13.47	13.47	13.47	13.47	13.47	18.39	18.39	18.39
D	2.11	2.11	2.11	2.11	2.11	2.11	2.11	3.80	5.80	6.80
E	13.47	13.47	13.47	13.47	13.47	13.47	13.47	18.39	18.39	18.39
F	6.12	6.12	6.12	6.12	6.12	6.12	6.12	14.06	14.06	14.06
G	16.75	21.75	29.75	29.75	38.25	46.75	46.75	51.00	56.00	63.00
H	18.25	23.25	31.25	31.25	39.75	48.25	48.25	52.50	57.50	64.50
J	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22
K	19.75	19.75	19.75	19.75	19.75	19.75	19.75	14.75	14.75	14.75
L	0.87	0.87	0.87	0.87	0.87	0.87	0.87	1.00	1.00	1.00
M	0.98	2.66	2.29	2.29	2.80	4.04	4.04	6.32	3.82	2.82
N	10.18	14.66	23.41	30.90	30.90	36.87	36.87	36.34	46.34	55.34

NOTE: Dimensions shown in inches.

Figure 39: Horizontal Mixing Box – Bottom and End Damper, Left Hand Unit Sizes 006–020 and Right Hand Unit Sizes 030–050 – Side Filter Access



NOTE 1: Dimensions shown in inches.

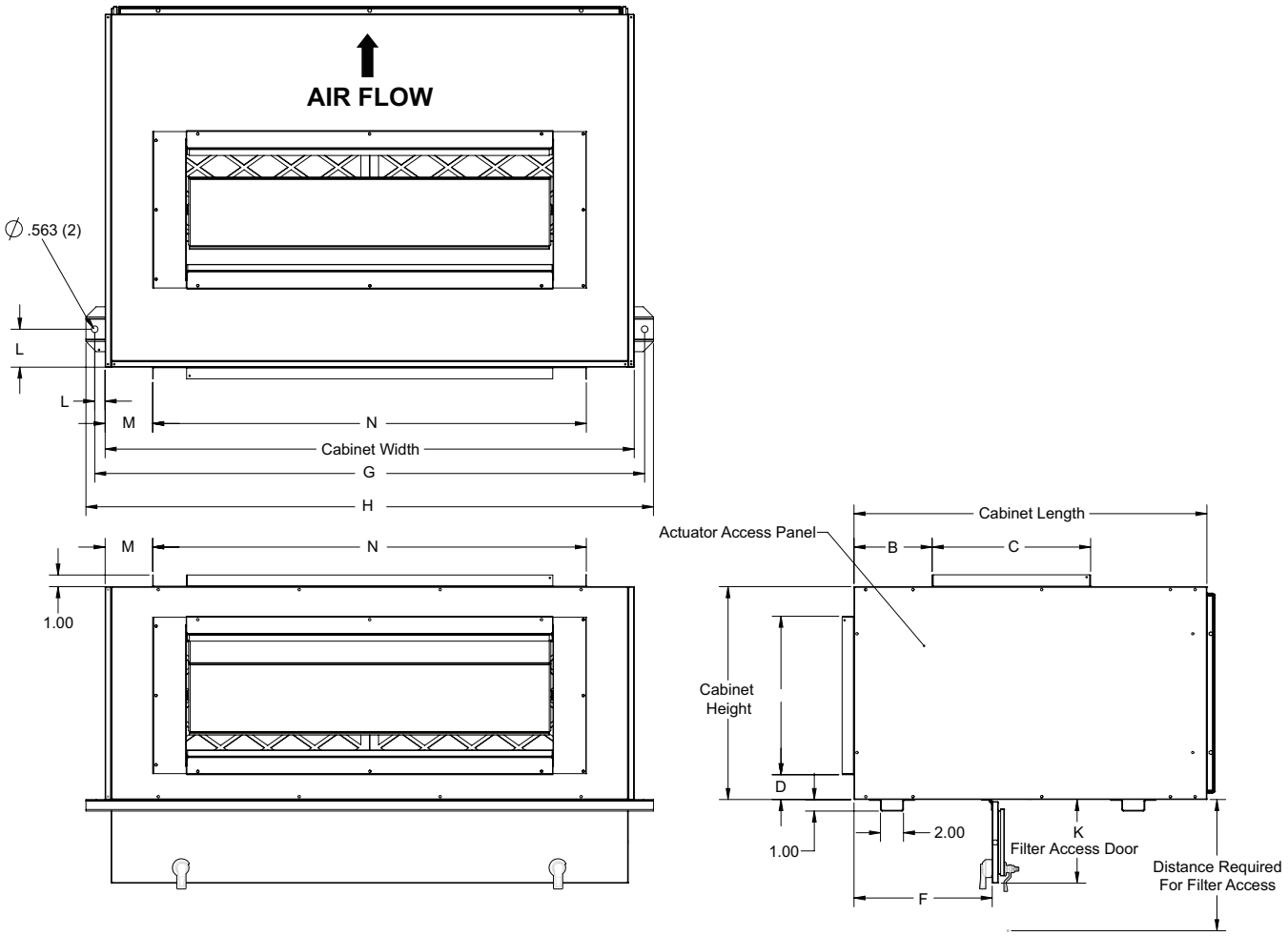
NOTE 2: Dimensions for right hand cabinet unit sizes 006-020 and cabinet unit sizes 030-050 with side access filters are similar but opposite.

Table 55: Mixing Box Dimension Letter Reference

Cabinet	006	008	010	012	016	018	020	030	040	050
A	20.51	20.51	20.51	20.51	20.51	20.51	20.51	27.27	27.27	27.27
B	6.64	6.64	6.64	6.64	6.64	6.64	6.64	5.54	5.54	5.54
C	13.47	13.47	13.47	13.47	13.47	13.47	13.47	18.39	18.39	18.39
D	2.11	2.11	2.11	2.11	2.11	2.11	2.11	3.80	5.80	6.80
E	13.47	13.47	13.47	13.47	13.47	13.47	13.47	18.39	18.39	18.39
F	6.12	6.12	6.12	6.12	6.12	6.12	6.12	14.06	14.06	14.06
G	16.75	21.75	29.75	29.75	38.25	46.75	46.75	51.00	56.00	63.00
H	18.25	23.25	31.25	31.25	39.75	48.25	48.25	52.50	57.50	64.50
J	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22
K	19.75	19.75	19.75	19.75	19.75	19.75	19.75	14.75	14.75	14.75
L	0.87	0.87	0.87	0.87	0.87	0.87	0.87	1.00	1.00	1.00
M	0.98	2.66	2.29	2.29	2.80	4.04	4.04	6.32	3.82	2.82
N	10.18	14.66	23.41	30.90	30.90	36.87	36.87	36.34	46.34	55.34

NOTE: Dimensions shown in inches.

Figure 40: Horizontal Mixing Box Dimensions – Left Hand Unit Sizes 006–020 and Right Hand Unit Sizes 030–050 – Bottom Filter Access



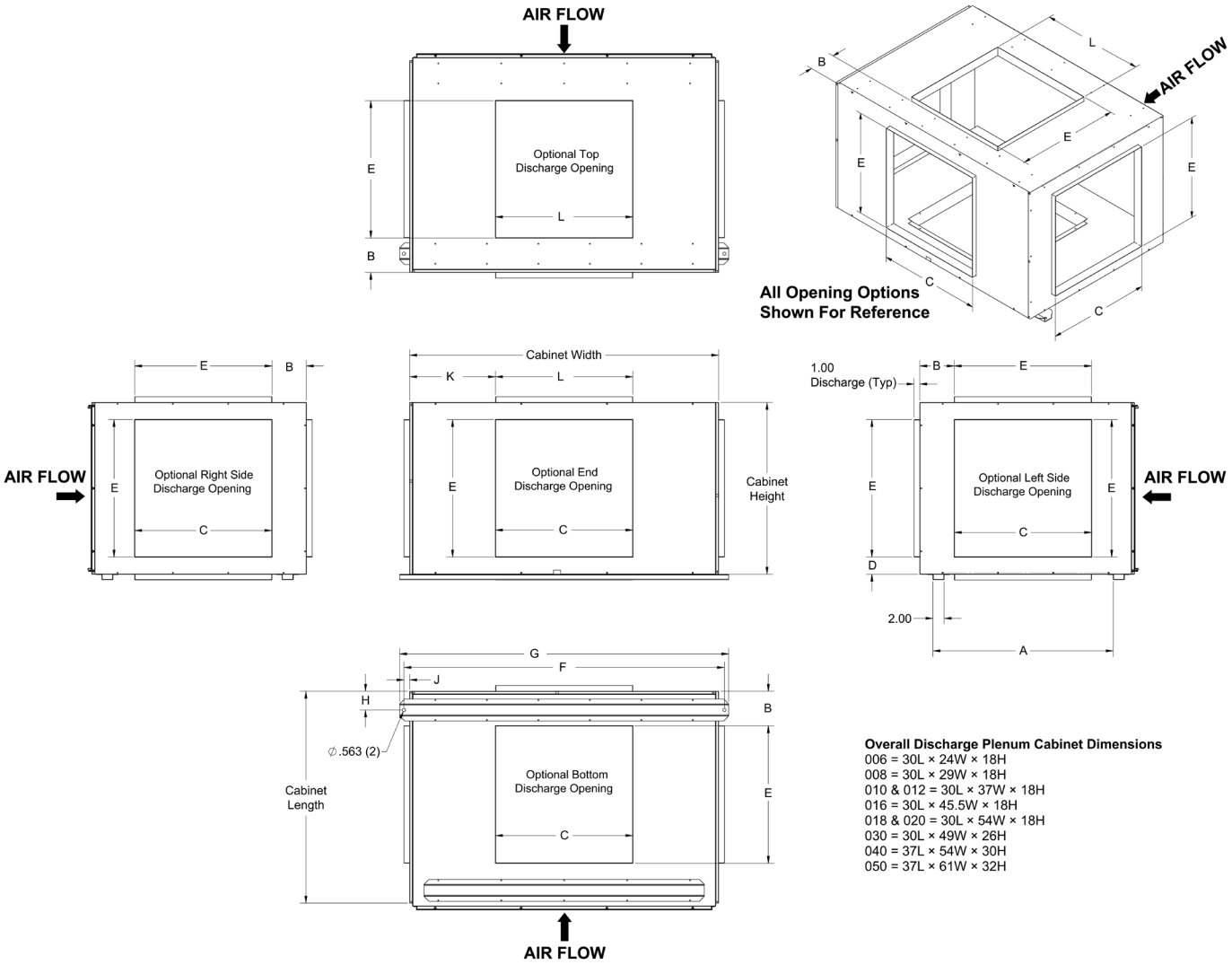
NOTE: Dimensions shown in inches.

Table 56: Mixing Box Dimension Letter Reference

Cabinet	006	008	010	012	016	018	020	030	040	050
B	6.64	6.64	6.64	6.64	6.64	6.64	6.64	5.54	5.54	5.54
C	13.47	13.47	13.47	13.47	13.47	13.47	13.47	18.39	18.39	18.39
D	2.11	2.11	2.11	2.11	2.11	2.11	2.11	3.80	5.80	6.80
E	13.47	13.47	13.47	13.47	13.47	13.47	13.47	18.39	18.39	18.39
F	11.62	11.62	11.62	11.62	11.62	11.62	11.62	19.56	17.86	17.36
G	16.75	21.75	29.75	29.75	38.25	46.75	46.75	51.00	56.00	63.00
H	18.25	23.25	31.25	31.25	39.75	48.25	48.25	52.50	57.50	64.50
J	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22	3.22
K	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
L	0.87	0.87	0.87	0.87	0.87	0.87	0.87	1.00	1.00	1.00
M	0.98	2.66	2.29	2.29	2.80	4.04	4.04	6.32	3.82	2.82
N	10.18	14.66	23.41	30.90	30.90	36.87	36.87	36.34	46.34	55.34

NOTE: Dimensions shown in inches.

Figure 41: Horizontal Discharge Plenum (Unit Sizes 006-050)



Overall Discharge Plenum Cabinet Dimensions
006 = 30L × 24W × 18H
008 = 30L × 29W × 18H
010 & 012 = 30L × 37W × 18H
016 = 30L × 45.5W × 18H
018 & 020 = 30L × 54W × 18H
030 = 30L × 49W × 26H
040 = 37L × 54W × 30H
050 = 37L × 61W × 32H

NOTE 1: Dimensions shown in inches.

NOTE 2: Discharge opening is offered on any particular side, but is shown here on all available surfaces for dimensioning purposes only.

NOTE 3: A discharge plenum is also available without discharge openings.

Table 57: Discharge Plenum Dimension Letter Reference

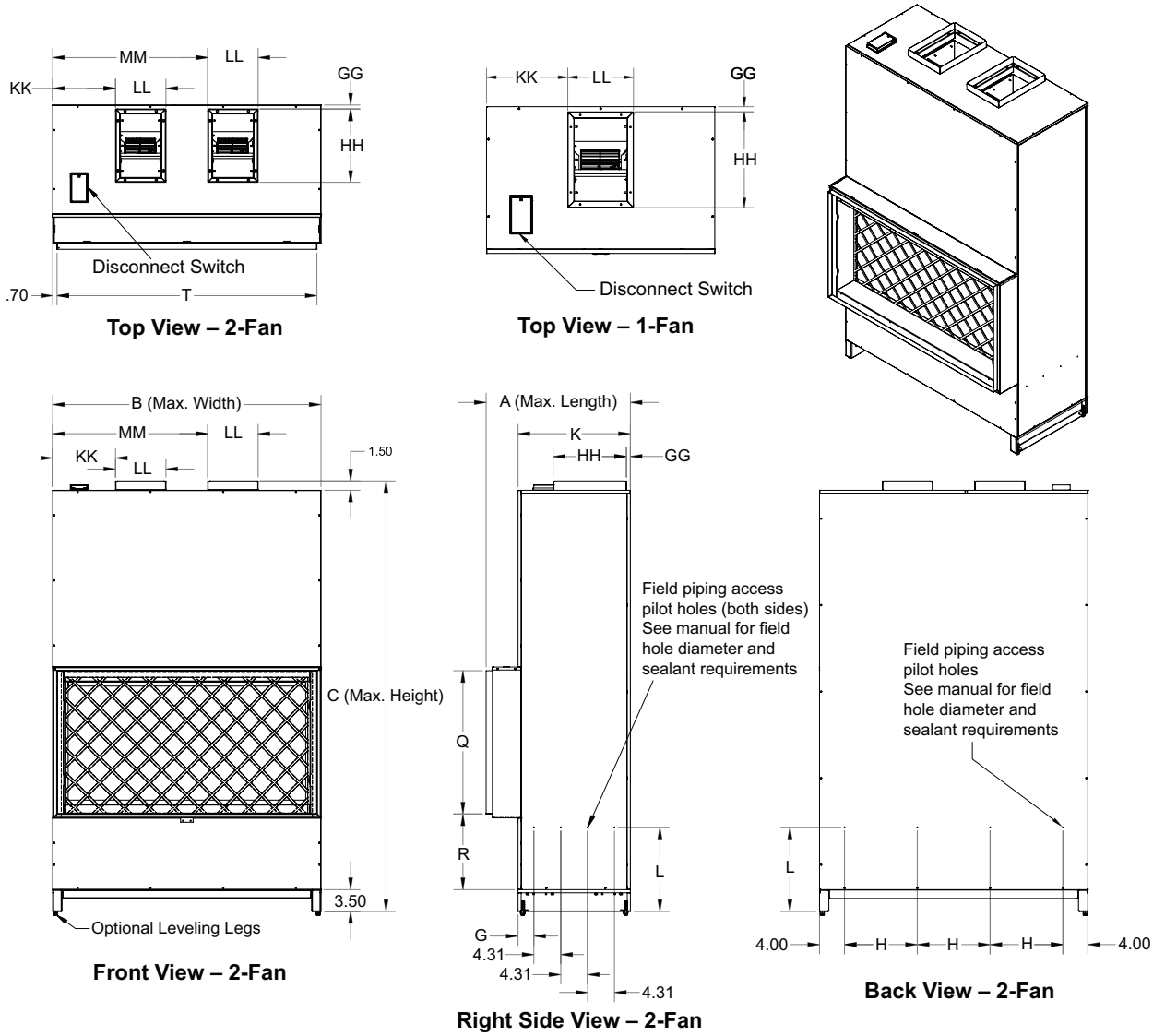
Cabinet	006	008	010	012	016	018	020	030	040	050
A	22.00	22.00	22.00	22.00	22.00	22.00	22.00	24.50	31.50	32.88
B	6.56	6.10	6.56	6.56	6.56	6.56	6.56	5.53	6.02	5.06
C	12.00	12.00	14.00	14.00	16.00	20.00	20.00	24.00	24.00	28.00
D	5.00	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00
E	8.00	12.00	14.00	14.00	14.00	14.00	14.00	20.00	24.00	28.00
F	26.00	30.00	39.00	39.00	48.00	56.00	56.00	50.50	56.00	62.50
G	27.50	31.50	40.50	40.50	49.50	57.50	57.50	52.00	57.50	64.00
H	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	3.25	2.63
J	1.00	0.50	1.00	1.00	1.25	1.00	1.00	0.75	1.00	0.75
K	6.00	8.50	11.50	11.50	14.75	17.00	17.00	12.50	15.00	16.50
L	12.00	12.00	14.00	14.00	16.00	20.00	20.00	24.00	24.00	28.00

NOTE 1: Dimensions shown in inches.

NOTE 2: Discharge opening is offered on any one particular side, but is shown here on all available surfaces for dimensioning purposes only. A discharge plenum is also available without discharge openings.

Size 006-050 Vertical Unit Dimensions

Figure 42: Left-Hand, Single and Dual Fan (Unit Sizes 006-020)



NOTE 1: Dimensions shown in inches.

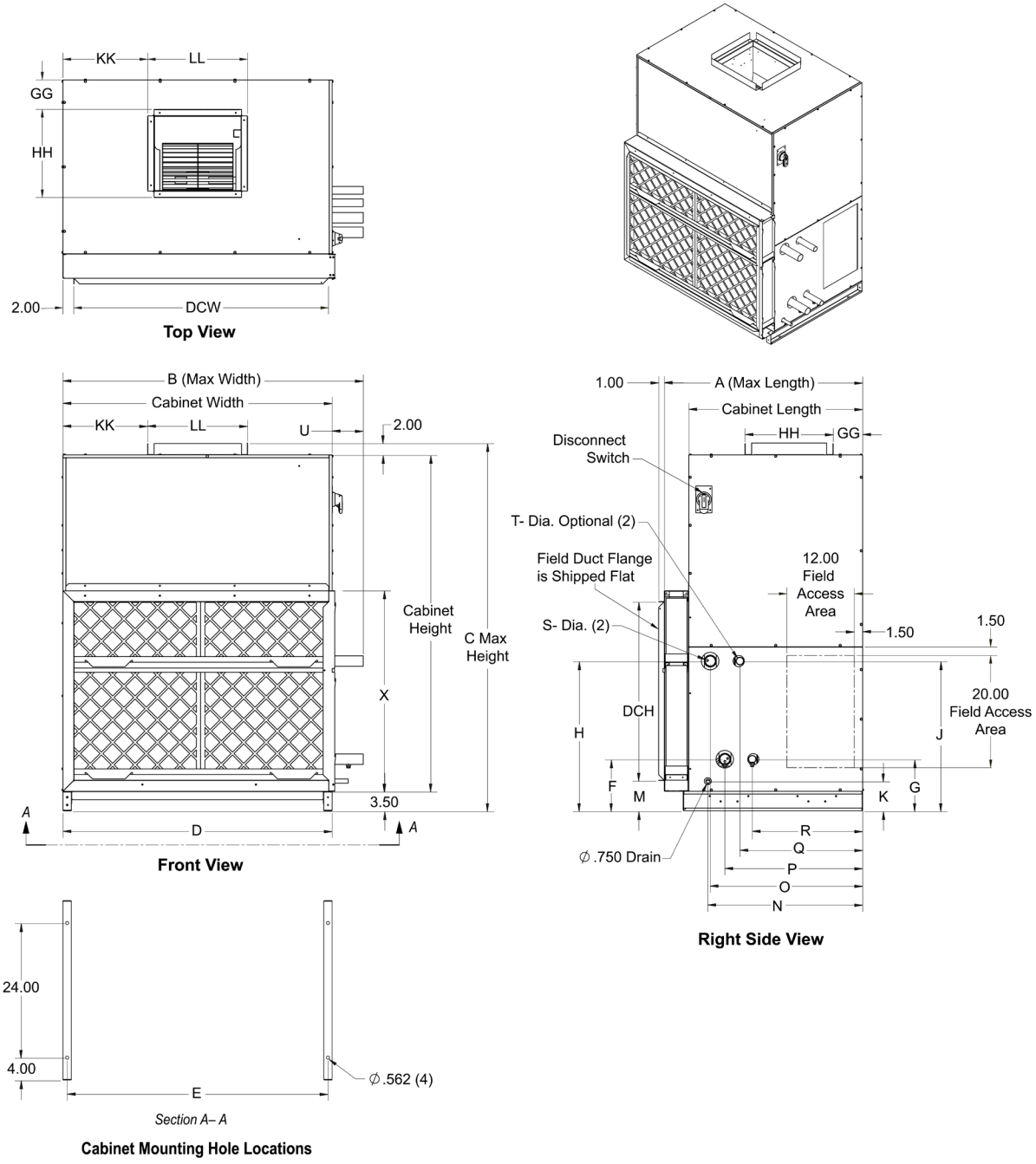
NOTE 2: Unit Sizes 006 - 012 have 1 outlet while unit sizes 016-020 have 2.

Table 58: Dimension Letter Reference

Internal Filter Dimensions (in)																			
Size	**A**	**B**	**C**	**G**	**H**	**K**	**L**	**Q**	**R**	**S**	**U**	**V**	**W**	**X**	**MM**	**KK**	**LL**	**GG**	**HH**
006	18.00	25.00	60.00	2.54	5.65	N/A	13.50	15.88	11.50	3.50	10.86	4.76	2.81	2.85	N/A	8.47	8.06	0.63	11.75
008	18.00	28.00	65.00	2.54	6.65	N/A	13.50	19.04	11.50	3.50	10.86	4.76	2.81	2.85	N/A	9.97	8.06	0.63	11.75
012	18.00	31.50	67.00	2.54	7.83	N/A	13.50	21.75	11.50	3.50	10.86	4.76	2.81	2.85	N/A	11.72	8.06	0.63	11.75
016	18.00	38.00	68.5	2.54	10.00	N/A	13.50	24.19	11.50	3.50	10.86	4.76	2.81	2.85	24.86	9.45	8.06	0.63	11.75
020	18.00	43.00	69.00	2.54	11.65	N/A	13.50	24.19	11.50	3.50	10.86	4.76	2.81	2.85	24.86	10.08	8.06	0.63	11.75

	External Filter Dimensions (in)																			
Size	**A**	**B**	**C**	**G**	**H**	**K**	**L**	**Q**	**R**	**S**	**T**	**U**	**V**	**W**	**X**	**MM**	**KK**	**LL**	**GG**	**HH**
006	23.07	25.00	60.00	2.54	5.65	18.00	13.50	14.78	12.09	3.50	23.63	10.86	4.76	2.81	2.85	N/A	8.47	8.06	0.63	11.75
008	23.07	28.00	65.00	2.54	6.65	18.00	13.50	17.85	12.09	3.50	26.63	10.86	4.76	2.81	2.85	N/A	9.97	8.06	0.63	11.75
012	23.07	31.50	67.00	2.54	7.83	18.00	13.50	20.63	12.09	3.50	30.18	10.86	4.76	2.81	2.85	N/A	11.72	8.06	0.63	11.75
016	23.07	38.00	68.5	2.54	10.00	18.00	13.50	23.00	12.09	3.50	36.63	10.86	4.76	2.81	2.85	24.86	9.45	8.06	0.63	11.75
020	23.07	43.00	69.00	2.54	11.65	18.00	13.50	23.00	12.09	3.50	41.63	10.86	4.76	2.81	2.85	24.86	10.08	8.06	0.63	11.75

Figure 43: Vertical Unit Dimensions (Unit Sizes 030-050)



NOTE 1: Dimensions shown in inches.

NOTE 2: Right hand cabinet shown. Left hand similar but opposite.

Table 59: General Vertical Unit Dimensions for Figure 43 on page 70

Units with Forward-Curved Fans													
Unit Size	**A**	**B**	**C**	**D**	**E**	**U**	**X**	**KK**	**LL**	**GG**	**HH**	**DCH**	**DCW**
030	35.36	49.5	61.5	44	42.5	5.54	30.49	12.3	15.32	5.29	13.66	24.5	38
040	35.36	53.5	65.5	48	46.5	6	34.49	15.09	17.82	5.25	15.72	31.88	45.44
050	35.36	53.5	73.5	48	46.5	6	42.49	15.09	17.82	5.25	15.72	39.88	45.44
Units with Plenum Fans													
Unit Size	**A**	**B**	**C**	**D**	**E**	**U**	**X**	**KK**	**LL**	**GG**	**HH**	**DCH**	**DCW**
030	35.36	49.5	61.5	44	42.5	5.54	30.49	8.67	27.20	3.96	16.20	24.5	38
040	35.36	53.5	65.5	48	46.5	6	34.49	3.67	41.20	3.96	14.20	31.88	45.44
050	35.36	53.5	73.5	48	46.5	6	42.49	4.17	40.20	3.96	18.20	39.88	45.44

NOTE: Dimensions shown in inches.

Table 60: Vertical Coil Dimensions for Figure 43 on page 70

8 Row Coil RH (Cooling)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	-	-	7.74	27.6	25.99	21.65	-	-	1.625	-
040	5.3	9.22	26.72	-	-	5.42	27.59	25.98	21.65	-	-	1.875	-
050	5.31	9.22	34.72	-	-	5.42	27.59	25.98	21.65	-	-	2.125	-
6 Row Coil RH (Cooling)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	-	-	7.74	27.6	27.12	24.57	-	-	1.625	-
040	5.3	9.22	26.72	-	-	5.42	27.59	27.17	24.57	-	-	1.625	-
050	5.31	9.22	34.72	-	-	5.42	27.59	27.17	24.57	-	-	2.125	-
4 Row Coil RH (Cooling)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	-	-	7.74	27.6	27.12	24.57	-	-	1.375	-
040	5.3	9.22	26.72	-	-	5.42	27.59	27.17	24.57	-	-	1.625	-
050	5.31	9.22	34.72	-	-	5.42	27.59	27.17	24.57	-	-	2.125	-
2 Row Coil RH (Cooling)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	-	-	7.74	27.59	27.12	24.63	-	-	1.125	-
040	5.3	9.22	26.72	-	-	5.42	27.59	27.17	24.57	-	-	1.375	-
050	5.3	9.22	34.72	-	-	5.42	27.59	27.17	24.57	-	-	2.125	-
6 + 1 Rows Coil RH (Re-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.12	24.57	21.89	19.68	1.625	0.625
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.17	24.57	21.89	19.68	1.625	0.875
050	5.31	9.22	34.72	9.22	34.72	5.42	27.59	27.17	24.57	21.89	19.69	2.125	1.375
4 + 1 Rows Coil RH (Re-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.12	24.57	21.89	19.68	1.375	0.625
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.17	24.57	21.89	19.68	1.625	0.875
050	5.31	9.22	34.72	9.22	34.72	5.42	27.59	27.17	24.57	21.89	19.69	2.125	1.375
2 + 1 Rows Coil RH (Re-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.1	24.63	21.89	19.68	1.125	0.625
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.17	24.57	21.89	19.68	1.375	0.875
050	5.3	9.22	34.72	9.22	34.72	5.42	27.59	27.17	24.57	21.89	19.69	2.125	1.375
6 + 2 Rows Coil RH (Re-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.12	24.57	22.02	19.55	1.625	1.125
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.17	24.57	22.09	19.49	1.625	1.375
050	5.31	9.22	34.72	9.22	34.72	5.42	27.59	27.17	24.57	22.09	19.5	2.125	1.375
4 + 2 Rows Coil RH (Re-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.12	24.57	22.02	19.55	1.375	1.125
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.17	24.57	22.09	19.49	1.625	1.375
050	5.31	9.22	34.72	9.22	34.72	5.42	27.59	27.17	24.57	22.09	19.5	2.125	1.375

NOTE: Dimensions shown in inches.

