INSTALLATION & MAINTENANCE MANUAL

IM 1419

DECEMBER 2025

PRECISELINE®

HORIZONTAL AND VERTICAL INDOOR AIR HANDLERS

- R-32 OR R-454B REFRIGERANT
- MODELS BCHD, BCVD, BCAD, BCHE, BCHU, BCVE, BCVU, BCVL, AND BCVR
- SIZES 006 – 100 (600 TO 10,000 CFM)

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Safety Information

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 in Figures or Tables.

This manual provides installation, operation, and maintenance information for Daikin Applied PRECISELINE AIR HANDLER with a MicroTech® controller.

Smoke Control and Management Systems

⚠ WARNING

Improper smoke or fume air handling can result in severe personal injury or death.

A registered professional engineer must design and approve the air conditioner and air handler application to make sure smoke and fume control meet local fire codes and NFPA requirements for the specific building application. Due to the wide variation in building design and ambient operating conditions into which our products can be applied, we do not represent or warrant that our products will be fit and sufficient for smoke and fume control and management purposes. The owner and building designer must consult a registered professional engineer to satisfy themselves in this regard.

The system design and installation must follow accepted industry practice, such as described in the ASHRAE Handbook, the National Electric Code, and other applicable standards. The installation of this equipment must be in accordance with regulations of authorities having jurisdiction and all applicable codes. It is the responsibility of the installer to determine and follow the applicable codes.

Consider Before Operation

⚠ DANGER

Improper ground may result in severe injury or death.

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

⚠ DANGER

LOCKOUT/TAGOUT all power sources prior to service, pressurizing, de-pressuring, or powering down the unit. Failure to follow this warning exactly can result in serious injury or death. Disconnect electrical power before servicing the equipment. More than one disconnect may be required to de-energize the unit. Be sure to read and understand the installation, operation, and service instructions within this manual.

⚠ WARNING

Improper installation and maintenance can cause equipment damage or personal injury.

Installation and maintenance must be performed by qualified personnel familiar with applicable codes and regulations, and experienced with this type of equipment.

⚠ WARNING

Electric shock hazard. Improper handling of this equipment can cause personal injury or equipment damage. This equipment must be properly grounded. Connections to and service of the MicroTech control panel must be performed only by personnel that are knowledgeable in the operation of the equipment being controlled.

⚠ WARNING

Polyolester Oil, commonly known as POE oil is a synthetic oil used in many refrigeration systems, and may be present in this Daikin Applied product. POE oil, if ever in contact with PVC/CPVC, will coat the inside wall of PVC/CPVC pipe causing environmental stress fractures. Although there is no PVC/CPVC piping in this product, please keep this in mind when selecting piping materials for your application, as system failure and property damage could result. Refer to the pipe manufacturer's recommendations to determine suitable applications of the pipe.

⚠ CAUTION

PreciseLine units are not designed to be weather resistant; DO NOT install outdoors.

⚠ CAUTION

Static sensitive components. A static discharge while handling electronic circuit boards can cause damage to the components. Discharge any static electrical charge by touching the bare metal inside the control panel before performing any service work. Never unplug any cables, circuit board terminal blocks, or power plugs while power is applied to the panel.

NOTICE

Installation and maintenance must be performed only by licensed personnel (if required by local codes and regulations) or by qualified individuals who are familiar with local codes and experienced with this type of equipment.

NOTICE

Unit/equipment must be installed in a location that is not accessible to the general public.

NOTICE

QUEBEC DISCLOSURE REGARDING AVAILABILITY OF REPLACEMENT PARTS, REPAIR SERVICES AND INFORMATION FOR MAINTENANCE AND REPAIR: Daikin Applied Americas Inc. (Daikin Applied) does not guarantee the availability of (1) replacement parts; (2) repair services; and (3) information necessary to maintain or repair products, within the meaning of section 39.1 of the Consumer Protection Act, CQLR, c P-40.1 and section 79.18 of the Regulation respecting the application of the Consumer Protection Act, CQLR, c P-40.1, r. 3.

AVIS POUR LE QUÉBEC CONCERNANT LA DISPONIBILITÉ DES PIÈCES DE RECHANGE, DES SERVICES DE RÉPARATION ET DES RENSEIGNEMENTS POUR L'ENTRETIEN ET LA RÉPARATION : Daikin Applied Americas Inc. (Daikin Applied) ne garantit pas la disponibilité (1) des pièces de rechange, (2) des services de réparation et (3) des renseignements pour l'entretien et la réparation, au sens de l'article 39.1 de la Loi sur la protection du consommateur, RLRQ c P-40.1 et de l'article 79.18 du Règlement d'application de la Loi sur la protection du consommateur, RLRQ c P-40.1, r 3.

A2L Refrigerant Information (A2L Units Only)

⚠ WARNING

This unit contains R-32 or R-454B. 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 A2L refrigerants. Installation and maintenance must be done in accordance with this manual. Improper handling of this equipment can cause equipment damage, personal injury or equipment damage.

Be aware that A2L refrigerants may not contain an odor. Place in a well ventilated area to prevent accumulation of refrigerant. When installing the unit in a small room, take measures to keep the refrigerant concentration from exceeding allowable safety limits. 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.

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. If air enters the refrigerant system, an excessively high pressure results, which may cause equipment damage or injury.

⚠ WARNING

When moving flammable A2L refrigerant to/from the unit from an auxiliary tank, a grounding strap must be used. An electrical charge builds when halo-carbon refrigerant travels in a rubber hose. A grounding strap must be used between the auxiliary refrigerant tank and the unit's end sheet (earth ground), which will safely take the charge to the ground. A fire risk could occur if this procedure is not followed.

UL Compliance Statements

This appliance is not intended for use by persons (including children) with reduced physical, sensory, or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

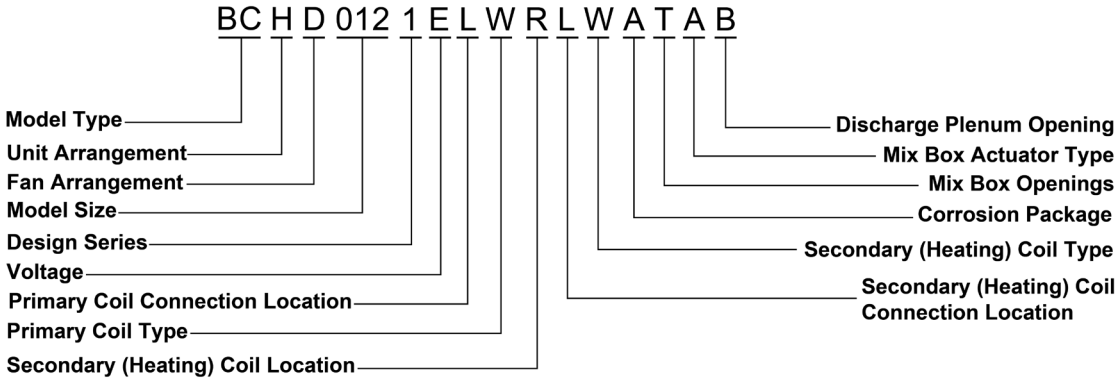
Children shall not be allowed to play on or with equipment.

Unit Labels

Pictogram warning and informational labels may be present on the unit. Consult the table below for reference.

Label	Description
	WARNING: flammable refrigerant present
	WARNING: flammable refrigerant present
	Read the technical manual for service instructions
	WARNING: A2L low-burning velocity refrigerant present
	Pressurized medium present
	Ultraviolet (UV) radiation present
	Read the technical manual for instructions

Nomenclature



Category	Code	Description
Model Type	BC	Daikin Applied Air Handler
Unit Arrangement	H	Horizontal
	V	Vertical
	A	AVD / Compact Vertical (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.

Installation

Operating Limits

Environmental Limits

This equipment is designed for indoor installation only. Sheltered locations such as attics, garages, etc., will not provide sufficient protection against extremes in temperature and/or humidity, and equipment performance, reliability, and service life may be adversely affected.

NOTICE
Altitude Limits: Maximum applied altitude not to exceed 15,000 ft (4,572 m).

NOTICE
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.

Receiving and Handling

Carefully check equipment against the bill of lading to ensure all items have been received. Before unloading any unit, check the nameplate to make sure the voltage complies with the power supply available.

Inspect all units for damage upon arrival. If a unit has become dirty during shipment, carefully clean it prior to completing the inspection. Daikin Applied is not responsible for physical damage after the unit leaves the factory unless the contract with Daikin Applied states otherwise.

NOTICE
All units should be carefully inspected for damage when received. Report all loss or shipping damage using a claim form supplied by Daikin Applied. **VISIBLE LOSS OR DAMAGE:** Any external evidence of loss or damage must be noted on the freight bill or carrier's receipt, and signed by the carrier's agent. Failure to adequately describe such external evidence of loss or damage may result in the carrier's refusal to honor a damage claim. **CONCEALED LOSS OR DAMAGE:** Concealed loss or damage means loss or damage which does not become apparent until the unit has been unpacked or unwrapped. The contents may be damaged in transit due to rough handling even though the exterior may not show damages. When the damage is discovered, make a written request for inspection by the carrier's agent within **five (5) days** of the delivery date and file a claim with the form provided by Daikin Applied. Refer to the Daikin Applied Freight Policy for further information.

PreciseLine air handler units are thoroughly inspected before leaving the factory. Install units carefully to prevent damage.

All fans are dynamically balanced before leaving the factory. Carefully inspect fans for rough handling that can cause misalignment or a damaged shaft.

When in transit (i.e. not stored in a warehouse):

- Horizontal unit sizes 006-020 may be stacked 3 units high for transit.
- Vertical unit sizes 006-020 may be stacked for transit 4 units high without external filter rack and 3 units with external filter rack.
- Never stack unit sizes 030-100.

Storing the Unit

Store unit on a level surface. If air handling units are to be stored for any period of time, it is important to rotate the motor shaft (quarterly, as a minimum) to prevent permanent distortion of drive components.

Store units indoors in a clean, dry environment on a level surface. Moisture, debris, and minerals can cause permanent damage to the cabinet and components. Do not allow coverings to trap moisture on the galvanized surface.

When in a warehouse (i.e. not in transit):

- Horizontal unit sizes 006-020 can be stored 3 units high.
- Vertical unit sizes 006-020 can be stored 6 units high without an external filter rack, and 5 units high with one.
- Do not stack unit sizes 030 and larger.

Using a Forklift

⚠ CAUTION
For unit sizes 060-100, never lift combined unit sections using a forklift. Always lift unit sections individually when using a forklift. Using a forklift to transport combined unit sections may result in unit damage.

When using a forklift to transport units, make sure that forklift tongs enter from the ends of the pallet, not the sides. In cases where one end is heavier, enter the pallet from the heavier side (e.g., for vertical units with a mixing box, enter from the side opposite the mixing box). For unit sizes 060-100, always lift unit sections individually. Never lift combined unit sections of large units.

NOTICE
The unit is shipped in a protective plastic coating with cardboard supports. Plastic and cardboard will need to be removed before installation.

Figure 1: Using a Forklift for Unit Sizes 006-020 on a Pallet

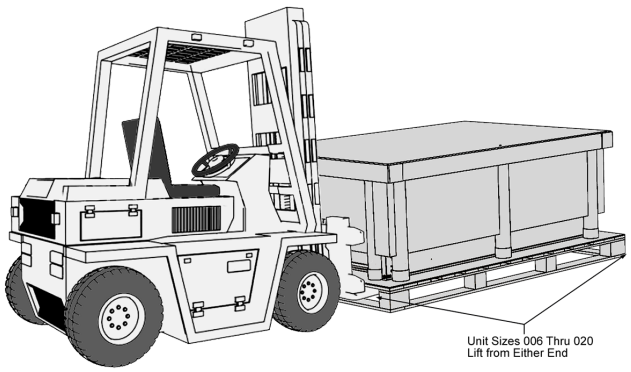


Figure 2: Using a Forklift for Unit Sizes 030-050 on a Pallet

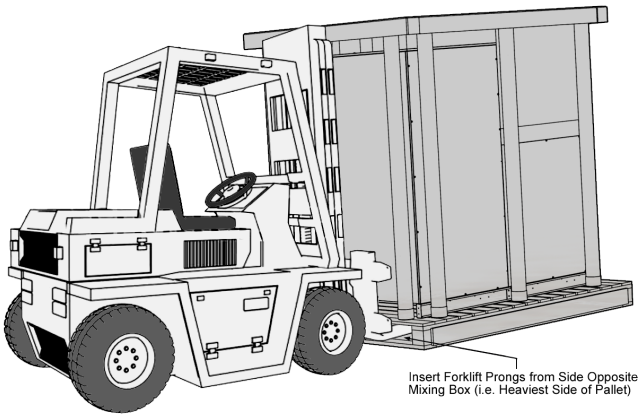
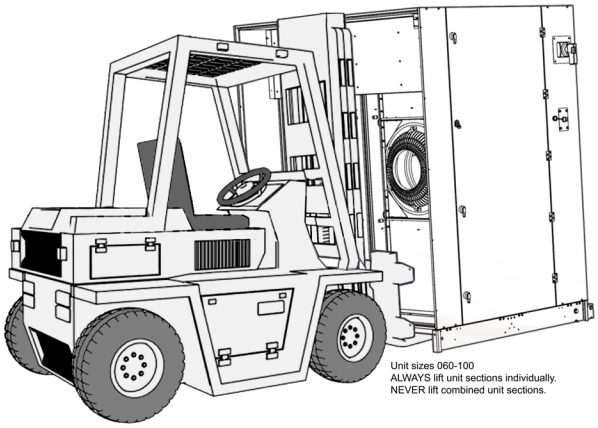


Figure 3: Using a Forklift for Unit Sections (Unit Sizes 060-100)



Optional Mixing Box and Discharge Plenum Removal

⚠ CAUTION

Sharp edges can cause personal injury. Avoid contact with them. Use care and wear protective clothing, safety glasses and gloves when handling parts and servicing unit.

NOTICE

It is recommended all bottom screws be removed first. If the unit must be turned over or tilted up to access the bottom screws, care must be used to avoid damage.

All PreciseLine mixing boxes ship attached, and horizontal units ship with pre-attached discharge plenums. However, the discharge plenum and/or mixing box may be removed if necessary to navigate constricted passageways. Detachment of these components requires removal of the screws on the sides, top, and bottom of the unit as shown in Figure 4 and Figure 5. If the unit must be turned over or tilted up to access the bottom screws, care must be used to avoid damage. Fasteners in units with base rails must also be removed.

Figure 4: Horizontal Size 020 Unit - Disassembling Optional Mixing Box and Discharge Plenum Example

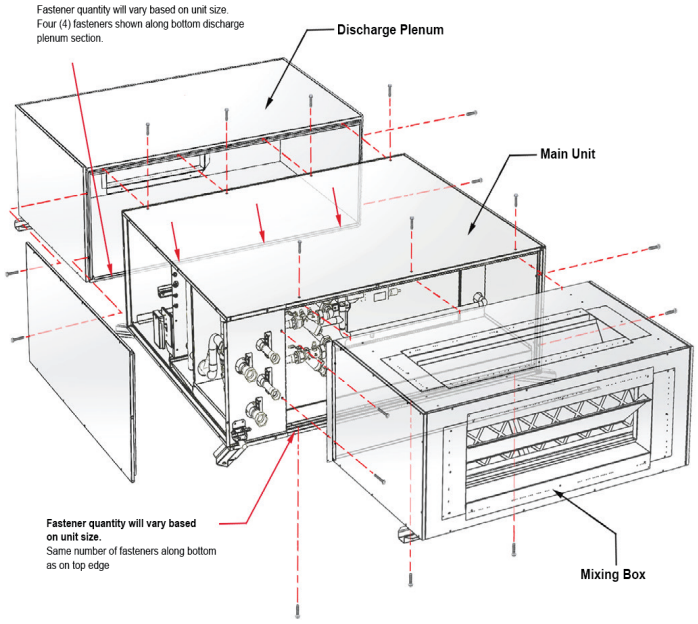
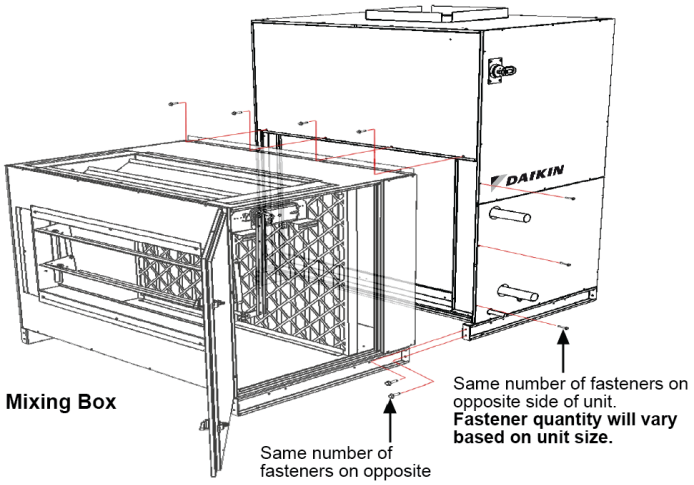


Figure 5: Vertical Size 040 Unit - Disassembling Optional Mixing Box and Discharge Plenum Example



Cabinet Section Disassembly for Vertical Unit Sizes 060-100

⚠ DANGER

LOCKOUT/TAGOUT all power sources prior to servicing the unit. Hazardous voltage may cause serious injury, death, and property damage. Disconnect electric power before servicing equipment. More than one disconnect may be required to de-energize the unit.

⚠ CAUTION

Cabinet sections must remain upright when disassembled. Do not lay cabinet sections on their sides or off of their base rails.

On vertical unit sizes 060-100, all cabinet sections can be detached from each other for installation purposes (see Figure 6 through Figure 8). Base rail and cabinet fasteners need to be removed as shown in the following images.

There are wires spanning the length of the unit, routed through a cable chase on the upper edge of the unit's access side. (See Figure 8.) For section disassembly, wires running through the wire chase may need to be temporarily disconnected (via quick-connect) and pulled out. Quick-connects are located between the Coil Section and the section immediately upstream of it.

Some cabinet sections have interior fasteners that must be removed before the cabinet sections can be separated. See page 8 through page 14 for specific cabinet disassembly instructions.

Exhaust Air Cabinet Section Disassembly

1. Remove base rail fasteners and joint plate (Figure 7 and Figure 9).
2. Open filter rack doors to access the quick connect wire plugs at the top of the unit cabinet. Disconnect wiring (Figure 8 and Figure 9).
3. Remove fasteners around side and top of exhaust air section where connected to full unit (Figure 6).
4. Separate exhaust air section from full unit (Figure 9).

Figure 6: Vertical Size 060-100 Section Disassembly - Cabinetry

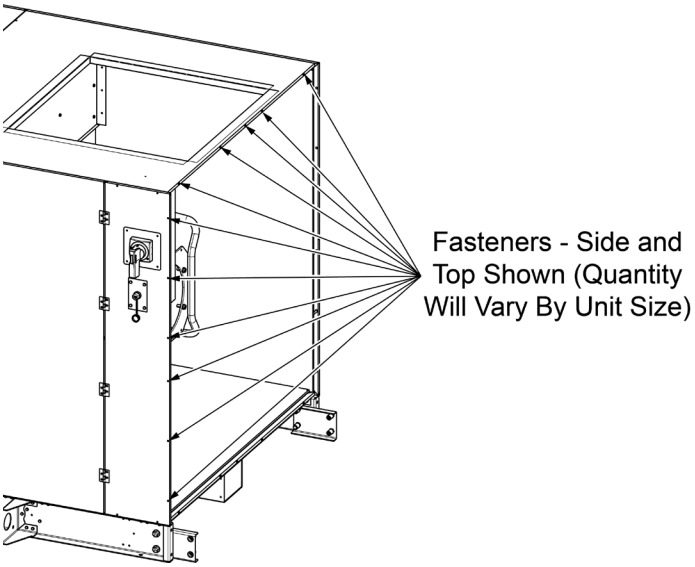


Figure 7: Remove Base Rail Fasteners

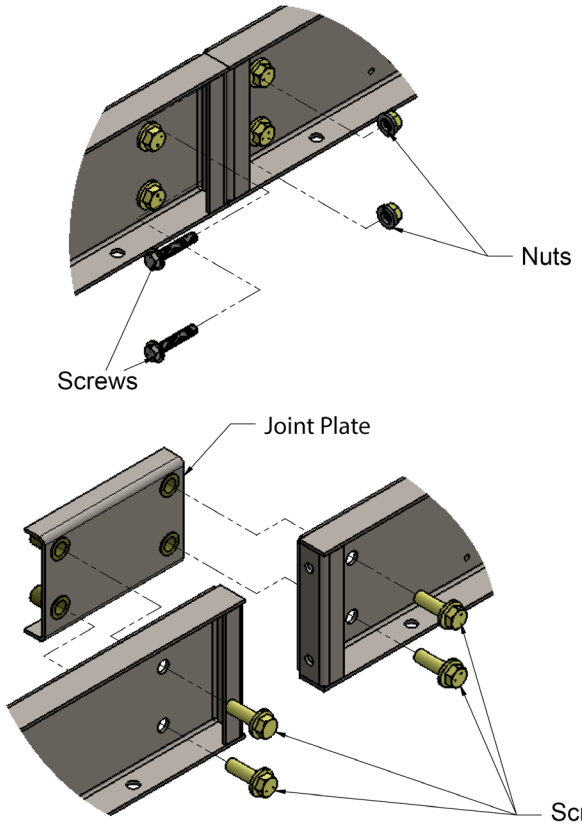
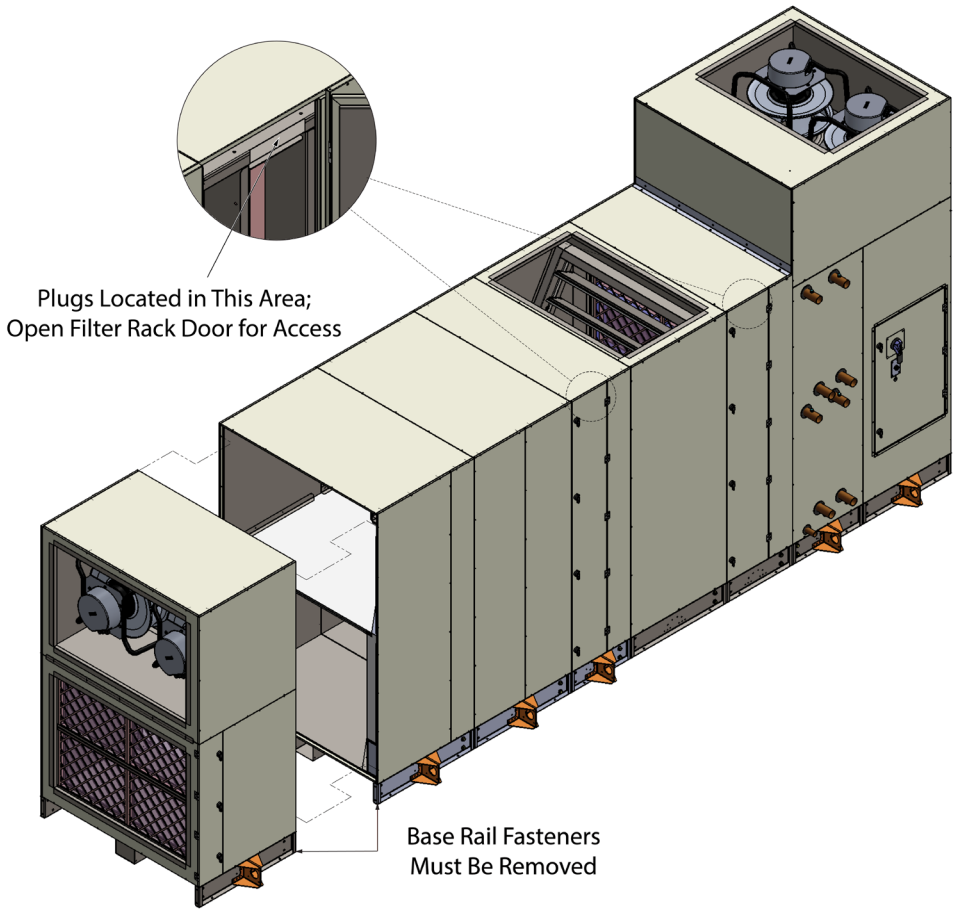


Figure 8: Vertical Sizes 060-100 Section Disassembly - Top Rail and Base Rail

Figure 9: Exhaust Air Cabinet Section Disassembly

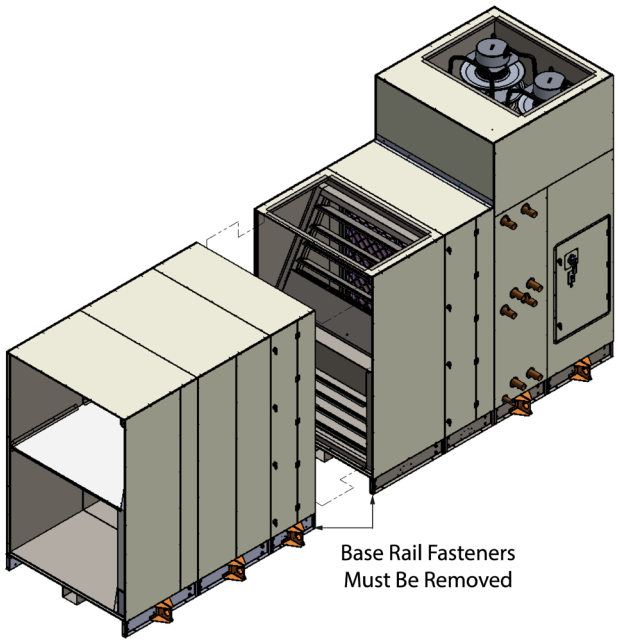


Energy Recovery Wheel Section Disassembly

For 46 in energy recovery wheel module:

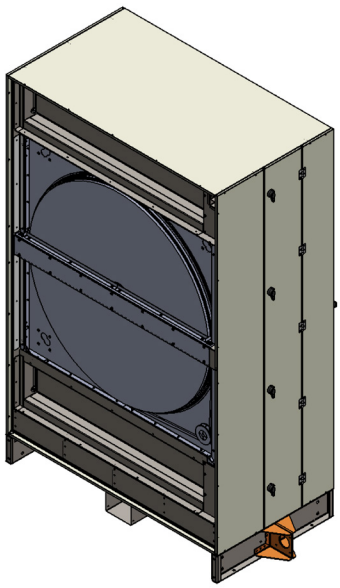
1. Remove base rail fasteners and joint plate (Figure 7 and Figure 10).
2. Remove fasteners around side and top of ERW section where connected to full unit (Figure 6).
3. Separate ERW module from full unit (Figure 11).

Figure 10: Detaching Energy Recovery Wheel Section



NOTE: 58 in ERW configuration shown as an example.

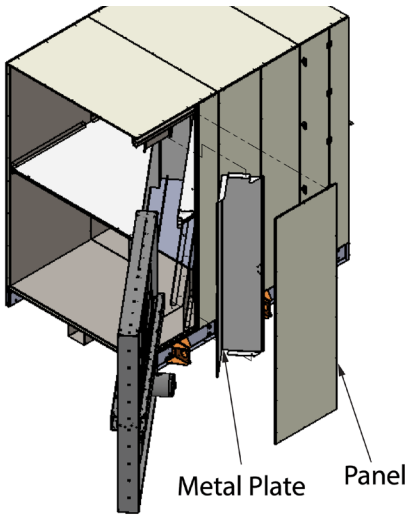
Figure 11: 46 in ERW Section Disassembly



For 52 in energy recovery wheel module:

1. Remove base rail fasteners and joint plate (Figure 7 and Figure 10).
2. Remove fasteners around side and top of ERW section where connected to full unit and separate ERW module from full unit (Figure 6 and Figure 10).
3. Remove screws to detach the cabinet panel (Figure 12).
4. Remove screws from the metal plate in front of the energy recovery wheel to access the wheel (Figure 12).
5. Remove energy recovery wheel from cabinet (Figure 12).

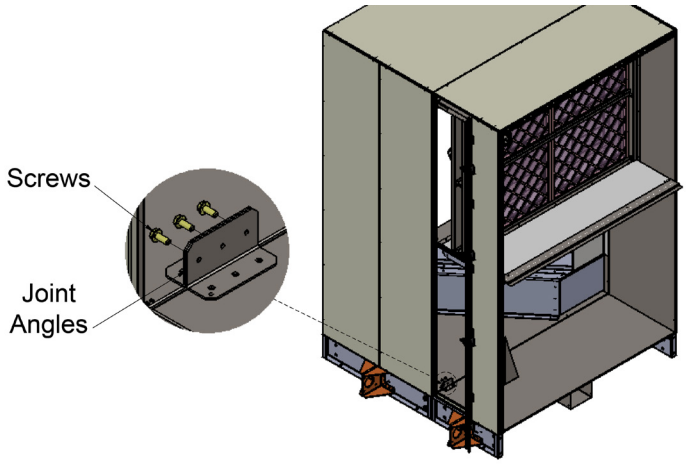
Figure 12: ERW Section Cabinet Side Panels



NOTE: 58 in ERW configuration shown as an example.

6. Open panel door to access joint angles connecting ERW cabinet sections and remove screws from the joint angles. (Figure 13).
7. Remove base rail fasteners and joint plate (Figure 7 and Figure 14).
8. Separate ERW cabinet sections (Figure 14).

Figure 13: ERW Joint Angles



NOTE: 58 in ERW configuration shown as an example.

Figure 14: 52 in ERW Section Disassembly

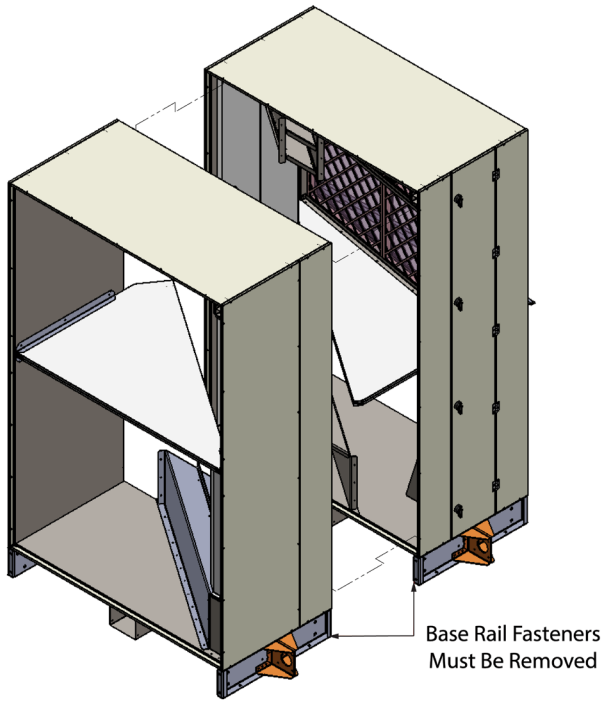
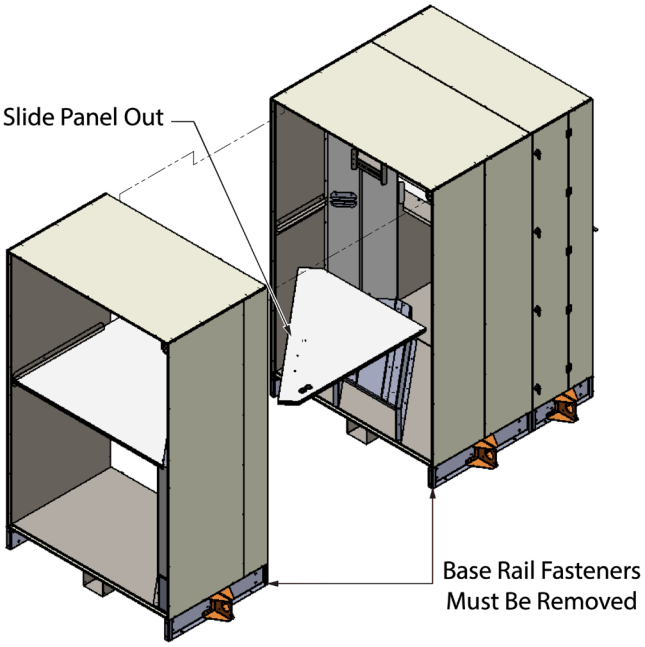


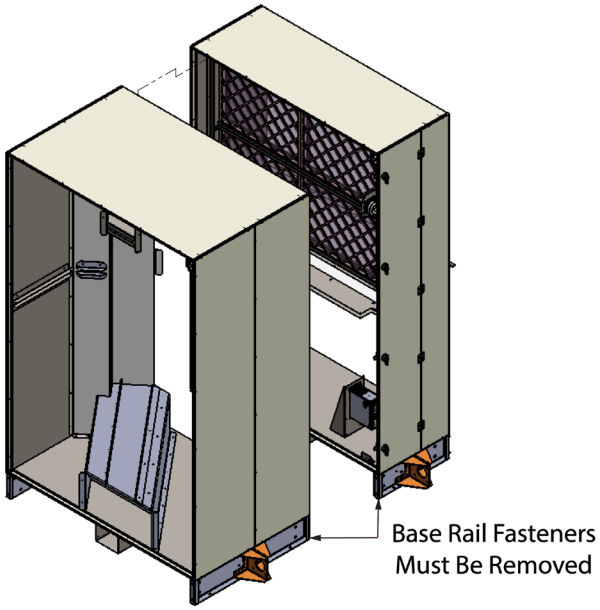
Figure 15: 58 in ERW Triangular Panel



For 58 in energy recovery wheel module:

1. Remove base rail fasteners and joint plate (Figure 7 and Figure 10).
2. Remove fasteners around side and top of ERW section where connected to full unit and separate ERW module from full unit (Figure 6 and Figure 10).
3. Remove screws to detach the cabinet panel (Figure 12).
4. Remove screws from the metal plate in front of the energy recovery wheel to access the wheel (Figure 12).
5. Remove the energy recovery wheel from the cabinet (Figure 12).
6. To separate the first module of the ERW section from the second and third modules, remove base rail fasteners and joint plate. The triangular panel inside will be accessible. (Figure 7 and Figure 15).
7. Remove the triangular panel by sliding it out of the cabinet (Figure 15).
8. Open panel door to access joint angles connecting ERW cabinet sections and remove screws from the joint angles. (Figure 13).
9. Remove base rail fasteners and joint plate and separate ERW cabinet sections (Figure 7 and Figure 16).