Table 61: Vertical Coil Dimensions for Figure 43 on page 70 (continued)

2 + 2 Rows Coil RH (Re-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.1	24.63	22.02	19.55	1.125	1.125
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.17	24.57	22.09	19.49	1.375	1.375
050	5.3	9.22	34.72	9.22	34.72	5.42	27.59	27.17	24.57	22.09	19.5	2.125	1.125
1 + 6 Rows Coil RH (Pre-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.95	25.75	23.07	20.47	1.625	0.625
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.95	25.75	23.07	20.47	1.625	0.875
050	5.3	9.22	34.72	9.22	34.72	5.42	27.95	27.59	25.75	23.07	20.47	2.125	1.375
1 + 4 Rows Coil RH (Pre-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.95	25.75	23.07	20.47	1.375	0.625
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.95	25.75	23.07	20.47	1.625	0.875
050	5.3	9.22	34.72	9.22	34.72	5.42	28.15	27.59	25.56	23.07	20.47	2.125	1.375
1 + 2 Rows Coil RH (Pre-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	27.95	25.75	23	20.53	1.125	0.625
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	27.95	25.75	23.07	20.47	1.375	0.875
050		9.22	34.72	9.22	34.72	5.42	28.15	27.59	25.56	23.07	20.47	2.125	1.375
2 + 6 Rows Coil RH (Pre-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	28.09	25.61	23.07	20.47	1.625	1.125
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	28.15	25.55	23.07	20.47	1.625	1.375
050	5.3	9.22	34.72	9.22	34.72	5.42	28.15	27.59	25.56	23.07	20.47	2.125	1.375
2 + 4 Rows Coil RH (Pre-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	28.09	25.61	23.07	20.47	1.375	1.125
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	28.15	25.55	23.07	20.47	1.625	1.375
050	5.3	9.22	34.72	9.22	34.72	5.42	28.15	27.59	25.56	23.07	20.47	2.125	1.375
2 + 2 Rows Coil RH (Pre-heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	9.22	22.72	7.74	27.6	28.09	25.61	23	20.53	1.125	1.125
040	5.3	9.22	26.72	9.22	26.72	5.42	27.59	28.15	25.55	23.07	20.47	1.375	1.375
050	5.3	9.22	34.72	9.22	34.72	5.42	28.15	27.59	25.56	23.07	20.47	2.125	1.375
1 + DX Single 3 Rows Coil RH (Re-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.84	-	9.22	22.72	7.74	27.59	-	26.73	21.89	19.68	1.625	-
040	5.3	9.84	-	9.22	26.72	5.42	27.59	-	26.73	21.89	19.68	1.625	-
050	5.3	9.84	-	9.22	34.72	5.42	27.59	-	26.73	21.89	19.69	1.625	-
2 + DX Single 3 Rows Coil RH (Re-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.84	-	9.22	22.72	7.74	27.59	-	26.73	22.02	19.55	1.625	-
040	5.3	9.84	-	9.22	26.72	5.42	27.59	-	26.73	22.09	19.49	1.625	-
050	5.3	9.84	-	9.22	34.72	5.42	27.59	-	26.73	22.09	19.5	1.625	-
1 + DX Interlace 3 Rows Coil RH (Re-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.84	14.47	9.22	22.72	7.74	27.59	27.56	25.42	21.89	19.68	0.875	-
040	5.3	10.47	11.84	9.22	26.72	5.42	27.59	27.69	25.14	21.89	19.68	1.375	-
050	5.3	10.47	11.84	9.22	34.72	5.42	27.59	27.72	25.17	21.89	19.69	1.375	-

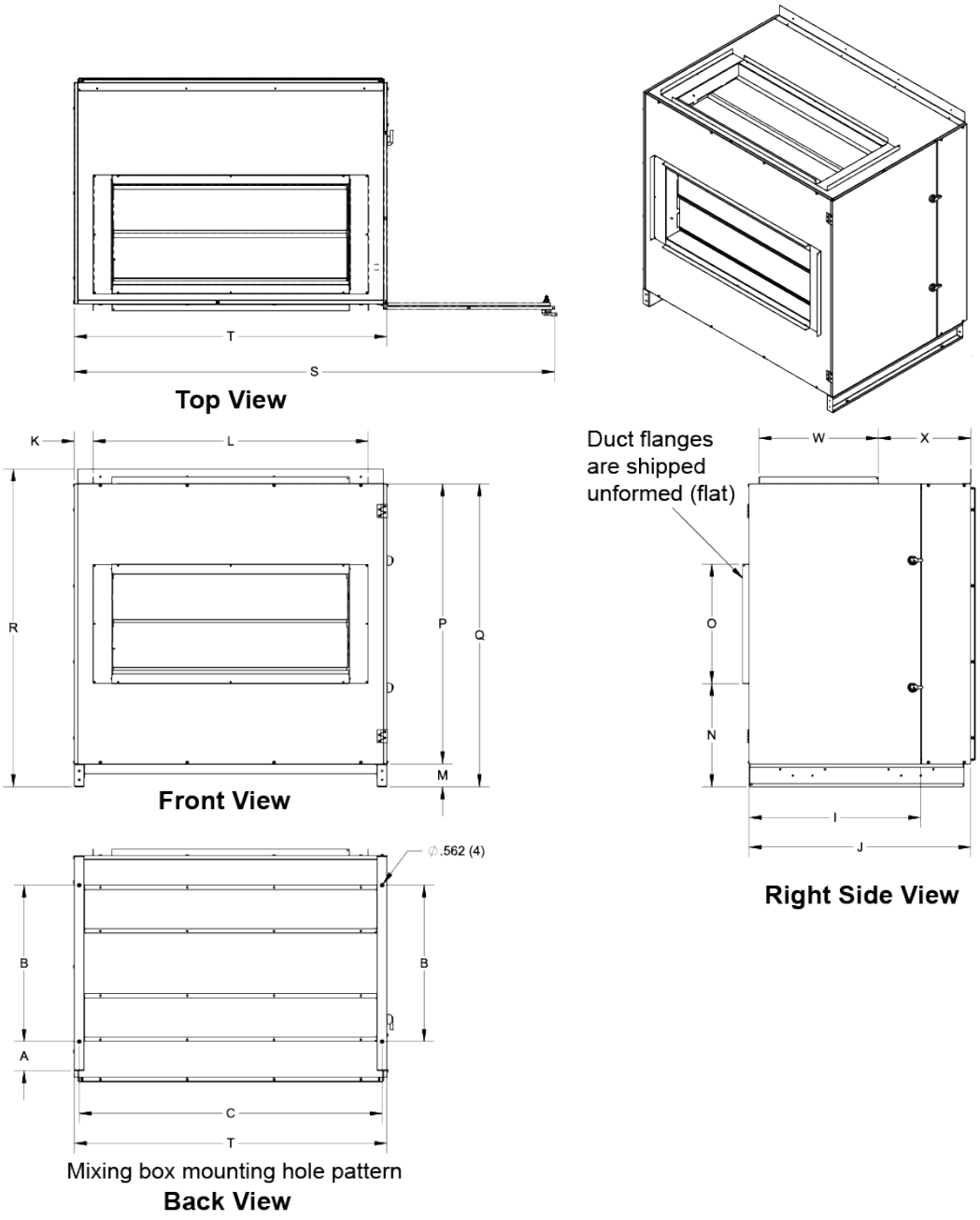
NOTE: Dimensions shown in inches.

Table 62: Vertical Coil Dimensions for Figure 43 on page 70 (continued)

2 + DX Interlace 3 Rows Coil RH (Re-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.84	14.47	9.22	22.72	7.74	27.59	27.56	25.42	22.02	19.55	0.875	-
040	5.3	10.47	11.84	9.22	26.72	5.42	27.59	27.69	25.14	22.09	19.49	1.375	-
050	5.3	10.47	11.84	9.22	34.72	5.42	27.59	27.72	25.17	22.09	19.5	1.375	-
1 + DX Interlace 6 Rows Coil RH (Re-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	10.47	14.22	9.22	22.72	7.74	27.59	27.12	24.97	21.89	19.68	1.125	-
040	5.3	8.84	10.47	9.22	26.72	5.42	27.59	27.03	24.85	21.89	19.68	1.325	-
050	5.3	10.47	10.47	9.22	34.72	5.42	27.59	26.73	24.61	21.89	19.69	1.625	-
2 + DX Interlace 6 Rows Coil RH (Re-Heat))													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	10.47	14.22	9.22	22.72	7.74	27.59	27.12	24.97	22.02	19.55	1.125	-
040	5.3	8.84	10.47	9.22	26.72	5.42	27.59	27.03	24.85	22.09	19.49	1.325	-
050	5.3	10.47	10.47	9.22	34.72	5.42	27.59	26.73	24.61	22.09	19.5	1.625	-
1 + DX Single 3 Rows Coil RH (Pre-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	-	9.84	7.74	27.59	27.95	25.75	22.64	-	1.125	-
040	5.3	9.22	26.72	-	9.84	5.42	27.59	27.95	25.75	22.64	-	0.875	-
050	5.3	9.22	34.72	-	9.84	5.42	27.59	27.59	25.75	22.64	-	1.375	-
2 + DX Single 3 Rows Coil RH (Pre-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.3	9.22	22.72	-	9.84	7.74	27.59	28.09	25.61	22.64	-	1.125	-
040	5.3	9.22	26.72	-	9.84	5.42	27.59	28.15	25.55	22.64	-	0.875	-
050	5.3	9.22	34.72	-	9.84	5.42	27.59	27.59	25.56	22.64	-	1.375	-
1 + DX Interlace 3 Rows Coil RH (Pre-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.31	9.22	22.72	9.84	14.47	7.74	27.59	27.95	25.75	23.46	21.32	0.625	0.875
040	5.31	9.22	26.72	11.84	10.47	5.42	27.59	27.95	25.75	23.62	21.07	0.875	1.375
050	5.31	9.22	34.72	11.84	10.47	5.42	27.59	27.59	25.75	23.62	21.07	1.375	1.375
2 + DX Interlace 3 Rows Coil RH (Pre-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.31	9.22	22.72	9.84	14.47	7.74	27.59	28.09	25.61	23.46	21.32	0.625	0.875
040	5.31	9.22	26.72	11.84	10.47	5.42	27.59	28.15	25.55	23.62	21.07	0.875	1.375
050	5.31	9.22	34.72	11.84	10.47	5.42	27.59	27.59	25.56	23.62	21.07	1.375	1.375
1 + DX Interlace 6 Rows Coil RH (Pre-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.31	9.22	22.72	9.84	14.47	7.74	27.59	27.95	25.75	23.46	21.32	0.625	0.875
040	5.31	9.22	26.72	11.84	10.47	5.42	27.59	27.95	25.75	23.62	21.07	0.875	1.375
050	5.31	9.22	34.72	11.84	10.47	5.42	27.59	27.59	25.75	23.62	21.07	1.375	1.375
2 + DX Interlace 6 Rows Coil RH (Pre-Heat)													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**	**S**	**T**
030	5.31	9.22	22.72	9.84	14.47	7.74	27.59	28.09	25.61	23.46	21.32	0.625	0.875
040	5.31	9.22	26.72	11.84	10.47	5.42	27.59	28.15	25.55	23.62	21.07	0.875	1.375
050	5.31	9.22	34.72	11.84	10.47	5.42	27.59	27.59	25.56	23.62	21.07	1.375	1.375
Steam Coils													
Unit Size	**K**	**F**	**H**	**G**	**J**	**M**	**N**	**O**	**P**	**Q**	**R**		**T**
030	5.31	-	-	9.67	21.71	-	-	-	-	25.72	28.03		1.125
040	5.31	-	-	9.58	23.71	-	-	-	-	25.72	28.03		1.125
050	5.31	-	-	9.84	27.71	-	-	-	-	25.82	27.97		1.375

NOTE: Dimensions shown in inches.

Figure 44: Vertical Mixing Box - Top and End Damper, Unit Sizes 030-050 - Side Filter Access



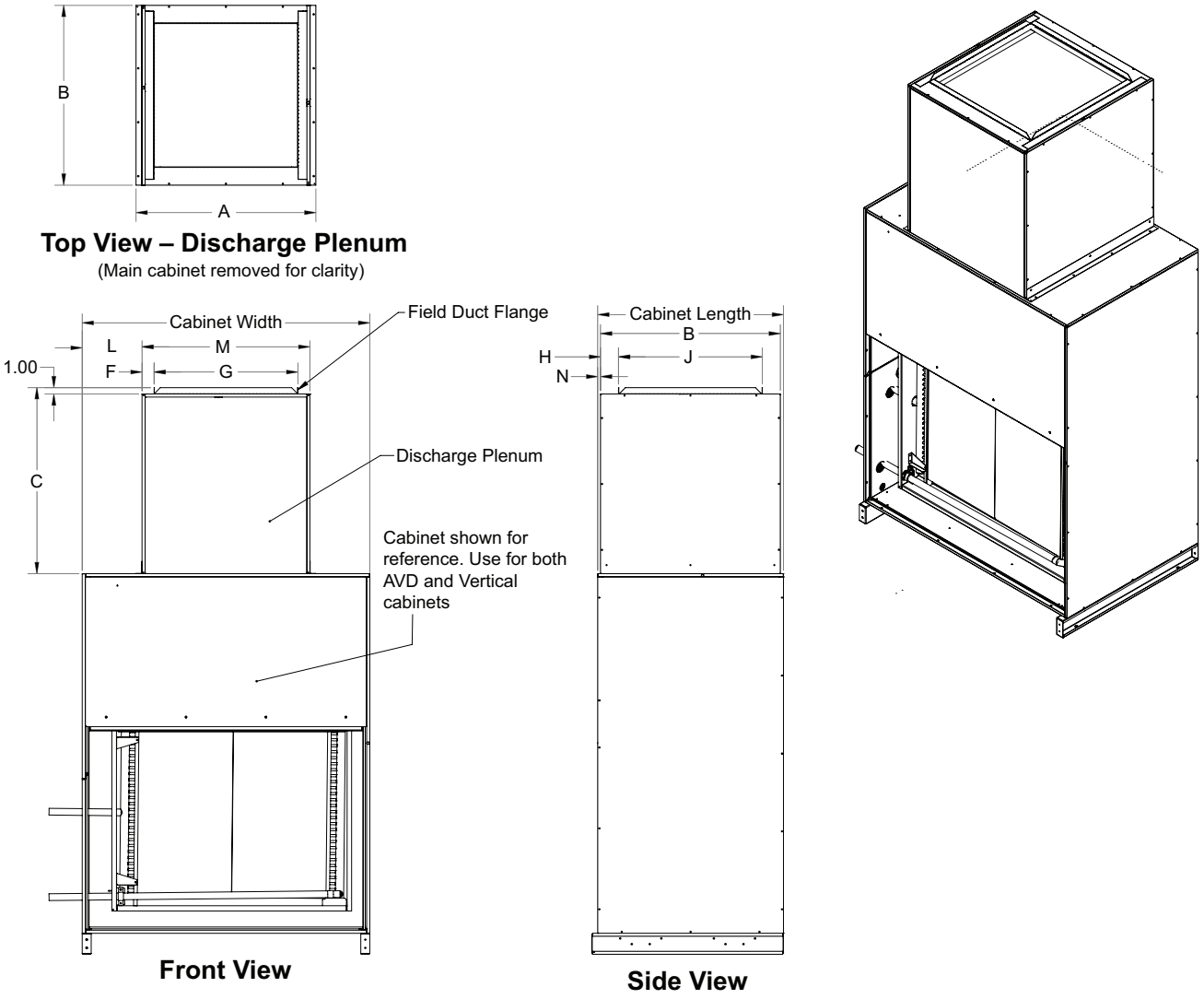
NOTE: Dimensions shown in inches.

Table 63: Mixing Box Dimension Letter Reference

Vertical Mixing Box																		
Unit Size	A	B	C	D	I	J	K	L	M	N	O	P	Q	R	S	T	W	X
030	5.5	24	42.5	44	26.31	33	2.87	38.27	3.5	9.82	18.37	31	34.5	36.76	70.12	34	18.37	14.19
040	5.5	24	46.5	48	26.31	33	2.87	42.31	3.5	11.82	18.37	35	38.5	40.76	74.12	34	18.37	14.19
050	5.5	24	46.5	48	26.31	33	2.87	42.31	3.5	15.82	18.37	43	46.5	48.76	74.12	34	18.37	14.19

NOTE: Dimensions shown in inches.

Figure 45: Vertical Discharge Plenum (Unit Sizes 006-050)



NOTE: Dimensions shown in inches.

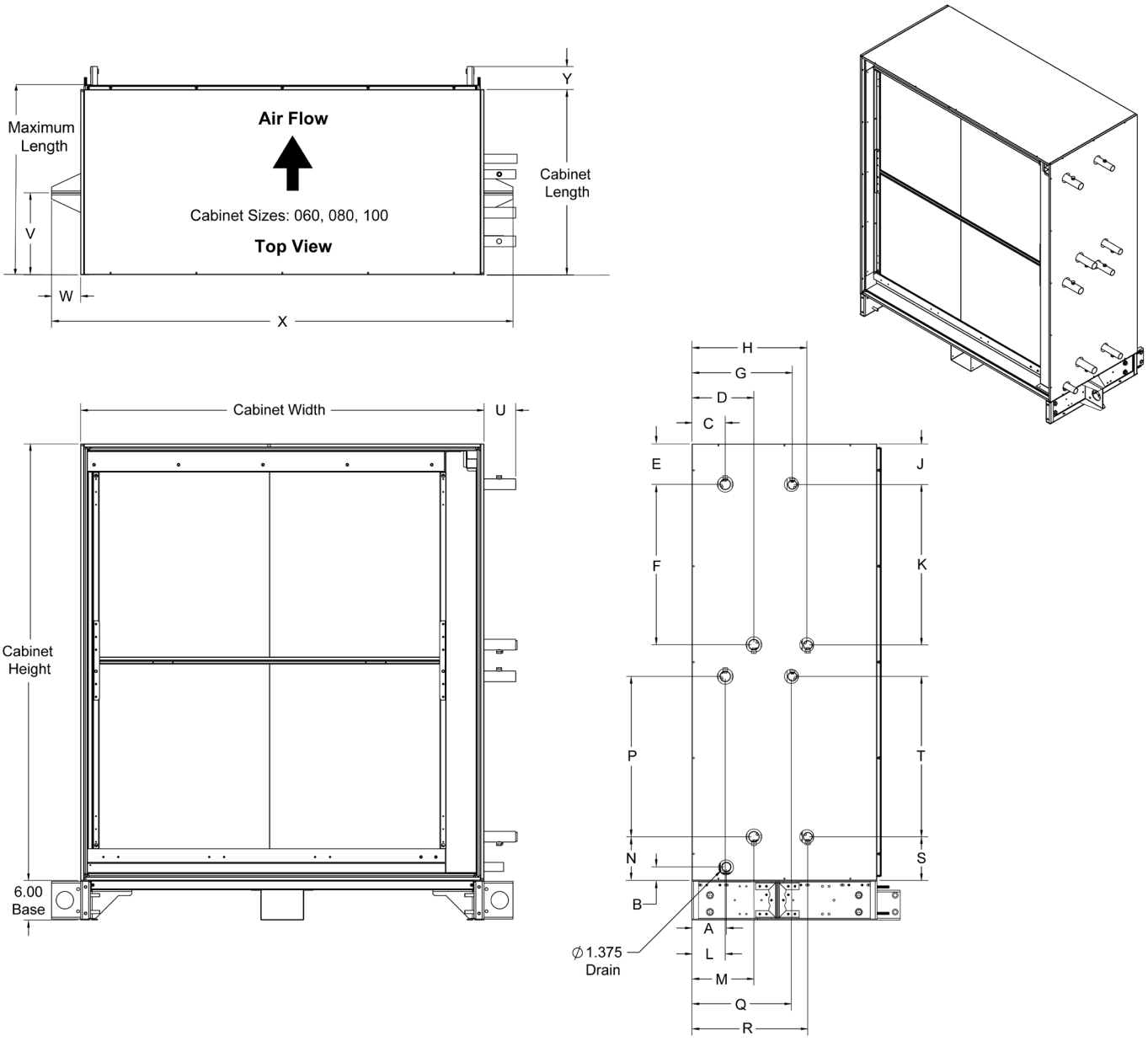
Table 64: Discharge Plenum Dimension Letter Reference

AVD													
Unit Size	**A**	**B**	**C**	**F**	**G**	**H**	**J**	**L**	**M**	**N**	**Cabinet Length**	**Cabinet Width**	**Cabinet Height**
006	14.00	17.50	25.00	2.00	8.06	2.75	12.00	6.50	12.00	0.25	18.00	25.00	58.00
008	18.00	17.50	25.00	2.00	12.00	2.75	12.00	6.00	16.00	0.25	18.00	28.00	60.00
012	20.00	17.50	25.00	2.00	14.00	2.75	12.00	6.75	18.00	0.25	18.00	31.50	62.00
016	31.00	17.50	25.00	5.47	20.00	1.75	14.00	6.75	29.00	0.25	18.00	38.00	63.50
020	33.00	17.50	25.00	2.47	20.00	1.75	14.00	6.00	31.00	0.25	18.00	43.00	64.00
Vertical													
Unit Size	**A**	**B**	**C**	**F**	**G**	**H**	**J**	**L**	**M**	**N**	**Cabinet Length**	**Cabinet Width**	**Cabinet Height**
030	26.00	30.00	31.00	2.00	20.00	5.00	20.00	10.00	24.00	0.50	31.00	44.00	56.00
040	30.00	30.00	31.00	2.00	24.00	3.00	24.00	10.00	28.00	0.50	31.00	48.00	60.00
050	30.00	30.00	31.00	2.00	24.00	3.00	24.00	10.00	28.00	0.50	31.00	48.00	68.00

NOTE: Dimensions shown in inches.

Size 060-100 Unit Dimensions

Figure 46: Horizontal Unit Coil Section Dimensions (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

Table 65: General Unit Dimensions (Unit Sizes 060-100)

Unit Size	Cabinet Length	Maximum Length	Width	Height	U	V	W	X	Y
060	28.00	28.66	54.00	54.00	4.19	12.39	4.38	62.75	3.50
080	28.00	28.66	54.00	62.00	5.45	12.39	4.38	62.75	3.50
100	28.00	28.66	61.00	66.00	4.79	12.39	4.38	69.75	3.50

NOTE: Dimensions shown in inches.

Table 66: Horizontal Hydronic Coil Unit Dimensions (Unit Sizes 060-100) for Figure 46 on page 76

8-Row Cold Water + 2-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	5.01	9.37	6.11	18.25	15.75	17.29	6.11	18.25	5.01	9.37	6.59	18.25	15.75	17.29	6.59	18.25
080	-	-	5.03	9.36	6.11	22.25	15.75	17.29	6.11	22.25	5.03	9.36	6.59	22.25	15.75	17.29	6.59	22.25
100	5.20	2.03	5.03	9.36	6.11	24.25	15.17	17.50	6.11	24.25	5.03	9.36	6.59	24.25	15.17	17.50	6.59	24.25
6-Row Cold Water + 2-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.24	8.84	6.11	18.25	15.75	17.29	6.11	18.25	6.24	8.84	6.59	18.25	15.75	17.29	6.59	18.25
080	-	-	6.24	8.83	6.11	22.25	15.75	17.29	6.11	22.25	6.24	8.83	6.59	22.25	15.75	17.29	6.59	22.25
100	5.20	2.03	6.23	8.84	6.11	24.25	15.17	17.50	6.11	24.25	6.23	8.84	6.59	24.25	15.17	17.50	6.59	24.25
4-Row Cold Water + 2-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.24	8.83	6.11	18.25	15.75	17.29	6.11	18.25	6.24	8.83	6.59	18.25	15.75	17.29	6.59	18.25
080	-	-	5.36	7.96	6.11	22.25	15.75	17.29	6.11	22.25	5.36	7.96	6.59	22.25	15.75	17.29	6.59	22.25
100	5.20	2.03	6.24	8.83	6.11	24.25	15.17	17.50	6.11	24.25	6.24	8.83	6.59	24.25	15.17	17.50	6.59	24.25
2-Row Cold Water + 2-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.42	7.97	6.11	18.25	15.75	17.29	6.11	18.25	6.42	7.97	6.59	18.25	15.75	17.29	6.59	18.25
080	-	-	6.42	7.97	6.11	22.25	15.75	17.29	6.11	22.25	6.42	7.97	6.59	22.25	15.75	17.29	6.59	22.25
100	5.20	2.03	5.96	7.97	6.11	24.25	15.17	17.50	6.11	24.25	5.96	7.97	6.59	24.25	15.17	17.50	6.59	24.25
8-Row Cold Water + 1-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	5.01	9.37	6.11	18.25	15.63	16.84	6.11	18.39	5.01	9.37	6.59	18.25	15.63	16.84	6.45	18.39
080	-	-	5.03	9.36	6.11	22.25	15.49	16.84	7.61	19.75	5.03	9.36	6.59	22.25	15.49	16.84	7.59	19.75
100	5.20	2.03	5.03	9.36	6.11	24.25	15.39	16.84	6.11	24.25	5.03	9.36	6.59	24.25	15.39	16.84	6.59	24.25
6-Row Cold Water + 1-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.24	8.84	6.11	18.25	15.63	16.84	6.11	18.39	6.24	8.84	6.59	18.25	15.63	16.84	6.45	18.39
080	-	-	6.24	8.83	6.11	22.25	15.48	16.83	7.61	19.75	6.24	8.83	6.59	22.25	15.48	16.83	7.59	19.75
100	5.20	2.03	6.23	8.84	6.11	24.25	15.39	16.84	6.11	24.25	6.23	8.84	6.59	24.25	15.39	16.84	6.59	24.25
4-Row Cold Water + 1-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.24	8.83	6.11	18.25	15.63	16.84	6.11	18.39	6.24	8.83	6.59	18.25	15.63	16.84	6.45	18.39
080	-	-	5.36	7.96	6.11	22.25	15.48	16.83	7.61	19.75	5.36	7.96	6.59	22.25	15.48	16.83	7.59	19.75
100	5.20	2.03	6.24	8.83	6.11	24.25	15.39	16.84	6.11	24.25	6.24	8.83	6.59	24.25	15.39	16.84	6.59	24.25
2-Row Cold Water + 1-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.42	7.97	6.11	18.25	15.63	16.84	6.11	18.39	6.42	7.97	6.59	18.25	15.63	16.84	6.45	18.39
080	-	-	6.42	7.97	6.11	22.25	15.48	16.83	7.61	19.75	6.42	7.97	6.59	22.25	15.48	16.83	7.59	19.75
100	5.20	2.03	5.96	7.97	6.11	24.25	15.39	16.84	6.11	24.25	5.96	7.97	6.59	24.25	15.39	16.84	6.59	24.25
2-Row Hot Water + 8-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.45	9.00	6.11	18.25	12.22	16.58	6.11	18.25	7.45	9.00	6.59	18.25	12.22	16.58	6.59	18.25
080	-	-	7.50	9.04	6.11	22.25	12.28	16.61	6.11	22.25	7.50	9.04	6.59	22.25	12.28	16.61	6.59	22.25
100	5.20	2.03	6.92	9.25	6.11	24.25	12.28	16.61	6.11	24.25	6.92	9.25	6.59	24.25	12.28	16.61	6.59	24.25
2-Row Hot Water + 6-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.45	9.00	6.11	18.25	13.45	16.05	6.11	18.25	7.45	9.00	6.59	18.25	13.45	16.05	6.59	18.25
080	-	-	7.50	9.04	6.11	22.25	13.49	16.08	6.11	22.25	7.50	9.04	6.59	22.25	13.49	16.08	6.59	22.25
100	5.20	2.03	6.92	9.25	6.11	24.25	13.48	16.09	6.11	24.25	6.92	9.25	6.59	24.25	13.48	16.09	6.59	24.25
2-Row Hot Water + 4-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.45	9.00	6.11	18.25	13.45	16.04	6.11	18.25	7.45	9.00	6.59	18.25	13.45	16.04	6.59	18.25
080	-	-	7.50	9.04	6.11	22.25	12.61	15.21	6.11	22.25	7.50	9.04	6.59	22.25	12.61	15.21	6.59	22.25
100	5.20	2.03	6.92	9.25	6.11	24.25	13.49	16.08	6.11	24.25	6.92	9.25	6.59	24.25	13.49	16.08	6.59	24.25
2-Row Hot Water + 2-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.45	9.00	6.11	18.25	13.63	15.18	6.11	18.25	7.45	9.00	6.59	18.25	13.63	15.18	6.59	18.25
080	-	-	7.50	9.04	6.11	22.25	13.67	15.22	6.11	22.25	7.50	9.04	6.59	22.25	13.67	15.22	6.59	22.25
100	5.20	2.03	6.92	9.25	6.11	24.25	13.21	15.22	6.11	24.25	6.92	9.25	6.59	24.25	13.21	15.22	6.59	24.25

1-Row Hot Water + 8-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	7.34	8.55	6.11	18.39	12.22	16.58	6.11	18.25	7.34	8.55	6.45	18.39	12.22	16.58	6.59	18.25
080	-	-	7.23	8.58	7.61	19.75	12.28	16.61	6.11	22.25	7.23	8.58	7.59	19.75	12.28	16.61	6.59	22.25
100	5.20	2.03	7.14	8.59	6.11	24.25	12.28	16.61	6.11	24.25	7.14	8.59	6.59	24.25	12.28	16.61	6.59	24.25
1-Row Hot Water + 6-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	7.34	8.55	6.11	18.39	13.45	16.05	6.11	18.25	7.34	8.55	6.45	18.39	13.45	16.05	6.59	18.25
080	-	-	7.23	8.58	7.61	19.75	13.49	16.08	6.11	22.25	7.23	8.58	7.59	19.75	13.49	16.08	6.59	22.25
100	5.20	2.03	7.14	8.59	6.11	24.25	13.48	16.09	6.11	24.25	7.14	8.59	6.59	24.25	13.48	16.09	6.59	24.25
1-Row Hot Water + 4-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	7.34	8.55	6.11	18.39	13.45	16.04	6.11	18.25	7.34	8.55	6.45	18.39	13.45	16.04	6.59	18.25
080	-	-	7.23	8.58	7.61	19.75	12.61	15.21	6.11	22.25	7.23	8.58	7.59	19.75	12.61	15.21	6.59	22.25
100	5.20	2.03	7.14	8.59	6.11	24.25	13.49	16.08	6.11	24.25	7.14	8.59	6.59	24.25	13.49	16.08	6.59	24.25
1-Row Hot Water + 2-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	7.34	8.55	6.11	18.39	13.63	15.18	6.11	18.25	7.34	8.55	6.45	18.39	13.63	15.18	6.59	18.25
080	-	-	7.23	8.58	7.61	19.75	13.67	15.22	6.11	22.25	7.23	8.58	7.61	19.75	13.67	15.22	6.59	22.25
100	5.20	2.03	7.14	8.59	6.11	24.25	13.21	15.22	6.11	24.25	7.14	8.59	6.59	24.25	13.21	15.22	6.59	24.25
8-Row																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	5.01	9.37	6.11	18.25	-	-	-	-	5.01	9.37	6.59	18.25	-	-	-	-
080	-	-	5.03	9.36	6.11	22.25	-	-	-	-	5.03	9.36	6.59	22.25	-	-	-	-
100	5.20	2.03	5.03	9.36	6.11	24.25	-	-	-	-	5.03	9.36	6.59	24.25	-	-	-	-
6-Row																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	6.24	8.84	6.11	18.25	-	-	-	-	6.24	8.84	6.59	18.25	-	-	-	-
080	-	-	6.24	8.83	6.11	22.25	-	-	-	-	6.24	8.83	6.59	22.25	-	-	-	-
100	5.20	2.03	6.23	8.84	6.11	24.25	-	-	-	-	6.23	8.84	6.59	24.25	-	-	-	-
4-Row																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	6.24	8.83	6.11	18.25	-	-	-	-	6.24	8.83	6.59	18.25	-	-	-	-
080	-	-	5.36	7.96	6.11	22.25	-	-	-	-	5.36	7.96	6.59	22.25	-	-	-	-
100	5.20	2.03	6.24	8.83	6.11	24.25	-	-	-	-	6.24	8.83	6.59	24.25	-	-	-	-
2-Row																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	-	-	6.42	7.97	6.11	18.25	-	-	-	-	6.42	7.97	6.59	18.25	-	-	-	-
080	-	-	6.42	7.97	6.11	22.25	-	-	-	-	6.42	7.97	6.59	22.25	-	-	-	-
100	5.20	2.03	5.96	7.97	6.11	24.25	-	-	-	-	5.96	7.97	6.59	24.25	-	-	-	-

NOTE: Dimensions shown in inches.