Figure 16: 58 in ERW Section Disassembly



Removing Economizer and Filter Section

1. Remove screws from angle bracket as shown in Figure 17.
2. Remove fasteners around side and top of economizer and filter section where connected to full unit (Figure 6).
3. Remove base rail fasteners and joint plate (Figure 7 and Figure 18).
4. Ensure wiring quick connects have been disconnected Open filter rack door to access the quick connect wire plugs at the top of the unit cabinet and disconnect wiring (Figure 8 and Figure 18).
5. Separate economizer cabinet section from filter section (Figure 18).

Figure 17: Economizer and Filter Section Angle Bracket

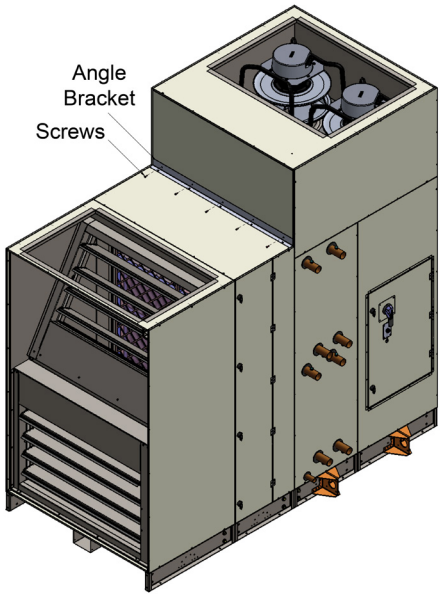
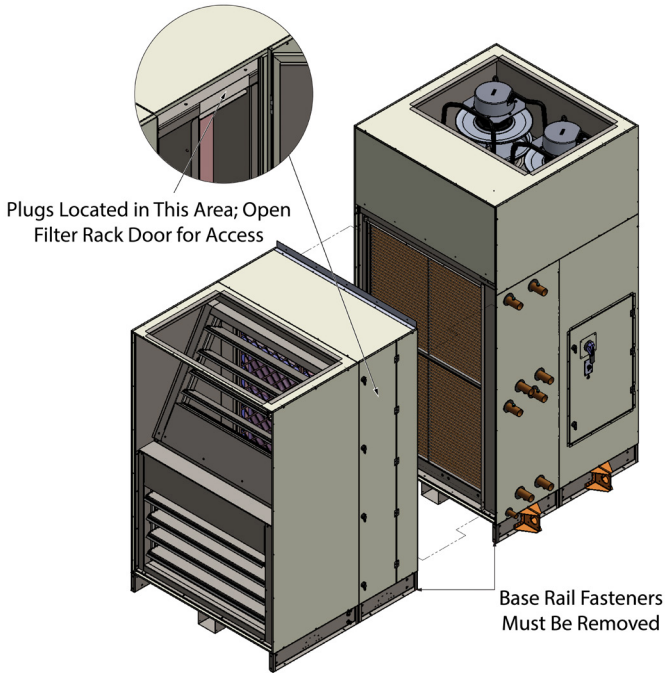


Figure 18: Detaching Economizer and Filter Section



6. Open panel door to access joint angles connecting cabinet modules and remove screws from the joint angles (Figure 19).
7. Remove base rail fasteners and joint plate to seperate economizer and filter sections (Figure 7 and Figure 20).

Figure 19: Economizer and Filter Section Joint Angle

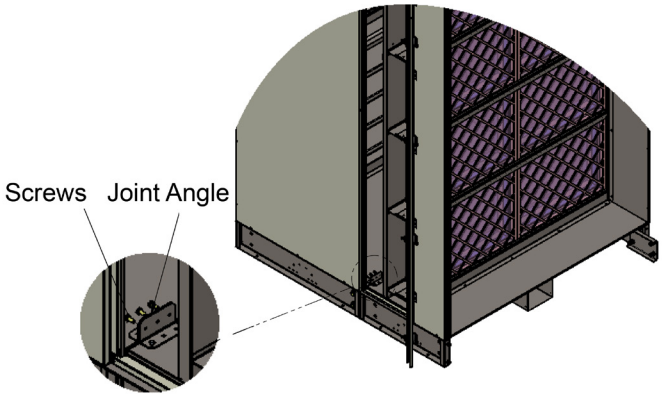
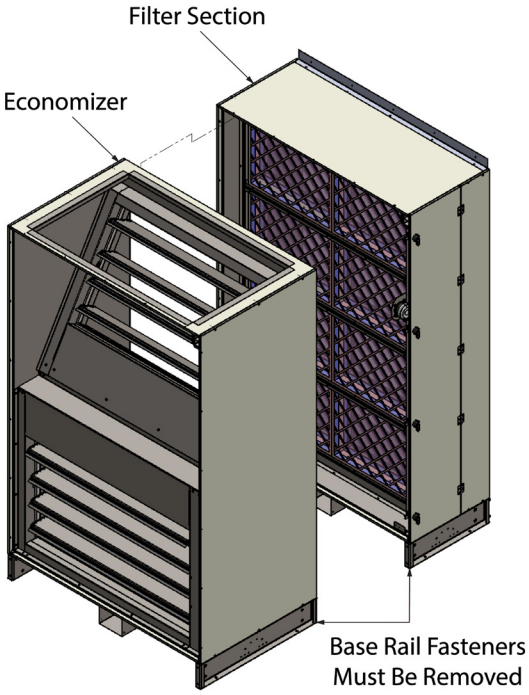


Figure 20: Economizer and Filter Section Disassembly

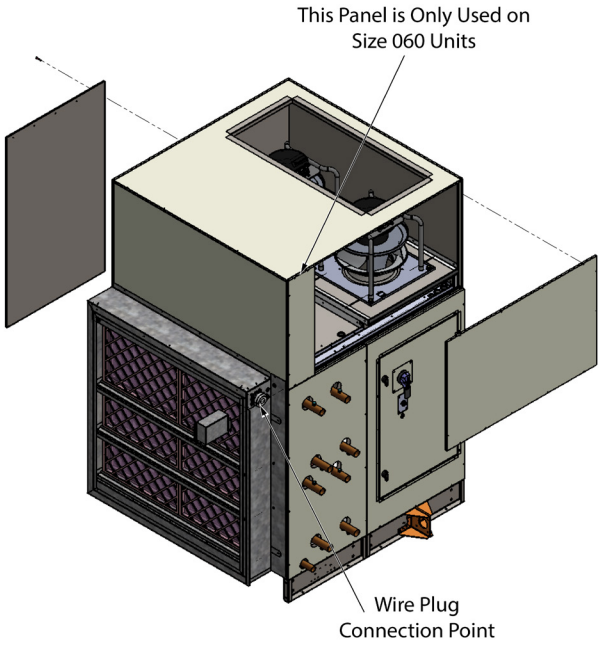


Removing Fan Section from Vertical Unit Sizes 060-100

The fans must be removed from the fan section before the coil section cabinet can be removed and detached from the unit.

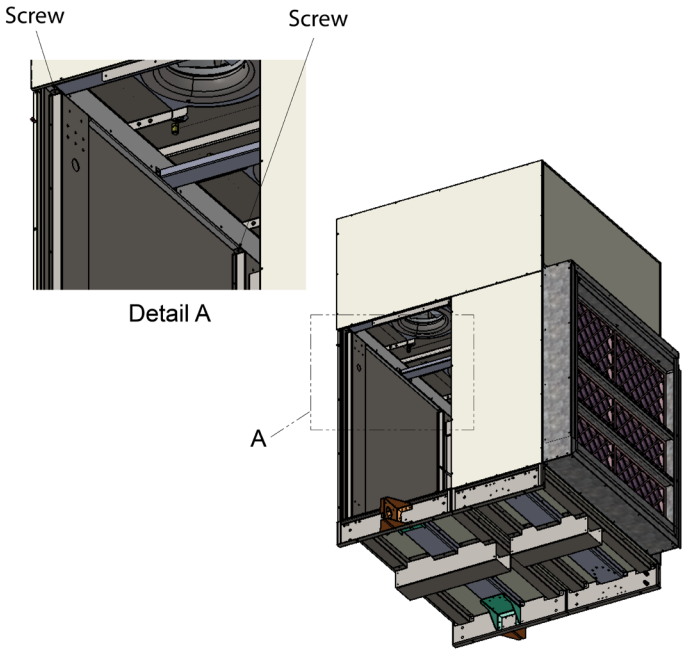
1. Ensure all wire plugs have been disconnected (Figure 21).
2. Remove panel screws and panels from fan section (Figure 21).

Figure 21: Fan Section Panels



3. Remove screws from channels to separate parts from the fan rails (Figure 22).

Figure 22: Fan Section Channels



4. Unscrew and remove all fasteners around filter rack to remove it from cabinet (Figure 23).
5. Remove internal screws from coil supports (Figure 24).

Figure 23: Fan Section Filter Rack

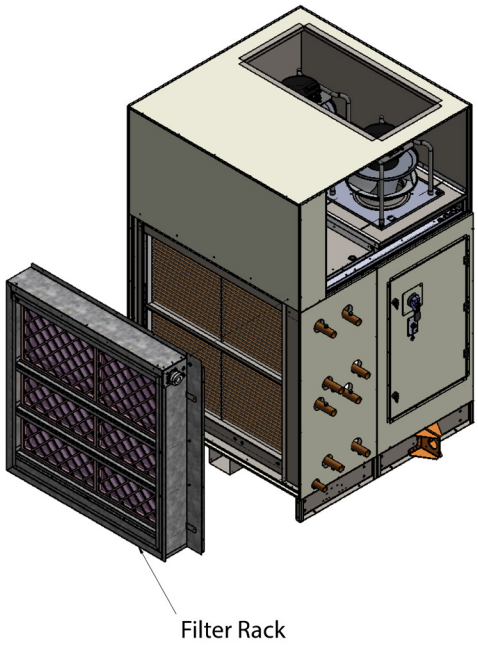
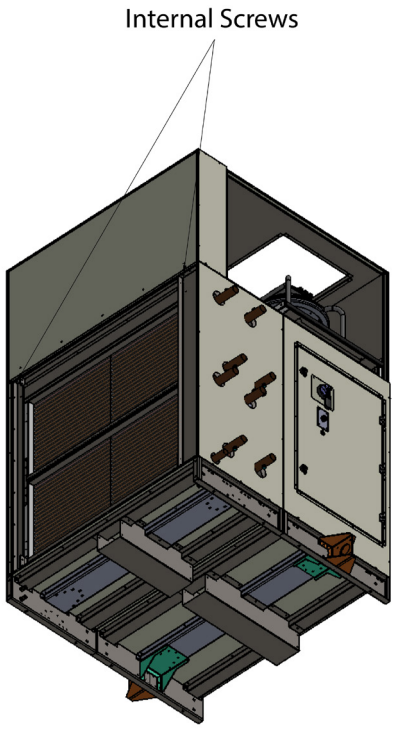


Figure 24: Internal Screws on Coil Supports



6. Ensure all wire plugs have been disconnected (Figure 25).

⚠ DANGER

NEVER slide fans out of an unsecured cabinet without use the proper lifting equipment to support the weight of the sled assembly. Failure to do so will create a tipping hazard, which can cause property damage, personal injury, or death.

⚠ DANGER

FAN SLED ASSEMBLY IS HEAVY!

Failure to use the proper lifting equipment to support the weight of the sled assembly can cause property damage, personal injury, or death. Supports should be able to lift at least 150 lbs.

7. Disconnect wire harness from fan.
8. Remove the bracket securing the fans to allow them to slide out of the cabinet (Figure 25).
9. With the help of at least two people, slide the fans out fully from the cabinet along the slideout rail and remove fan sled assembly from cabinet.
10. Remove fasteners from side and rear panels (Figure 26).
11. Remove fan cabinet section from base cabinet section and rotate on side to avoid damaging the fan cabinet sheet metal.
12. Remove joint panel fasteners to separate cabinet bases (Figure 27).
13. Remove panel screws and base rail fasteners to separate fan cabinet sections (Figure 7 and Figure 28).

Figure 25: Fan Slide Bracket

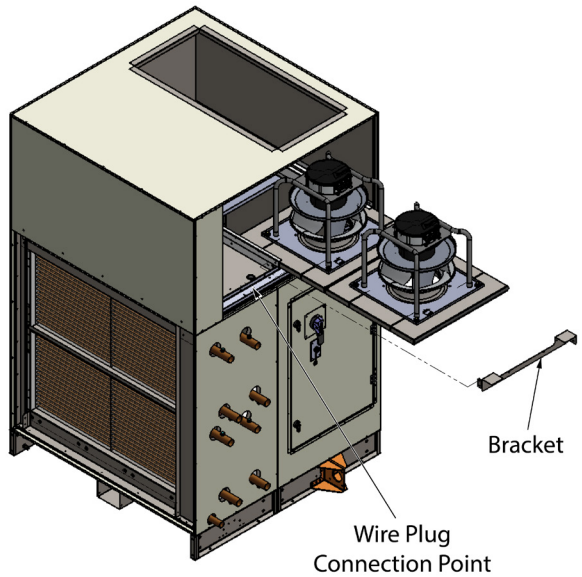


Figure 26: Upper Fan Section Fasteners

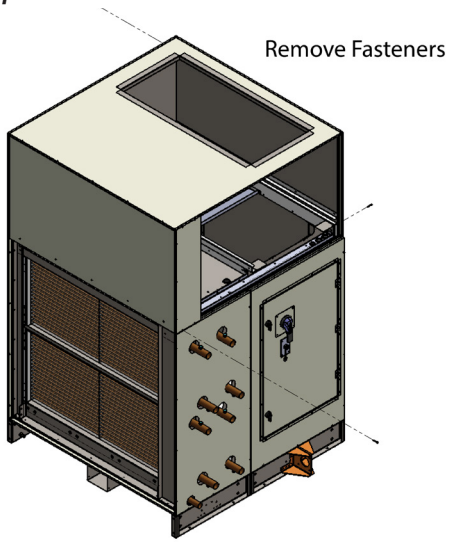


Figure 27: Joint Panel Fasteners

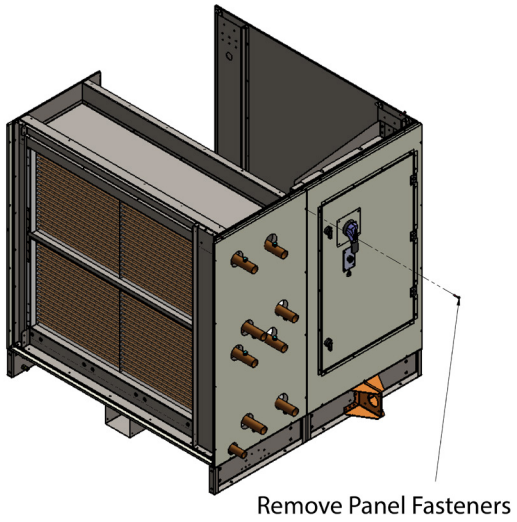
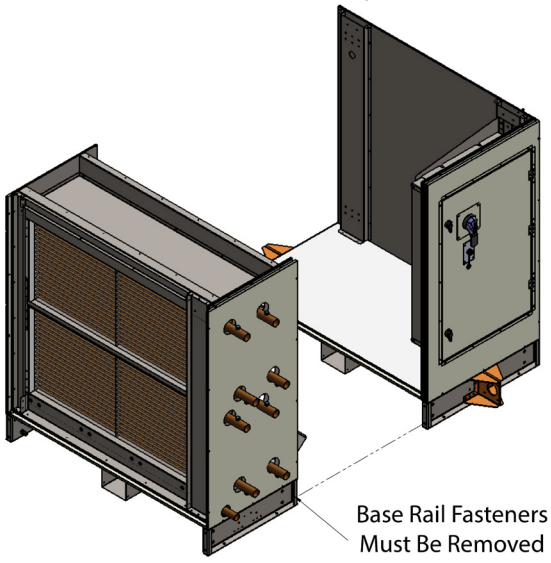


Figure 28: Fan Section Disassembly



Lifting Guidance

Daikin Applied equipment is designed to withstand the loads of the lifting and rigging process resulting from ASME Standard P30.1 - Planning for Load Handling Activities or equivalent. Lifting guidance is intended for installations of newly delivered equipment. If moving previously installed equipment for re-location or disposal, consideration should be given to unit condition. Equipment should also be drained as unit weight and center of gravity values do not reflect the addition of water for lifting.