Table 67: Horizontal DX Unit Dimensions (Unit Sizes 060-100) for Figure 46 on page 76

DX Single + 2-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.67	-	24.63	-	15.75	17.29	6.11	18.25	6.67	-	6.33	-	15.75	17.29	6.59	18.25
080	-	-	6.67	-	28.63	-	15.75	17.29	6.11	22.25	6.67	-	6.33	-	15.75	17.29	6.59	22.25
100	5.20	2.03	6.67	-	30.61	-	15.17	17.50	6.11	24.25	6.67	-	6.33	-	15.17	17.50	6.59	24.25
DX Single + 1-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.67	-	24.63	-	15.63	16.84	6.11	18.39	6.67	-	6.33	-	15.63	16.84	6.45	18.39
080	-	-	6.67	-	28.63	-	15.48	16.83	7.61	19.75	6.67	-	6.33	-	15.48	16.83	7.59	19.75
100	5.20	2.03	6.67	-	30.61	-	15.39	16.84	6.11	24.25	6.67	-	6.33	-	15.39	16.84	6.59	24.25
DX Interlaced + 2-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.67	7.98	19.63	4.00	15.75	17.29	6.11	18.25	6.67	7.98	7.33	4.00	15.75	17.29	6.59	18.25
080	-	-	6.66	8.10	23.63	4.00	15.75	17.29	6.11	22.25	6.66	8.10	7.33	4.00	15.75	17.29	6.59	22.25
100	5.20	2.03	5.11	8.23	27.61	2.00	15.17	17.50	6.11	24.25	5.11	8.23	9.33	2.00	15.17	17.50	7.33	24.25
DX Interlaced + 1-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.67	7.98	19.63	4.00	15.63	16.84	6.11	18.39	6.67	7.98	7.33	4.00	15.63	16.84	6.45	18.39
080	-	-	6.66	8.10	23.63	4.00	15.48	16.83	7.61	19.75	6.66	8.10	7.33	4.00	15.48	16.83	7.59	19.75
100	5.20	2.03	5.11	8.23	27.61	2.00	15.39	16.84	6.11	24.25	5.11	8.23	9.33	2.00	15.39	16.84	7.33	24.25
2-Row Hot Water + DX Single																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.45	9.00	6.11	18.25	-	13.88	-	24.63	7.45	9.00	6.59	18.25	-	13.88	6.33	-
080	-	-	7.50	9.04	6.11	22.25	13.92	-	28.63	-	7.50	9.04	6.59	22.25	13.92	-	6.33	-
100	5.20	2.03	6.92	9.25	6.11	24.25	13.92	-	30.63	-	6.92	9.25	6.59	24.25	13.92	-	6.33	-
1-Row Hot Water + DX Single																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.34	8.55	6.11	18.39	-	13.88	-	24.63	7.34	8.55	6.45	18.39	-	13.88	6.33	-
080	-	-	7.23	8.58	7.61	19.75	13.92	-	28.63	-	7.23	8.58	7.59	19.75	13.92	-	6.33	-
100	5.20	2.03	7.14	8.59	6.11	24.25	13.92	-	30.63	-	7.14	8.59	6.59	24.25	13.92	-	6.33	-
2-Row Hot Water + DX Interlaced																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.45	9.00	6.11	18.25	13.88	15.19	19.63	4.00	7.45	9.00	6.59	18.25	13.88	15.19	7.33	4.00
080	-	-	7.50	9.04	6.11	22.25	13.91	15.35	23.63	4.00	7.50	9.04	6.59	22.25	13.91	15.35	7.33	4.00
100	5.20	2.03	6.92	9.25	6.11	24.25	12.35	15.48	27.61	2.00	6.92	9.25	9.33	24.25	12.35	15.48	7.33	2.00
1-Row Hot Water + DX Interlaced																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.34	8.55	6.11	18.39	13.88	15.19	19.63	4.00	7.34	8.55	6.45	18.39	13.88	15.19	7.33	4.00
080	-	-	7.23	8.58	7.61	19.75	13.91	15.35	23.63	4.00	7.23	8.58	7.59	19.75	13.91	15.35	7.33	4.00
100	5.20	2.03	7.14	8.59	6.11	24.25	12.35	15.48	27.61	2.00	7.14	8.59	9.33	24.25	12.35	15.48	7.33	2.00
DX Single																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.67	-	24.63	-	-	-	-	-	6.67	-	6.33	-	-	-	-	-
080	-	-	6.67	-	28.63	-	-	-	-	-	6.69	-	6.33	-	-	-	-	-
100	5.20	2.03	6.67	-	30.61	-	-	-	-	-	6.67	-	6.33	-	-	-	-	-
DX Interlaced																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	6.67	7.98	19.63	4.00	-	-	-	-	6.67	7.98	7.33	4.00	-	-	-	-
080	-	-	6.66	8.10	23.63	4.00	-	-	-	-	6.66	8.10	7.33	4.00	-	-	-	-
100	5.20	2.03	5.11	8.23	27.61	2.00	-	-	-	-	5.11	8.23	9.33	2.00	-	-	-	-

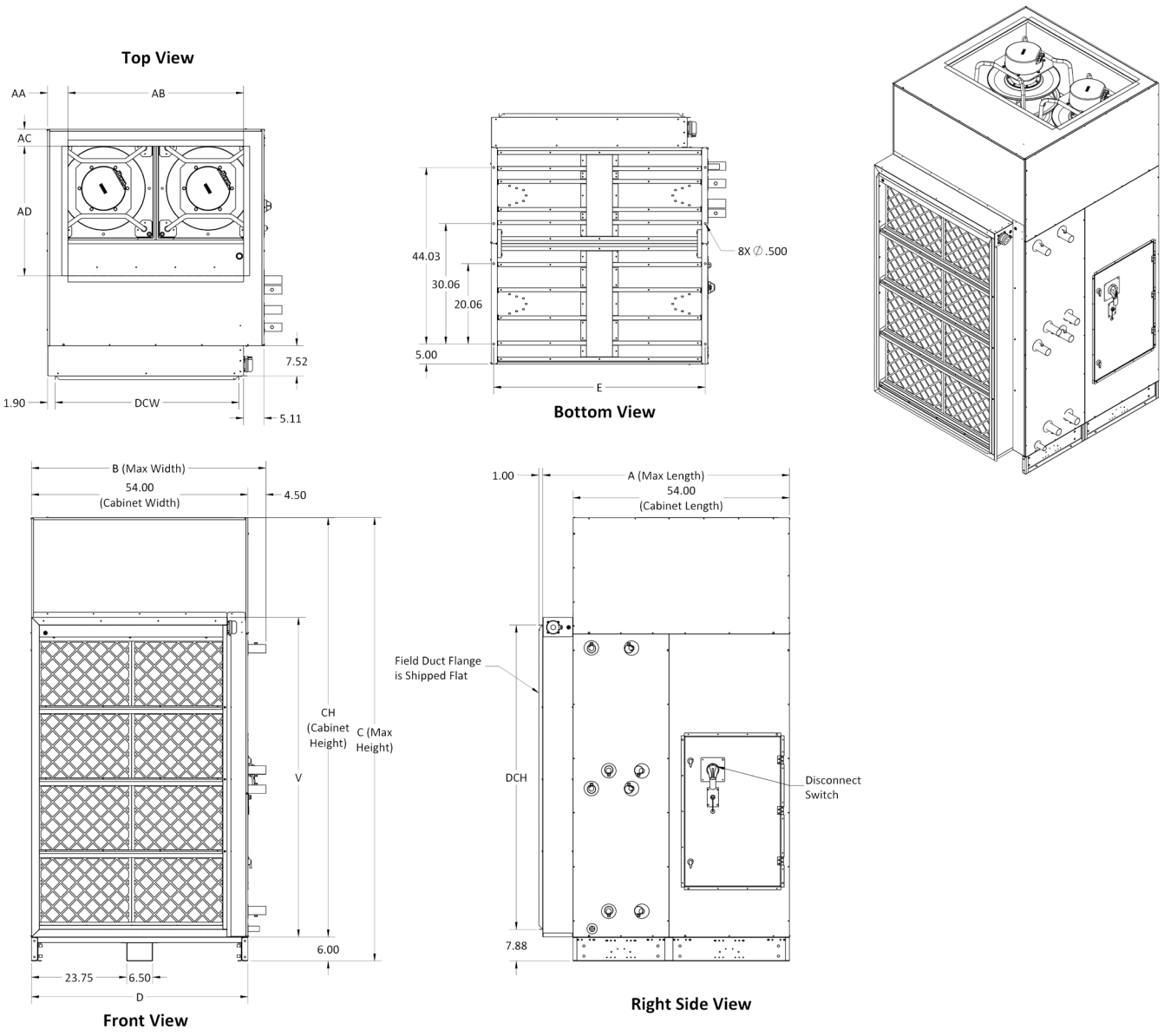
NOTE: Dimensions shown in inches.

Table 68: Horizontal Steam Unit Dimensions (Unit Sizes 060-100) for Figure 46 on page 76

Steam + 8-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.68	5.35	14.27	11.24	12.22	16.58	6.11	18.25	7.68	5.35	5.44	11.24	12.22	16.58	6.59	18.25
080	-	-	7.80	5.49	16.07	13.38	12.28	16.61	6.11	22.25	7.80	5.49	5.50	13.38	12.28	16.61	6.59	22.25
100	5.20	2.03	7.80	5.48	17.06	14.65	12.28	16.61	6.11	24.25	7.80	5.48	5.25	14.65	12.28	16.61	6.59	24.25
Steam + 6-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.68	5.35	14.27	11.24	13.45	16.05	6.11	18.25	7.68	5.35	5.44	11.24	13.45	16.05	6.59	18.25
080	-	-	7.80	5.49	16.07	13.38	13.49	16.08	6.11	22.25	7.80	5.49	5.50	13.38	13.49	16.08	6.59	22.25
100	5.20	2.03	7.80	5.48	17.06	14.65	13.48	16.09	6.11	24.25	7.80	5.48	5.25	14.65	13.48	16.09	6.59	24.25
Steam + 4-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.68	5.35	14.27	11.24	13.45	16.04	6.11	18.25	7.68	5.35	5.44	11.24	13.45	16.04	6.59	18.25
080	-	-	7.80	5.49	16.07	13.38	12.61	15.21	6.11	22.25	7.80	5.49	5.50	13.38	12.61	15.21	6.59	22.25
100	5.20	2.03	7.80	5.48	17.06	14.65	13.49	16.08	6.11	24.25	7.80	5.48	5.25	14.65	13.49	16.08	6.59	24.25
Steam + 2-Row Cold Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.68	5.35	14.27	11.24	13.63	15.18	6.11	18.25	7.68	5.35	5.44	11.24	13.63	15.18	6.59	18.25
080	-	-	7.80	5.49	16.07	13.38	13.67	15.22	6.11	22.25	7.80	5.49	5.50	13.38	13.67	15.22	6.59	22.25
100	5.20	2.03	7.80	5.48	17.06	14.65	13.21	15.22	6.11	24.25	7.80	5.48	5.25	14.65	13.21	15.22	6.59	24.25
Steam + DX Single																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.68	5.35	14.27	11.24	13.92	-	24.63	-	7.68	5.35	5.44	11.24	13.92	-	6.33	-
080	-	-	7.80	5.49	16.07	13.38	13.92	-	28.63	-	7.80	5.49	5.50	13.38	13.92	-	6.33	-
100	5.20	2.03	7.80	5.48	17.06	14.65	13.92	-	30.63	-	7.80	5.48	5.25	14.65	13.92	-	6.33	-
Steam + DX Interlaced																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	-	-	7.68	5.35	14.27	11.24	13.92	15.23	19.63	4.00	7.68	5.35	5.44	11.24	13.92	15.23	7.33	4.00
080	-	-	7.80	5.49	16.07	13.38	13.91	15.35	23.63	4.00	7.80	5.49	5.50	13.38	13.91	15.35	7.33	4.00
100	5.20	2.03	7.80	5.48	17.06	14.65	12.35	15.48	27.61	2.00	7.80	5.48	5.25	14.65	12.35	15.48	7.33	2.00

NOTE: Dimensions shown in inches.

Figure 47: Vertical Unit Dimensions - Two Fans (Unit Sizes 060-100)



NOTE 1: Dimensions shown in inches.

NOTE 2: Right hand cabinet shown, left hand similar but opposite.

Table 69: Vertical Unit Dimensions - Two Fans (Unit Sizes 060-100)

Unit Size	A Max Length	B Max Width	C Max Height	D	E	U	V	DCH	DCW	CH
060	61.57	58.50	85.54	54.00	52.76	4.50	51.19	47.42	45.84	79.49
080	61.57	58.50	96.61	54.00	52.76	4.50	65.68	61.91	45.84	90.56
100	61.57	58.50	110.61	54.00	52.76	4.50	79.68	75.91	45.84	104.56

NOTE: Dimensions shown in inches.

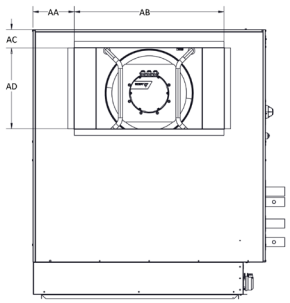
Table 70: Vertical Unit Top Duct Dimensions - Two Fan (Unit Sizes 060-100)

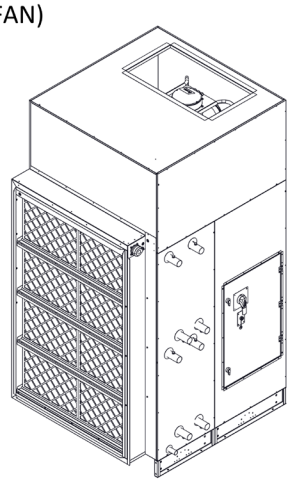
Dimension	060	080	100
AA	6.23	5.11	5.11
AB	41.53	43.78	43.78
AC	5.10	4.27	4.27
AD	18.78	23.78	32.28

NOTE: Dimensions shown in inches.

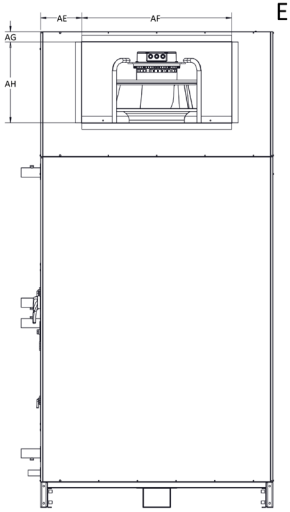
Vertical Unit Dimensions - One Fan (Unit Sizes 060-100)

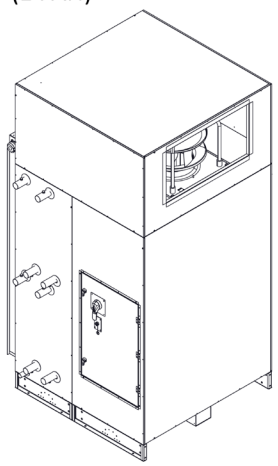
TOP DUCT (1 FAN)



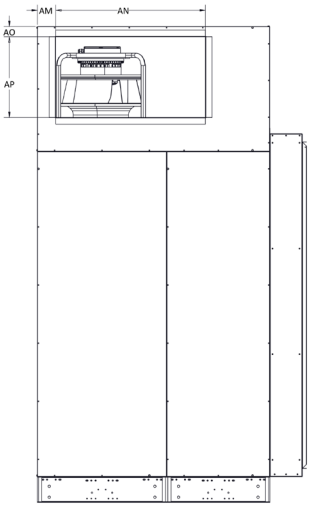


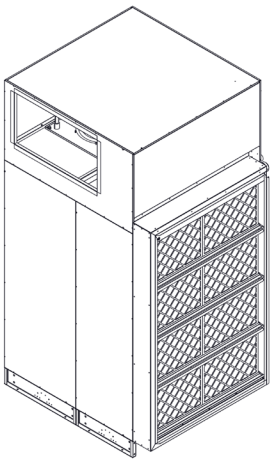
END DUCT (1 FAN)





LEFT DUCT - RH UNIT
RIGHT DUCT - LH UNIT





NOTE:
LEFT DUCT ONLY APPLY FOR RH UNITS
RIGHT DUCT ONLY APPLY FOR LH UNITS

DIMENTIONS WILL BE THE SAME FOR
BOTH DUCTS

NOTE: Dimensions shown in inches.

Table 71: Vertical Unit Dimensions - One Fan (Unit Sizes 060-100)

Dimension	060	080	100
AA	13.61	12.11	9.61
AB	26.78	29.78	34.78
AC	5.10	4.27	4.27
AD	14.78	17.78	18.78
AE	13.61	12.11	9.61
AF	26.78	29.78	34.78
AG	4.38	2.88	2.38
AH	14.78	17.78	18.78

Dimension	060	080	100
AM	5.10	4.27	4.27
AN	26.78	29.78	34.78
AO	2.36	2.36	2.36
AP	14.78	17.78	18.78

NOTE: Dimensions shown in inches.

Figure 48: Vertical Unit Coil Dimensions (Unit Sizes 060-100)

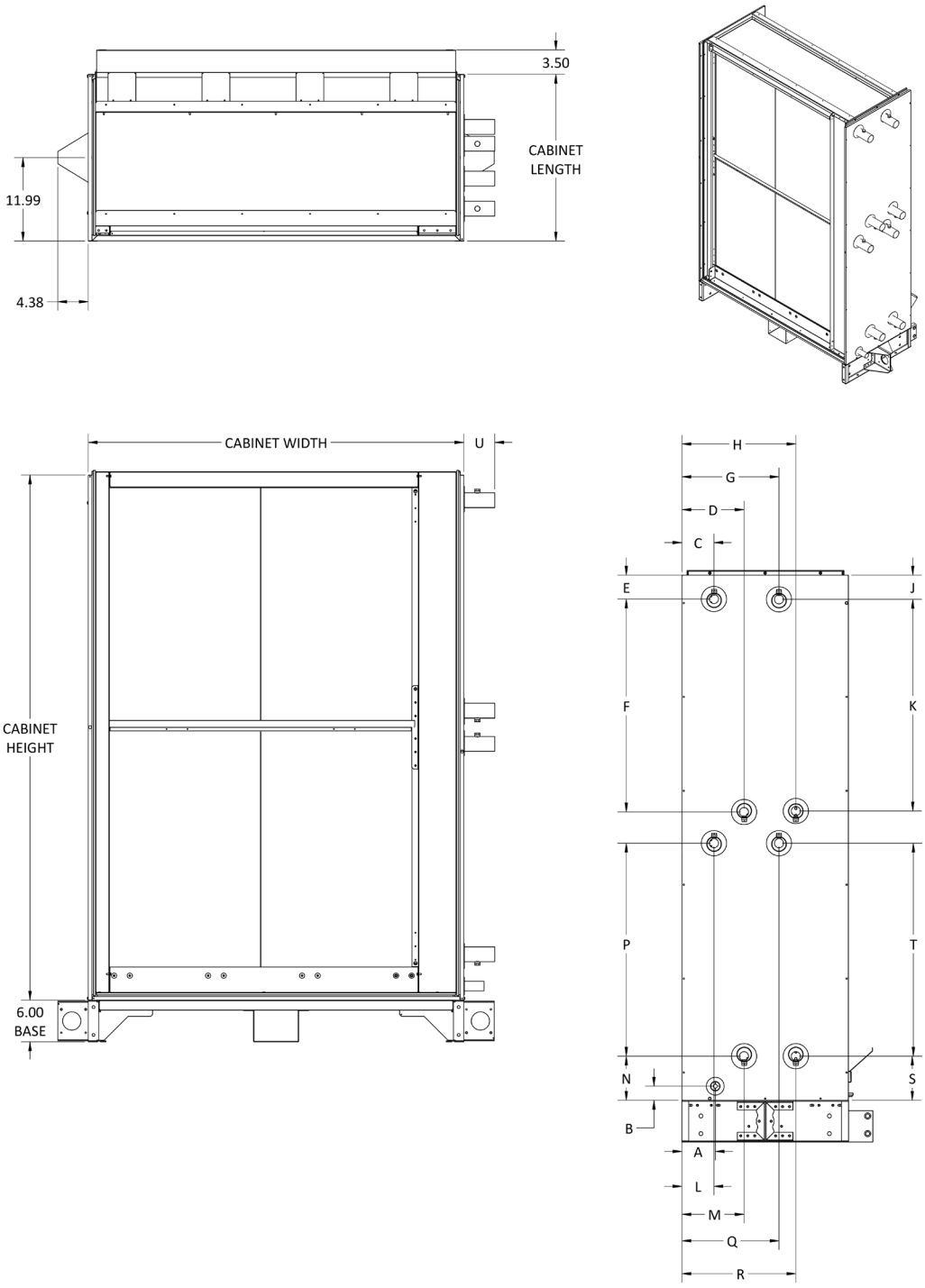


Figure 49: Dimensions shown in inches.

Table 72: Vertical Unit Coil Dimensions (Unit Sizes 060-100)

Unit Size	Cabinet Length	Maximum Length*	Width	Height	U
060	23.97	27.47	54.00	50.44	4.50
080	23.97	27.47	54.00	61.50	4.50
100	23.97	27.47	54.00	75.50	4.50

NOTE 1: *Max coil section length includes portion of the drain pan which extends into the supply fan section. The coil and supply fan sections together make up the base unit cabinet.

NOTE 2: Dimensions shown in inches.

Table 73: Vertical Hydronic Coil Unit Dimensions (Unit Sizes 060-100) for Figure 48 on page 83

2-Row																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	4.76	2.03	5.84	8.42	6.30	16.75	-	-	-	-	5.84	8.42	6.34	16.75	-	-	-	-
080	4.76	2.03	5.84	8.42	4.36	22.75	-	-	-	-	5.84	8.42	6.34	22.75	-	-	-	-
100	4.76	2.03	5.84	8.42	3.36	30.75	-	-	-	-	5.84	8.42	6.34	30.75	-	-	-	-
4-Row																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F (Std/ Low)**	**G**	**H**	**J**	**K**	**L (Std/ Low)**	**M**	**N (Std/ Low)**	**P (Std/ Low)**	**Q**	**R**	**S**	**T**
060	4.76	2.03	5.83	8.43	6.30	16.75	-	-	-	-	5.83	8.43	6.34	16.75	-	-	-	-
080	4.76	2.03	5.83	8.43	3.36	23.75 22.75	-	-	-	-	5.83	8.43	6.34 7.34	23.75 22.75	-	-	-	-
100	4.76	2.03	5.83	8.43	3.36	30.75	-	-	-	-	5.83	8.43	6.34	30.75	-	-	-	-
6-Row																		
Unit Size	**A**	**B**	**C (Std/ Low)**	**D (Std/ Low)**	**E**	**F (Std/ Low)**	**G**	**H**	**J**	**K**	**L (Std/ Low)**	**M (Std/ Low)**	**N (Std/ Low)**	**P (Std/ Low)**	**Q**	**R**	**S**	**T**
060	4.76	2.03	5.94 4.97	8.32 9.30	6.30	16.75 15.75	-	-	-	-	5.94 4.97	8.32 9.30	6.34 7.34	16.75 15.75	-	-	-	-
080	4.76	2.03	5.83	8.43	3.36	23.75	-	-	-	-	5.83	8.43	6.34	23.75	-	-	-	-
100	4.76	2.03	5.83 4.96	8.44 9.30	3.36	30.75	-	-	-	-	5.83 4.96	8.44 9.30	6.34	30.75	-	-	-	-
8-Row																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	4.76	2.03	4.62	8.95	6.30	16.75	-	-	-	-	4.62	8.95	6.34	16.75	-	-	-	-
080	4.76	2.03	4.62	8.95	3.36	23.75	-	-	-	-	4.62	8.95	6.34	23.75	-	-	-	-
100	4.76	2.03	4.62	8.95	3.36	30.75	-	-	-	-	4.62	8.95	6.34	30.75	-	-	-	-
2-Row Cold Water + 1-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	4.76	2.03	5.84	8.42	6.30	16.75	13.68	16.48	6.80	16.25	5.84	8.42	6.34	16.75	13.68	16.48	6.34	16.25
080	4.76	2.03	5.84	8.42	4.36	22.75	13.68	16.37	4.86	22.25	5.84	8.42	6.34	23.75	13.68	16.37	6.34	22.25
100	4.76	2.03	5.84	8.42	3.36	30.75	13.68	16.48	3.86	30.25	5.84	8.42	6.34	30.75	13.68	16.48	6.34	30.25
2-Row Cold Water + 2-Row Hot Water																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G (Std/ Low)**	**H**	**J (Std/ Low)**	**K (Std/ Low)**	**L**	**M**	**N**	**P**	**Q (Std/ Low)**	**R**	**S**	**T (Std/ Low)**
060	4.76	2.03	5.84	8.42	6.30	16.75	13.95 13.68	16.37	6.30	16.75	5.84	8.42	6.34	16.75	13.95 13.68	16.37	6.34	16.75
080	4.76	2.03	5.84	8.42	4.36	22.75	13.95 13.68	16.37	3.36 4.36	23.75 22.75	5.84	8.42	6.34	22.75	13.95 13.68	16.37	6.34	23.75 22.75
100	4.76	2.03	5.84	8.42	3.36	30.75	13.95 13.68	16.37	3.36 4.74	30.75 29.38	5.84	8.42	6.34	30.75	13.95 13.68	16.37	6.34	30.75 29.38

4-Row Cold Water + 1-Row Hot Water																		
Unit Size	A	B	C	D	E	F (Std/ Low)	G	H	J	K	L	M	N (Std/ Low)	P (Std/ Low)	Q	R	S	T
060	4.76	2.03	5.83	8.43	6.30	16.75	13.68	16.48	6.80	16.25	5.83	8.43	6.34	16.75	13.68	16.48	6.34	16.25
080	4.76	2.03	5.83	8.43	3.36	22.75 23.75	13.68	16.37	4.86	22.25	5.83	8.43	7.34 6.34	22.75 23.75	13.68	16.37	6.34	22.25
100	4.76	2.03	5.83	8.43	3.36	30.75	13.68	16.48	3.86	30.25	5.83	8.42	6.34	30.75	13.68	16.48	6.34	30.25

4-Row Cold Water + 2-Row Hot Water																		
Unit Size	A	B	C	D	E	F (Std/ Low)	G (Std/ Low)	H	J (Std/ Low)	K (Std/ Low)	L	M	N (Std/ Low)	P (Std/ Low)	Q (Std/ Low)	R	S	T (Std/ Low)
060	4.76	2.03	5.83	8.43	6.30	16.75	13.95 13.68	16.37	6.3	16.75	5.83	8.43	6.34	16.75	13.95 13.68	16.37	6.34	16.75
080	4.76	2.03	5.83	8.43	3.36	23.75 22.75	13.95 13.68	16.37	3.36 4.36	23.75 22.75	5.83	8.43	6.34 7.34	23.75 22.75	13.95 13.68	16.37	6.34	23.75 22.75
100	4.76	2.03	5.83	8.43	3.36	30.75	13.95 13.68	16.37	3.36 4.74	30.75 29.38	5.83	8.43	6.34	30.75	13.95 13.68	16.37	6.34	30.75 29.38

6-Row Cold Water + 2-Row Hot Water																		
Unit Size	A	B	C (Std/ Low)	D (Std/ Low)	E	F (Std/ Low)	G (Std/ Low)	H	J (Std/ Low)	K (Std/ Low)	L (Std/ Low)	M (Std/ Low)	N (Std/ Low)	P (Std/ Low)	Q (Std/ Low)	R	S	T (Std/ Low)
060	4.76	2.03	5.94 4.97	8.32 9.30	6.30	16.75 15.75	13.95 13.68	16.37	6.30	16.75	5.94 4.97	8.32 9.30	6.34 7.34	16.75 15.75	13.95 13.68	16.37	6.34	16.75
080	4.76	2.03	5.83	8.43	3.36	23.75	13.95 13.68	16.37	3.36 4.36	23.75 22.75	5.83	8.43	6.34	23.75	13.95 13.68	16.37	6.34	23.75 22.75
100	4.76	2.03	5.83 4.96	8.44 9.30	3.36	30.75	13.95 13.68	16.37	3.36 4.74	30.75 29.38	5.83 4.96	8.44 9.30	6.34	30.75	13.95 13.68	16.37	6.34	30.75 29.38

6-Row Cold Water + 1-Row Hot Water																		
Unit Size	A	B	C (Std/ Low)	D (Std/ Low)	E	F (Std/ Low)	G	H	J	K	L (Std/ Low)	M (Std/ Low)	N (Std/ Low)	P (Std/ Low)	Q	R	S	T
060	4.76	2.03	4.97 5.94	9.30 8.32	6.30	15.75 16.75	13.68	16.48	6.80	16.25	4.97 5.94	9.30 8.32	7.34 6.34	15.75 16.75	13.68	16.48	6.34	16.25
080	4.76	2.03	5.83	8.43	3.36	23.75	13.68	16.37	4.86	22.25	5.83	8.43	6.34	23.75	13.68	16.37	6.34	22.25
100	4.76	2.03	5.83 4.96	8.44 9.30	3.36	30.75	13.68	16.48	3.86	30.25	5.83 4.96	8.44 9.30	6.34	30.75	13.68	16.48	6.34	30.25

8-Row Cold Water + 1-Row Hot Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	4.76	2.03	4.62	8.95	6.30	16.75	13.68	16.48	6.80	16.25	4.62	8.95	6.34	16.75	13.68	16.48	6.34	16.25
080	4.76	2.03	4.62	8.95	3.36	23.75	13.68	16.37	4.86	22.25	4.62	8.95	6.34	23.75	13.68	16.37	6.34	22.25
100	4.76	2.03	4.62	8.95	3.36	30.75	13.68	16.48	3.86	30.25	4.62	8.95	6.34	30.75	13.68	16.48	6.34	30.25

8-Row Cold Water + 2-Row Hot Water																		
Unit Size	A	B	C	D	E	F	G (Std/ Low)	H	J (Std/ Low)	K (Std/ Low)	L	M	N	P	Q (Std/ Low)	R	S	T (Std/ Low)
060	4.76	2.03	4.62	8.95	6.30	16.75	13.95 13.68	16.37	6.30	16.75	4.62	8.95	6.34	16.75	13.95 13.68	16.37	6.34	16.75
080	4.76	2.03	4.62	8.95	3.36	23.75	13.95 13.68	16.37	3.36 4.36	23.75 22.75	4.62	8.95	6.34	23.75	13.95 13.68	16.37	6.34	23.75 22.75
100	4.76	2.03	4.62	8.95	3.36	30.75	13.95 13.68	16.37	4.74	29.38	4.62	8.95	6.34	30.75	13.95 13.68	16.37	6.34	29.38

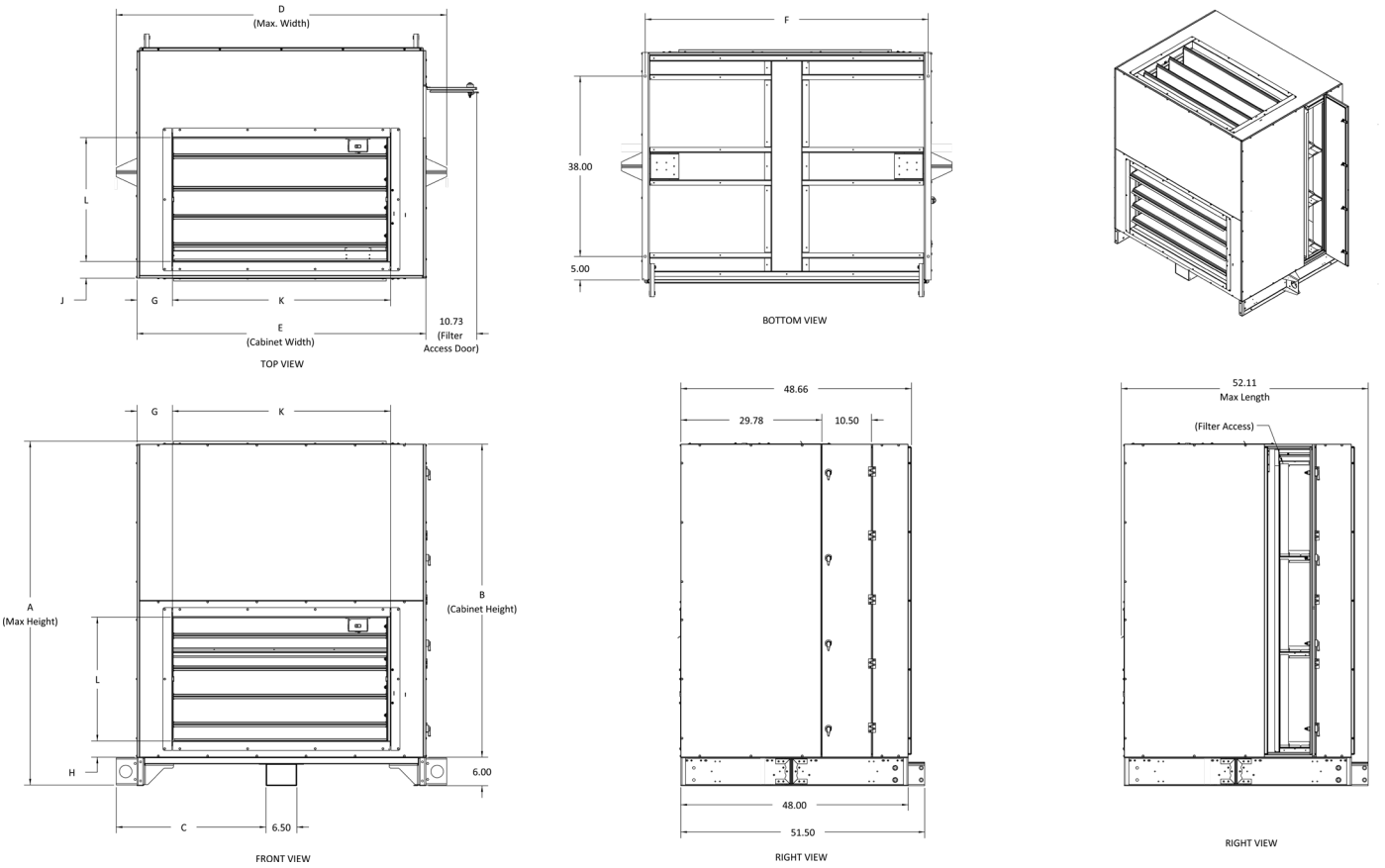
1-Row Hot Water + 2-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	4.76	2.03	5.43	8.23	6.80	16.25	13.09	15.67	6.30	16.75	5.43	8.23	6.34	16.25	13.09	15.67	6.34	16.75
080	4.76	2.03	5.43	8.12	4.86	22.25	13.09	15.67	4.36	22.75	5.43	8.12	6.34	22.25	13.09	15.67	6.34	22.75
100	4.76	2.03	5.43	8.23	3.86	30.25	13.09	15.67	3.36	30.75	5.43	8.23	6.34	30.25	13.09	15.67	6.34	30.75
1-Row Hot Water + 4-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S (Std/ Low)	T (Std/ Low)
060	4.76	2.03	5.43	8.23	6.80	16.25	13.08	15.68	6.30	16.75	5.43	8.23	6.34	16.25	13.08	15.68	6.34	16.75
080	4.76	2.03	5.43	8.12	4.86	22.25	13.08	15.68	3.36	23.75	5.43	8.12	6.34	22.25	13.08	15.68	6.34	23.75
																	7.34	22.75
100	4.76	2.03	5.43	8.23	3.86	30.25	13.08	15.68	3.36	30.75	5.43	8.23	6.34	30.25	13.08	15.68	6.34	30.75
1-Row Hot Water + 6-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G (Std/ Low)	H (Std/ Low)	J	K	L	M	N	P	Q (Std/ Low)	R (Std/ Low)	S (Std/ Low)	T (Std/ Low)
060	4.76	2.03	5.43	8.23	6.80	16.25	13.19	15.57	6.30	16.75	5.43	8.23	6.34	16.25	13.19	15.57	6.34	16.75
							12.22	16.55							12.22	16.55	7.34	15.75
080	4.76	2.03	5.43	8.12	4.86	22.25	13.08	15.68	3.36	23.75	5.43	8.12	6.34	22.25	13.08	15.68	6.34	23.75
100	4.76	2.03	5.43	8.23	3.86	30.25	13.08	15.68	3.36	30.75	5.43	8.23	6.34	30.25	13.08	15.68	6.34	30.75
							12.21	16.55							12.21	16.55		
1-Row Hot Water + 8-Row Cold Water																		
Unit Size	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T
060	4.76	2.03	5.43	8.23	6.80	16.25	11.87	16.20	6.30	16.75	5.43	8.23	6.34	16.25	11.87	16.20	6.34	16.75
080	4.76	2.03	5.43	8.12	4.86	22.25	11.87	16.20	3.36	23.75	5.43	8.12	6.34	22.25	11.87	16.20	6.34	23.75
100	4.76	2.03	5.43	8.23	3.86	30.25	11.87	16.20	3.36	30.75	5.43	8.23	6.34	30.25	11.87	16.20	6.34	30.75
2-Row Hot Water + 2-Row Cold Water																		
Unit Size	A	B	C (Std/ Low)	D	E (Std/ Low)	F (Std/ Low)	G	H	J	K	L (Std/ Low)	M	N	P (Std/ Low)	Q	R	S	T
060	4.76	2.03	5.70	8.12	6.30	16.75	13.09	15.67	6.30	16.75	5.70	8.12	6.34	16.75	13.09	15.67	6.34	16.75
			5.43								5.43							
080	4.76	2.03	5.70	8.12	3.36	23.75	13.09	15.67	4.36	22.75	5.70	8.12	6.34	23.75	13.09	15.67	6.34	22.75
			5.43		4.36	22.75					5.43			22.75				
100	4.76	2.03	5.70	8.12	3.36	30.75	13.09	15.67	3.36	30.75	5.70	8.12	6.34	30.75	13.09	15.67	6.34	30.75
			5.43		4.74	29.38					5.43			29.38				
2-Row Hot Water + 4-Row Cold Water																		
Unit Size	A	B	C (Std/ Low)	D	E (Std/ Low)	F (Std/ Low)	G	H	J	K (Std/ Low)	L (Std/ Low)	M	N	P (Std/ Low)	Q	R	S (Std/ Low)	T (Std/ Low)
060	4.76	2.03	5.70	8.12	6.30	16.75	13.08	15.68	6.30	16.75	5.70	8.12	6.34	16.75	13.08	15.68	6.34	16.75
			5.43								5.43							
080	4.76	2.03	5.70	8.12	3.36	23.75	13.08	15.68	3.36	23.75	5.70	8.12	6.34	23.75	13.08	15.68	6.34	23.75
			5.43		4.36	22.75				22.75	5.43			22.75			7.34	22.75
100	4.76	2.03	5.70	8.12	3.36	30.75	13.08	15.68	3.36	30.75	5.70	8.12	6.34	30.75	13.08	15.68	6.34	30.75
			5.43		4.74	29.38					5.43			29.38				

2-Row Hot Water + 6-Row Cold Water																	
Unit Size	A	B	C (Std/ Low)	D	E (Std/ Low)	F (Std/ Low)	G (Std/ Low)	H (Std/ Low)	J	K (Std/ Low)	L (Std/ Low)	M	N	P (Std/ Low)	Q (Std/ Low)	R (Std/ Low)	S (Std/ Low)	T (Std/ Low)
060	4.76	2.03	5.70	8.12	6.30	16.75	13.19	15.57	6.30	16.75	5.70	8.12	6.34	16.75	13.19	15.57	6.34	16.75
			5.43				12.22	16.55		15.75	5.43				12.22	16.55	7.34	15.75
080	4.76	2.03	5.70	8.12	3.36	23.75	13.08	15.68	3.36	23.75	5.70	8.12	6.34	23.75	13.08	15.68	6.34	23.75
			5.43		4.36	22.75					5.43			22.75				
100	4.76	2.03	5.70	8.12	3.36	30.75	13.08	15.68	3.36	30.75	5.70	8.12	6.34	30.75	13.08	15.68	6.34	30.75
			5.43		4.74	29.38	12.21	16.55			5.43			29.38	12.21	16.55		
2-Row Hot Water + 8-Row Cold Water																		
Unit Size	A	B	C (Std/ Low)	D	E (Std/ Low)	F (Std/ Low)	G	H	J	K	L (Std/ Low)	M	N	P (Std/ Low)	Q	R	S	T
060	4.76	2.03	5.70	8.12	6.30	16.75	11.87	16.20	6.30	16.75	5.70	8.12	6.34	16.75	11.87	16.20	6.34	16.75
			5.43								5.43							
080	4.76	2.03	5.70	8.12	3.36	23.75	11.87	16.20	3.36	23.75	5.70	8.12	6.34	23.75	11.87	16.20	6.34	23.75
			5.43		4.36	22.75					5.43			22.75				
100	4.76	2.03	5.70	8.12	3.36	30.75	11.87	16.20	3.36	30.75	5.70	8.12	6.34	30.75	11.87	16.20	6.34	30.75
			5.43		4.74	29.38					5.43			29.38				

LEGEND	
Std	Standard Circuiting Flow
Low	Low Circuiting Flow

NOTE: Dimensions shown in inches.

Figure 50: Horizontal Mixing Box Dimensions (Unit Sizes 060-100)



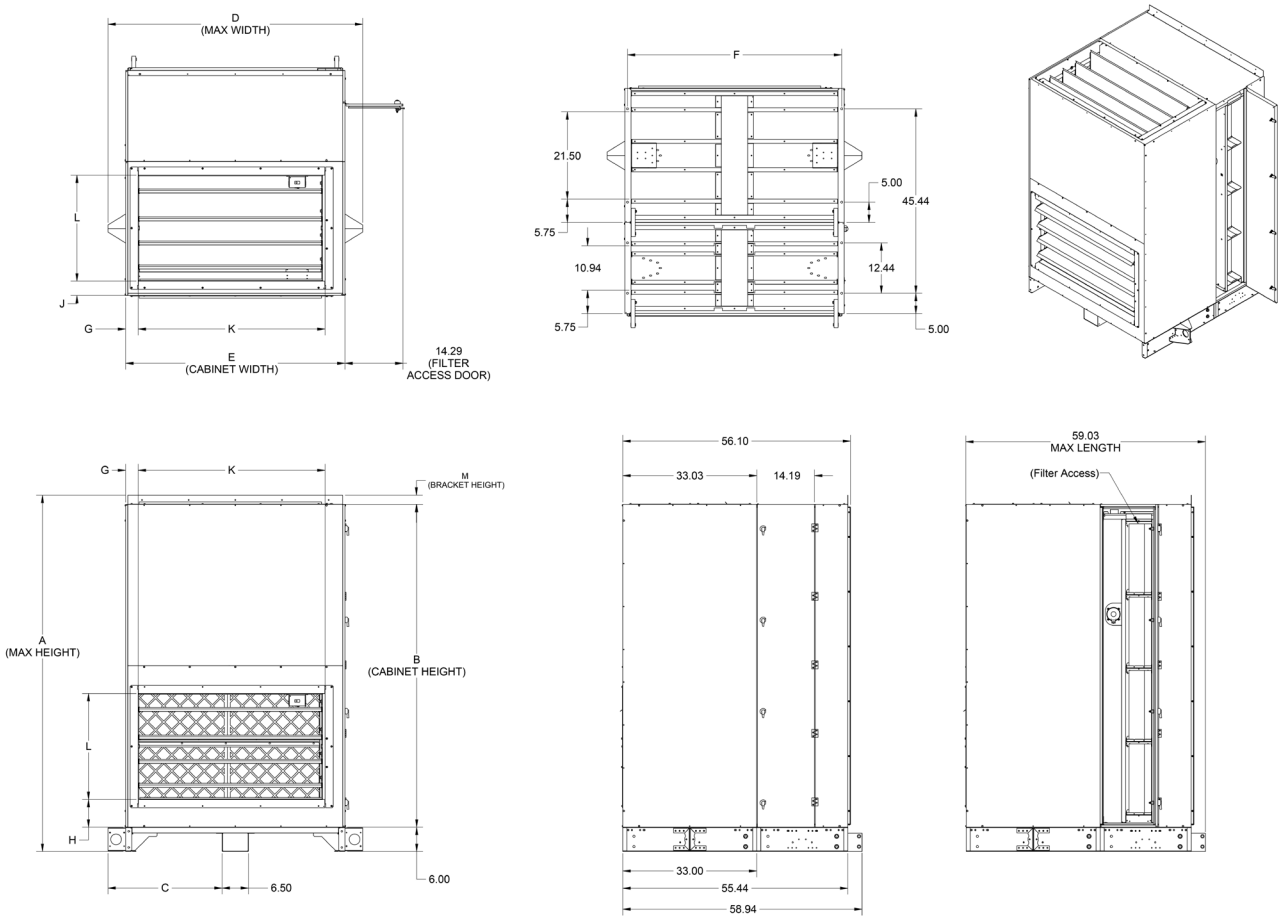
NOTE: Dimensions shown in inches.

Table 74: Mixing Box Dimension Letter Reference

Dimension	060	080	100
A	60.00	68.00	72.00
B	54.00	62.00	66.00
C	28.13	28.13	31.63
D	62.75	62.75	69.75
E	54.00	54.00	61.00
F	52.76	52.76	59.76
G	10.19	4.94	7.49
H	2.45	2.45	3.43
J	3.16	3.16	3.53
K	33.63	44.13	46.03
L	22.07	22.07	26.11

NOTE: Dimensions shown in inches.

Figure 51: Vertical Mixing Box Dimensions (Unit Sizes 060-100)



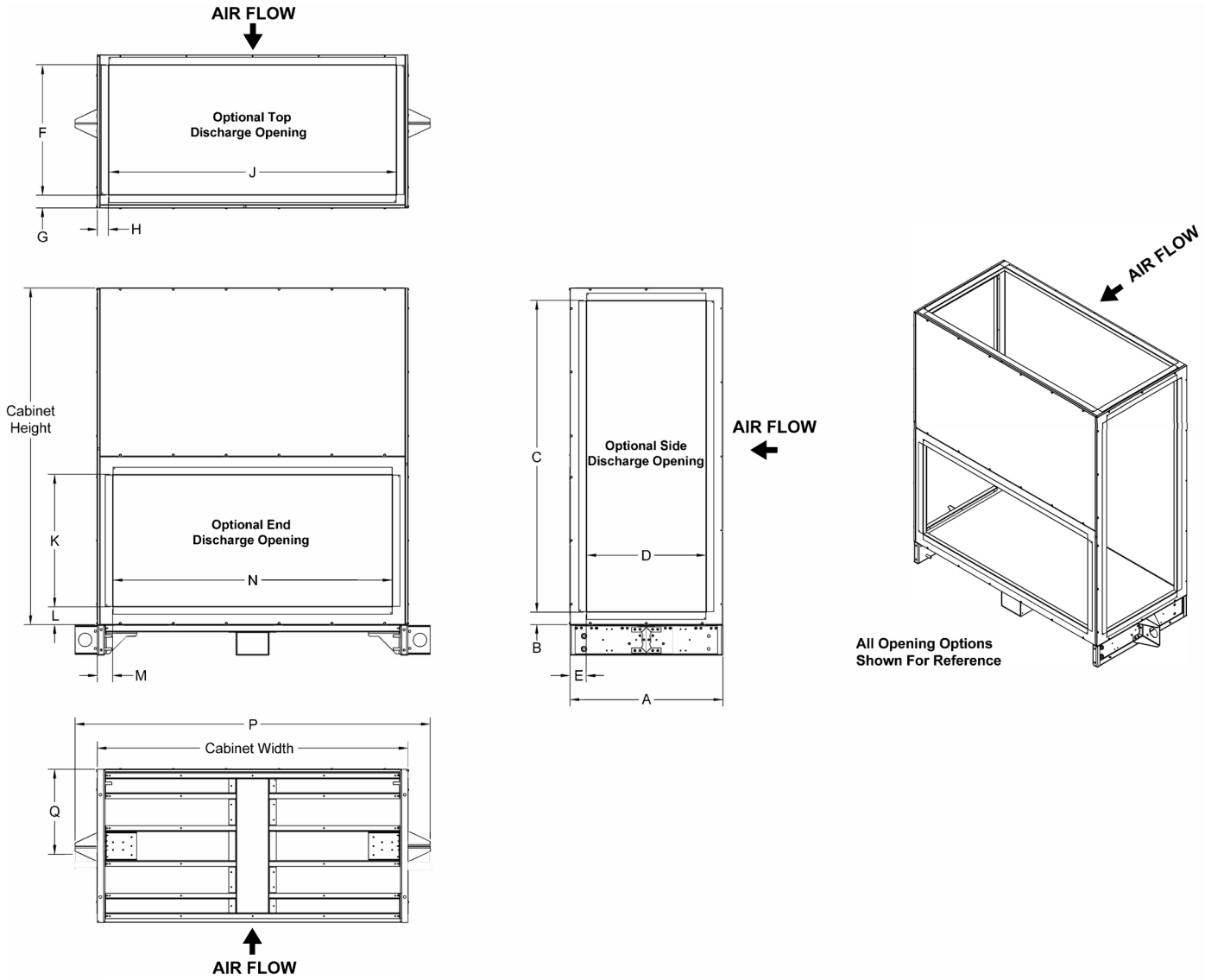
NOTE: Dimensions shown in inches.

Table 75: Mixing Box Dimension Letter Reference

Dimension	060	080	100
A	85.50	87.76	87.76
B	79.50	79.50	79.50
C	28.12	28.12	28.12
D	62.75	62.75	62.75
E	54.00	54.00	54.00
F	52.76	52.76	52.76
G	10.18	4.93	3.07
H	8.83	8.83	6.81
J	5.72	3.07	3.54
K	33.63	44.13	46.03
L	22.07	22.07	26.11
M	-	2.26	2.26

NOTE: Dimensions shown in inches.

Figure 52: Discharge Plenum Without Filter (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

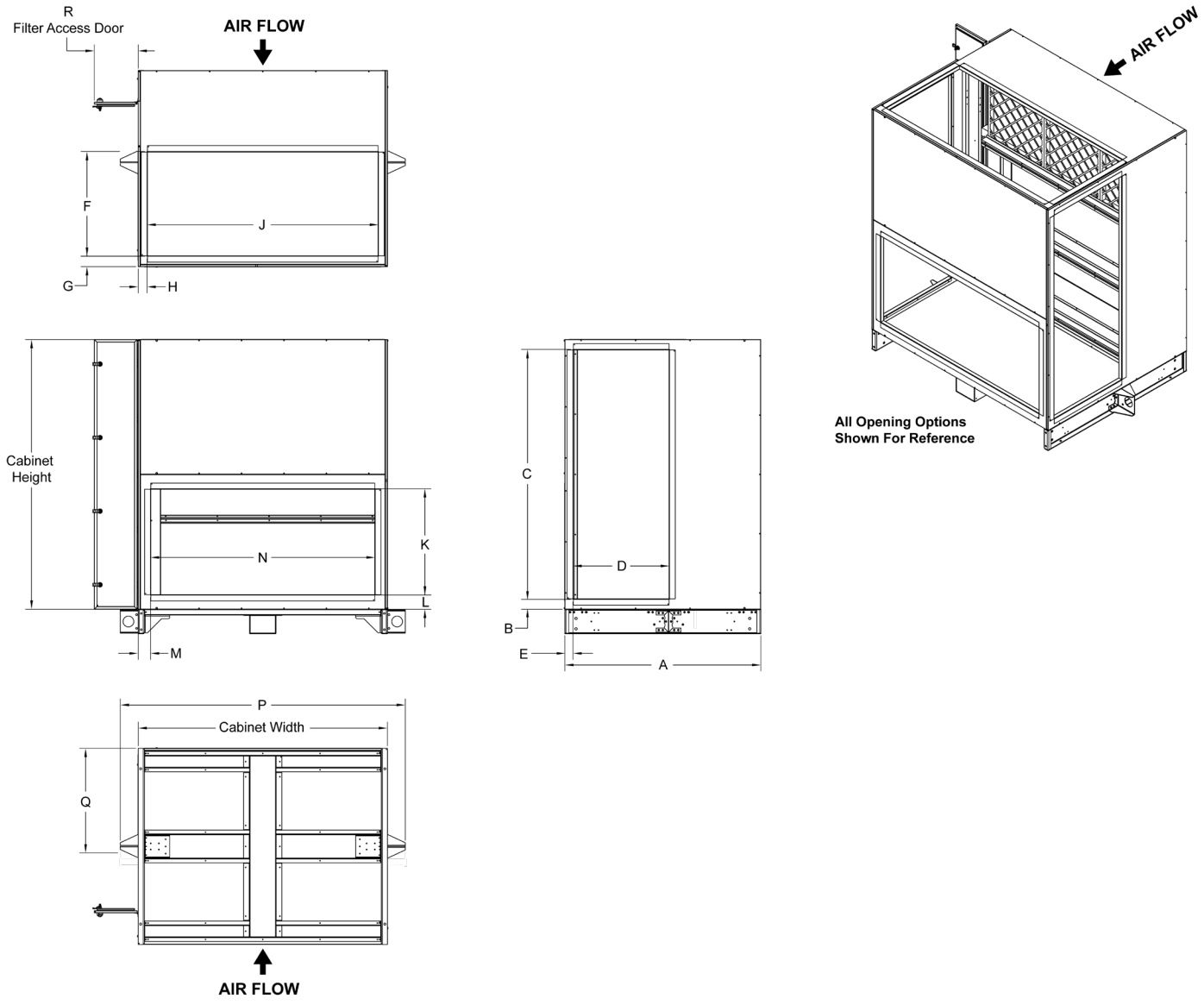
Table 76: Discharge Plenum Without Filter Dimension Letter Reference

Dimension	060	080	100
A	30.00	30.00	30.00
B	3.00	7.00	2.50
C	48.00	48.00	61.00
D	18.00	24.00	23.50
E	7.16	2.99	3.23
F	20.00	24.00	26.00
G	2.60	3.25	2.50
H	7.50	3.00	2.25
J	43.00	48.00	55.00

Dimension	060	080	100
K	20.00	24.00	26.00
L	3.49	3.49	3.46
M	5.50	3.00	3.00
N	43.00	48.00	55.00
P	62.75	62.75	69.75
Q	16.61	16.61	16.61
Length	30	30	30
Width	54	54	61
Height	54	62	66

NOTE: Dimensions shown in inches.

Figure 53: Discharge Plenum With Filter (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

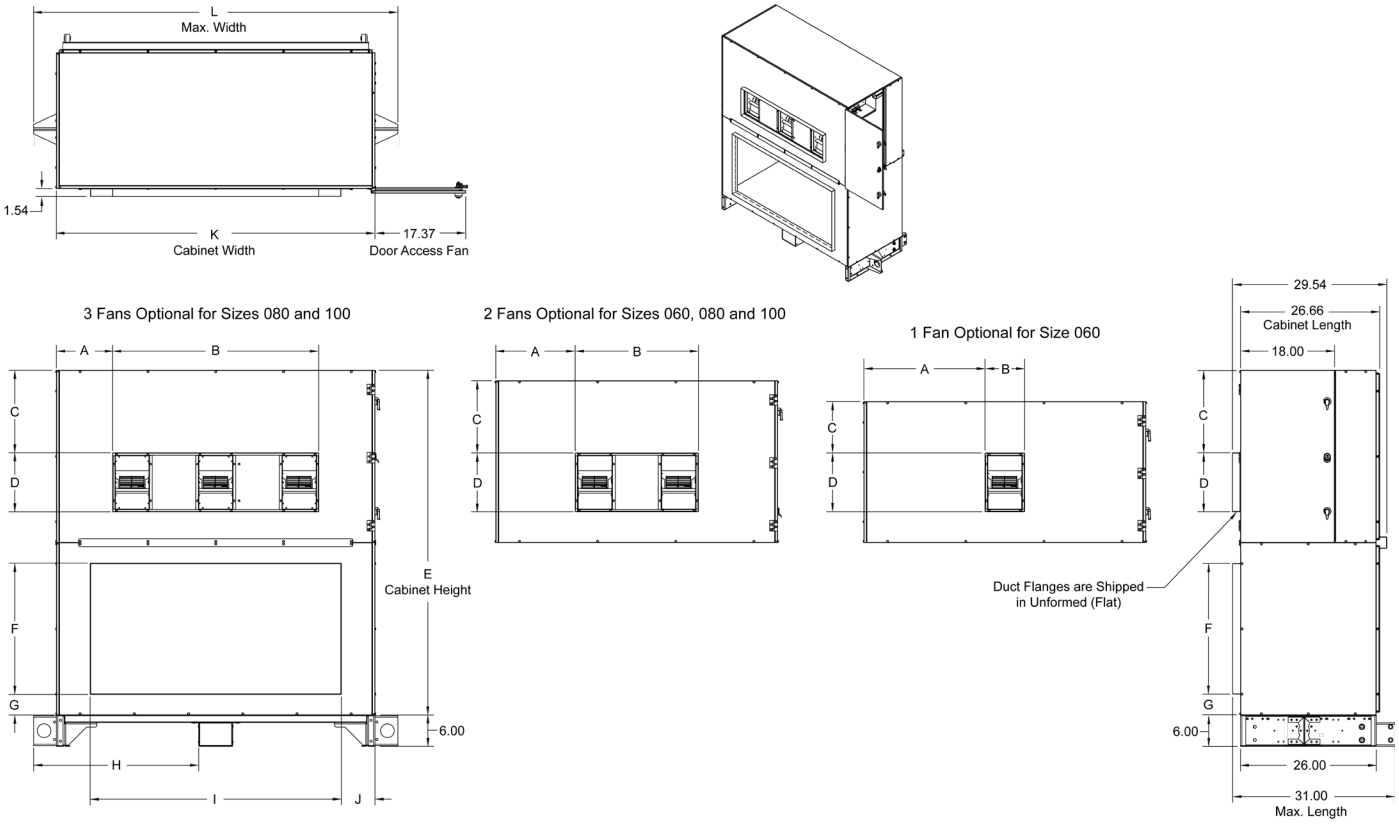
Table 77: Discharge Plenum With Filter Dimension Letter Reference

Dimension	060	080	100
A	48.00	48.00	48.00
B	3.00	7.00	2.50
C	48.00	48.00	61.00
D	18.00	24.00	23.50
E	4.81	3.06	2.06
F	20.00	24.00	26.00
G	2.60	2.60	2.06
H	7.50	3.00	2.25
J	43.00	48.00	55.00
K	20.00	24.00	26.00

Dimension	060	080	100
L	3.49	3.49	3.46
M	5.50	3.00	3.00
N	43.00	48.00	55.00
P	62.75	62.75	69.75
Q	25.61	25.61	25.61
R	10.73	10.73	10.73
Length	48	48	48
Width	54	54	61
Height	54	62	66

NOTE: Dimensions shown in inches.

Figure 54: Horizontal Exhaust Air / Outdoor Air Dimensions (Unit Sizes 060-100)



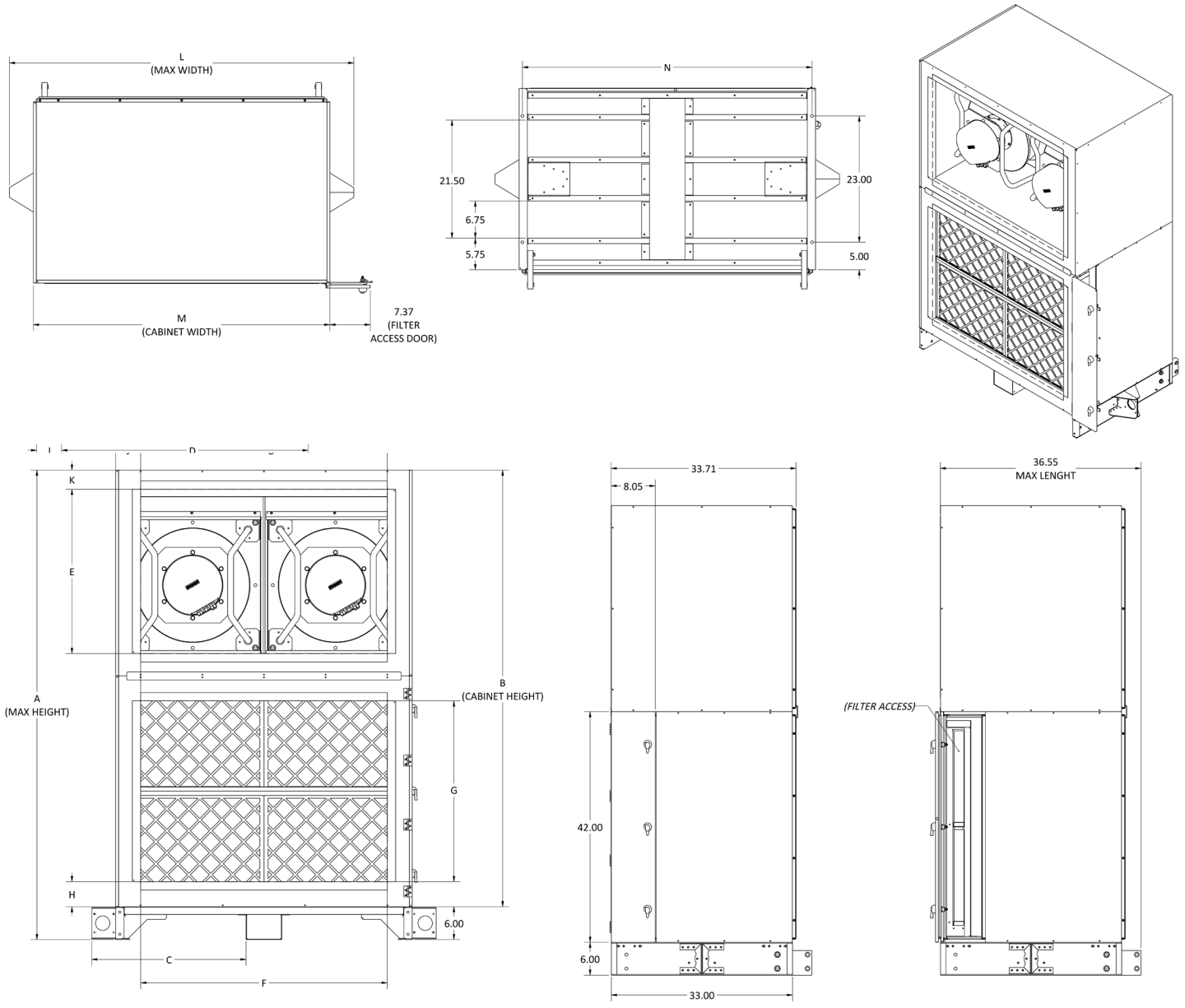
NOTE: Dimensions shown in inches.

Table 78: Exhaust Air / Outdoor Air Section Dimension Letter Reference

Dimension	060		080		100	
	1 Fan	2 Fans	2 Fans	3 Fans	2 Fans	3 Fans
A	23.20	15.20	15.20	7.20	18.75	10.75
B	7.60	23.60	23.60	39.61	23.50	39.61
C	9.84	9.84	13.84	13.81	15.84	15.81
D	11.26	11.26	11.26	11.26	11.26	11.26
E	54.00		62.00		66.00	
F	20.00		24.00		25.00	
G	3.50		3.50		4.00	
H	23.75		23.75		31.63	
I	36.00		40.00		48.00	
J	9.00		7.00		6.50	
K	54.00		54.00		61.00	
L	62.75		62.75		69.75	

NOTE: Dimensions shown in inches.