⚠ DANGER

Improper rigging, lifting, or moving of a unit can result in unit damage, property damage, severe personal injury, or death. See the as-designed, certified dimensioned drawings included in the job submittal for the weights and center of gravity of the unit. If the drawings are not available, consult the local Daikin Applied sales office for assistance.

Installation is to be performed only by qualified personnel who are familiar with local codes and regulations, and experienced with this type of equipment. Lifting equipment and mechanisms must be determined by the Lifting Director per the current version of ASME Standard P30.1 or equivalent and must be suited for the load capacity. Daikin Applied is not a licensed nor certified rigging specialist. Therefore it is the customer's responsibility to consult a certified rigging contractor to rig, lift, and move components and subcomponents properly and safely as needed.

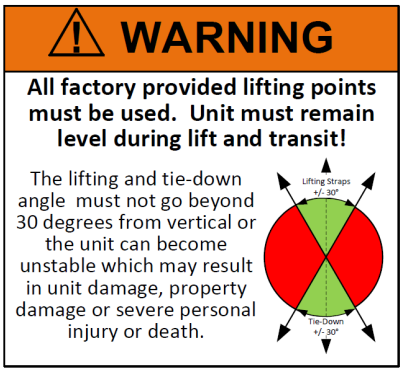
⚠ WARNING

The lifting angle must not go beyond 30 degrees from vertical or the unit can become unstable which may result in unit damage, property damage, severe personal injury, or death.

⚠ CAUTION

When around sharp edges, wear appropriate Personal Protective Equipment (PPE), such as gloves, protective clothing, foot wear, eye protection, etc., to prevent personal injury.

Figure 29: Illustration of Allowed Angle Label

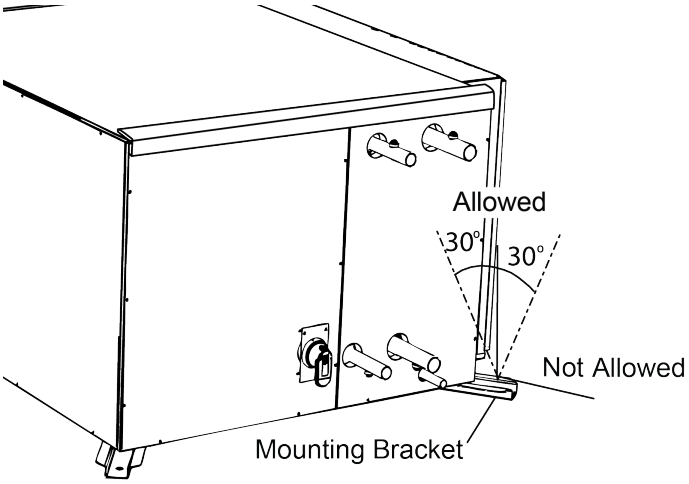


Rigging (Unit Sizes 006-050)

Unit sizes 006-050 have mounting brackets on the unit main section (Figure 30) which can be used when lifting. If a field-installed mixing box and/or an optional discharge plenum is attached, adjust to balance the unit properly. Before hoisting into position, test lift for stability and balance. Avoid twisting or uneven lifting of the unit.

Engagement with each bracket is to be as close to vertical as possible. The maximum allowable lift angle at any lift point is 30 degrees from vertical as shown in Figure 29. If the lift angle shifts beyond 30° from vertical on any of the lift points, the lift shall not proceed until a plan and rigging can be secured that will correct the angle of lift.

Figure 30: Allowed Angle for Mounting Bracket - Size 030-050 Shown



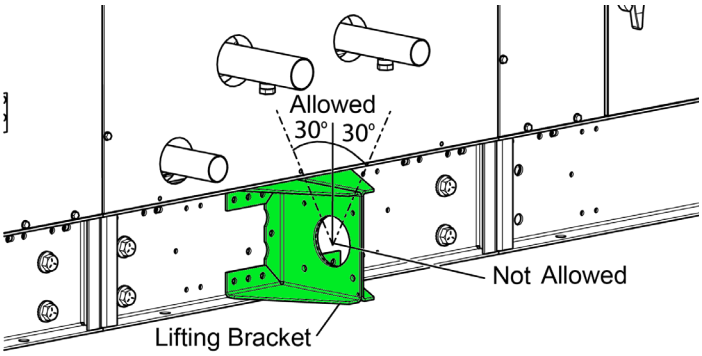
Rigging (Unit Sizes 060-100)

PreciseLine air handlers for sizes 060-100 ship completely assembled. The unit must be rigged as it ships from the factory. Do not assemble sections or modules at the site before rigging, as final assembly should be completed at point of installation.

Unit sizes 060-100 have lifting brackets with 2" (51 mm) diameter holes found on the sides of the unit base (Figure 31) which can be used when lifting. See the as-designed certified drawings for specific lifting points on this product model.

Engagement with each bracket is to be as close to vertical as possible. The maximum allowable lift angle at any lift point is 30 degrees from vertical as shown in Figure 29. If the lift angle shifts beyond 30° from vertical on any of the lift points, the lift shall not proceed until a plan and rigging can be secured that will correct the angle of lift.

Figure 31: Allowed Angle for Lifting Bracket - Size 060-100 Shown



Lifting Equipment

Lifting equipment is supplied by the user or their designate. This is typically selected around the unit certified information of the equipment to be lifted and the available lifting equipment planned to be at the site where the lift is to take place. It is the responsibility of the Lifting Director to follow a standard practice of lift planning and equipment selection, like that found in the ASME P30 series of standards. Lifting plan and equipment must ensure that the only contact with the unit is at each lifting bracket.

⚠ CAUTION

Lifting mechanisms must not make contact with the unit beyond the lifting bracket. Extreme care must be used when rigging the unit to prevent damage to the control panels, unit handles, unit piping, and unit frame.

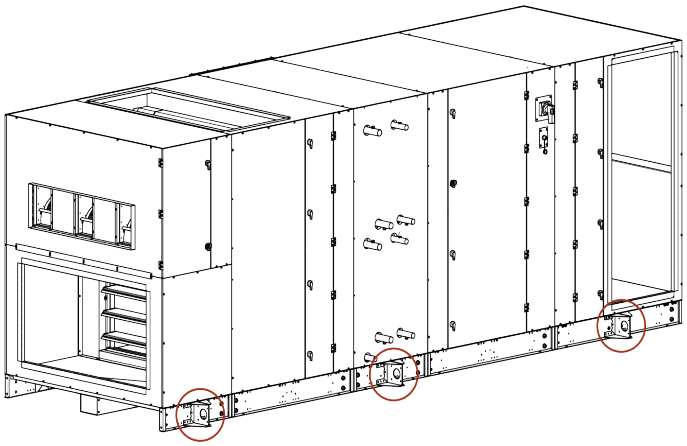
Lifting Points

Lifting points are predetermined by design. When lifting, all factory installed lifting brackets must be used. Unit must remain level throughout the entire lifting event. Level is defined as one end being no more than 0.25″ per foot of unit length to the opposite end.

⚠ WARNING

Be aware that the center of gravity may not necessarily be in the geometric center of the unit. No additional items can be added to a lift with the unit as it may affect the center of gravity and cause unit damage, property damage, severe personal injury, or death. Refer to as-designed, certified drawings for weight, center of gravity location, and details specific to unit configuration.

Figure 32: Typical Lifting Point Locations (6 Points)



Unit Location and Clearances

Service Clearances

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 includes filter replacement and drain pan inspection/cleaning. Provide sufficient space on the controls access side of the unit for filter replacement, drain pan cleaning and coil removal, if necessary. For routine maintenance, remove service panels on either side of the unit. See Figure 46 on page 23. 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. Leave at least 42" (1.07 m) of clearance in front of electrical power devices (starters, VFDs, disconnect switches, and combination devices) mounted behind service panels.

Figure 33: Clearance for Filter Access from Top - Unit Size 030-050

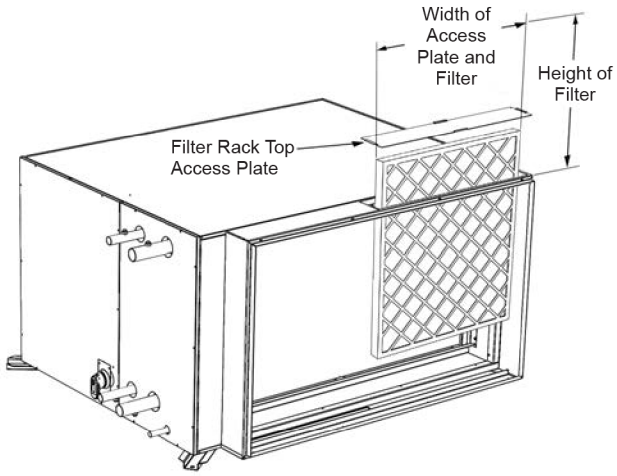


Figure 34: Clearance and Access Requirements for Horizontal Units (Sizes 006-050)

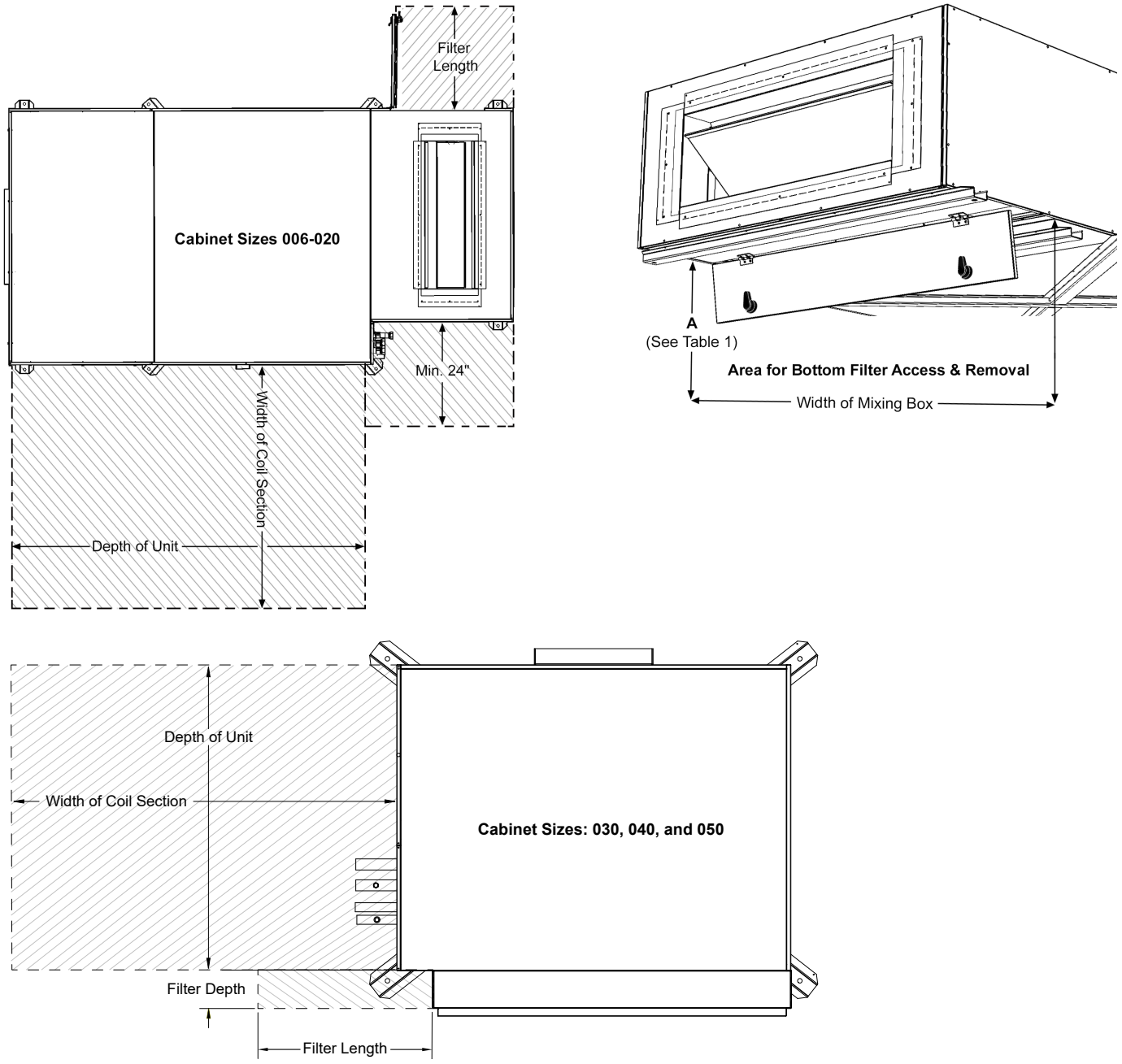


Table 1: Bottom Filter Access Clearance

	Unit Size (in)									
	006	**008**	**010**	**012**	**016**	**018**	**020**	**030**	**040**	**050**
Cabinet Clearance	30L × 15W × 18H	30L × 20W × 18H	30L × 28W × 18H	30L × 28W × 18H	30L × 36.5W × 18H	30L × 45W × 18H	30L × 45W × 18H	33L × 49W × 26H	33L × 54W × 30H	33L × 61W × 32H
A	18.00	18.00	18.00	18.00	18.00	18.00	18.00	24.00	28.00	30.00

Figure 35: Horizontal Clearance and Access Requirements for Unit Sizes 060-100

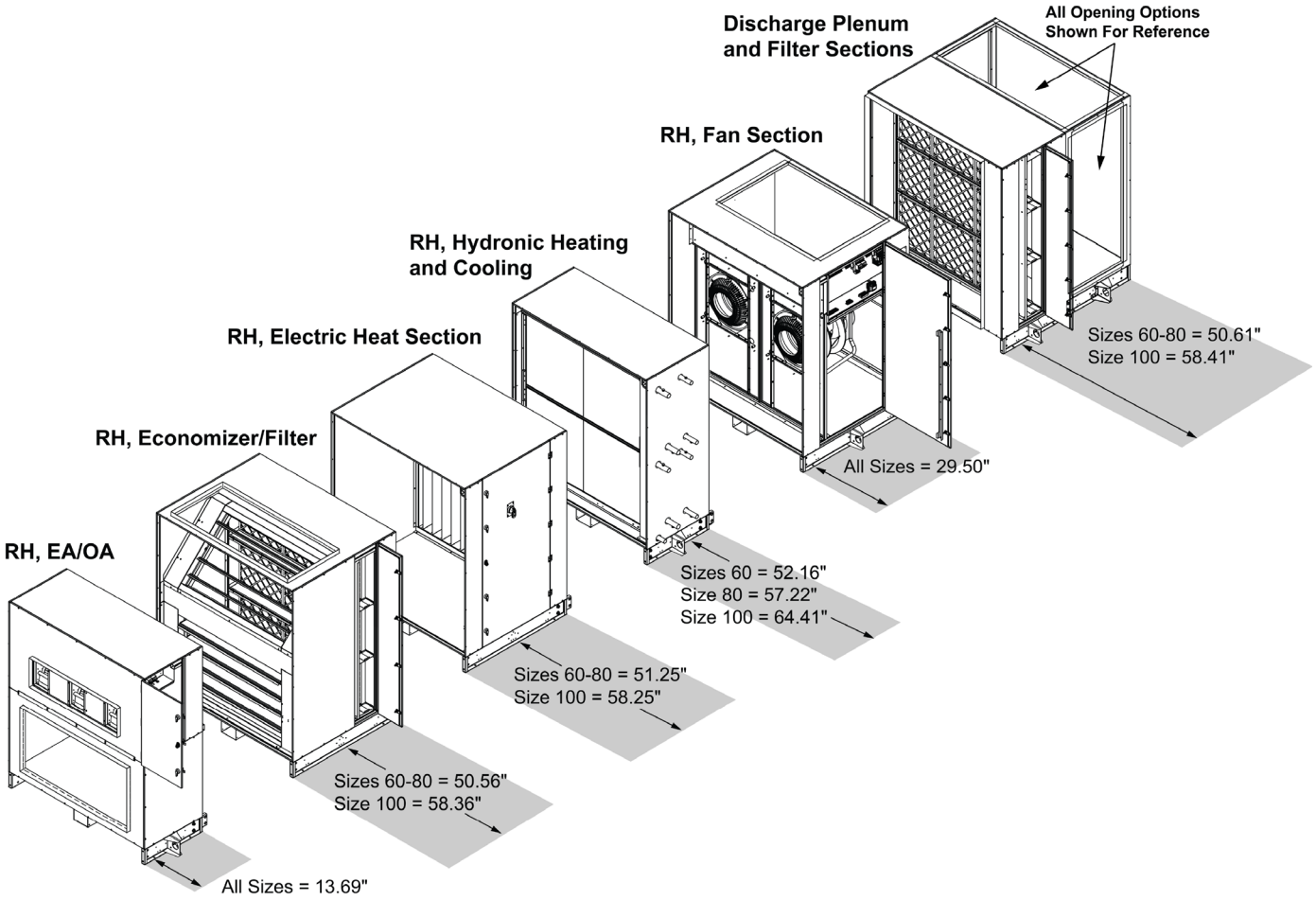
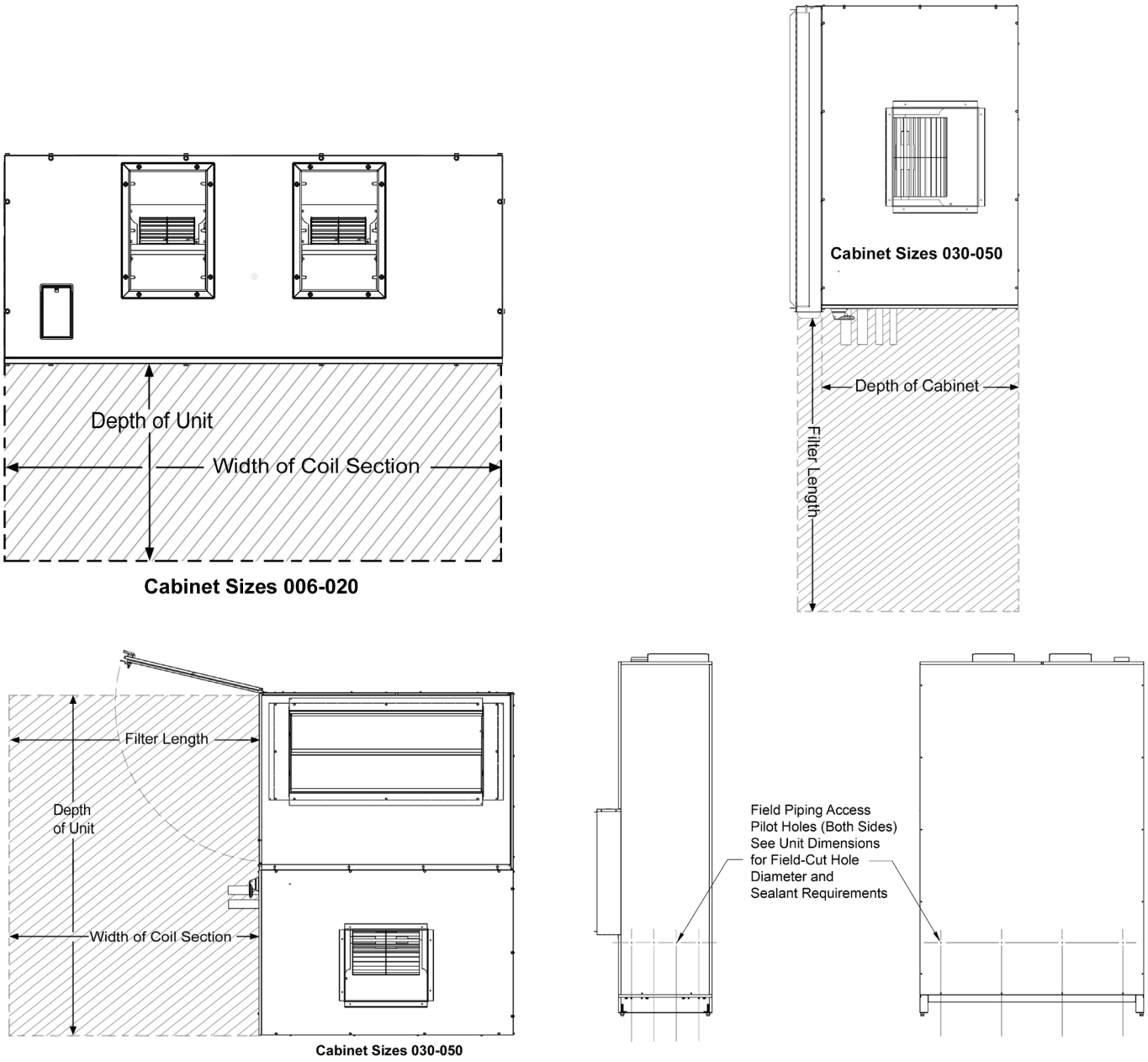
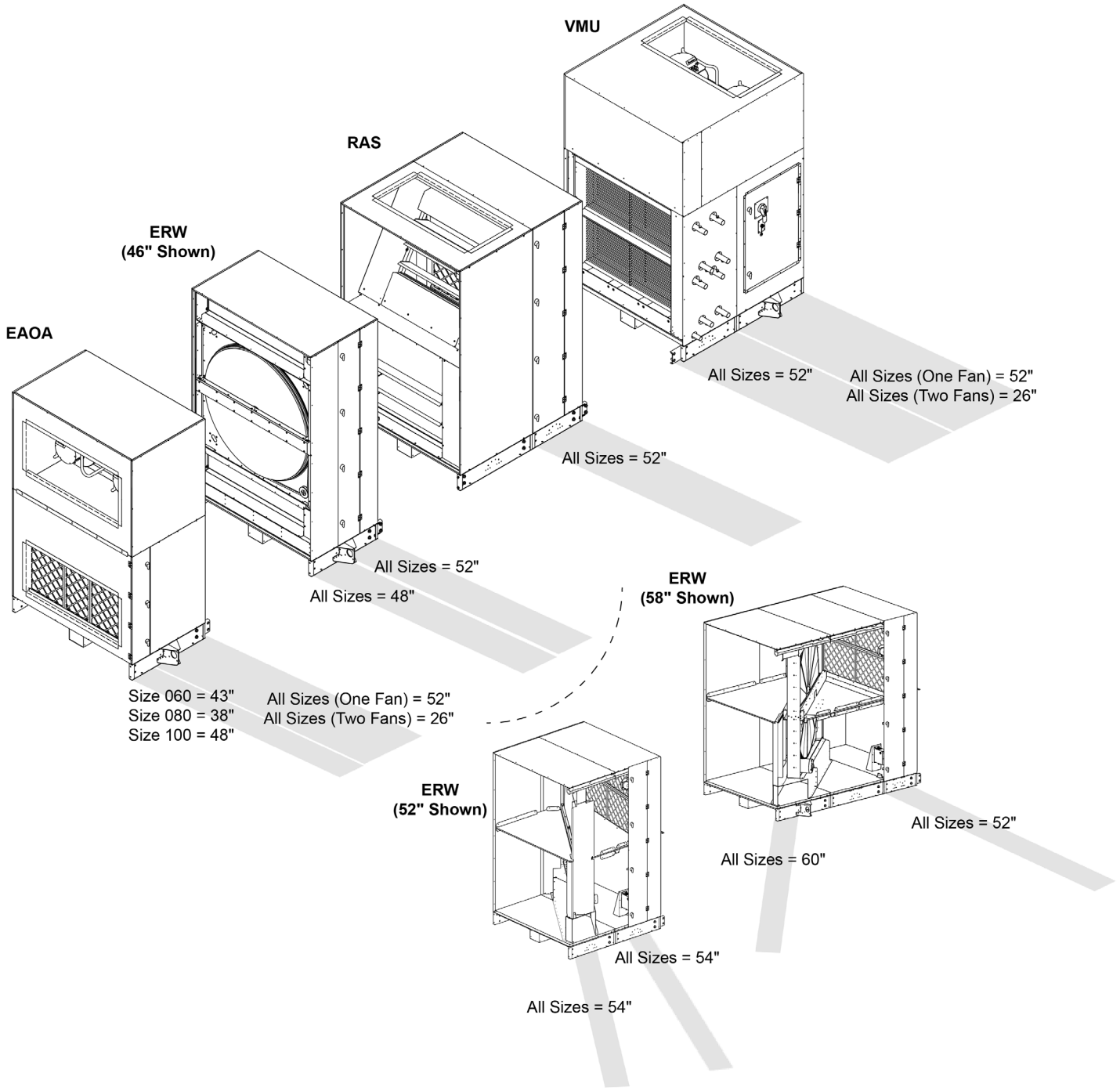


Figure 36: Clearance and Access Requirements for Vertical Unit Sizes 006-050



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" (0.61 m) should be left on the side requiring field work.

Figure 37: Vertical Clearance and Access Requirements for Unit Sizes 060-100



Hanging Unit from Ceiling (Horizontal Units)

⚠ WARNING

Do not suspend the unit from the top. The unit top will not support the weight of the unit. Equipment damage and severe personal injury can result.

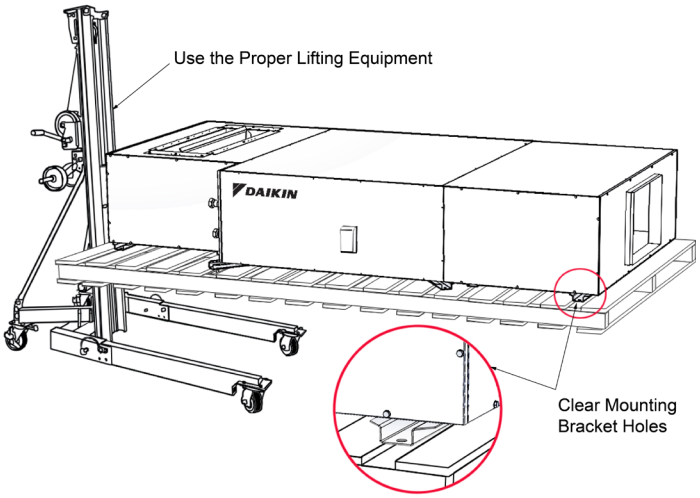
Positioning the Unit

Before hanging, the unit should be rigged and completely assembled. The PreciseLine air handler main section should be positioned on the pallet to permit access to mounting holes in the structural cross bracing under the unit. The entire unit is then lifted on the pallet (Figure 38) and secured with minimum 1/2″ threaded rod, washers, and lock nuts through all support bracing. If the pallet is not available, the fully assembled unit may be supported by the main section, while lifting into place. In this case, the main section must be secured with the threaded rod before the mixing box or discharge plenum.

⚠ CAUTION

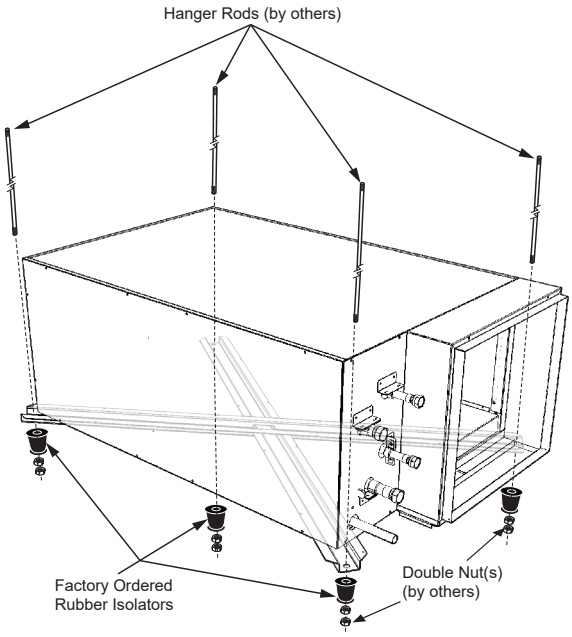
To avoid damage to the unit cabinet, use non-abrasive protective materials between lifting mechanisms and unit cabinet to keep from contacting the frame, connections, or panels.

Figure 38: Use The Proper Lifting Equipment



Vibration Isolation (Accessory)

Figure 39: Ceiling Hung with Rubber Isolators - Unit Sizes 006-050 (Sizes 006-020 shown).



Mounting the Unit on the Floor

Vertical units are all floor-mounted. Horizontal unit sizes 060-100 must also be floor-mounted. Horizontal unit sizes 006-050 may be floor-mounted or hung from the ceiling.

Unit Leveling

Install the unit on a flat and level surface (or verify that unit is level when hanging from the ceiling). Where the 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.

Vertical units size 006-020 and horizontal units 060-100 come with leveling legs, which can be adjusted to level the units.

Figure 40: 2-Fan Leveling Legs for Size 020 Units

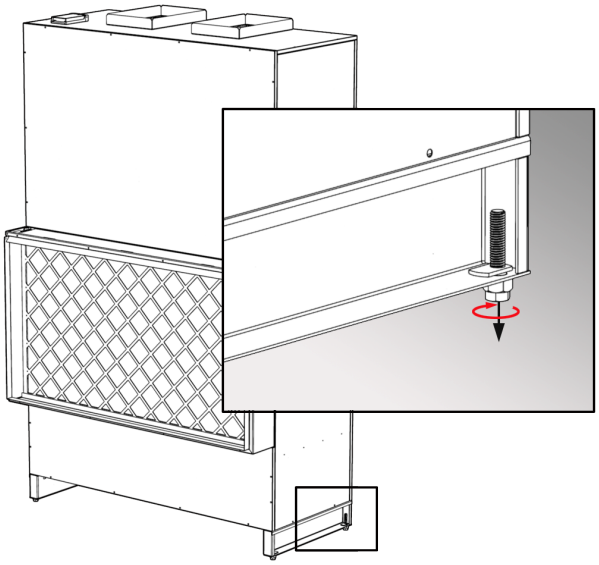
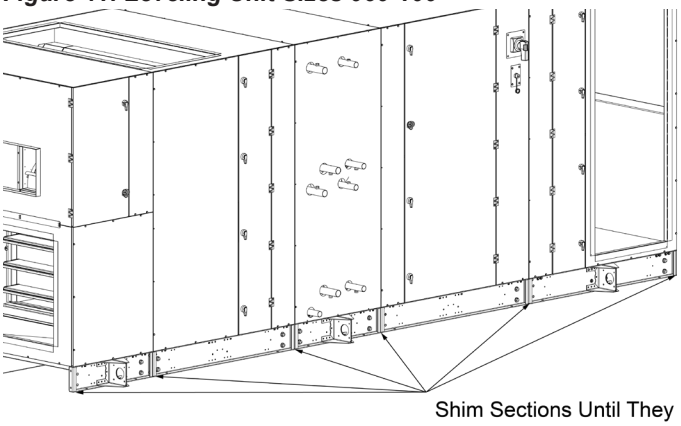


Figure 41: Leveling Unit Sizes 060-100



Mounting holes on the base rails may be used to attach the unit securely to the floor.

Figure 42: Mounting Rail Holes for Size 040 Units

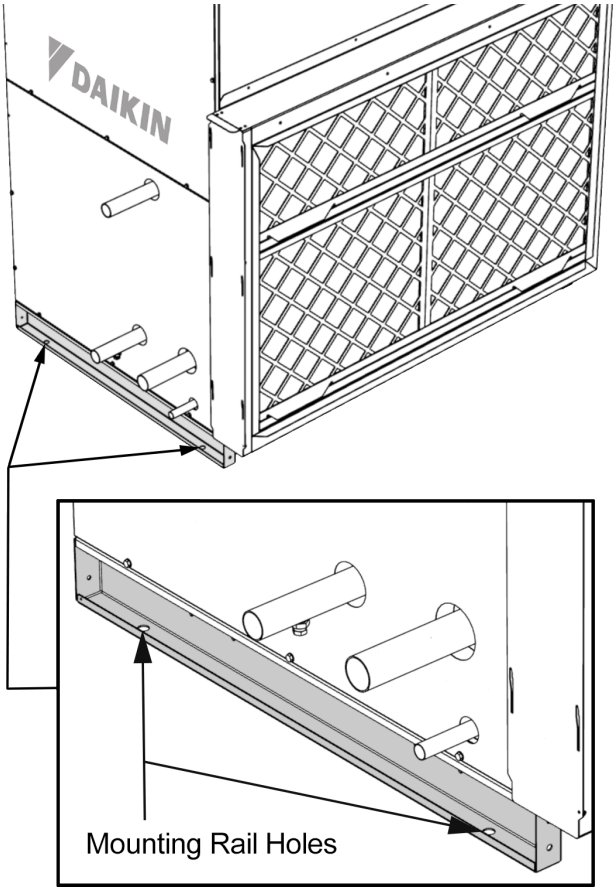
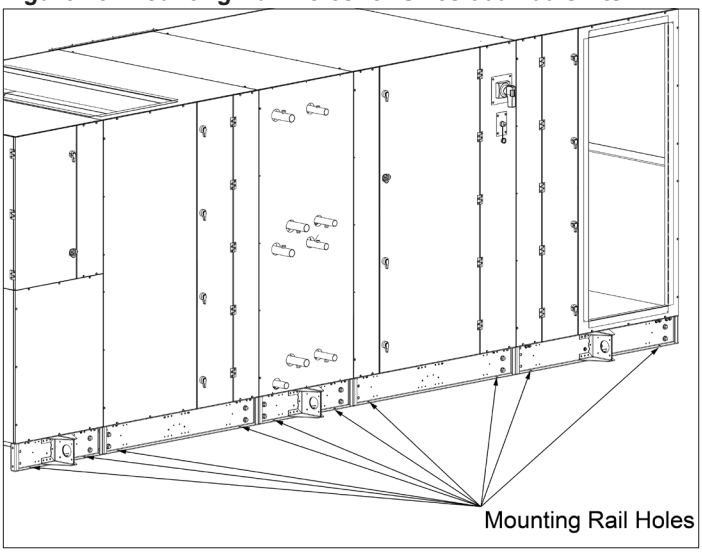


Figure 43: Mounting Rail Holes for Sizes 060-100 Units



Base rail holes for unit sizes 060-100 are 0.5” in diameter.