Figure 55: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

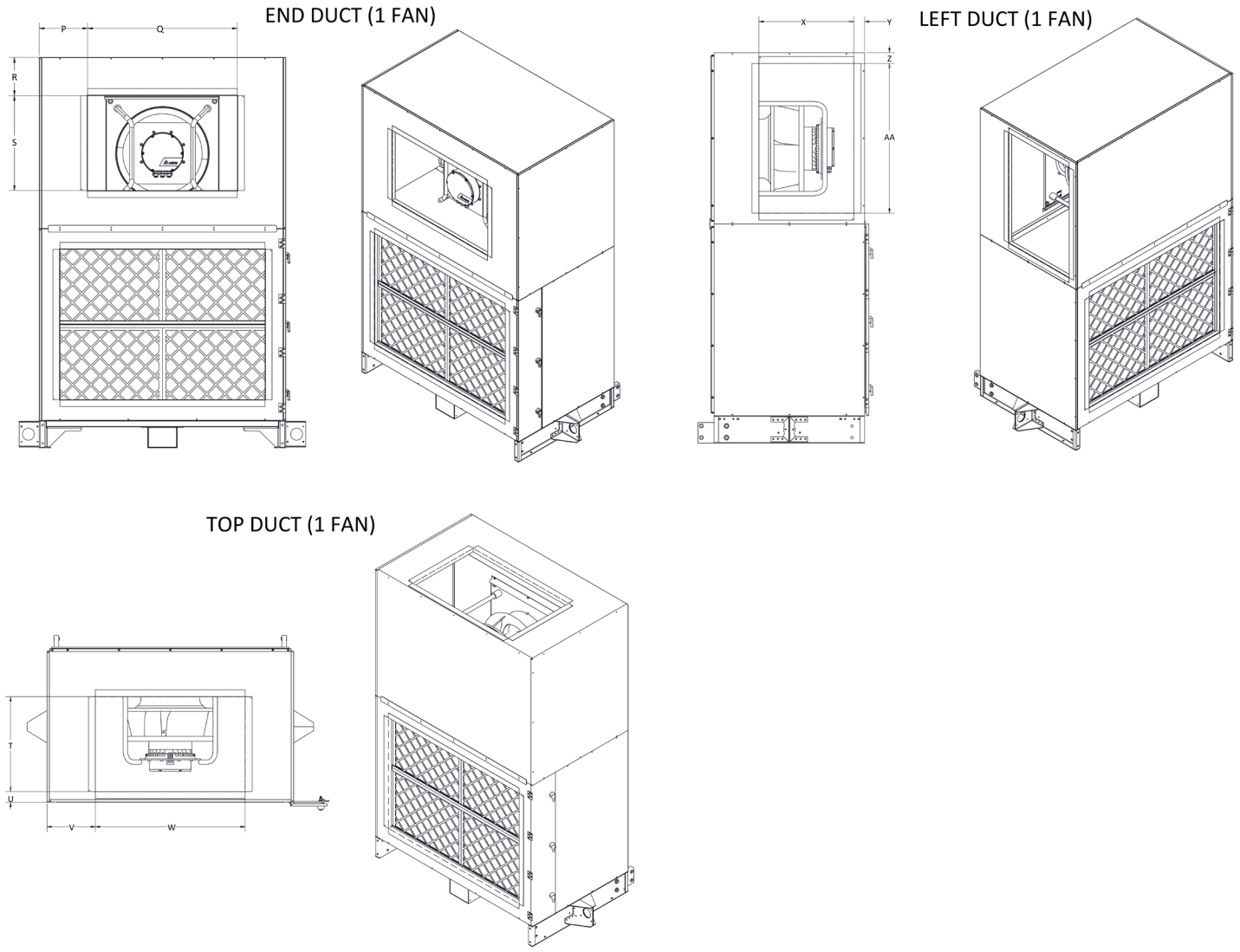
Table 79: Exhaust Air / Outdoor Air Section - Two Fans Dimension Letter Reference

Dimension	060	080	100
	2 Fans		
A	85.50	85.50	85.50
B	79.50	79.50	79.50
C	28.13	28.13	28.13
D	41.53	34.53	44.91
E	18.78	32.78	29.91
F	41.53	34.53	44.91
G	18.78	32.78	32.91

Dimension	060	080	100
	2 Fans		
H	4.62	4.62	11.61
J	6.23	9.73	4.55
K	9.06	2.06	3.49
L	62.75	62.75	62.75
M	54.00	54.00	54.00
N	52.76	52.76	52.76

NOTE: Dimensions shown in inches.

Figure 56: Vertical Exhaust Air / Outdoor Air Dimensions - One Fan (Unit Sizes 060-100)



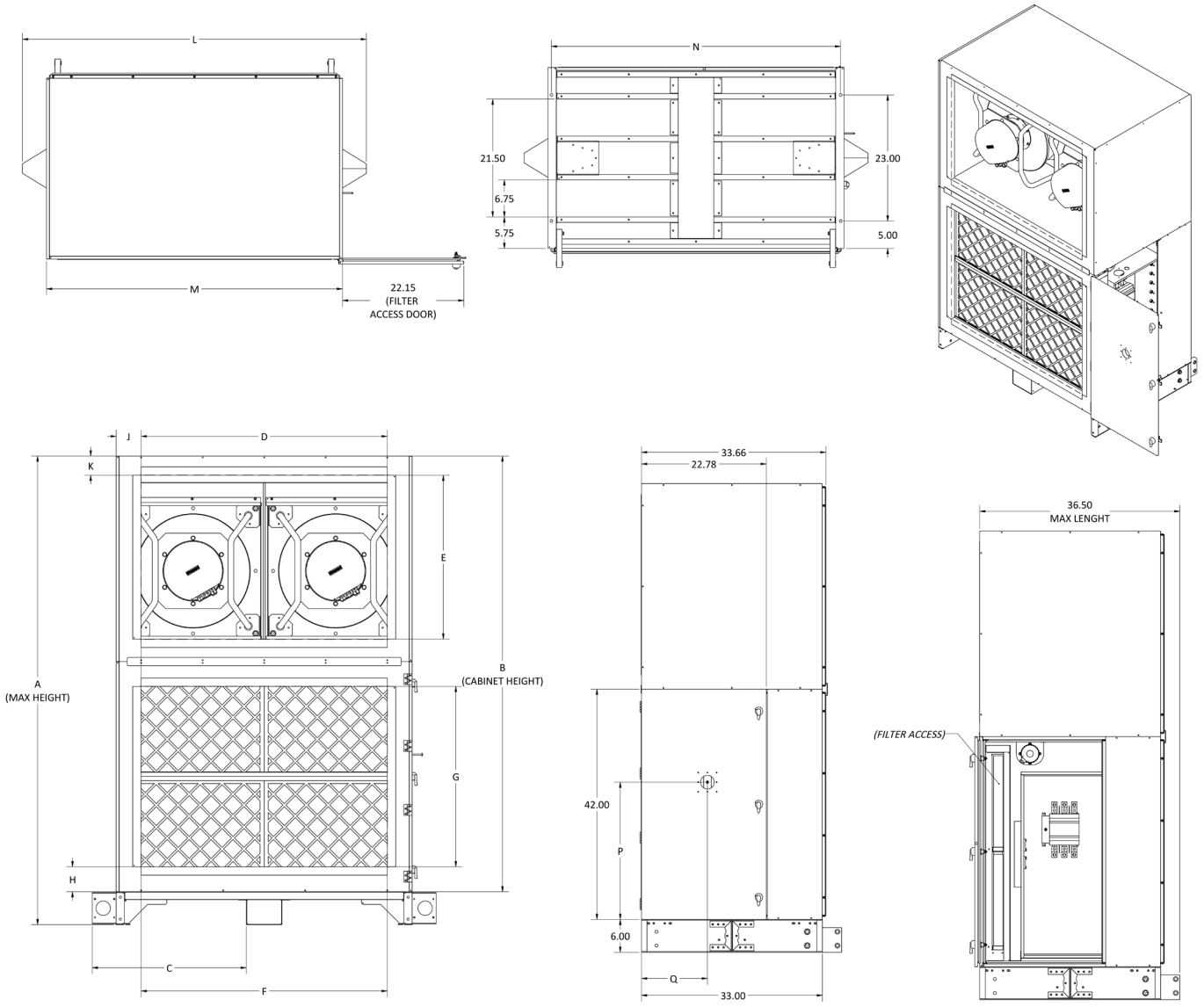
NOTE: Dimensions shown in inches.

Table 80: Exhaust Air / Outdoor Air Section - One Fan Dimension Letter Reference

Dimension	060	080	100
	1 Fan		
P	13.61	12.11	10.61
Q	26.78	29.78	32.78
R	11.11	9.86	8.36
S	14.78	17.78	20.78
T	14.78	17.78	20.78
U	3.73	3.73	2.27
V	13.61	12.11	10.61
W	26.78	29.78	32.78
X	14.78	17.78	20.78
Y	3.73	3.73	2.36
Z	5.36	3.86	2.36
AA	26.78	29.78	32.78

NOTE: Dimensions shown in inches.

Figure 57: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans / Electric Heat (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

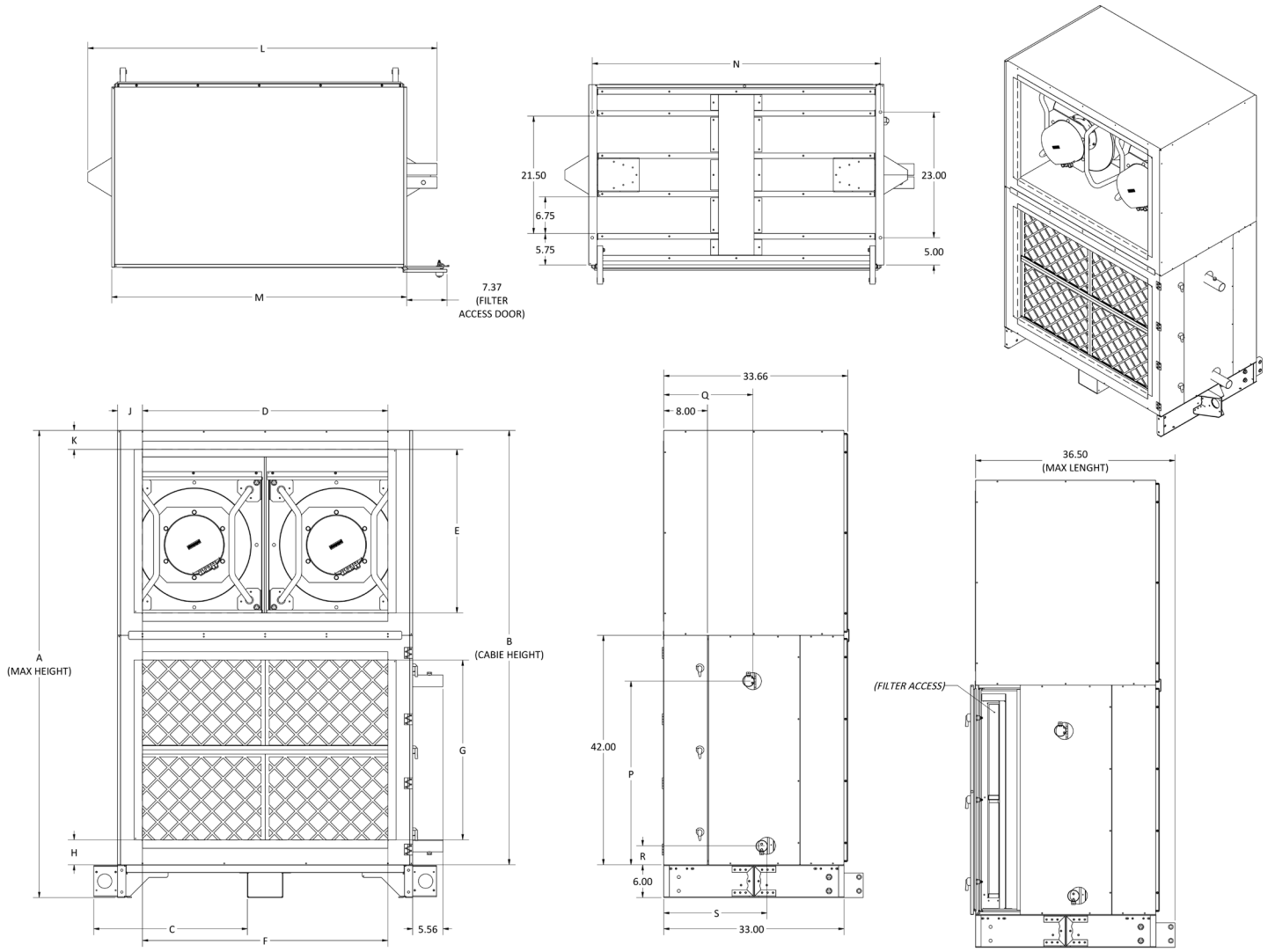
Table 81: Exhaust Air / Outdoor Air Section - Two Fans / Electric Heat Dimension Letter Reference

Dimension	060	080	100
	2 Fans		
A	85.50	85.50	85.50
B	79.50	79.50	79.50
C	28.13	28.13	28.13
D	41.53	34.53	44.91
E	18.78	32.78	29.91
F	41.53	34.53	44.91
G	18.78	32.78	32.91
H	4.62	4.62	11.61

Dimension	060	080	100
	2 Fans		
J	6.23	9.73	4.54
K	9.06	2.06	3.49
L	62.75	62.75	62.75
M	54.00	54.00	54.00
N	52.76	52.76	52.76
P	25.04	25.04	25.04
Q	12.03	12.03	12.03

NOTE: Dimensions shown in inches.

Figure 58: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans / Hot Water (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

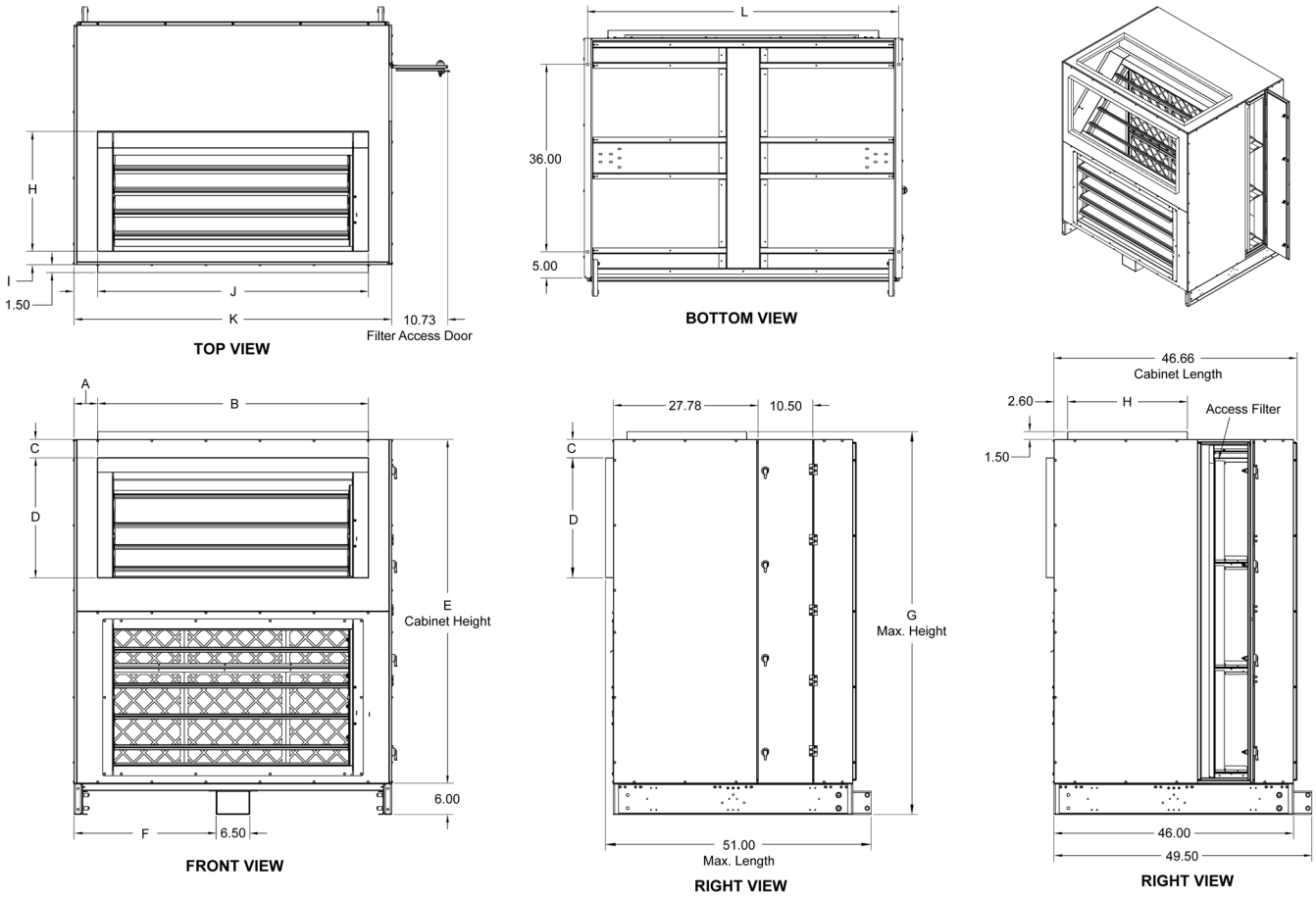
Table 82: Exhaust Air / Outdoor Air Section - Two Fans / Hot Water Dimension Letter Reference

Dimension	060		080		100	
	1 Fan	2 Fans	2 Fans	3 Fans	2 Fans	3 Fans
A	85.50		85.50		85.50	
B	79.50		79.50		79.50	
C	28.13		28.13		28.13	
D	41.53		34.53		44.91	
E	18.78		32.78		29.91	
F	41.53		34.53		44.91	
G	18.78		32.78		32.91	
H	4.62		4.62		4.56	
J	6.23		9.73		4.55	

Dimension	060		080		100	
	1 Fan	2 Fans	2 Fans	3 Fans	2 Fans	3 Fans
K	9.06		2.06		3.49	
L	63.94		62.75		63.94	
M	54.00		54.00		54.00	
N	52.76		52.76		52.76	
P	19.57	19.67	25.67	25.67	33.67	33.67
Q	15.24	15.24	15.24	15.24	16.17	15.51
R	3.42	3.42	3.42	3.42	3.92	3.42
S	18.04	17.93	17.93	17.93	18.97	17.93

NOTE: Dimensions shown in inches.

Figure 59: Horizontal Economizer Dimensions (Unit Sizes 060-100)



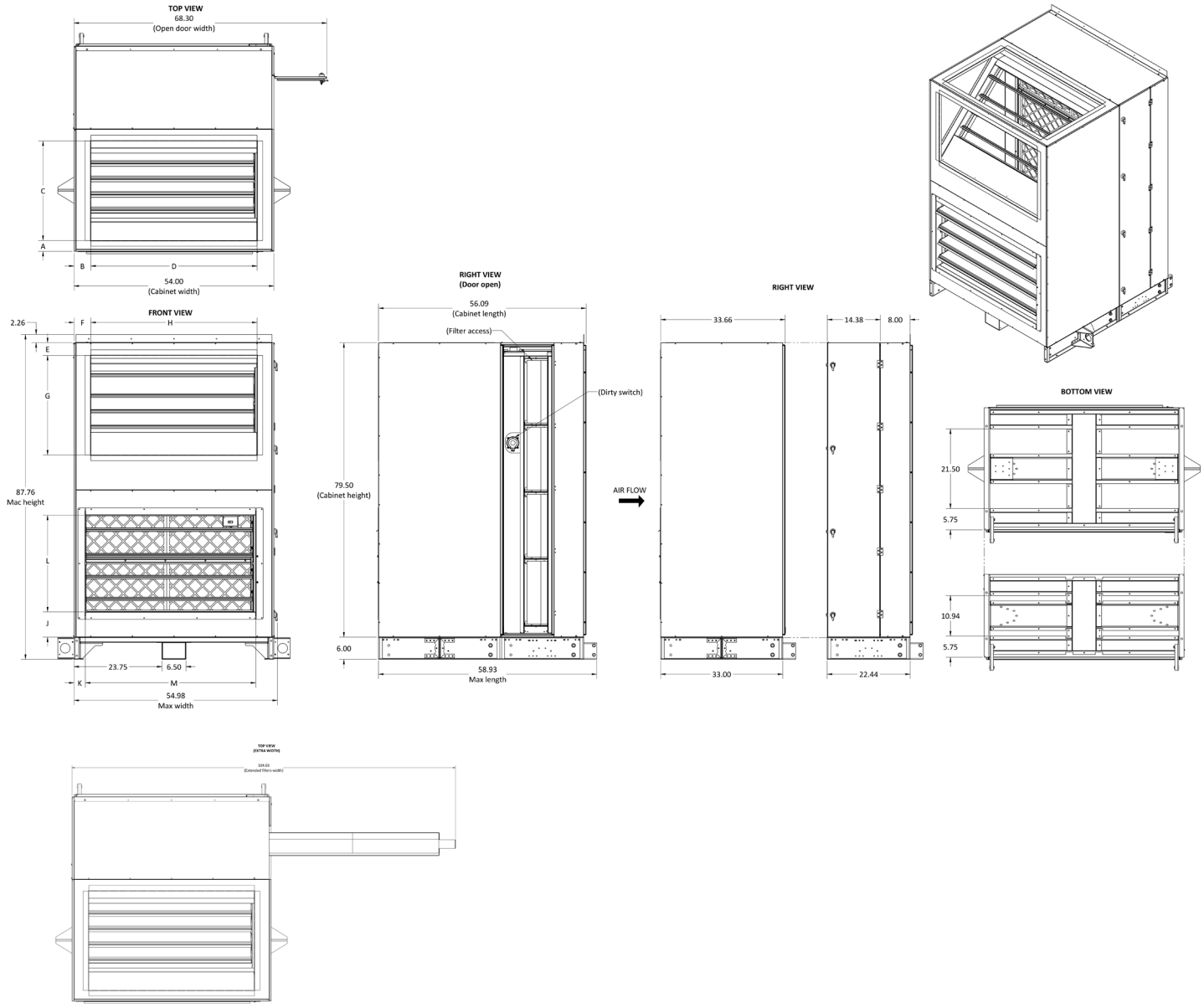
NOTE: Dimensions shown in inches.

Table 83: Economizer Section Dimension Letter Reference

Dimension	060	080	100
A	7.00	5.00	4.50
B	40.00	44.00	52.00
C	54.00	62.00	66.00
D	23.75	23.75	27.25
E	61.50	69.50	73.50
F	18.00	22.00	23.19
G	54.00	54.00	61.00
H	52.76	52.76	59.76
I	6.50	4.00	4.50
J	40.00	46.00	52.00
K	54.00	54.00	61.00
L	52.76	52.76	59.76

NOTE: Dimensions shown in inches.

Figure 60: Vertical Economizer End Section Dimensions (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

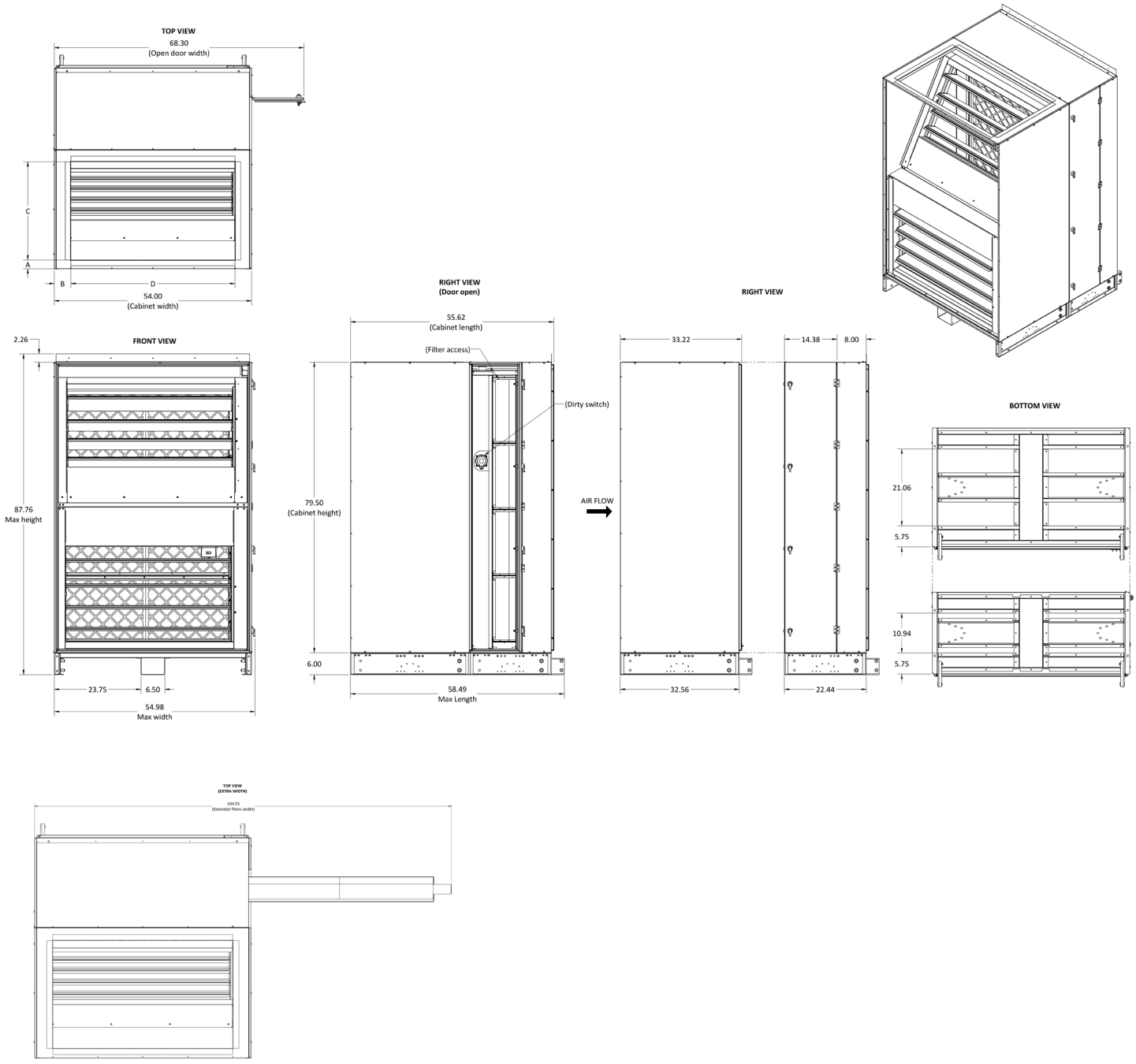
Table 84: Economizer End Section Dimension Letter Reference

Dimension	060	080	100
A	9.56	2.39	2.39
B	6.23	4.55	4.55
C	18.78	21.91	26.9
D	41.53	44.9	44.9
E	3.41	3.41	3.41
F	6.23	4.55	4.55

Dimension	060	080	100
G	18.78	21.91	26.9
H	41.53	44.9	44.9
J	8.83	8.83	6.81
K	10.19	4.94	3.07
L	22.07	22.07	26.11
M	33.63	44.13	46.03

NOTE: Dimensions shown in inches.

Figure 61: Vertical Economizer Dimensions (Unit Sizes 060-100)



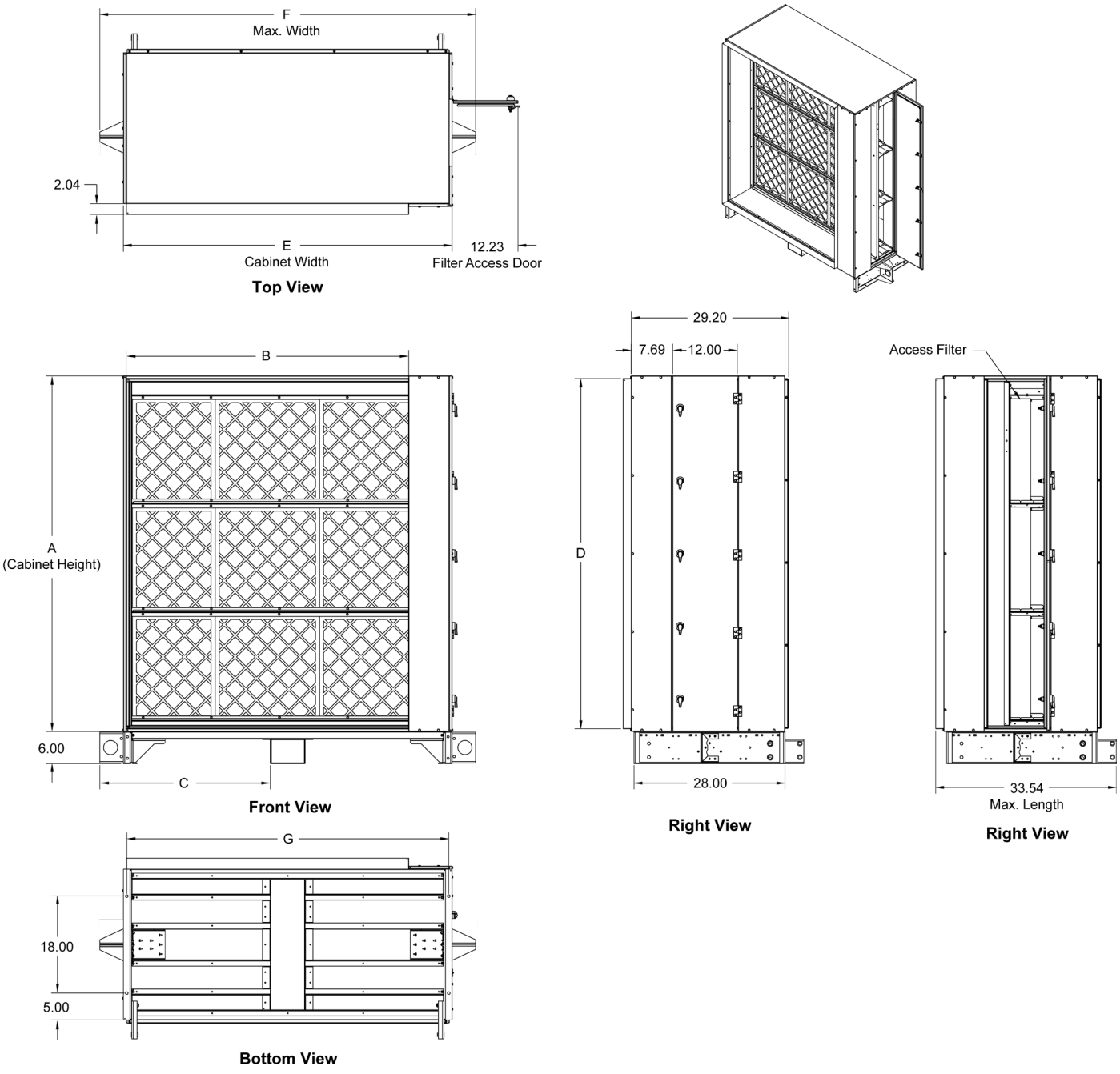
NOTE: Dimensions shown in inches.

Table 85: Economizer Section Dimension Letter Reference

Dimension	060	080	100
A	9.56	2.39	2.39
B	6.23	4.55	4.55
C	18.78	21.91	26.9
D	41.53	44.9	44.9

NOTE: Dimensions shown in inches.