Table 2: Width Between Base Rail Holes

Dimension	Sizes 060-080	Size 100
A (Width Between Base Rail Holes)	52.75″	59.75″

Figure 44: Base Rail Hole Width

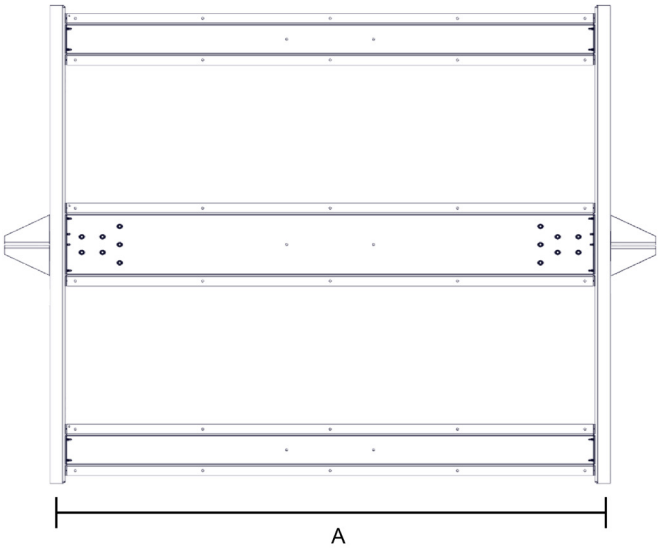
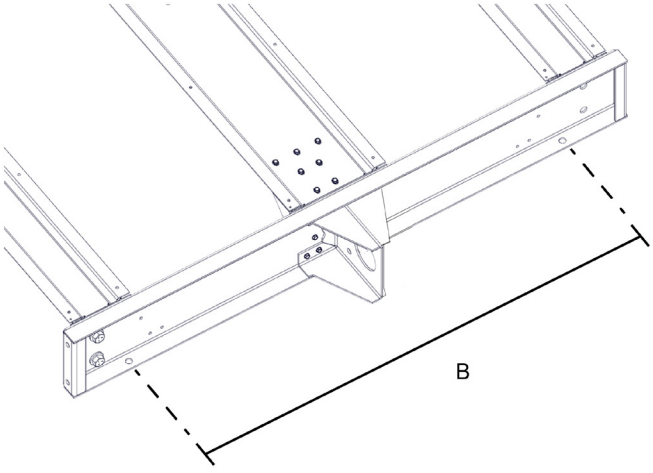


Table 3: Base Rail Hole Distance

Dimension	Base Rail Length				
	26"	28"	30"	46"	48"
B (Distance Between Base Rail Holes)	16"	18"	20"	36"	38"

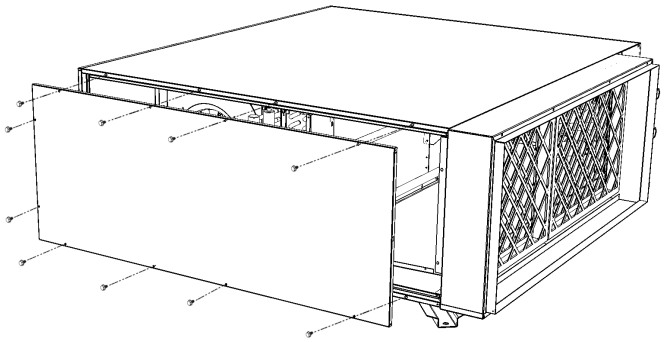
Figure 45: Base Rail Hole Distance



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. Note that the number of fasteners will vary based on unit size.

Figure 46: Panel Removal (Sizes 006-020 Horizontal)



To open the hinged filter access door, rotate the latch handle(s) 1/4 turn as shown in Figure 47.

Figure 47: Mixing Box Filter Access Door (Sizes 006-020 and Sizes 030-050 Horizontal)

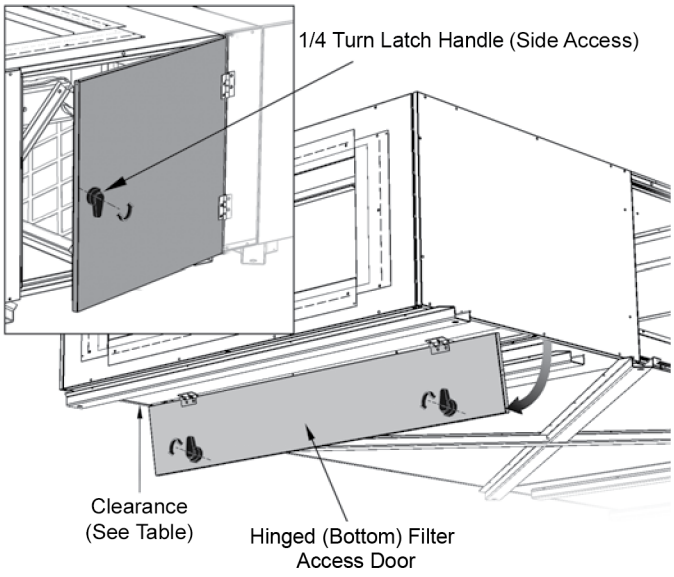


Table 4: Bottom Filter Access Clearance

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

Figure 48: Door Access Types (Sizes 060-100)

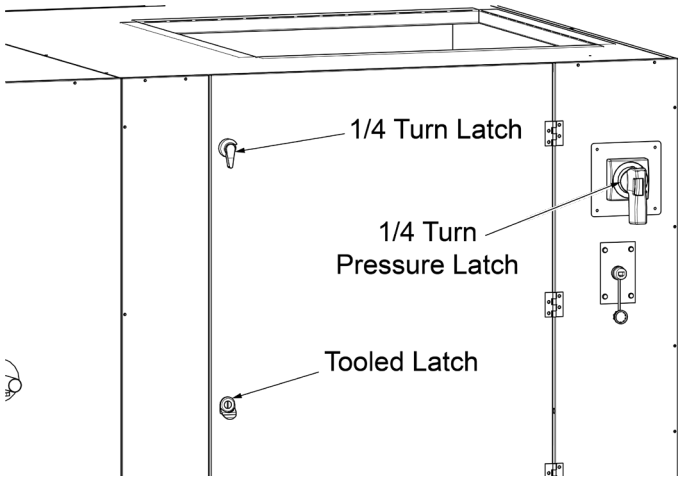


Figure 49: Side Filter Access (Sizes 030-050 Horizontal)

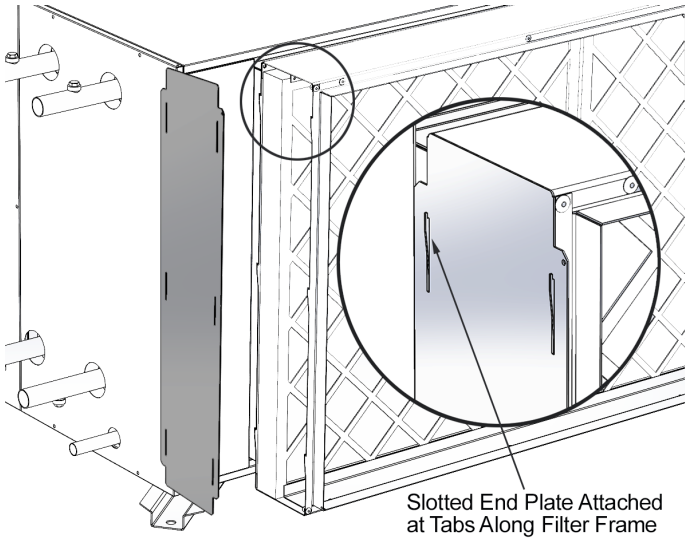


Figure 50: Top Filter Access (Sizes 030-050 Horizontal)

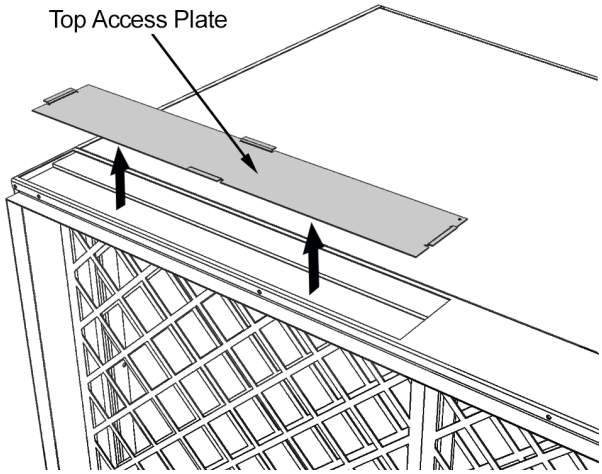


Figure 51: Bottom Filter Access (Sizes 030-050 Horizontal)

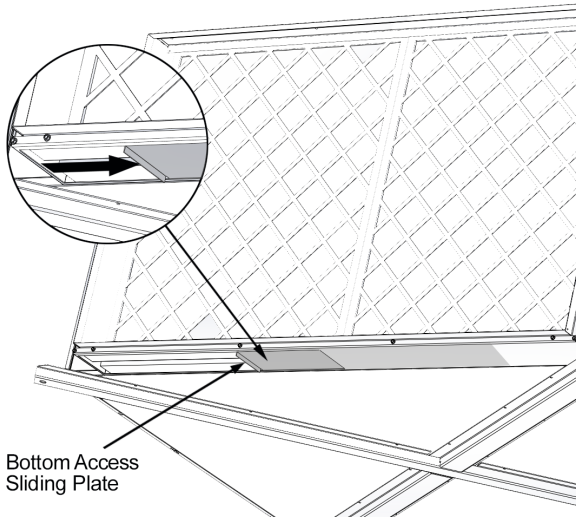


Figure 52: Mixing Box Filter Access Door (Sizes 030-050 Vertical)

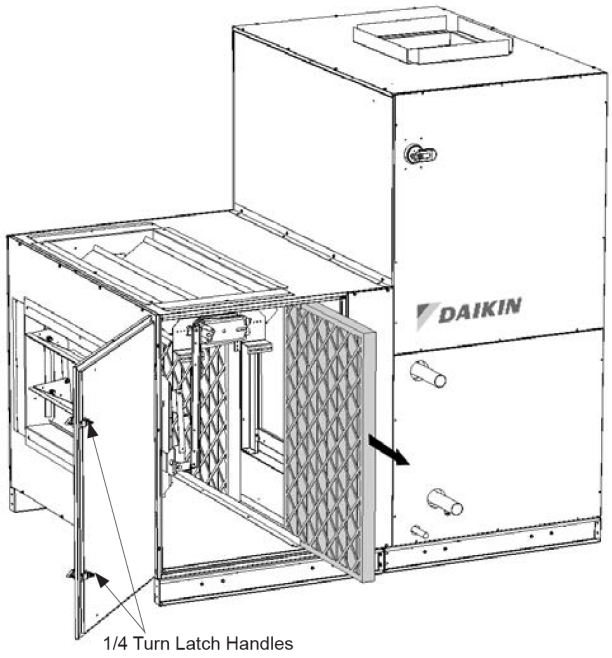


Figure 53: Accessing Internal Filter (Sizes 006-020 Vertical)

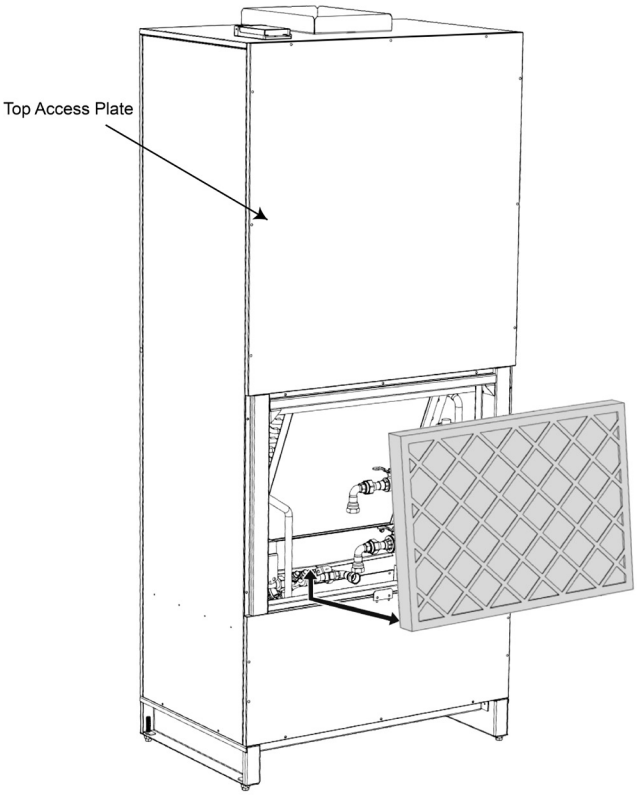


Figure 54: Filter Side Access (Sizes 030-050 Vertical)

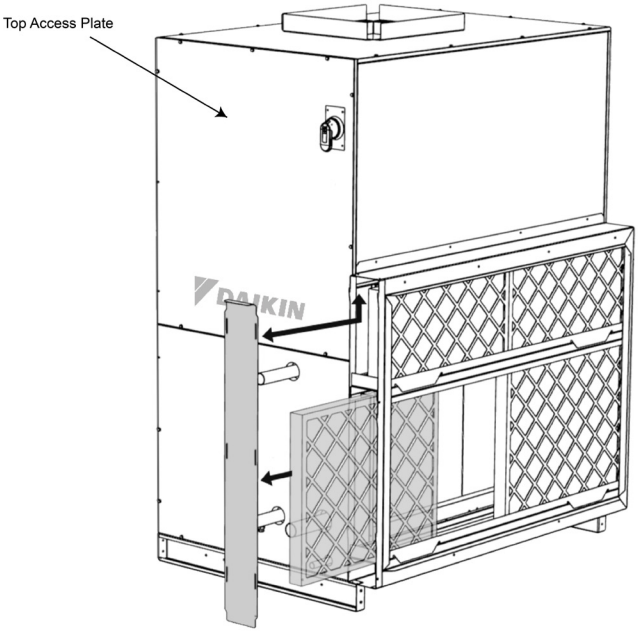
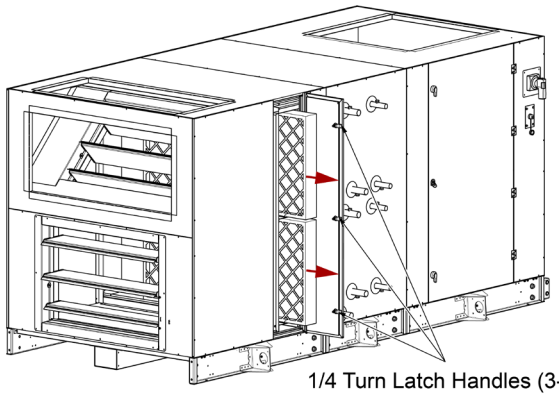


Figure 55: Top Access filter Removal (Sizes 006-020 Vertical)

Figure 56: Filter Side Access (Sizes 060-100)



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. Do not apply undue stress at the connection to the coil headers. Support pipe work independently of the coils.

NOTICE

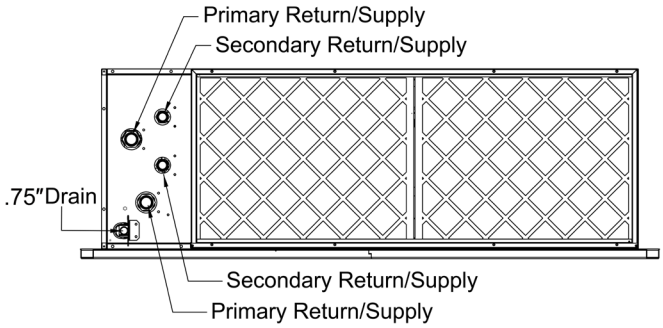
Water coils shall not exceed an internal pressure of 500 psig.

Horizontal Hydronic Cooling/Heating Coil Connections

Hydronic coil guidelines are listed below.

1. Horizontal units have hydronic coil stubs extend through the panel of the cabinet as a default, with field connections made outside the cabinet. Stub locations are the same for preheat and reheat coils. All stubs are labeled on the panel.
2. Supply and return connections are copper FPT on unit sizes 006 through 020 and copper sweat on sizes 030 through 100. See Table 46 and Table 47 on page 55.
3. When making threaded connections, do not apply undue stress to the stub. Use a backup wrench to avoid damaging the braze joint between the stub and the valve package or coil. When making sweat connections the cabinet and valves must be protected from heat damage. Use wet cloths or a heat shield to prevent heat from soldering from burning the paint and insulation around the stub.
4. Entering air below 40°F is not recommended. Extended periods of temperatures below freezing can cause some components to function improperly.
5. 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 57: Horizontal Coil Connections, Unit Size 006 - 020



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

Horizontal Hydronic Coils with No Valve Package

Hydronic coil guidelines for units selected with the “No Valve Package - Threaded Connections” option are listed below. Refer to Table 6 on page 27 for connection size and type.

1. The supply and return coil stubs terminate inside the cabinet over the drip pan so all field connections are made inside the cabinet. All stubs are factory labeled.
2. Internal hydronic coil connections are SWT.
3. Piping penetration holes must be field drilled and must be completely within the drill area on one of the factory designated panels. (See Figure 58 below and Figure 59 on page 27) The diameter of the hole should be no more than 1/2″ (12.7 mm) larger than the pipe and gap around the pipe should be sealed after installation.
4. When making the sweat connection the cabinet, coil and drain pan must be protected from heat damage. Use wet cloths or a heat shield to prevent the heat from soldering from burning the paint and insulation around the stub.

Figure 58: Size 006 - 020 Hydronic Coil Drill Area - Front

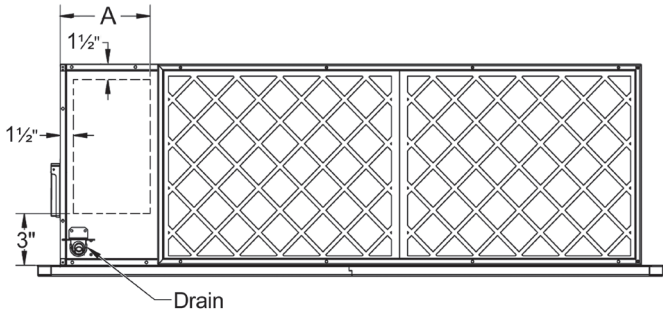


Table 5: Size 006-020 Hydronic Coil Drill Area Dimensions

Unit Size	006	008	010	012	016	018	020
A	7.13	7.80	7.62		7.53		

NOTE: Dimensions shown in inches.

Figure 59: Size 006 - 020 Hydronic Coil Drill Areas – Top and Right Side

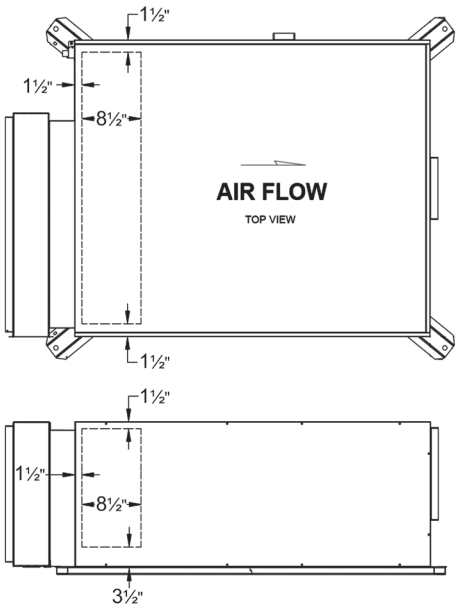
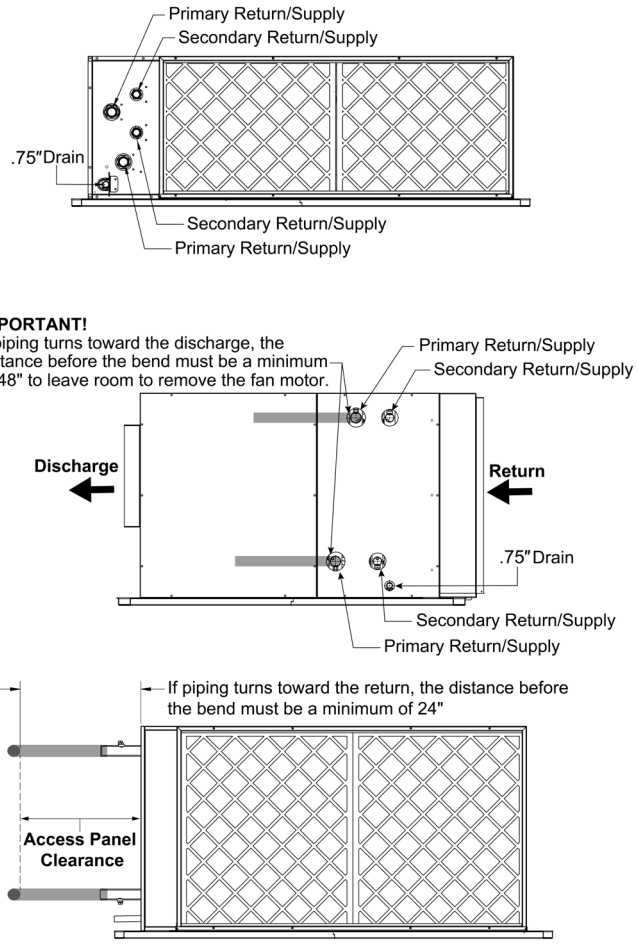


Figure 60: Field Pipe Connections, Unit Sizes 030, 040, 050



NOTE 1: Preheat coil option shown.

NOTE 2: Left hand unit shown. Right hand unit connections are the same but opposite.

AVD Hydronic Coils

All AVD units (vertical units sizes 006-020) have coil connections located in the unit. The connections are FPT as default, and SWT if selected. There are pilot holes on both sides and the back of the unit. Piping penetration holes must be field drilled in the location of the pilot holes. The diameter of the hole should be no more than 1/2″ (12.7 mm) larger than the pipe, and the gap around the pipe should be sealed after installation.

Figure 61: AVD-020 Field-Cut Hole Locations

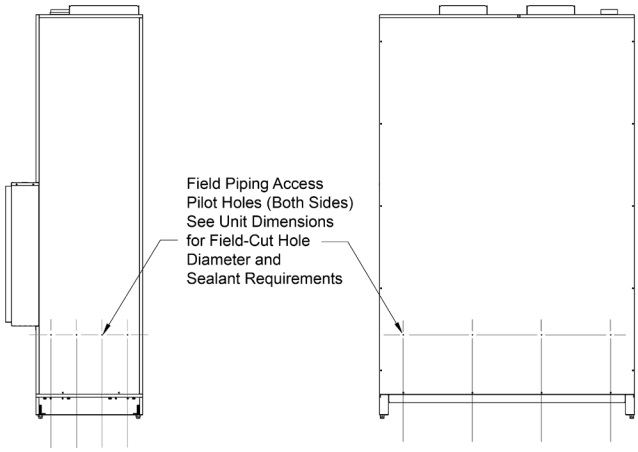


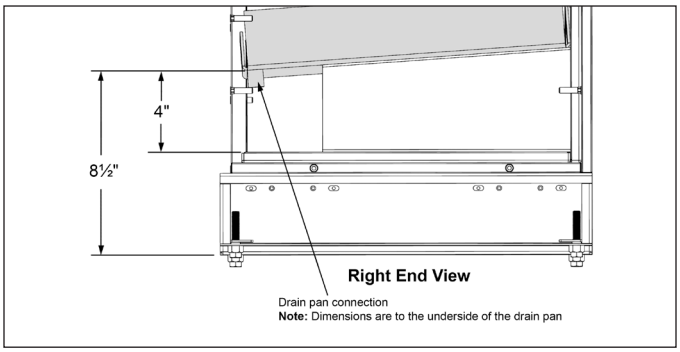
Table 6: Hydronic Coil Connection Size and Type with No Piping Option

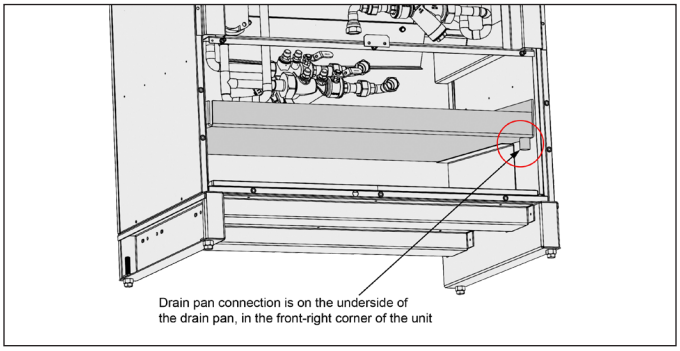
Unit Size	006	008	010	012	016	018	020
Connection Type	SWT (OD)						
2-Row Cooling	0.625	0.625	0.625	0.625	0.875	0.875	0.875
4-Row Cooling	0.625	0.625	0.875	0.875	0.875	1.125	1.125
6-Row Cooling	0.625	0.875	0.875	0.875	1.125	1.125	1.125
8-Row Cooling	—	—	—	—	—	—	—
1-Row Heating	0.625	0.625	0.625	0.625	0.625	0.625	0.625
2-Row Heating	0.625	0.625	0.625	0.625	0.875	0.875	0.875

NOTE: Dimensions shown in inches.

Drain Pan Piping

The drain pan requires a field-drilled hole made on the sides or back, in-between the drain pan and bottom panel of the unit. The drain pan connection is in the front-right corner, and must be piped to the field-drilled hole. A P-trap is not included, and must be added in the field. The drain pan is fully removable, both for cleaning and for ease of installation.

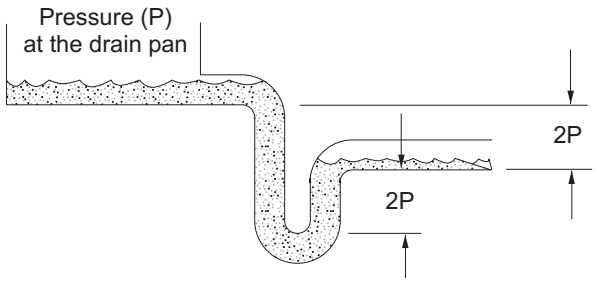




Condensate Drain Pan Traps

The condensate drain stub for unit sizes 006-050 is 0.75 in (19.1 mm) OD. The condensate drain stub for unit sizes 060-100 is 1.138 (28.9 mm) OD. 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 62.

Figure 62: Allow Adequate Distance Between Trap Outlet and Drain Outlet



Condensate Overflow Switch

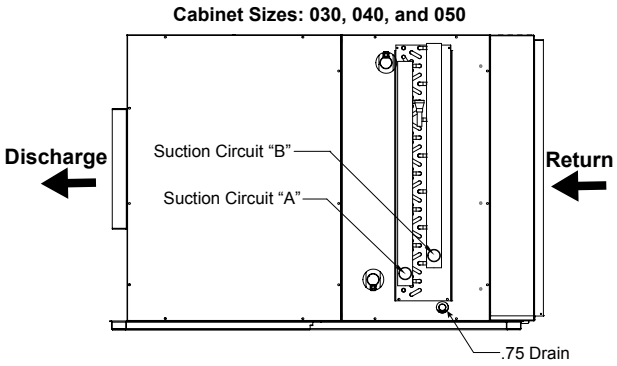
The optional condensate overflow switch must be field wired to a controller and should be field tested to verify proper operation. To test, fill drain pan with water to within 1/4″ (6.35 mm) of top of pan and verify that the normally closed switch opens. If a normally closed overflow switch is required for the control sequence, the action of the factory installed switch can be reversed in the field. To reverse the action, remove the float retainer from the bottom of the guide pin, turn the float upside down and replace the retainer. Test the modified switch as described above to verify the switch closes when water rises to within 1/4″ (6.35 mm) of the top of the pan.

Direct Expansion (DX) Coils

Direct expansion coil connection guidelines are listed below.

1. On unit sizes 006 - 020 the coil distributor and suction connections are inside the cabinet on the right-hand side of the unit (air hitting back-of-head). On unit sizes 030 - 100 the distributor connection is inside the cabinet and the suction line connection is outside the cabinet.
2. For connections inside the cabinet, piping penetration holes must be field drilled and must be completely within the drill area on the factory designated panel. The diameter of the hole should be no more than 1/2″ (12.7 mm) larger than the pipe and gap around the pipe should be sealed after installation.
3. The liquid line penetration should be made after the thermal expansion valve (TXV)/TXV Kit has been installed such that the hole aligns with the bottom of the valve. The thermal expansion valve should be located directly below the distributor and connected to it with a short, 2″ (50.8 mm) maximum, section of straight pipe.
4. The thermal expansion valve must be an external equalizer tube type. The equalization tube must be connected to suction header for proper function. (See page 37.)
5. Use care when piping up the system, making sure all joints are tight and all lines are dry and free of foreign material. For typical refrigerant piping, see the condensing unit product manual.

Figure 63: DX Interlaced Coil, Unit Sizes 030-050



Note:
Left hand unit shown, right hand unit values same as left but opposite.

Figure 64: Horizontal Units Sizes 006 - 020 DX Coil Drill Area

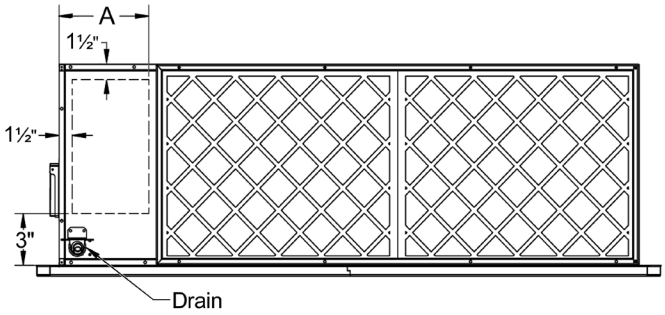


Table 7: Horizontal Units Sizes 006-020 DX Coil Drill Area Dimensions

Unit Size	006	008	010	012	016	018	020
A	7.13	7.80	7.62		7.53		

NOTE: Dimensions shown in inches.

Figure 65: Horizontal Units Sizes 006 - 020 DX Coil with Reheat or Preheat Drill Area

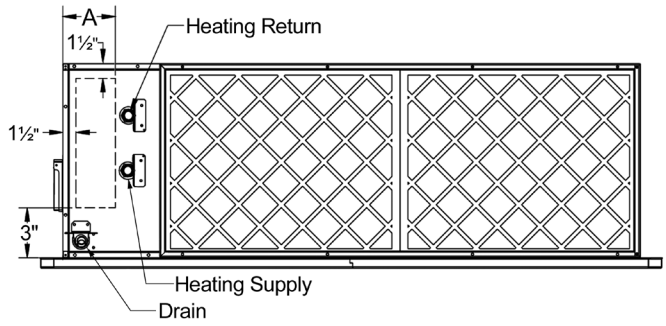


Table 8: Horizontal Units Sizes 006-020 DX Coil with Reheat or Preheat Drill Area Dimensions

Unit Size	006	008	010	012	016	018	020
A	4.38	5.05	4.87		4.78		

NOTE: Dimensions shown in inches.