Figure 62: Return Filter Dimensions (Unit Sizes 060-100)



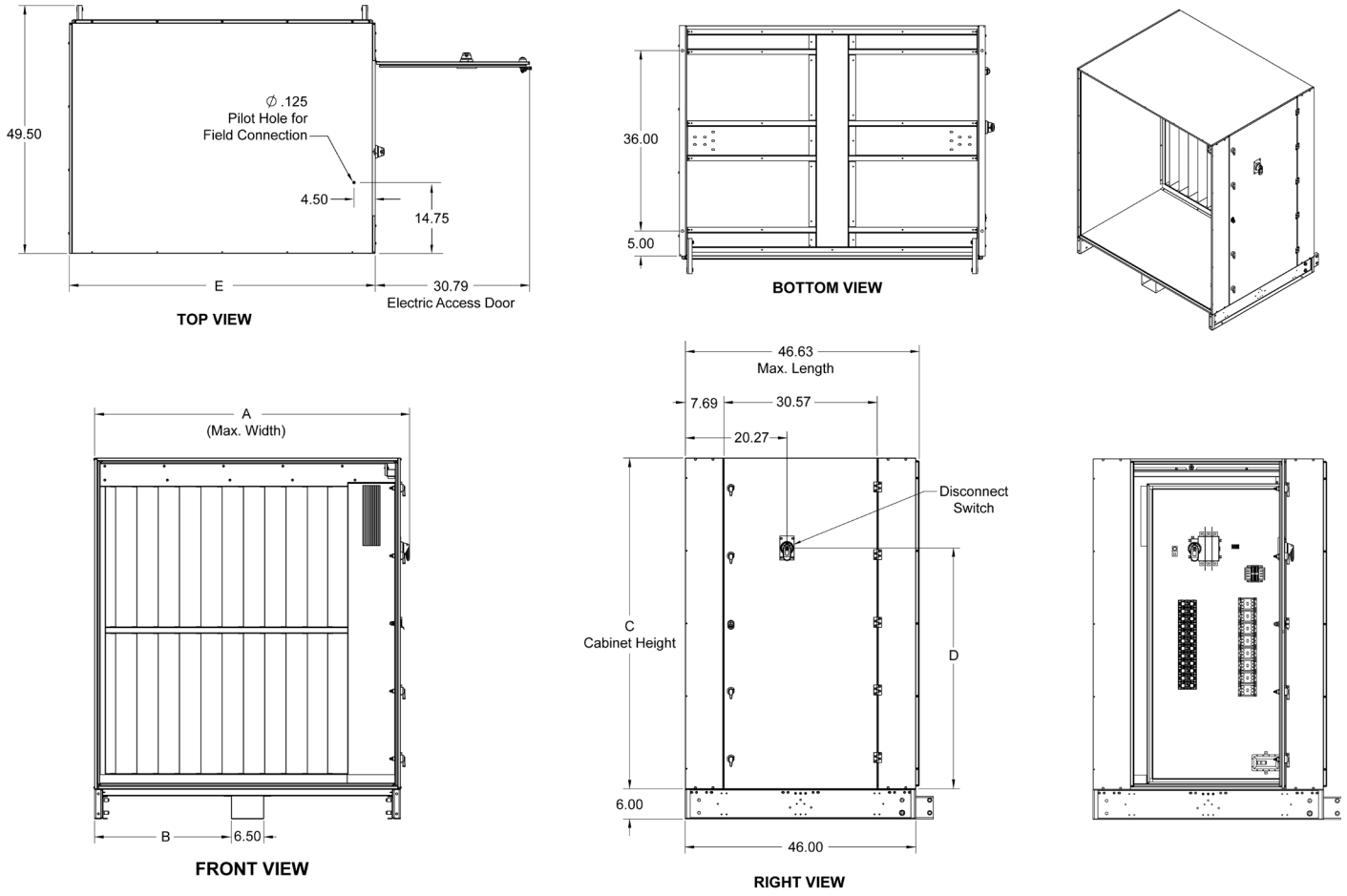
NOTE: Dimensions shown in inches.

Table 86: Return Filter Section Dimension Letter Reference

Dimension	060	080	100
A	54.00	62.00	66.00
B	45.36	45.36	52.36
C	28.13	28.13	31.63
.D	52.88	60.88	64.88
E	54.00	54.00	61.00
F	62.75	62.75	69.75
G	52.76	52.76	59.76

NOTE: Dimensions shown in inches.

Figure 63: Electric Heat Section Dimensions (Unit Sizes 060-100)



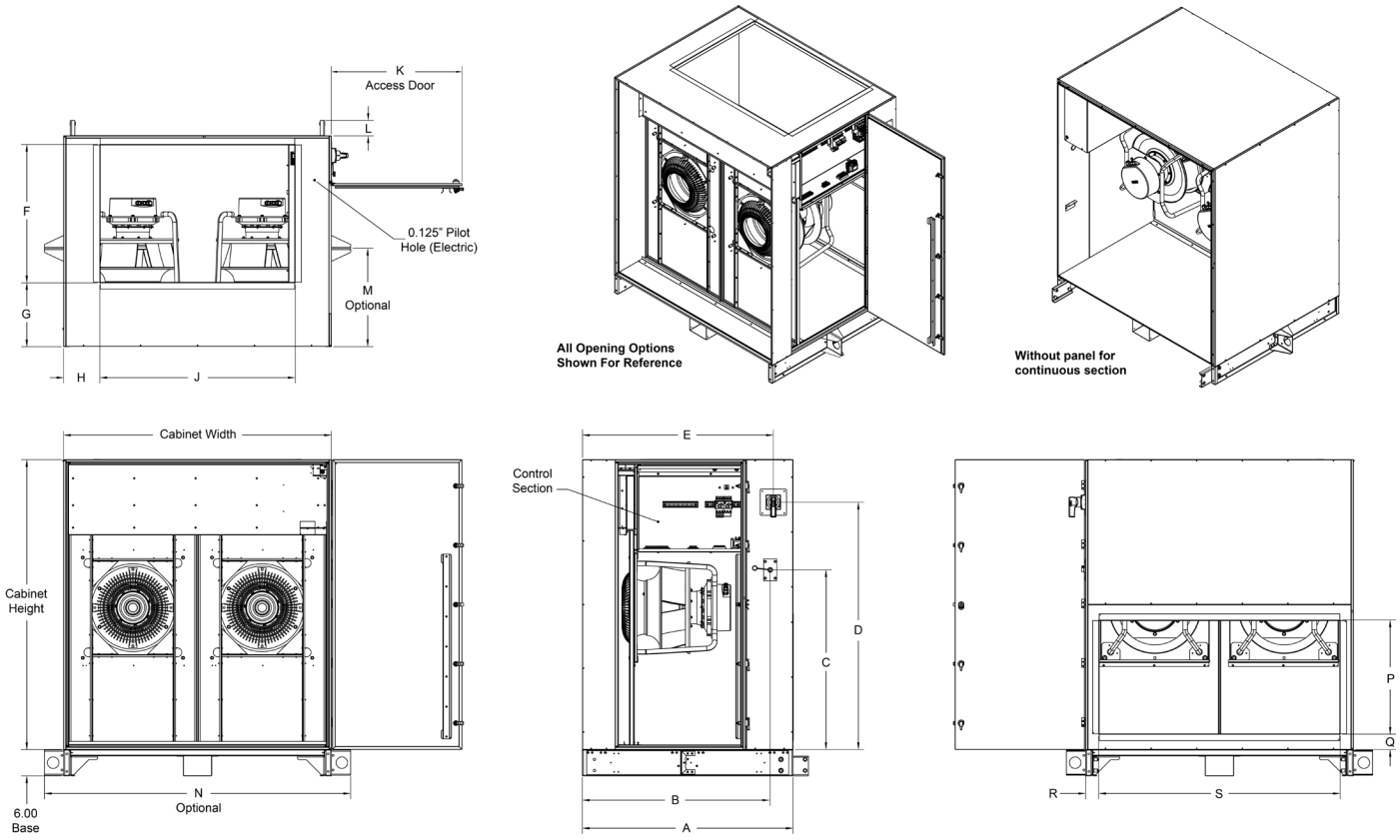
NOTE: Dimensions shown in inches.

Table 87: Electric Heat Section Dimension Letter Reference

Dimension	060	080	100
A	55.82	55.82	62.82
B	23.75	23.75	27.25
C	54.00	62.00	66.00
D	36.04	44.04	46.73
E	54.00	54.00	61.00

NOTE: Dimensions shown in inches.

Figure 64: Horizontal Supply Air Fan Section Dimensions (Unit Sizes 060-100)



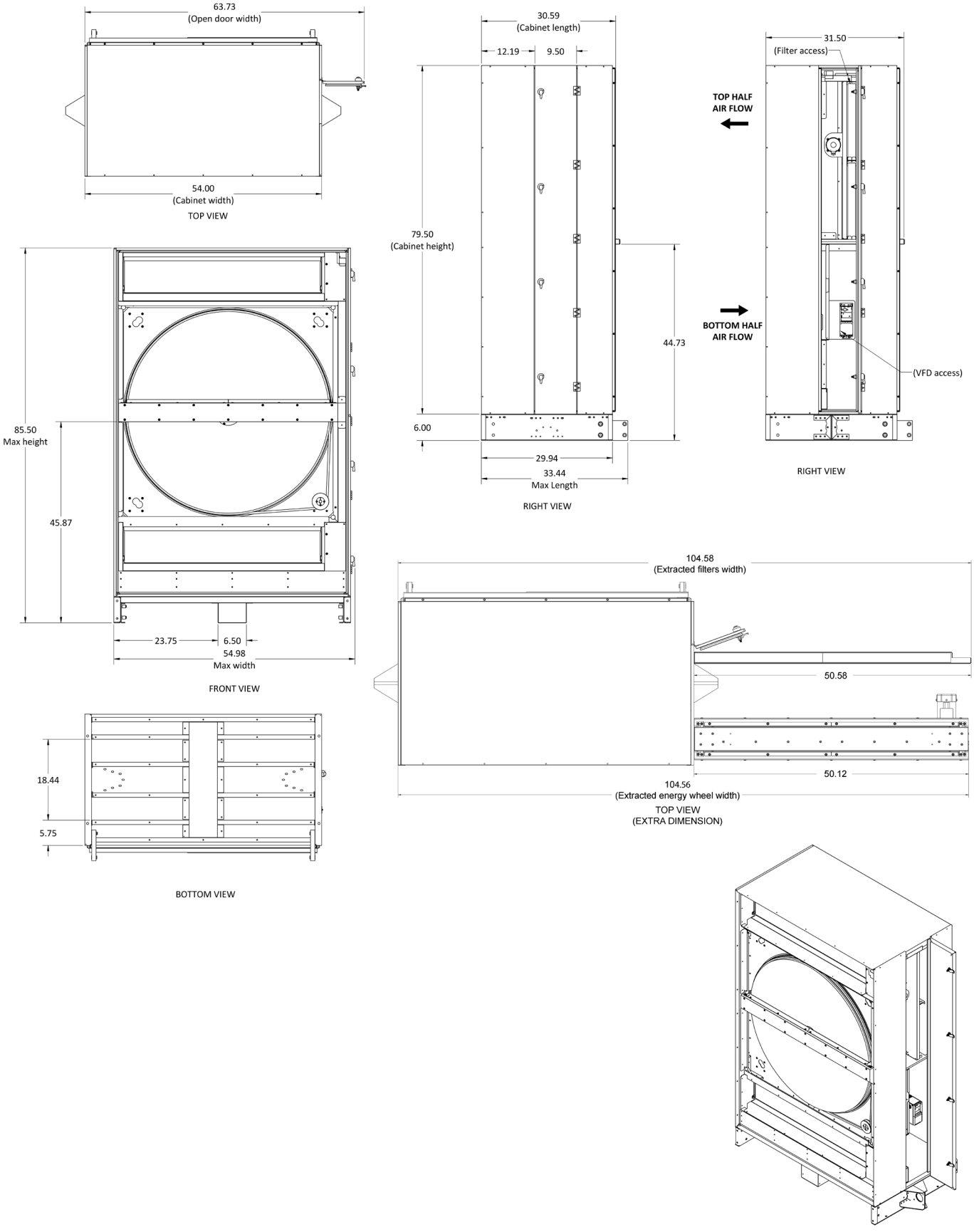
NOTE: Dimensions shown in inches.

Table 88: Supply Air Fan Section Dimension Letter Reference

Dimension	060	080	100
A	48.00	48.00	48.00
B	43.65	43.65	43.65
C	36.65	44.64	48.64
D	44.08	52.08	56.07
E	43.65	43.65	43.65
F	29.50	31.00	31.38
G	15.87	14.37	14.57
H	12.25	8.50	8.31
J	29.50	37.00	44.38
K	29.73	29.73	29.73
L	3.50	3.50	3.50
M	22.39	22.39	22.39
N	62.75	62.75	69.75
P	20.00	26.00	26.00
Q	3.49	2.49	3.46
R	5.50	5.00	3.00
S	43.00	44.00	55.00

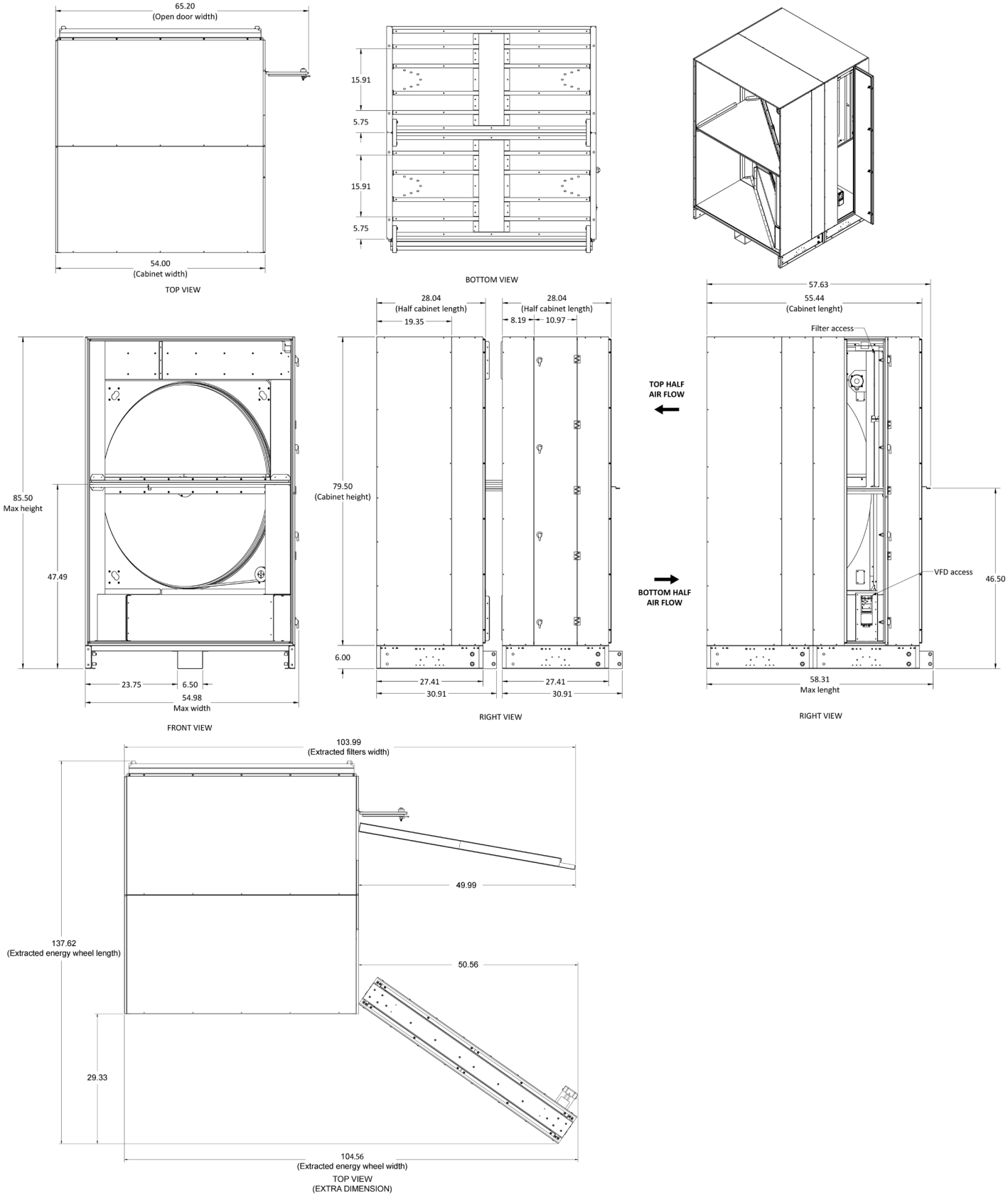
NOTE: Dimensions shown in inches.

Figure 65: Energy Recovery Wheel - 46 in (Unit Sizes 060-100)



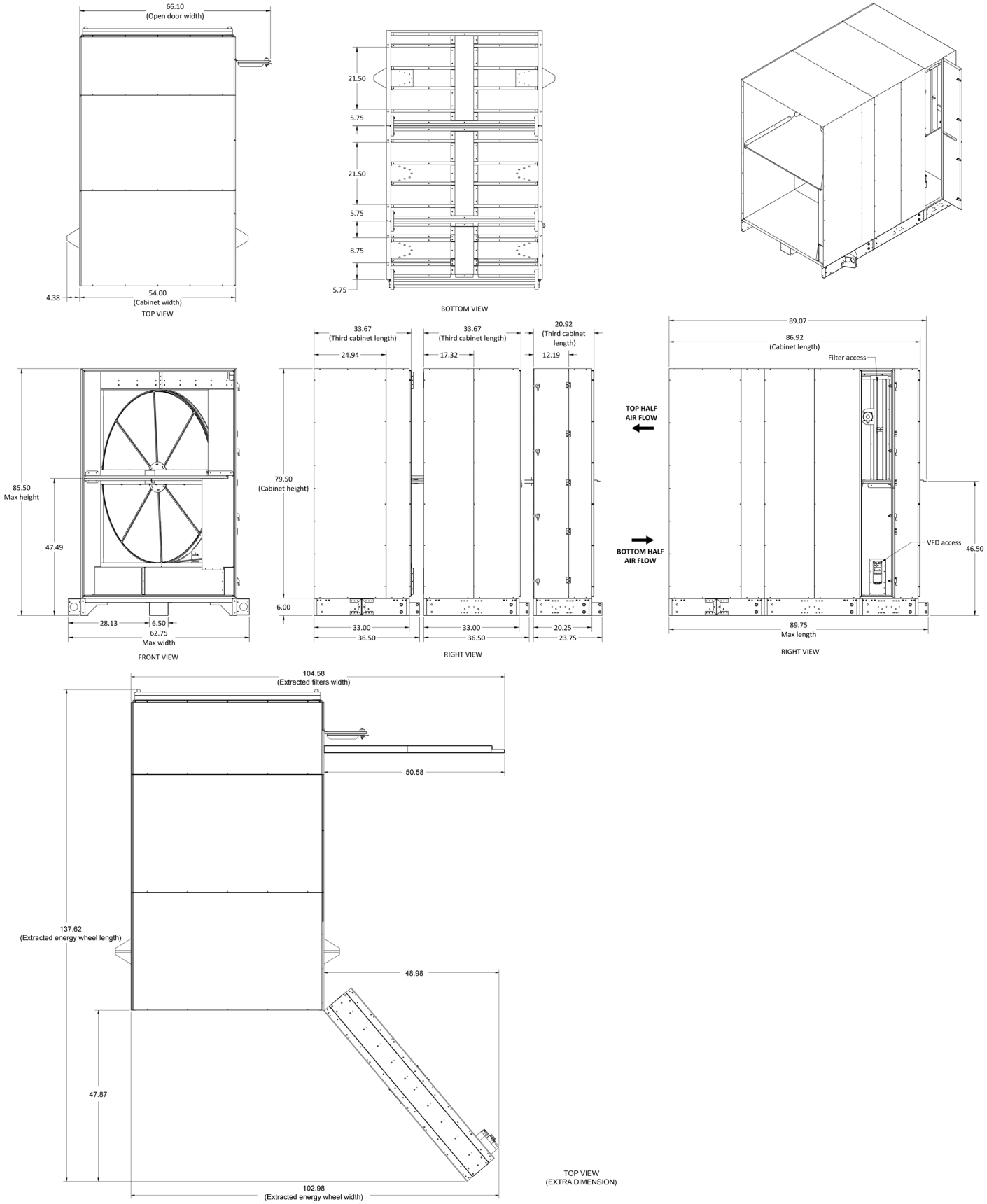
NOTE: Dimensions shown in inches.

Figure 66: Energy Recovery Wheel - 52 in (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

Figure 67: Energy Recovery Wheel - 58 in (Unit Sizes 060-100)



NOTE: Dimensions shown in inches.

System Considerations

Operation Limitations

Leaving Air Temperature

Daikin Applied's PreciseLine is a draw thru style air handler which means the fan housing and motor assembly are in the conditioned part of the air stream. Coil leaving air temperatures over 125°F (52°C) are not recommended and threaten the longevity of the unit.

Entering Air Temperatures

The coils used in PreciseLine are not suitable for exposure to freezing temperatures. Proper consideration must be taken to keep the air temperature seen by the coil above the freezing point of the coil's working fluid. Units with a mixing box must be especially careful because large temperature differences between return air and outdoor air can leave the coil vulnerable through air stratification.

Entering Water Temperatures

Entering water temperatures above 200°F (93°C) are not recommended as PreciseLine's coils are tested and rated to 200°F (93°C) in accordance with UL 1995.

Voltage Variance

To preserve longevity of electrical components supplied voltage must be within 10% of the nominal nameplate voltage.

Table 89: Small Horizontal Hydronic Coil Size and Connection Type - Unit Sizes 060-020

Unit Size	006		008		010		012		016		018		020	
Connection Type	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)
2-Row Cooling	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625	0.750	0.875	0.750	0.875	0.750	0.875
4-Row Cooling	0.500	0.625	0.500	0.625	0.750	0.875	0.750	0.875	0.750	0.875	1.000	1.125	1.000	1.125
6-Row Cooling	0.500	0.625	0.500	0.875	0.750	0.875	0.750	0.875	1.000	1.125	1.000	1.125	1.000	1.125
1-Row Preheat/ Reheat	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625
2-Row Preheat/ Reheat	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625	0.750	0.875	0.750	0.875	0.750	0.875

NOTE 1: Small PreciseLine units can be selected with internal cabinet connections leading to a FPT connection type or without internal cabinet connections leading to a SWT connection type.

NOTE 2: Dimensions shown in inches.

Table 90: Medium and Large Horizontal Hydronic Coil Size and Connection Type - Unit Sizes 030-100

Unit Size	030	040	050	060	080	100
Connection Type	SWT (OD)					
2-Row Cooling	1.125	1.125	1.375	1.125	1.125	1.375
4-Row Cooling	1.375	1.625	1.625	1.375	1.625	1.625
6-Row Cooling	1.375	1.625	1.625	1.375	1.625	1.625
8-Row Cooling	1.375	1.625	1.625	1.375	1.625	1.625
1-Row Preheat/Reheat	0.625	0.875	1.125	0.625	0.875	1.125
2-Row Preheat/Reheat	1.125	1.125	1.375	1.125	1.125	1.375

NOTE: Dimensions shown in inches.

Table 91: Small Vertical Hydronic Coil Size and Connection Type - Unit Sizes 060-020

Unit Size	006		008		012		016		020	
Connection Type	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)	FPT (Nominal)	SWT (OD)
2-Row Cooling	0.500	0.625	0.500	0.625	0.500	0.625	0.750	0.875	0.750	0.875
4-Row Cooling	0.500	0.625	0.500	0.625	0.750	0.875	0.750	0.875	1.000	1.125
6-Row Cooling	0.500	0.625	0.500	0.875	0.750	0.875	1.000	1.125	1.000	1.125
1-Row Preheat/Reheat	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625	0.500	0.625
2-Row Preheat/Reheat	0.500	0.625	0.500	0.625	0.500	0.625	0.750	0.875	0.750	0.875

NOTE 1: Small PreciseLine units can be selected with internal cabinet connections leading to a FPT connection type or without internal cabinet connections leading to a SWT connection type.

NOTE 2: Dimensions shown in inches.

Table 92: Medium and Large Vertical Hydronic Coil Size and Connection Type - Unit Sizes 030-100

Unit Size	030	040	050	060	080	100	060	080	100
Connection Type	**SWT (OD)**						**MTP***		
2-Row Cooling	1.125	1.375	1.375	1.625	1.625	1.625	1.500	1.500	1.500
4-Row Cooling	1.375	1.625	1.625	1.625	1.625	1.625	1.500	1.500	1.500
6-Row Cooling	1.625	1.625	2.125	1.625	1.625	1.625	1.500	1.500	1.500
8-Row Cooling	1.625	2.125	2.125	1.625	1.625	2.125	1.500	1.500	1.500
1-Row Preheat/Reheat	0.625	0.875	1.125	1.625	1.625	1.625	-	-	-
2-Row Preheat/Reheat	1.125	1.375	1.375	1.625	2.125	2.125	-	-	-

NOTE 1: *Large vertical units can be selected with TurboSpiral coils designed for use with glycol. These coils have a MPT connection.

NOTE 2: Number of connections in unit sizes 060-100 are doubled (stacked).

NOTE 3: Dimensions shown in inches.

Table 93: Vertical Steam Coil Size and Type

Unit Size	006	008	012	016	020	030	040	050
Connection Type	**SWT (OD)**							
Supply	1.125	1.125	1.125	1.125	1.125	1.125	1.125	1.375
Return	0.875	0.875	0.875	0.875	0.875	1.125	1.125	1.375

NOTE: Dimensions shown in inches.

Table 94: Horizontal Steam Coil Size and Type with Piping

Unit Size	006	008	010	012	016	018	020	030	040	050	060	080	100
Connection Type	**FPT (Nominal)**							**SWT (OD)**					
Supply	0.750	0.750	0.750	0.750	0.750	0.750	0.750	1.125	1.125	1.375	1.125	1.125	1.375
Return	0.500	0.500	0.500	0.500	0.500	0.500	0.500	1.125	1.125	1.375	1.125	1.125	1.375

NOTE 1: Number of connections in unit sizes 060-100 are doubled (stacked).

NOTE 2: Dimensions shown in inches.

Table 95: Horizontal Steam Coil Size and Type with No Piping

Unit Size	006	008	010	012	016	018	020
Connection Type	**FPT (Nominal)**						
Supply	0.750	0.750	0.750	0.750	0.750	0.750	0.750
Return	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Coil Size							
Finned Height	12	12	12	12	12	12	12
Finned Length	6.5	10.5	19	19	27	35.5	35.5

NOTE 1: FPI of 10 may be selected.

NOTE 2: Dimensions shown in inches.

Table 96: Horizontal DX Coil Size and Type - R-32 and R-454B

Unit Size	Rows[1]	Circuits		Connection Size (SWT [OD])[3]	
		Number[2]	Type	Distributor	Suction
006	3	1	Normal	0.500	0.750
008	3	1	Normal	0.500	0.750
010	3	1	Normal	0.500	0.875
012	3	1	Normal	0.500	0.875
016	3	1	Normal	0.500 (R-32) 0.625 (R-454B)	1.125
018	3	1	Normal	0.500	1.125
020	3	1	Normal	0.500	1.125
030	3	1	Normal	0.875	1.375
		2	Interlaced	0.500	0.875
040	3	1	Normal	0.875	1.375
		2	Interlaced	0.625	1.125
050	3	1	Normal	0.875	1.625
		2	Interlaced	0.625	1.375
060	3	2	Normal	0.875	1.375
		4	Interlaced	0.500	0.875
080	3	2	Normal	0.875	1.375
		4	Interlaced	0.625	1.125
100	3	2	Normal	0.875	1.625
		4	Interlaced	0.625	1.375

[1] FPI of 12 or 16 may be selected.
[2] Number of connections in unit sizes 060-100 are doubled (stacked).
[3] Dimensions shown in inches.

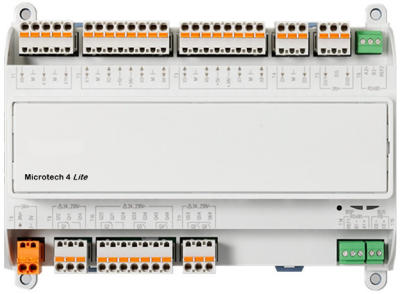
Table 97: Vertical DX Coil Size and Type - R-32 and R-454B

Unit Size	Rows[1]	Circuits		Connection Size (SWT [OD])[3]	
		Number[2]	Type	Distributor	Suction
006	3	1	Normal	0.500	0.875
	6	1	Normal	0.500	0.875
008	3	1	Normal	0.500	0.875
	6	1	Normal	0.500	0.875
012	3	1	Normal	0.500	1.125
	6	1	Normal	0.625	1.125
016	3	1	Normal	0.625	1.125
	6	1	Normal	0.625 (R-32) 0.875 (R-454B)	1.125
020	3	1	Normal	0.625 (R-32) 0.875 (R-454B)	1.375
	6	1	Normal	0.875	1.375
030	3	1	Normal	0.875	1.625
		2	Interlaced	0.500 (R-32) 0.625 (R-454B)	0.875
	6	2	Interlaced	0.875	1.125
040	3	1	Normal	0.875	1.625
		2	Interlaced	0.625 (R-32) 0.875 (R-454B)	1.375
	6	2	Interlaced	0.625 (R-32) 0.875 (R-454B)	1.375
050	3	1	Normal	0.875	1.625
		2	Interlaced	0.875	1.375
	6	2	Interlaced	0.875	1.625
060	3	2	Normal	0.875	1.375
		4	Interlaced	0.875	0.875
	6	2	Interlaced	0.875	1.125
080	3	2	Normal	0.875	1.375
		4	Interlaced	0.625	1.125
	6	2	Interlaced	0875	1.375
100	3	2	Normal	0.875	1.625
		4	Interlaced	0.875	1.375
	6	2	Interlaced	0.875	1.375

[1] FPI of 12, 14, or 16 may be selected.
[2] Number of connections in unit sizes 060-100 are doubled (stacked).
[3] Dimensions shown in inches.

Application Considerations

MicroTech 4 Lite Factory-Integrated Controller



The factory-integrated controller simplifies startup and reduces controls complexity by utilizing proven factory controls schemes.

- Provides standalone or BAS integrated air handler control.
- Comprehensive unit control and status information is available to the BAS via BACnet MS/TP.
- Easy monitoring and troubleshooting via the integrated thermostat, BAS, or portable interface.

Table 98: Controller Accessories Available

Controller Accessory	Installation Method	Function Affected
Damper Actuator	Factory	Damper
Freezestat	Factory	Alarm Only
Condensate Overflow Switch	Factory	Cool / Dehumidification
Outdoor Temp and Humidity Combo Sensor	Field	Economizer
Outdoor Temperature Only Sensor	Field	Economizer
Room Sensor	Field	Temp & Setpoints
Space Humidity Sensor	Field	Dehumidification / Economizer
Airflow Status	Field	Alarm Only
Discharge Air Temperature Sensor	Field	Cool / Heat / Reheat
Leaving Coil Temperature Sensor	Field	Dehumidification
Duct Static Pressure Sensor	Field	Fan Speed
Entering Water Temperature Sensor (2-Pipe)	Field	Cool / Heat

Controller Components

Portable Interface

The portable interface connects to units via a factory-mounted RJ45 cable to an external cabinet connection port, providing convenient access for diagnostics and controls adjustments.

Each portable interface offers the following functionalities:

- Push-and-roll navigation wheel with an 8-line by 30-character display format
- Digital display of messages in English language
- All operating conditions, system alarms, control parameters and schedules are monitored

Integrated Thermostat

The integrated thermostat allows occupants to manage unit functions, including:

- Scheduling and setting temporary cooling/heating set points
- Adjusting fan speed for constant volume units
- Request temporary set points

Controller Functions

Fan Speed Control

Supply fan control to meet your building needs.

Supply Fan Control Methods

- Constant volume
- Duct static pressure
- Single-zone VAV

Cooling and Heating Control

Ensure comfort and efficiency by selecting the preferred mode control and modulation that fits your application.

Hydronic Systems (2-pipe changeover or 4-pipe)

- Normally Open/Closed 24 VAC or 0-10 VDC modulation
- Entering water sampling (2-pipe changeover only)
  - For changeover configurations, verify entering water temperature is within range for cooling / heating request.

Electric Heat

- Staged or SCR modulation

Dehumidification Control

PreciseLine units with factory-integrated controllers offer two strategies for space dehumidification.

Strategy 1: Active Dehumidification

Active dehumidification adds a reheat component to achieve desired discharge air temperatures. After the supply air is dehumidified through the primary cooling coil, it then passes through a reheat component to deliver comfortable, dehumidified air to the space.

Strategy 2: Passive Dehumidification (low fan speed)

Passive dehumidification is available when a reheat component is not available to operate simultaneously with the cooling coil. The supply fan will slow down to further dehumidify the air stream while still meeting the space cooling set point.

Economizer Control

The economizer control is available in multiple strategies to meet your space's needs, including:

- Outdoor Dry Bulb
- Outdoor Enthalpy
- Comparative Dry Bulb
- Comparative Enthalpy
- Demand-Controlled Ventilation

Energy Recovery Wheel

Factory installed controllers are pre-programmed to optimize energy recovery and prevent frost formation. There is nothing to commission during start up.

- Speed Control: One Speed, One Speed with Rotation Sensing, or Modulating (variable speed with rotation sensing) options.
- Frost Prevention: Timed Defrost, Wheel Speed Frost Prevention, or Pre Heat Frost Prevention option available for colder climates.
- Wheel Capacity Limiting to evaluate if the energy wheel should be operating or if it is more energy efficient to directly bring in outdoor air.

Scheduling

- 7 daily schedules
- 1 holiday schedule (up to 10 days per year)
- Automatically run holiday schedule on set holiday dates
- Network schedule control available when BAS integrated

Split DX / Compressor Control

All units with factory-integrated controllers are capable of automatic compressor, lead-lag control. Lead-lag control is available based on selectable compressor run-time or compressor starts. If automatic control is not desired, the operator can assign fixed lead and lag designations to the compressor circuits.

Timed Occupant Override

When non-scheduled unit operation is desired, initiate timed occupant override by pressing the occupant override button on the integrated thermostat. The unit then starts and runs in override mode for an adjustable length of time (up to five hours). If the button is pressed again while the unit is operating, the timer resets to the full time allowance without interrupting unit operation. Override operation also can be initiated by a BAS.

Auto/Manual Operation Selection

From the integrated thermostat keypad, there are a variety of occupancy and auto/manual control mode selections available to the operator:

Occupancy Modes	Control Modes
Occupied Unoccupied Bypass (occupant override) Standby	Off manual Auto Heat Cool Fan Only

Additional Features and End Devices

Run-time Monitoring

- Fan run-time
- Dirty filter notification based on run-time or a field-installed differential pressure switch
- Compressor start count or run-time recording

Startup System Check (Portable Interface Only)

Verify unit operation with two available startup overrides:

- Operational Override - temporarily place the unit in maximum heating or cooling mode
- Output Override - temporarily command specific components to operate

Alarm History

Controller records 30 most recent alarms to help determine patterns and aid troubleshooting.

Duct Static Pressure Control

Duct static pressure control is maintained by a PI algorithm, which provides precise control of the supply fan. The integrated thermostat keypad programmable set point can be set between 0.20-in. W.C. and 4.00-in. W.C.

Internal Time Clock

An internal, battery-backed time clock is included. Current date and time can be quickly and easily set at the portable interface.

Digital-Ready Features (for field-installed controllers)

For units without a factory-integrated controller, there are digital-ready selections available for connecting to an existing BAS and controller in the field.

Fan Speed Control

0-10 VDC Analog Control

Fan modulation control allows the space temperature to be controlled by constantly adjusting the airflow rate across the coil. Increasing and decreasing the CFM across the coil in response to changes in space temperature essentially changes the capacity of the coil to match the current load for improved comfort and reduced energy consumption and unit noise. While fan modulation is typically used with on-off valve control which allows the maximum design GPM through the coil, it may also be used with a modulating control valve to provide even greater temperature control. Fan modulation control requires a controller or thermostat capable of generating and changing the 0-10 VDC signal in response to the changes in space temperature.

3-Speed Discrete Control (Unit Sizes 006-020 Only)

Three speed fan control runs the fan continuously at one of three programmed speeds. These three speeds can be changed on the factory-installed speed adjustment board. This type of control requires a 24 VAC binary signal control signal applied to one of the motors speed terminals. The motor will run at the corresponding speed for as long as the signal is maintained. This type of fan control allows the unit to be controlled with 3 position fan switch or a simple fan coil type thermostat.

Valve Control

Valve modulation controls space temperature by constantly adjusting the water flow rate through the coil to modulate coil capacity and improve comfort.

0-10 VDC Analog Control

The valve actuator responds to a 0-10 VDC input from the controller. As space demand increases and decreases, water flow rates are adjusted as well.

Open/Closed 24 VAC Control

The valve actuator responds to a binary 24 VAC signal. It can be configured for an “on-with-demand” (Normally Closed) or “off-with-demand” (Normally Open) control scheme. The water flow rate is designated by the auto flow valve (circuit setter).

Electric Heat Control

Electric heat control may be binary (on-off) or modulating. With binary the full capacity of the electric heating element turns on with a 24 VAC signal from the controller and stays on until the set point is reached. Modulating control which requires a 0-10 VDC signal from the thermostat or controller uses an SCR switching module to vary the heat output of the electric element. Matching the heat output to space load increases comfort and reduces noise and energy consumption. It is the responsibility of the controls contractor or the customer to ensure that the electric heating elements never operate without the minimum airflow as listed starting on page 30. Factory provided safety limits built in to the electric heat assembly and the SCR module prevent overheating should a fan failure occur. “Electric Heat Safety” on page 58 for more information on the operation of the safety limits.

Condensate Overflow

The factory installed overflow switch is a normally closed dry contact that will open when water in the primary drain pan rises to the designated level. The switch must be wired to a controller or thermostat with an appropriate alarm input that will close the cooling valve and possibly turn off the fan when the switch opens. If necessary, the normal state of the dry contact may be changed to normally open by turning the float over on the guide pin. With this change the dry contact will close when water reaches the designated level.

Coil Freeze Protection

If entering air temperatures below 40°F is a possibility, the use of some type of freeze protection is strongly advised. Freeze protection may include adding glycol to the water in the system to prevent coil rupture or using a low temperature thermostat capillary tube mounted on the inlet side of the primary or preheat coil. If glycol is used, the type and amount of glycol should be determined by the application requirements and must be accounted for in the coil performance calculations. A low temperature thermostat capillary tube should be connected to a controller, capable of closing the outside air damper and opening the control valve to allow water flow through the coil. It should also send an alarm to the BAS or maintenance station to alert appropriate personnel.

Damper Control

- Damper control can be factory configured for either on-off or analog control.
- On-off control requires a 24 VAC signal applied to the terminal labeled ACT 24+ to cycle the damper.
- Analog control requires a 0-10 VDC signal applied to the terminal labeled ACT 0-10V to modulate the damper.

Mixing Box (Optional) – Field Provided Damper Actuator

The optional mixing box includes a fresh air and return air damper that are linked together and driven from the same actuator. It may be ordered with or without the factory mounted damper actuator. Those with the factory mounted actuator ship pre-wired to the main unit control box and do not require field adjustment of the hardware or linkage.

For the mixing box ordered without the factory mounted damper actuator one must be provided in the field that meets the following criteria.

- Maximum range of rotation = 95°
- Maximum torque = 62 in/lbs
- On-off control = spring return
- Modulating control = 0-10 VDC fail in place
- Damper shaft size = 0.5″ diameter

A mounting plate is provided on the shaft side of the damper frame to accommodate a variety of actuators. However, due to the number of options, size variations, and arrangements available, some actuators may require alternate field provided mounting hardware. Proper support for the actuator is important to avoid putting excess stress on the cabinet, linkage, or damper shafts. The installing contractor is responsible for mounting, and wiring of the actuator and adjustment of the damper linkage.

Optional Mixing Box Damper or Discharge Plenum Loss

For reference, losses are similar to those used in custom openings, however, their coefficients are multipliers of velocity pressure based on opening size. These are multipliers of coil velocity pressure. The intake loss assumes a fully open damper in line with the unit, based on the sudden expansion into the unit of 2× the face area and 20% drag from the blade. The discharge loss assumes the sudden expansion of the fan of 10× then a sudden contraction at the discharge of 3× the face area. Losses from a grille are not taken into account.

Intake, intake with damper or discharge plenum loss = $\left(\frac{V*C}{4005}\right)^2$

V = velocity through the opening

C: Straight intake without damper = 0.75
Turned intake without damper = 1.0
Straight intake with damper = 1.0
Turned intake with damper = 1.33
Straight discharge = 1.5
Turned discharge = 2

Example:

For a selection at 1000 ft/min, mix box with rear intake and discharge plenum down discharge:

Intake loss is (1000*1/4005)^2 = 0.062″
Discharge loss is (1000*1.5/4005)^2 = 0.140″

Mounting and Access

The air handler unit must be installed on a flat and level surface (or verify that the unit is level when hanging from the ceiling). Where surface irregularities allow the equipment to distort, shim the appropriate base rails to straighten the unit. Distorted units can cause misfit between sections, cabinet leaks, binding of the doors and access panels and prevent proper draining of drain pans.

Leave adequate space around the unit for piping, coils, and drains. Always have access to at least one side of the unit for regular service and maintenance. Refer to images on the following pages for servicing space requirements. Routine maintenance examples include filter replacement, drain pan inspection/cleaning, and motor bearing lubrication.

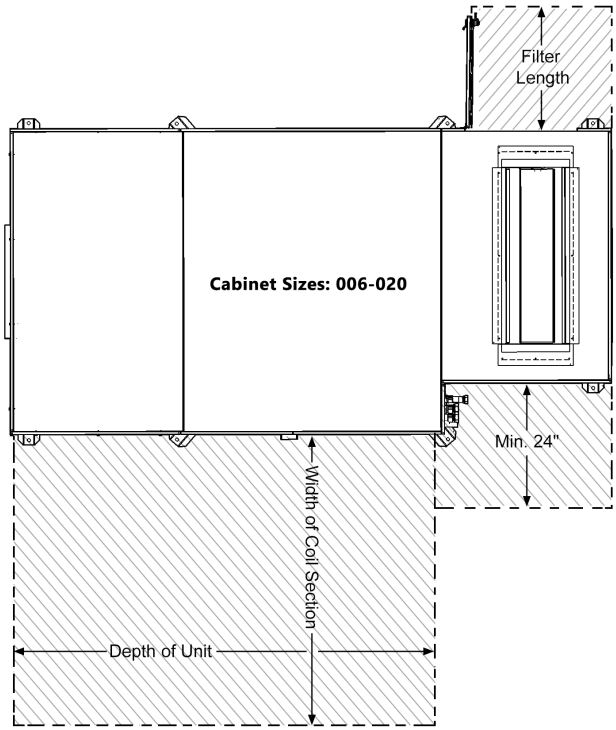
Note that compact vertical units are accessed from the front of the unit. If they are ducted, access will require removal of the duct.

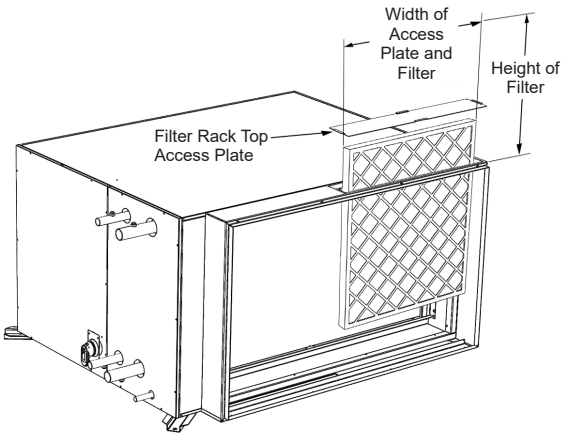
On the off chance a component such as an energy recovery wheel fails, space to the side of the unit to allow for full removal will be required.

Provide sufficient space on the controls access side of the unit for filter replacement, drain pan cleaning and coil removal, if necessary.

Leave at least 42″ of clearance in front of electrical power devices (starters, VFDs, disconnect switches, and combination devices) mounted behind service panels.

Figure 68: Clearance and Access Requirements for Horizontal Units (Unit Sizes 006-050)





Top Filter Access Clearance Cabinet Sizes: 030 – 050

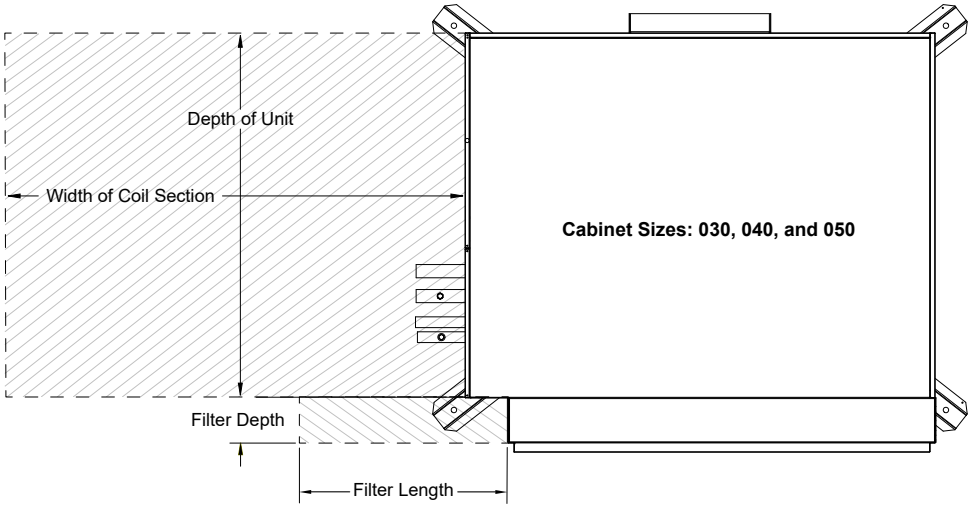
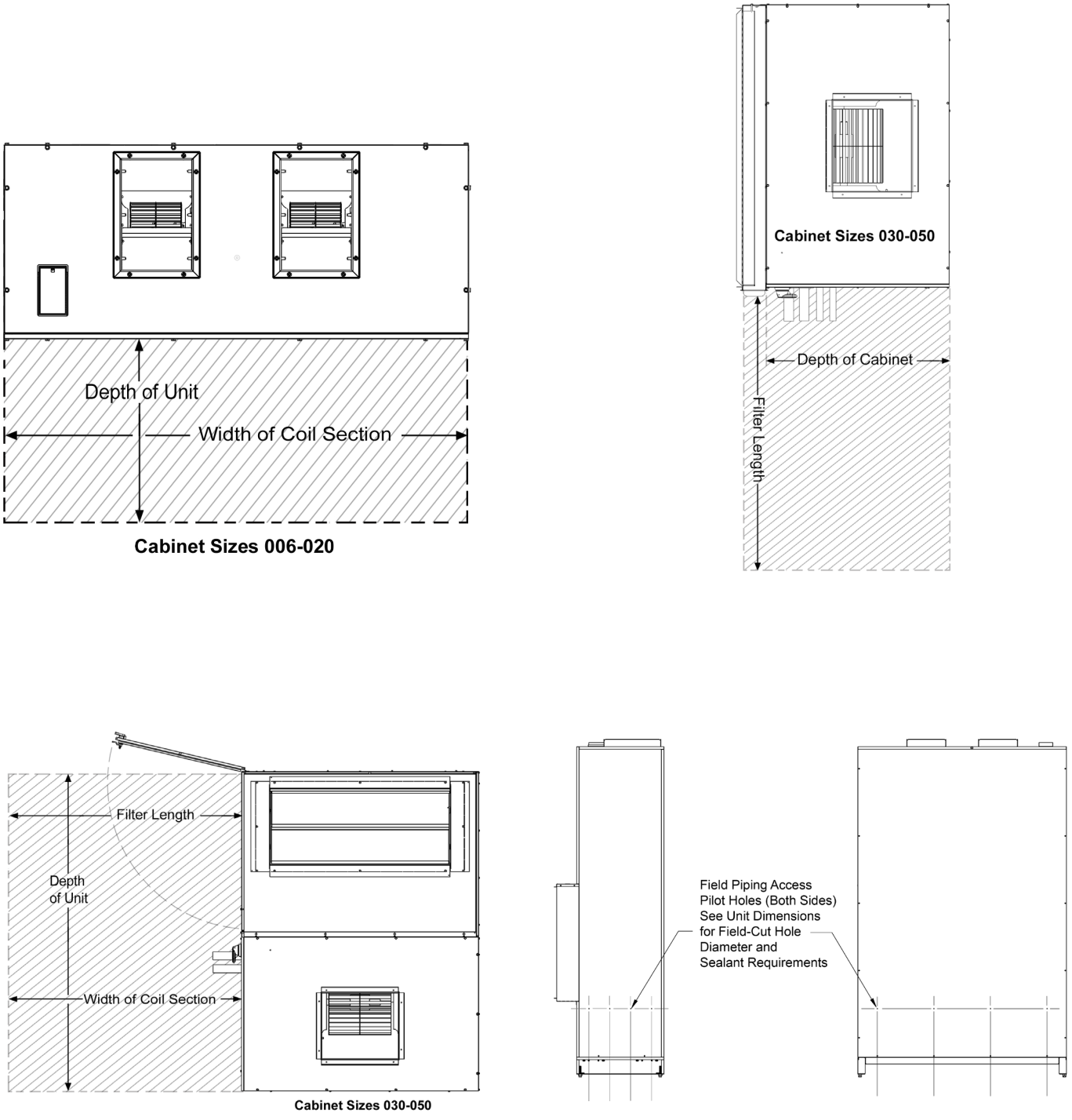


Figure 69: Clearance and Access Requirements for Vertical Units



NOTE: AVD units require field-cut holes on the sides or back, depending on piping orientation. These holes should either be drilled prior to unit installation, or a clearance of 24″ should be left on the side requiring field work.

Figure 70: Horizontal Clearance and Access Requirements for Unit Sizes 060-100

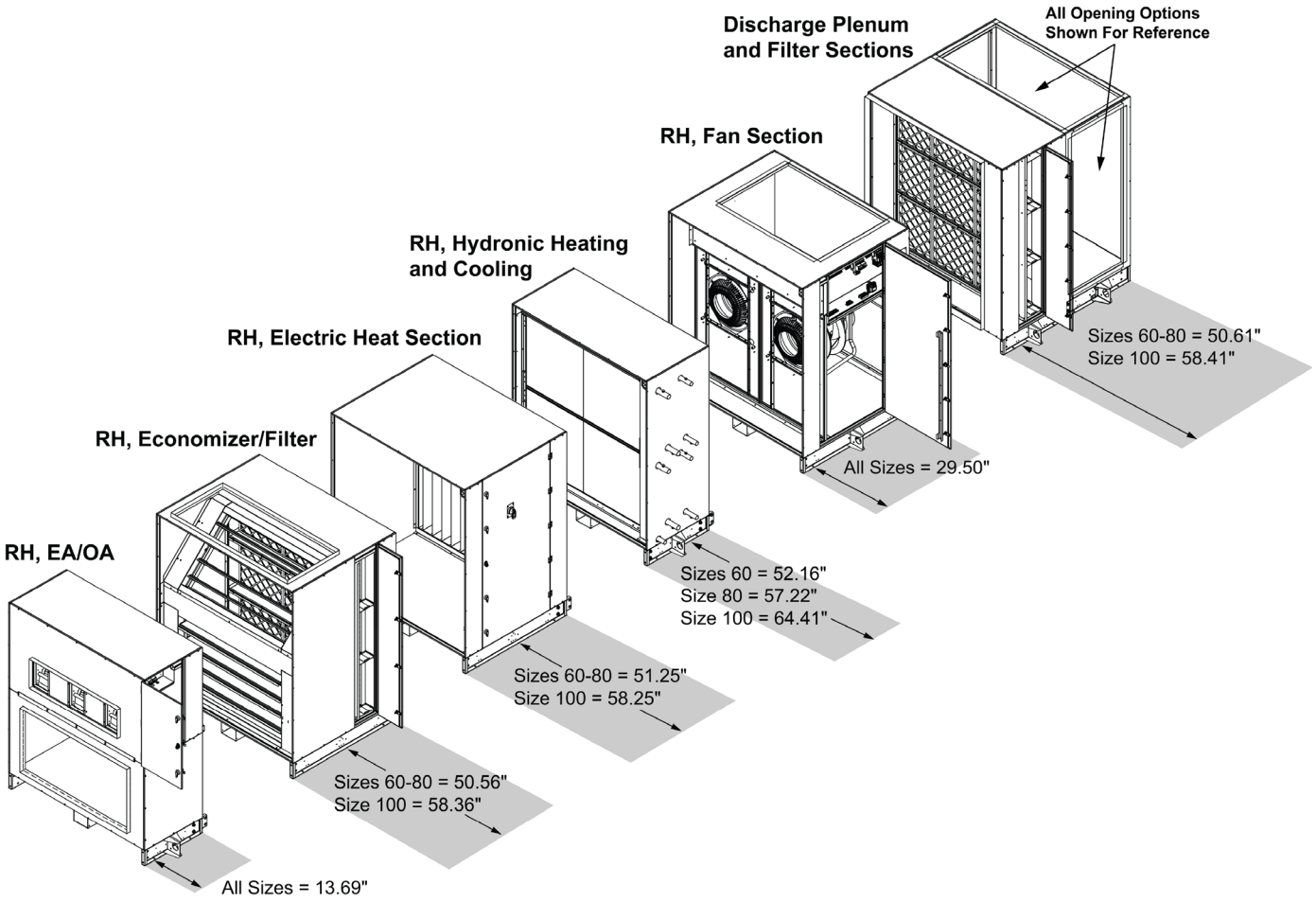


Figure 71: Clearance for Filter Access from Top - Unit Sizes 030-050

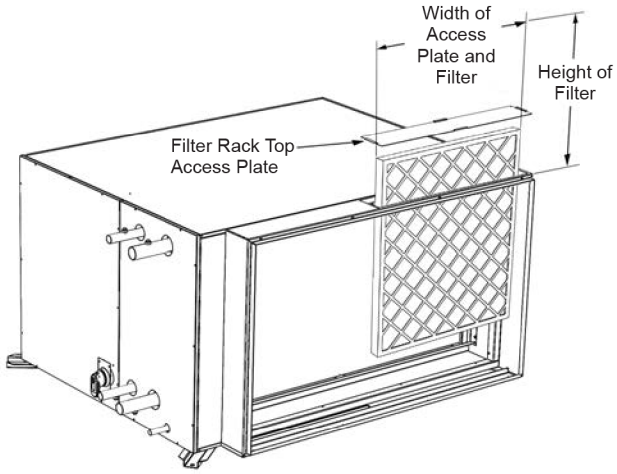
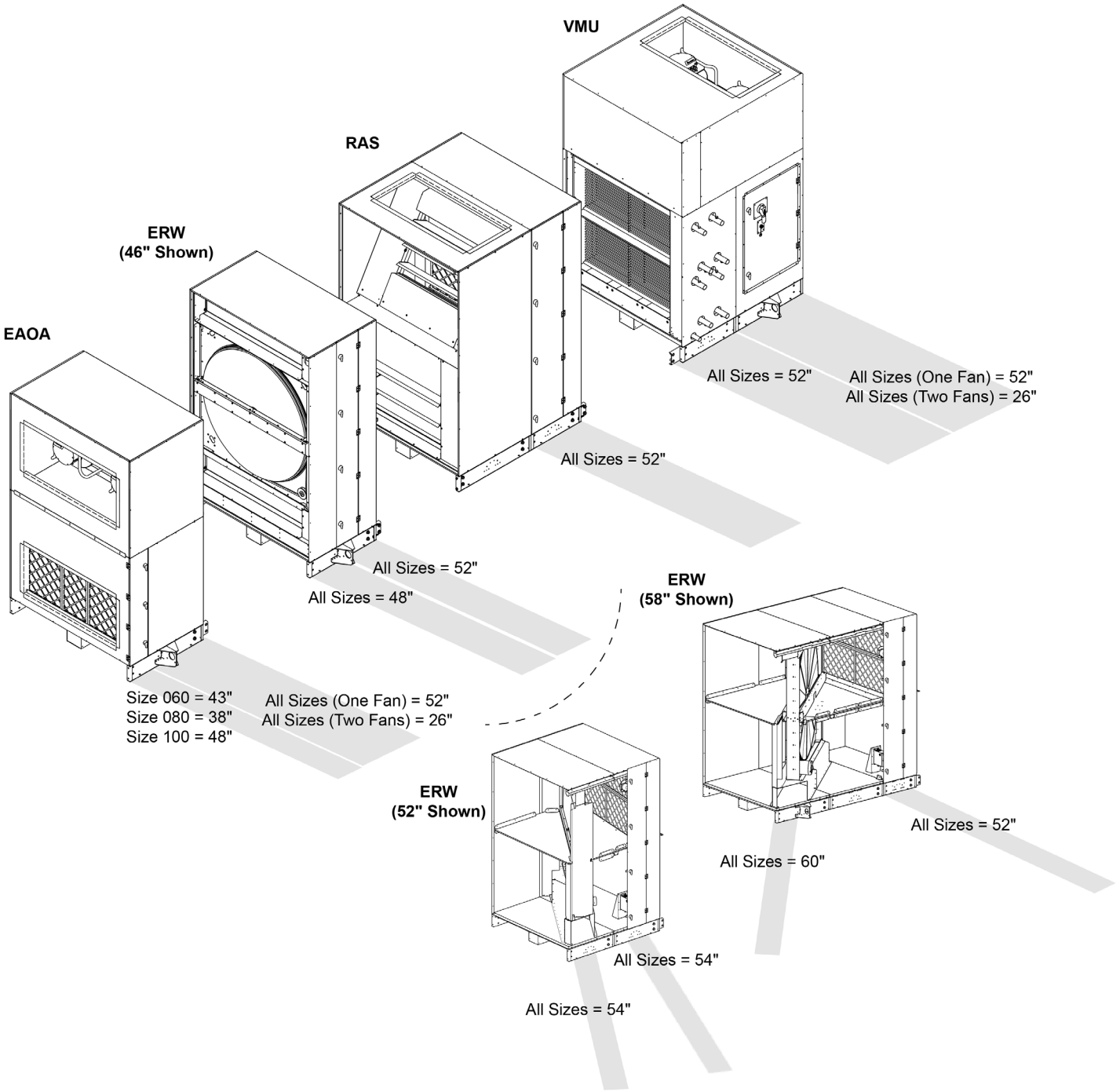
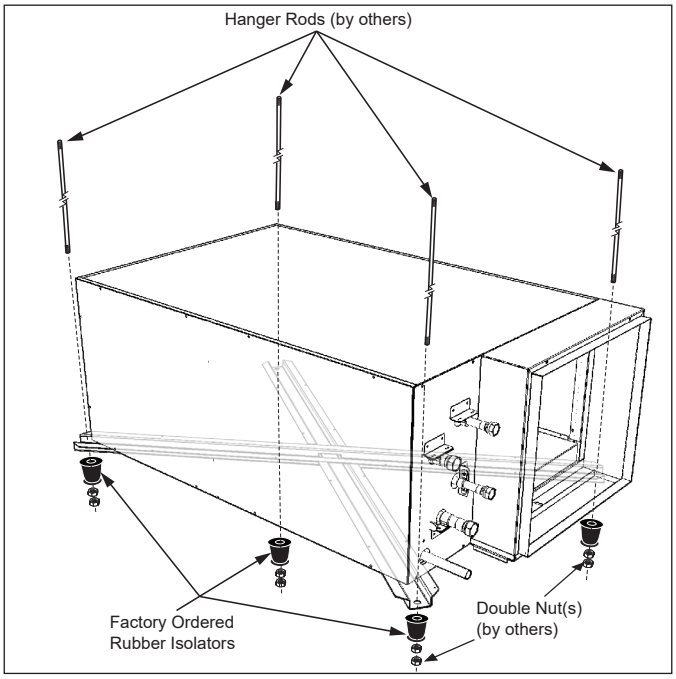


Figure 72: Vertical Clearance and Access Requirements for Unit Sizes 060-100



Horizontal Unit Mounting Isolation

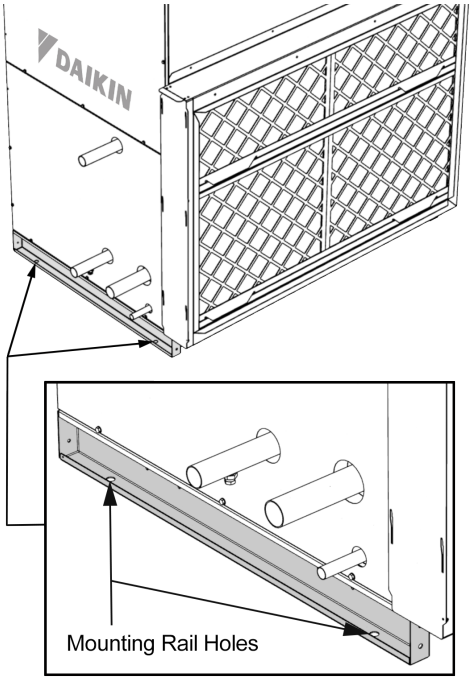
Figure 73: Ceiling Hung with Rubber Isolators - Unit Sizes 030-050



Vertical Unit Mounting Isolation

Neoprene pads and/or spring isolators are to be provided by others, if required.

Figure 74: Size 040 Mounting Rail Holes Detail



Access Panels and Doors

PreciseLine air handlers have hinged access doors or screw-on panels that can be easily removed and handled. To gain access through a side panel, remove the fasteners along the sides of the panel and lift the panel off. Allow sufficient space for service panel removal and to meet the service clearance requirement of the section it accesses. Service panels are not interchangeable with service panels on the opposite side of the unit.

Figure 75: Panel Removal

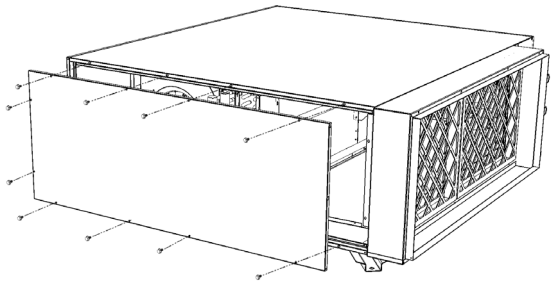


Figure 76: Filter Access Doors

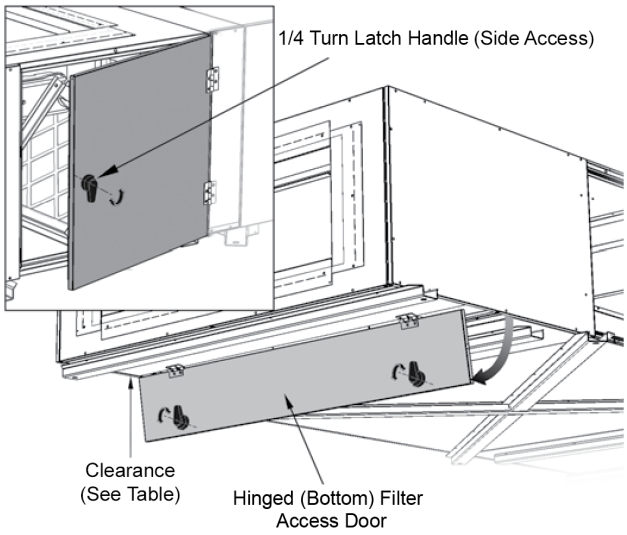
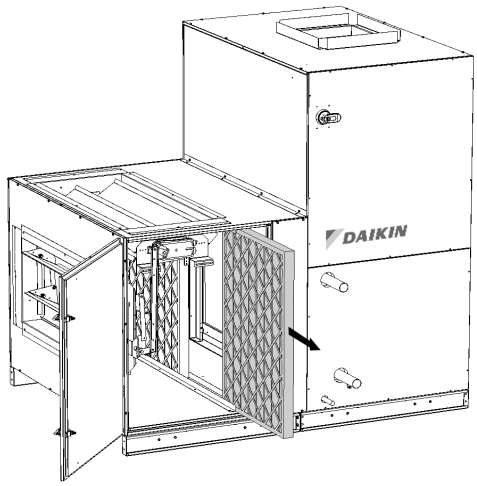


Table 99: Bottom Filter Access Clearance

Unit Size	006 – 020	030	040	050
Clearance	18 in	24 in	28 in	30 in

Figure 77: Filter Access Doors



Piping and Coils

Follow applicable piping design, sizing, and installation information presented in ASHRAE Handbooks in the design and installation of piping. Observe all local codes and industry standards. Piping field connection locations are the same for units with and without the optional factory-installed valve package. Refer to page 106 through page 108 for the connection size and type. Refer to dimensional drawings beginning on page 60 for connection locations and dimensions.

Hydronic Coil Connections

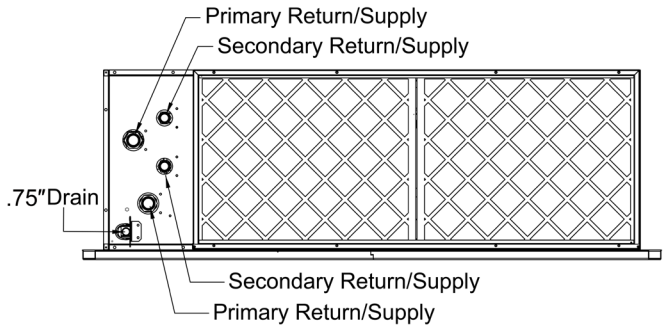
For all unit sizes 030-050; hydronic supply, return, and drain stubs extend through the end panel of the cabinet, with field connections made outside the cabinet. All stubs are labeled on the end panel. A “No Piping” option is available with internal coil stubs. Chilled water supply, return, and drain stubs may terminate inside or outside the cabinet on compact horizontal units, and necessarily terminate in a central location inside the cabinet on AVD units. Stub outs are labeled individually and/or on the end panel.

Hydronic supply and return connections are copper FPT on unit sizes 006 through 020 and copper sweat on unit sizes 030 through 050. Refer to page 106 for connection sizes and type.

Hydronic heating coil guidelines are listed below.

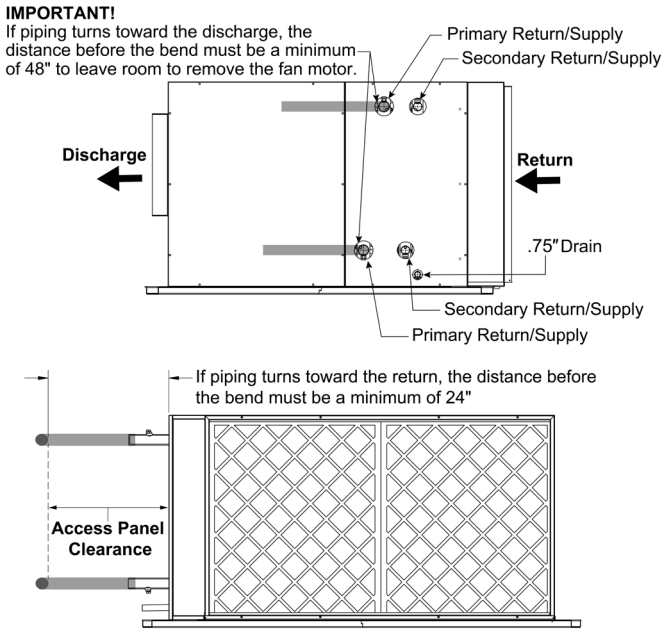
1. Hot water coils are not recommended for use with entering air below 40°F.
2. If fresh air and return air are to be heated by a hot water coil, take care in the design of the system to provide thorough mixing before air enters the coil.

Figure 78: Coil Connections, Unit Sizes 006-020



NOTE: Left hand unit shown. Right hand unit connections are the same but opposite.

Figure 79: Field Pipe Connections, Unit Sizes 030, 040, 050 (preheat coil option shown)



NOTE: Left hand unit shown. Right hand unit connections are the same but opposite.

Figure 80: Coil Connections, Unit Sizes 030-050

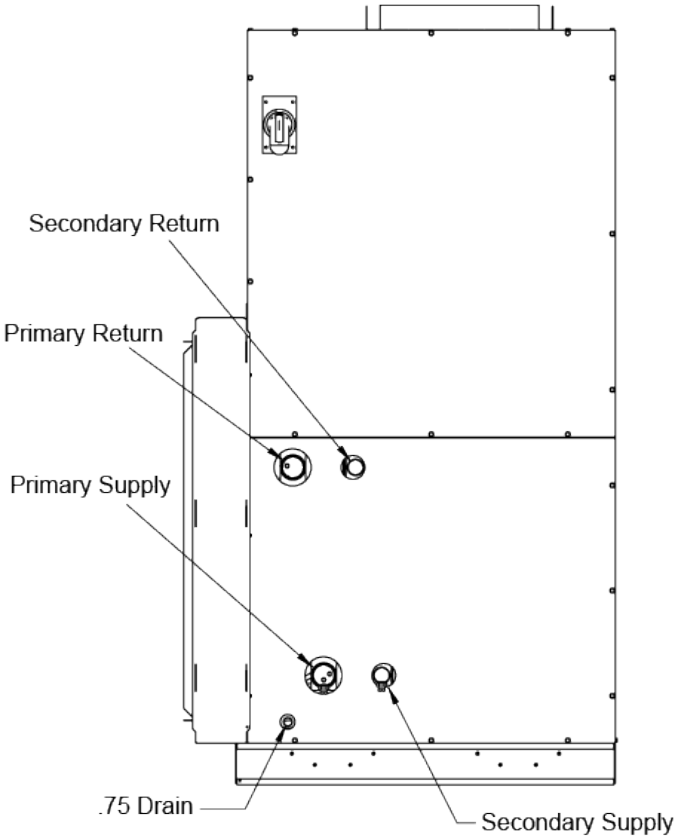


Figure 81: DX Interlaced Coil, Unit Sizes 030-050

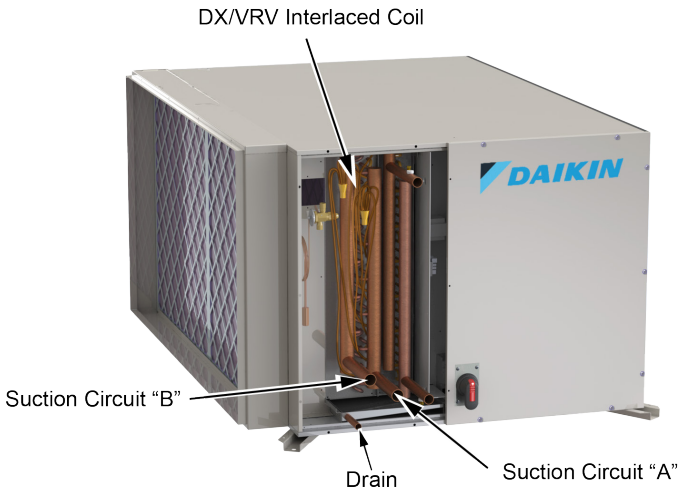
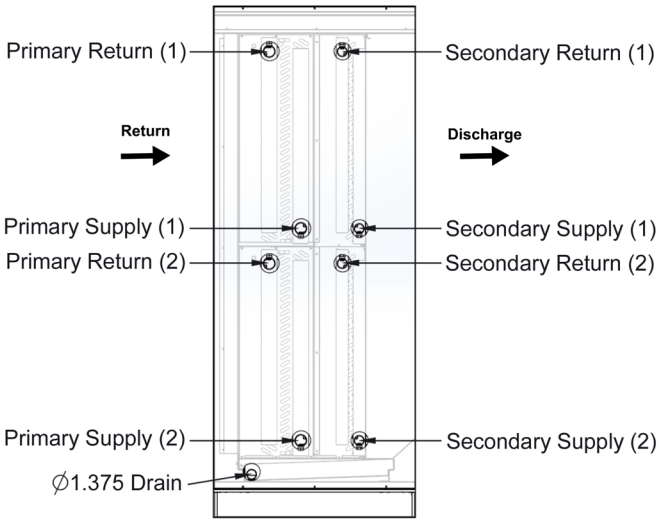


Figure 82: Coil Connections, Unit Sizes 060-100

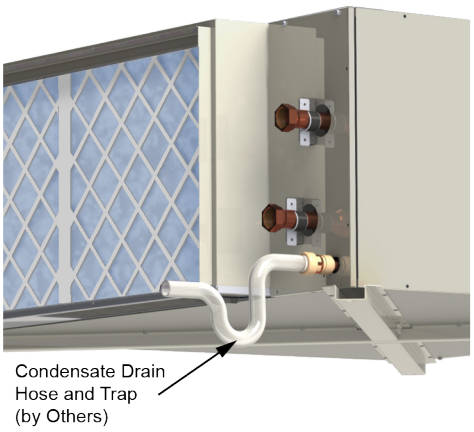


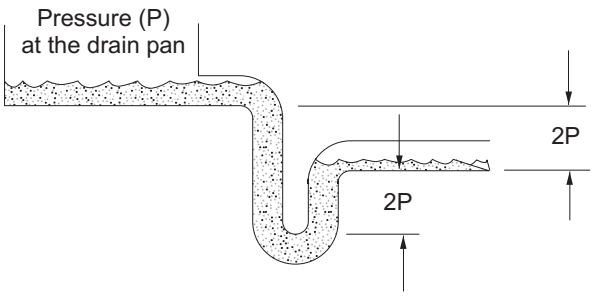
NOTE: Dimensions shown in inches.

Condensate Drain Pan Traps

Condensate drain stub is .75 O.D. for unit sizes 006-050 and 1.375 O.D. for unit sizes 060-100. Drain lines and traps should run full size from the drain pan stub. Drain pans should have traps to allow condensate from coils to drain freely. The trap depth and distance between the trap outlet and the drain pan outlet should be twice the static pressure in the drain pan section under normal operation for the trap to remain sealed. Refer to Figure 83.

Figure 83: Allow Adequate Distance Between Trap Outlet and Drain Outlet





Engineering Specifications

PRECISELINE AIR HANDLERS

PART 1--GENERAL

1.01 SECTION INCLUDES

A. Horizontal Air Handler

B. Vertical Air Handler

1.02 REFERENCES

A. Load ratings and fatigue life for ball bearings.

B. Standards handbook.

C. Laboratory methods of testing fans for rating purposes.

D. Test code for sound rating air moving devices.

E. Test methods for louver, dampers, and shutters.

F. Room fan coil unit.

G. Standard practice for operating salt spray apparatus.

H. Motors and generators.

I. National electrical code.

J. HVAC duct construction standards - metal and flexible.

K. Test for surface burning characteristics of building materials.

L. Test performance of air filter units.

M. Standard for heating and cooling equipment.

N. Test for flammability of plastic materials for parts in devices and appliances.

1.03 SUBMITTALS

A. Shop Drawings: Indicate assembly, unit dimensions, weight loading, required clearances, construction details, field connection details, and electrical characteristics and connection requirements.

B. Product Data:

1. Provide literature that indicates dimensions, weights, capacities, ratings, fan performance, gauges and finishes of materials, and electrical characteristics and connection requirements.

1.04 OPERATION AND MAINTENANCE DATA

A. Maintenance Data: Include instructions for filter replacement.

1.05 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing Air Handler products specified in this section must show a minimum five years documented experience and complete catalog data on total product.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle products to site.

B. Accept products on site wrapped in protective (cardboard wrap OR weather-resistant wrap). Inspect for damage.

C. Store in a clean dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

1.07 ENVIRONMENTAL REQUIREMENTS

A. Do not operate units for any purpose, temporary or permanent, until ductwork is clean, filters are in place, and fan has been test run under observation.

PART 2--PRODUCTS

2.01 MANUFACTURERS

A. The following manufacturers are approved for use. No substitutions will be permitted.

1. Daikin Applied – “PreciseLine” air handler is the basis of design, including standard product features and all special features required per plans and specifications.

2.02 FAN COIL TYPE AND ARRANGEMENT

A. The unit shall be furnished as a draw-through style air handler.

B. [OPTIONAL] A Primary hydronic cooling coil shall be furnished and factory-installed. OR

[OPTIONAL] (DX OR VRV) cooling coils shall be factory-installed.

1. The maximum operating pressure should not exceed 500 psig (3447 kPa) for units with R-410A refrigerant OR the maximum operating pressure should not exceed 600 psig (4137 kPa) for units with (R-32 OR R-454B) refrigerant.

C. A Secondary electric-resistive heater shall be factory-furnished (upstream OR downstream) of the primary coil. Automatic and manual-style thermal cut-out switches shall be furnished and installed by the manufacturer. The switches will disconnect the electric heater at air temperatures unsafe for the unit’s continued operation. OR

[OPTIONAL] A Secondary (preheat OR reheat) hydronic coil located (upstream OR downstream) of the primary coil shall be factory-furnished. Entering water conditions are not to exceed 200°F. OR

[OPTIONAL] A Secondary preheat steam coil located upstream of the primary coil shall be factory-furnished. Operating pressure should not exceed 25 psig (172 kPa).

2.03 GENERAL CONSTRUCTION

A. The air handling unit shall include a blower, fan housing, coil, and drain-pan enclosed within and mounted to a rigid cabinet. Steel parts exposed to moisture shall be galvanized and insulated to prevent condensation. The

complete fan assembly shall be wired via quick connect electrical contacts and easily removable for service and maintenance.

B. Cabinet

1. Unit will be supplied with 1-inch, double-wall panels. The cabinet is to be thermally isolated through injected foam insulation inside each cabinet. Single wall cabinets with fiberglass insulation exposed in the airstream are not acceptable. Frame channels which allow heat conductance between the inside and outside of the cabinet are not acceptable. Base rails used for unit mounting/hanging are acceptable. Panel shall have a minimum thermal insulation of R-6.5. Foam injected insulation conforms to:

   a. ASTM C1071 (including C665)

   b. UL 181 for erosion

   c. 25/50 rating for flame spread/smoke developed per ASTM E-84, UL 723 and NFPA 90A

2.04 SUPPLY FAN(S)

A. Supply fans shall be a (DWDI forward-curved type OR welded aluminum airfoil plenum type) fan. Fan assemblies shall be balance tested dynamically by the manufacturer. Manufacturer must ensure maximum fan RPM is below the first critical speed.

B. The complete fan assembly, including motor and main drain pan shall be easily removable.

C. Fan motor(s) assembly shall be direct-drive style and not include belts, pulleys, or sheaves.

D. Fan motor(s) shall be of Direct Current Brushless type or minimum motor efficiency of 85 percent when rated in accordance of NEMA Standard MG 1-2016 at full load conditions.

E. Manufacturer's supply fan motor must have means to adjust motor speed for field balancing.

F. Units shall be certified in accordance with the Central Station Air Handler certification program that is based on AHRI Standard 430.

G. [For forward-curved fan] Must be capable of delivering 1.5″ w.g. external static pressure and 3.0″ w.g. total static pressure at nominal cabinet CFM.

OR

H. [For plenum fan] Welded aluminum airfoil plenum fan must be capable of delivering 5.0″ w.g. total static pressure at nominal cabinet CFM.

2.05 EXHAUST FAN(S)

A. (1 OR 2 OR 3) exhaust fans shall be a (DWDI forward-curved OR backwards curved plenum) type. Fan assemblies shall be balance tested dynamically by the manufacturer. Manufacturer must ensure maximum fan RPM is below the first critical speed.

B. The complete fan assembly, including motor, shall be easily removable.

C. Fan motor(s) assembly shall be direct-drive style and not include belts, pulleys, or sheaves.

D. Fan motor(s) shall be of Direct Current Brushless type or minimum motor efficiency of 85 percent when rated in accordance of NEMA Standard MG 1-2016 at full load conditions.

E. Manufacturer's supply fan motor must have means to adjust motor speed for field balancing.

F. [OPTIONAL] The forward curved exhaust fan must be capable of delivering 0.5″ w.g. external static pressure at 50% nominal unit airflow. OR

[OPTIONAL] The plenum exhaust fan must be capable of delivering 5″ w.g. external static pressure at 100% nominal unit airflow.

2.06 FILTERS

A. [OPTIONAL] An outside air filter shall be provided. It shall a 2″ flat type furnished with (MERV 4 OR MERV 8) deep-pleated panel filters.

B. Draw-through filter section shall be a (2″ OR 4″ OR flat OR angle) type furnished with (MERV 8 OR MERV 11 OR MERV 13) deep-pleated panel filters.

C. [OPTIONAL] A draw-through secondary pre-filter shall be provided. It shall be a 2″ flat type furnished with (MERV 4 OR MERV 8 OR MERV 13) deep-pleated panel filters.

D. [OPTIONAL] Final blow-through filter section shall be a 4″ flat type furnished with (MERV 8 OR MERV 13) deep-pleated panel filters.

E. Filter media shall be UL 900 listed, Class I or Class II.

F. Filters shall be easily accessible via a door or panel located on the (side OR top OR front OR bottom) of the unit.

G. [OPTIONAL] The (draw-through OR final) filter shall be of disposable type and rating of (MERV 8 OR MERV 13).

2.07 ELECTRICAL

A. [For forward-curved fan] Supply fans shall be driven by Electrically Commutated motors that are run-tested in the assembled unit and permanently lubricated. All motors shall have integral thermal overload protection with a maximum ambient operating temperature of 55°C. Motors shall be capable operating at 90 percent of rated voltage on all speed settings. Motors can operate up to 10 percent overvoltage.

B. [For plenum fan] Supply fans shall be driven by NEMA Premium Efficiency motors that are run-tested in the assembled unit and permanently lubricated. All motors shall have integral thermal overload protection with a maximum ambient operating temperature of 40°C. Motors shall be capable of operating 90 percent of rated voltage on all speed settings. Motors can operate up to 10 percent overvoltage.

C. Motor wires shall include a quick-disconnect motor plug.

D. All controls equipment including ECM control module, low voltage transformers, safety switches, disconnects, fusing, and terminal strips must be located inside the main unit cabinet.

2.08 COOLING AND HEATING

A. Cooling Coil

1. Cooling performance shall be as specified on the unit schedule.
2. (Water coil OR Direct expansion OR VRV) fins shall have full drawn collars to provide a continuous surface cover over the entire tube for maximum heat transfer. Seamless copper tubes shall be mechanically expanded into the fins to provide a continuous primary-to-secondary compression bond over the entire finned length for maximum heat transfer rates. Bare copper tubes shall not be visible between fins. Coil casing shall be constructed of (galvanized OR stainless) steel.
3. [For water coils] Water coils shall be provided with headers of seamless copper tubing with intruded tube holes to permit expansion and contraction without creating undue stress or strain. Coil connections shall be (male pipe thread on turbo spiral coils OR female pipe thread OR sweat) with connection size to be determined by manufacturer based upon the most efficient coil circuiting. Vent and drain connections shall be furnished on the coil connection, easily accessible inside the cabinet. Vent connections to be provided at the highest point to assure proper venting. Drain connections shall be provided at the lowest point.
4. [For Direct Expansion coils] Direct Expansion coils shall be provided with a distributor. The return coil connection shall be a sweat connection with size to be determined by manufacturer based upon the most efficient coil circuiting.
5. All steel parts exposed to moisture shall be galvanized.
6. Unit shall include a stainless steel primary drain pan and a (galvanized OR stainless) steel secondary drain pan. The primary drain pan shall be positively sloped in every plane. Primary and secondary drain pans to be insulated with anti-microbial closed-cell insulation. The drain pan shall be designed to ensure no pooling of condensate water per ASHRAE 62.2.
7. [N/A AVD units] Coils shall have stub-outs off of the headers extending through the unit paneling.
8. [For AVD units] Coils shall have stub-outs off the headers that end within the internal cabinet.

B. [OPTIONAL] Heating Coil

1. Heating performance shall be as specified on the unit schedule.
2. (Hot water coil OR Steam coil) fins shall have full drawn collars to provide a continuous surface cover over the entire tube for maximum heat transfer. Seamless copper tubes shall be mechanically expanded into the fins to provide a continuous primary-to-secondary compression bond over the entire finned length for maximum heat transfer rates. Bare copper tubes shall not be visible between fins.
3. Coils shall be provided with headers of seamless copper tubing with intruded tube holes to permit expansion and contraction without creating undue stress or strain. Coil connections shall be (female pipe thread OR sweat) connections with connection size to be determined by manufacturer based upon the most efficient coil circuiting. Vent and drain connections shall be furnished on the coil connection, external to the cabinet. Vent connections shall be provided at the highest point to ensure proper venting. Drain connections shall be provided at the lowest point.

2.09 [OPTIONAL OR STANDARD ON VERTICAL UNIT SIZES 030-100] DISCHARGE PLENUM

A. A factory-installed discharge plenum is to be furnished attached to the main unit. This component must be constructed of a similar cabinet paneling to the main unit.

B. [For vertical unit sizes 030-100] A factory-provided discharge plenum is to be furnished for attachment to the main unit. This component must be constructed of a similar cabinet paneling to the main unit.

C. Sound-absorbing material will be affixed to the internal walls of the discharge plenum.

2.10 [OPTIONAL ON UNIT SIZES 030-100] ECONOMIZER / MIXING BOX

A. A factory-installed mixing box for mixing two separate airstreams is to be furnished attached to the main unit. This component must be constructed of a similar cabinet that the main unit is constructed of.

B. [For unit sizes 060-100] An economizer section shall be provided, controlling return, exhaust, and outdoor air.

C. Dampers intended for modulating each airstream are to be furnished to cover the openings of the supplied mixing box.

1. [For unit sizes 060-100] Return and outdoor air dampers shall be controlled independently.

D. [For unit sizes 060-100] Damper blades shall be of airfoil construction. Dampers shall be AMCA Class 1-A leakage rated.

E. Damper blades shall be interoperable via linkage shaft. Gear linkage dampers shall not be acceptable.

F. Damper actuators are to be furnished factory-installed on the mixing box. These actuators are to be controlled via (24 VAC ON/OFF signal OR 0-10V modulating signal) and factory-wired back to the control area within the main cabinet.

2.11 [OPTIONAL ON UNIT SIZES 006-020] VALVE PACKAGES

A. Coils

1. Fan coil units shall be provided with factory-installed valve / piping package(s) available for the

(primary coil OR primary and secondary coils). All piping packages shall be factory assembled and tested at 400 psig (2760 kPa) and re-tested for leak when factory soldered to the coil(s) at 300 psig (2100 kPa) Maximum Working Pressure of the piping package shall be 300 psig (2100 kPa).

2. The valve package(s) shall be designed so that any condensation is directed into the secondary drain pan. With the secondary drain pan provided, insulation of the piping package is not required.

B. Type and Components

1. The valve package(s) shall be (Basic OR Deluxe) type and provided with:

   a. Interconnecting copper piping and shut-off ball valves.

   b. Connecting supply and return lines to the unit.

   c. [OPTIONAL] Four-pipe packages shall include a venting valve for the secondary coil.

   d. [For deluxe package only] An automatic circuit setter. The circuit setter includes a cartridge within the valve body that is sized to allow a specific flow rate through the coil. This valve sets flow through the coil without any action required by a system piping balancer.

   e. P/T ports to measure the temperature or pressure drop across the valve. This pressure drop can be compared to factory-supplied curves that relate the pressure drop to a specific flow rate.

   f. Unions on the valve package that allow the coil and valve package to be separated and removed from the unit.

   g. [For deluxe package only] A 20 mesh strainer on the supply side that is easily removed for cleaning, with a blow-off valve. The strainer shall have a pressure rating of up to 400 psig (2,700 kPa).

   h. Isolating ball valve on the supply side.

   i. Two-Way valve body(s) positioned on the return side of the coil. A method to relieve pump head pressure to be employed when two-way systems are selected. OR

   Three-Way, mixing-style valve body(s) to be positioned on the return side of the coil.

C. [For deluxe package only] Control

1. The valve package is to be furnished with (two-position On/Off valve actuators OR proportional modulating actuators).

2. The furnished actuators are to be controlled via (24 VAC OR 0-10 VDC) control signal.

2.12 CONTROLS

A. Unit shall be supplied with a digital controls ready interface. This interface is to be located inside the control box internal to the main unit. This interface shall include a 24 VAC transformer and terminal blocks for connections to fan motor control, sensor control, safety switches, valve actuators (and damper control if applicable).

1. [OPTIONAL - Unit sizes 006-020] Fan motor control to be furnished as 0-10VDC. OR

   [OPTIONAL] Fan motor control to be furnished as three speed. These three speeds are field adjustable for precise air flow scheduling.

OR

Unit shall be supplied with factory-installed and configured integrated controls.

1. The controller shall control discharge air temperature based on return air temperature, space temperature, or an average of the two.
2. The controller shall allow separate setpoints based on cooling, heating, and dehumidification setpoints for occupied, unoccupied, and standby modes.
3. Controller shall allow for active dehumidification via reheat coil or passive dehumidification via reduced-speed fan operation. Dehumidification shall control via relative humidity or dewpoint setpoint.
4. Sensors shall be provided for space temperature, discharge air temperature, (entering water OR discharge coil temperature), outdoor air temperature, space humidity, duct static pressure, outdoor air humidity, condensate overflow, freeze protection, airflow proving switch, return air temperature, return air humidity, and dirty filter switch.
5. Supply fan shall be controlled to (constant speed OR duct static pressure OR single-zone VAV operation).
6. [OPTIONAL - Unit sizes 060-100] The controller shall be configurable to operate with a CO2 sensor provided as an accessory, to provide CO2-based demand control ventilation. The supply fan shall cycle with demand or operate continuously.
7. [OPTIONAL] Exhaust fan shall control to (an offset of supply fan tracking OR a constant speed).
8. [OPTIONAL] Outdoor air damper shall have a programmable minimum opening position.
9. [OPTIONAL] The economizer shall be equipped with Title-24 compliant fault detection and diagnostics. Economizer shall be controlled via (outdoor air temperature OR outdoor enthalpy OR comparative indoor/outdoor temperature OR comparative indoor/outdoor enthalpy). The controller can be field-programmed for optional outdoor air temperature economizer lock-out.
10. The controller shall be factory configured to control 2-pipe/4-pipe heating or cooling, reverse pipe or direct acting via 24 VAC On/Off or (0-10 OR 2-10) modulating valve control. Entering water temperature sampling for 2-pipe changeover configurations.
11. [OPTIONAL] The controller shall be factory configured to control (1-stage OR 4-stage OR SCR) electric heat.
12. The controller shall feature a startup test operation mode in which setpoints may be set outside of standard operation to confirm component operation.
13. The controller shall provide run-time totalization for filter, supply fan, exhaust fan, compressor startup totalization and runtime, and compressor runtime control.

14. [OPTIONAL] Controller shall provide dirty filter notification based on fan time or differential filter pressure switch.
15. Controller shall have a 30-event alarm history available to support field troubleshooting.
16. The controller shall have an internal time clock with 7-day programmable schedule.
17. [OPTIONAL] Controller shall allow configurable compressor on/off times as well as configurable controller interstage time and PID loop for 4-stage compressors and discharge air temperature control.
18. [OPTIONAL] The controller shall be factory configured to control the Energy Recovery Wheel.
19. Network communication shall enable read/write functionality of control points, including space temperature, CO2 value, space relative humidity, entering water, fan speed, outdoor air temp, OA relative humidity, network enabling/disabling of economizer/cooling/heating/dehumidification.

B. [OPTIONAL] Unit shall be furnished with a disconnect switch and 65 KAIC inline fusing to protect vital electrical components. The disconnect switch shall be operable from the outside of the cabinet to reduce hazards during field service and commissioning.

C. [For DX units with R-32 or R-454B refrigerants] Unit shall be supplied with an enclosed leak refrigerant detection system (RDS).

2.13 [OPTIONAL ON VERTICAL UNIT SIZES 060-100] DEFROST HEATER

A. Heating performance shall be as specified on the unit schedule.

B. Hot Water Defrost

1. The unit shall be provided with a Hot Water defrost heater to prevent frost on (the energy recovery device OR the coils).
2. Hot water coil fins shall have full drawn collars to provide a continuous surface cover over the entire tube for maximum heat transfer. Seamless copper tubes shall be mechanically expanded into the fins to provide a continuous primary-to-secondary compression bond over the entire finned length for maximum heat transfer rates. Bare copper tubes shall not be visible between fins.
3. Coils shall be provided with headers of seamless copper tubing with intruded tube holes to permit expansion and contraction without creating undue stress or strain. Coil connections shall be sweat connections with connection size to be determined by manufacturer based upon the most efficient coil circuiting. Vent and drain connections shall be furnished on the coil connection, external to the cabinet. Vent connections shall be provided at the highest point to ensure proper venting. Drain connections shall be provided at the lowest point.

OR

Electric Heat Defrost

1. An electric preheat coil with (1-Stage OR SCR) control shall be provided to prevent frost on the (energy recovery device OR coils).
2. Electric heating coils shall be UL listed, open-wire resistance heaters. Heating coils shall be constructed of high nickel-chromium alloy resistance wire (80% Ni/20% Cr).
3. A separate power connection shall be used for the electric heater.

2.14 [OPTIONAL - VERTICAL UNIT SIZES 060-100] ENERGY RECOVERY

A. The unit shall be provided with an AHRI certified rotary wheel air-to-air heat exchanger in a cassette frame complete with seals, drive motor and drive belt. The energy recovery wheel shall be an integral part of the unit with unitary construction, power supply and controls and does not require field assembly. Bolt-on energy recovery units that require field assembly and section to section gasketing and sealing are not acceptable.

B. The energy recovery wheels supplied must meet the scheduled capacity and air pressure drop.

C. The wheel capacity, air pressure drop and effectiveness shall be AHRI certified per AHRI Standard 1060.

D. [OPTIONAL] The unit shall have an energy wheel temperature sensor that measures entering air temperature and leaving air temperature.

E. The unit shall be designed with a track so the entire energy recovery wheel cassette can slide out from the unit to facilitate cleaning.

F. The unit shall have 2″ (Merv 8 OR Merv 4) filters for the return air before the wheel to help keep the wheel clean and reduce maintenance.

1. [OPTIONAL] A dirty filter switch and alarm shall be provided on the energy wheel filter rack.

G. The total energy recovery wheel shall have a polymer substrate bonded permanently with desiccant.

H. A (0-10V VFD OR Modbus Communication) shall be provided for wheel capacity and frost prevention control by the unit controller.

I. [OPTIONAL ON 46″ ERW OR STANDARD ON 52 OR 58″ ERW] The energy recovery wheel shall have a bypass damper.

2.15 [OPTIONAL ON VERTICAL UNIT SIZES 060-100] POST ELECTRIC HEAT

A. Post electric heat shall require field assembly.

B. Post electric heat with (4 stage OR SCR) control shall be provided.

C. Electric heating coils shall be UL listed, open-wire resistance heaters. Heating coils shall be constructed of high nickel-chromium alloy resistance wire (80% Ni/20% Cr).

D. A separate power connection shall be used for the electric heater.

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