Figure 66: Horizontal Units Size 030 - 050 – DX Only and DX with Preheat Drill Area

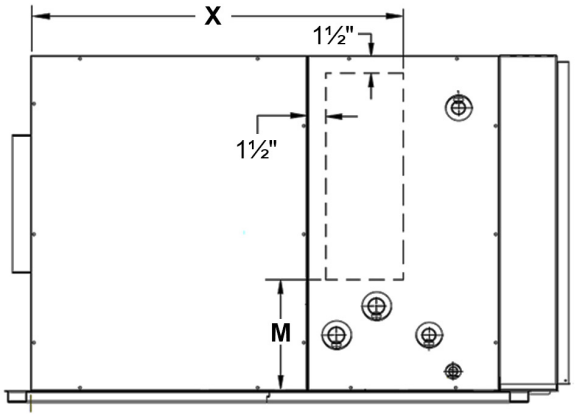


Figure 67: Sizes 030 - 050 Drill Area – DX with Reheat

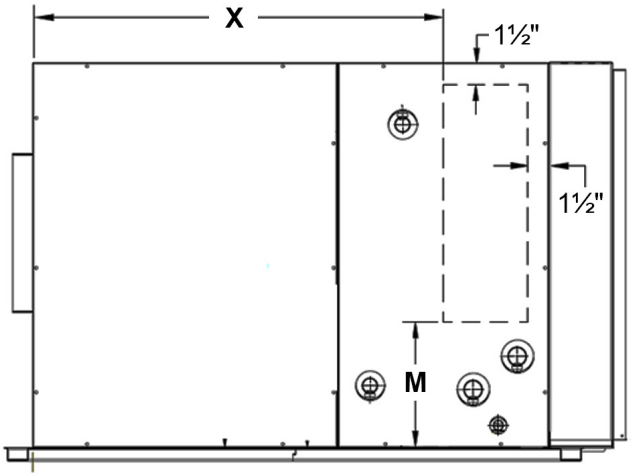
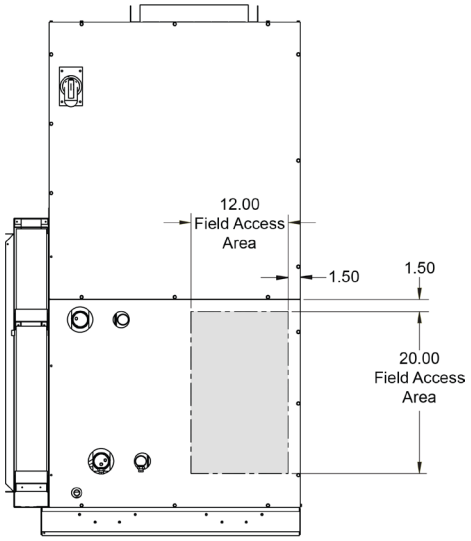


Figure 68: Vertical Units Sizes 030-050 DX Coil Drill Area



Right Side View

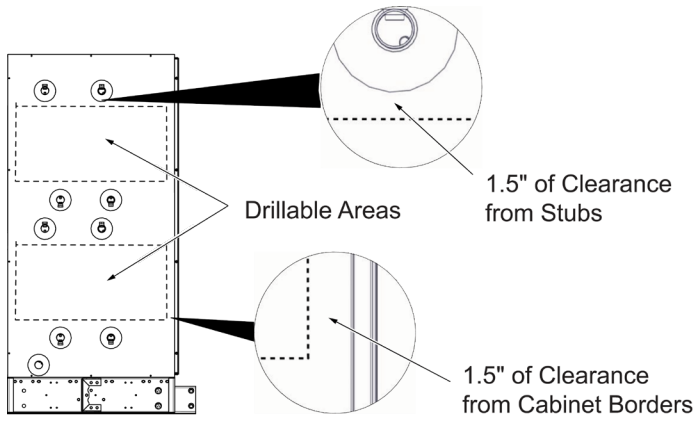
Table 9: Horizontal Drill Area Locations – DX Only and DX with Preheat

Unit Size	X	M
Single Circuit DX Primary Only		
30	29.18	6.35
40	32.18	6.35
50	32.18	6.35
Interlaced DX Primary Only		
30	29.18	11.35
40	32.18	11.35
50	32.18	9.35
Single Circuit DX Primary with 1 Row Hydronic Preheat		
30	29.18	6.62
40	32.18	7.62
50	32.18	6.62
Interlaced DX Primary with 1 Row Hydronic Preheat		
30	29.18	7.35
40	32.18	7.62
50	32.18	7.35
Single Circuit DX Primary with 2 Row Hydronic Preheat		
30	29.18	6.65
40	32.18	6.62
50	32.18	6.62
Interlaced DX Primary with 2 Row Hydronic Preheat		
30	29.18	7.35
40	32.18	7.35
50	32.18	7.35

Table 10: Horizontal Drill Area Locations – DX with Reheat

Unit Size	X	M
Single Circuit DX Primary with 1 Row Hydronic Reheat		
30	27.13	6.61
40	30.14	7.65
50	30.14	6.62
Interlaced DX Primary with 1 Row Hydronic Reheat		
30	27.13	7.35
40	30.14	7.62
50	30.14	7.35
Single Circuit DX Primary with 2 Row Hydronic Reheat		
30	27.13	6.62
40	30.14	6.62
50	30.14	6.62
Interlaced DX Primary with 2 Row Hydronic Reheat		
30	27.13	7.35
40	30.14	7.35
50	30.14	7.35

Figure 69: Horizontal Units Size 060 - 100 Drill Area - DX Coil Drill Area



Factory Installed Valve Package

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 schematics are shown in Figure 70 and Figure 76. The control valve wiring diagrams are shown in Figure 77 and Figure 78 and valve package component part numbers are listed in Table 12 on page 32 through Table 14 on page 34.

On vertical unit 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. These valves are located on the supply side, adjacent to the coil, in contrast with other configurations being located on the return side. See Figure 71 on page 31.

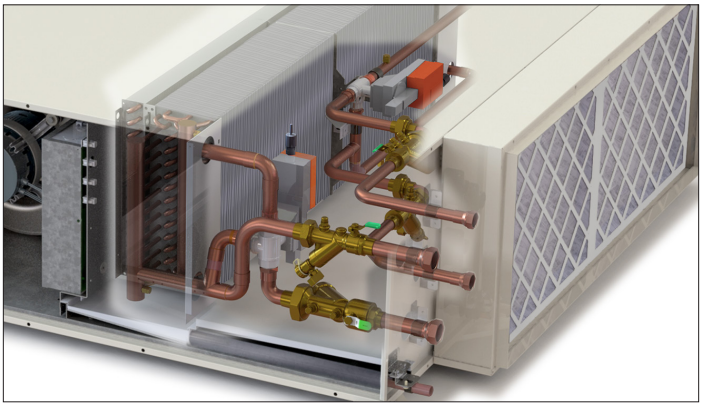


Figure 70: Basic 2-Way Valve Package

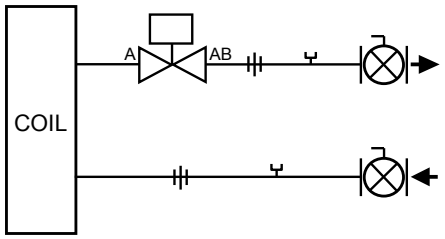


Figure 71: Basic 2-Way Valve Package Available for Vertical Unit Sizes 006-008 with Manually Adjustable Cv

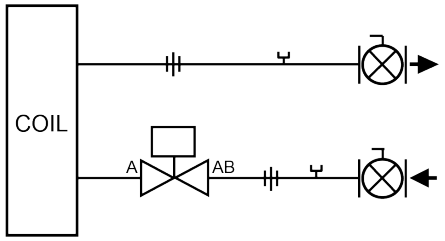


Figure 72: Basic 3-Way Valve Package

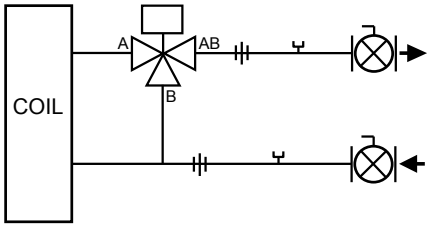


Figure 73: Deluxe 2-Way Valve Package (Auto CS)

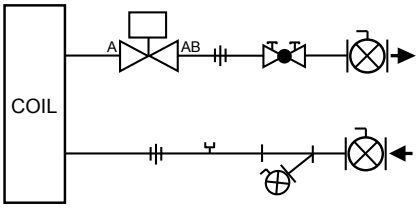


Figure 74: Deluxe 3-Way Valve Package (Auto CS)

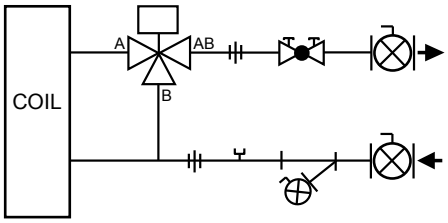


Figure 75: Deluxe 2-Way Valve Package (Manual CS)

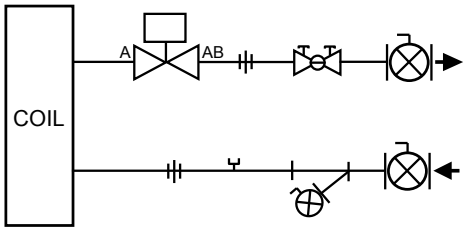


Figure 76: Deluxe 3-Way Valve Package (Manual CS)

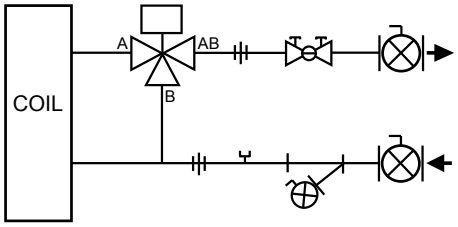


Table 11: Components Key for Schematics

	**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.

Figure 77: ON/OFF Control Valve Wiring (Table 12 below)

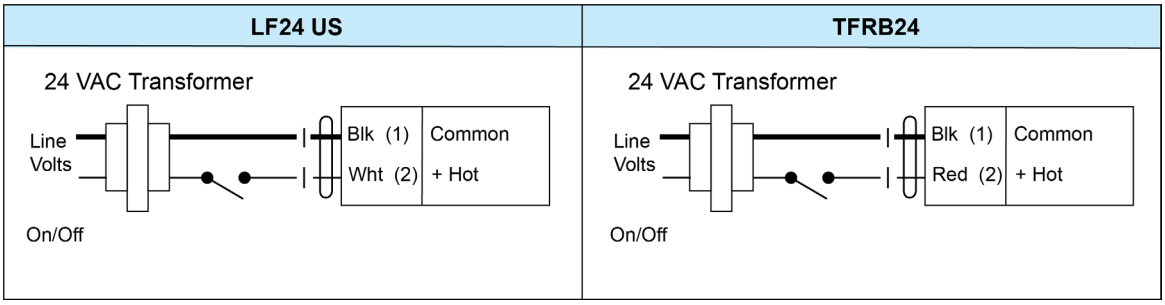
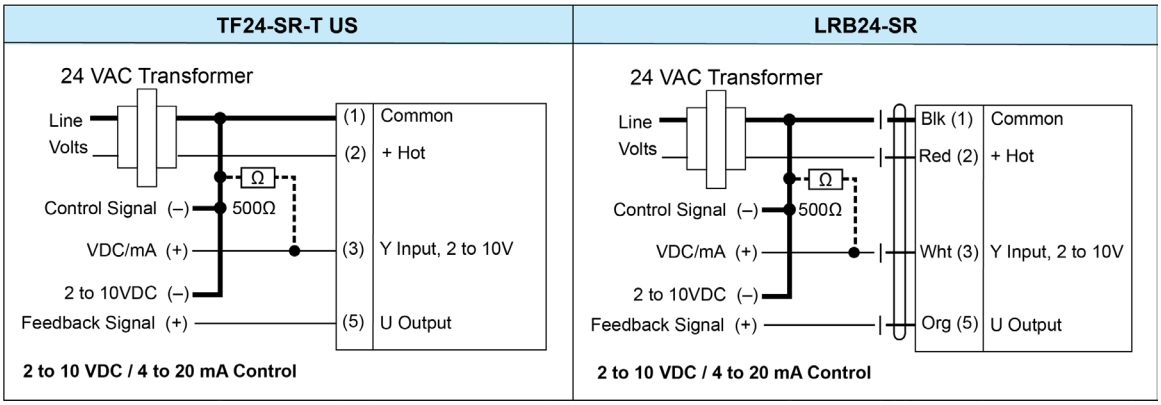


Figure 78: Modulating Control Valve Wiring (Table 13 on page 33)



Control Valve Parts Lists

Table 12: ON/OFF Control Valve Part List

Daikin Applied P/N	Valve Type	Size	Cv	Control Type	Control Voltage	Spring Return	Normal State
263940312	2 Way	0.5 FPT	1.9	On/Off	24VAC	Yes	Normally Closed
263940304	2 Way	0.5 FPT	1.9	On/Off	24VAC	Yes	Normally Open
263940313	2 Way	0.5 FPT	16	On/Off	24VAC	Yes	Normally Closed
263940305	2 Way	0.5 FPT	16	On/Off	24VAC	Yes	Normally Open
263940314	2 Way	0.75 FPT	24	On/Off	24VAC	Yes	Normally Closed
263940306	2 Way	0.75 FPT	24	On/Off	24VAC	Yes	Normally Open
263940315	2 Way	1.0 FPT	30	On/Off	24VAC	Yes	Normally Closed
263940307	2 Way	1.0 FPT	30	On/Off	24VAC	Yes	Normally Open
263940308	3 Way	0.5 FPT	1.9	On/Off	24VAC	Yes	Normally Closed
263940300	3 Way	0.5 FPT	1.9	On/Off	24VAC	Yes	Normally Open
263940309	3 Way	0.5 FPT	16	On/Off	24VAC	Yes	Normally Closed
263940301	3 Way	0.5 FPT	16	On/Off	24VAC	Yes	Normally Open
263940310	3 Way	0.75 FPT	24	On/Off	24VAC	Yes	Normally Closed
263940302	3 Way	0.75 FPT	24	On/Off	24VAC	Yes	Normally Open
263940311	3 Way	1.0 FPT	30	On/Off	24VAC	Yes	Normally Closed
263940303	3 Way	1.0 FPT	30	On/Off	24VAC	Yes	Normally Open
910264701	2-Way	0.5 SWT	5.9	On/Off	24VAC	Yes	Normally Open
910282475	2-Way	0.5 SWT	5.9	On/Off	24VAC	Yes	Normally Closed
910282487	3-Way	0.5 SWT	2.7	On/Off	24VAC	Yes	Normally Open
910259925	3-Way	0.5 SWT	2.7	On/Off	24VAC	Yes	Normally Closed

Table 13: Modulating Control Valve Part List

Daikin Applied P/N	Valve Type	Size	Cv	Control Type	Control Voltage	Spring Return	Normal State
263940901	2 Way	0.50 FPT	0.3	Modulating	0-10VDC	No	N/A
263940902	2 Way	0.50 FPT	0.46	Modulating	0-10VDC	No	N/A
263940903	2 Way	0.50 FPT	0.8	Modulating	0-10VDC	No	N/A
263940904	2 Way	0.50 FPT	1.2	Modulating	0-10VDC	No	N/A
263940905	2 Way	0.50 FPT	1.9	Modulating	0-10VDC	No	N/A
263940906	2 Way	0.50 FPT	3	Modulating	0-10VDC	No	N/A
263940907	2 Way	0.50 FPT	4.7	Modulating	0-10VDC	No	N/A
263940908	2 Way	0.50 FPT	10	Modulating	0-10VDC	No	N/A
263940909	2 Way	0.50 FPT	16	Modulating	0-10VDC	No	N/A
263941001	2 Way	0.75 FPT	4.7	Modulating	0-10VDC	No	N/A
263941002	2 Way	0.75 FPT	7.4	Modulating	0-10VDC	No	N/A
263941003	2 Way	0.75 FPT	14	Modulating	0-10VDC	No	N/A
263941101	2 Way	0.75 FPT	24	Modulating	0-10VDC	No	N/A
263941201	2 Way	1.00 FPT	7.4	Modulating	0-10VDC	No	N/A
263941202	2 Way	1.00 FPT	10	Modulating	0-10VDC	No	N/A
263941203	2 Way	1.00 FPT	30	Modulating	0-10VDC	No	N/A
263940501	3 Way	0.50 FPT	0.3	Modulating	0-10VDC	No	N/A
263940502	3 Way	0.50 FPT	0.46	Modulating	0-10VDC	No	N/A
263940503	3 Way	0.50 FPT	0.8	Modulating	0-10VDC	No	N/A
263940504	3 Way	0.50 FPT	1.2	Modulating	0-10VDC	No	N/A
263940505	3 Way	0.50 FPT	1.9	Modulating	0-10VDC	No	N/A
263940506	3 Way	0.50 FPT	3	Modulating	0-10VDC	No	N/A
263940507	3 Way	0.50 FPT	4.7	Modulating	0-10VDC	No	N/A
263940508	3 Way	0.50 FPT	10	Modulating	0-10VDC	No	N/A
263940509	3 Way	0.50 FPT	16	Modulating	0-10VDC	No	N/A
263940601	3 Way	0.75 FPT	4.7	Modulating	0-10VDC	No	N/A
263940602	3 Way	0.75 FPT	7.4	Modulating	0-10VDC	No	N/A
263940701	3 Way	0.75 FPT	14	Modulating	0-10VDC	No	N/A
263940702	3 Way	0.75 FPT	24	Modulating	0-10VDC	No	N/A
263940801	3 Way	1.00 FPT	7.4	Modulating	0-10VDC	No	N/A
263940802	3 Way	1.00 FPT	10	Modulating	0-10VDC	No	N/A
263940803	3 Way	1.00 FPT	30	Modulating	0-10VDC	No	N/A
910282477	2-Way	0.50 FPT	5.9	Modulating	0-10VDC	No	N/A

Table 14: Autoflow Valve Part List

GPM	0.5"	0.75"	1.0"
0.50	263578301	263578401	–
0.75	263578302	263578402	–
1.00	263578303	263578403	–
1.50	263578304	263578404	–
2.00	263578305	263578405	–
2.50	263578306	263578406	–
3.00	263578307	263578407	–
3.50	263578308	263578408	–
4.00	263578309	263578409	–
4.50	263578310	263578410	–
5.00	263578311	263578411	–
5.50	263578312	263578412	–
6.00	263578313	263578413	–
7.00	263578314	263578414	263578501
GPM	0.5"	0.75"	1.0"
8.00	263578315	263578415	263578502
9.00	263578316	263578416	263578503
10.00	–	–	263578504
10.50	263578317	263578417	–
11.00	263578318	263578418	–
12.00	263578319	263578419	–
15.00	–	–	263578505
18.00	–	–	263578506
20.00	–	–	263578507
25.00	–	–	263578508
30.00	–	–	263578509

Table 15: Strainer Part List

CV	0.5"	0.75"	1.0"
5.5	263940136	–	–
9.0	–	263940135	263940137

Table 16: Manual Circuit Setter Part List

Valve Size	Daikin Applied P/N
1/2	263922380
3/4	263922370
1	263922360

Table 17: Isolation Ball Valve Part List

Valve Size	Daikin Applied P/N
1/2	910244107
3/4	910244097
1	910244108

Manual Circuit Setter Flow Charts

Figure 79: Manual Circuit Setter Flow Chart – 1/2" Valves

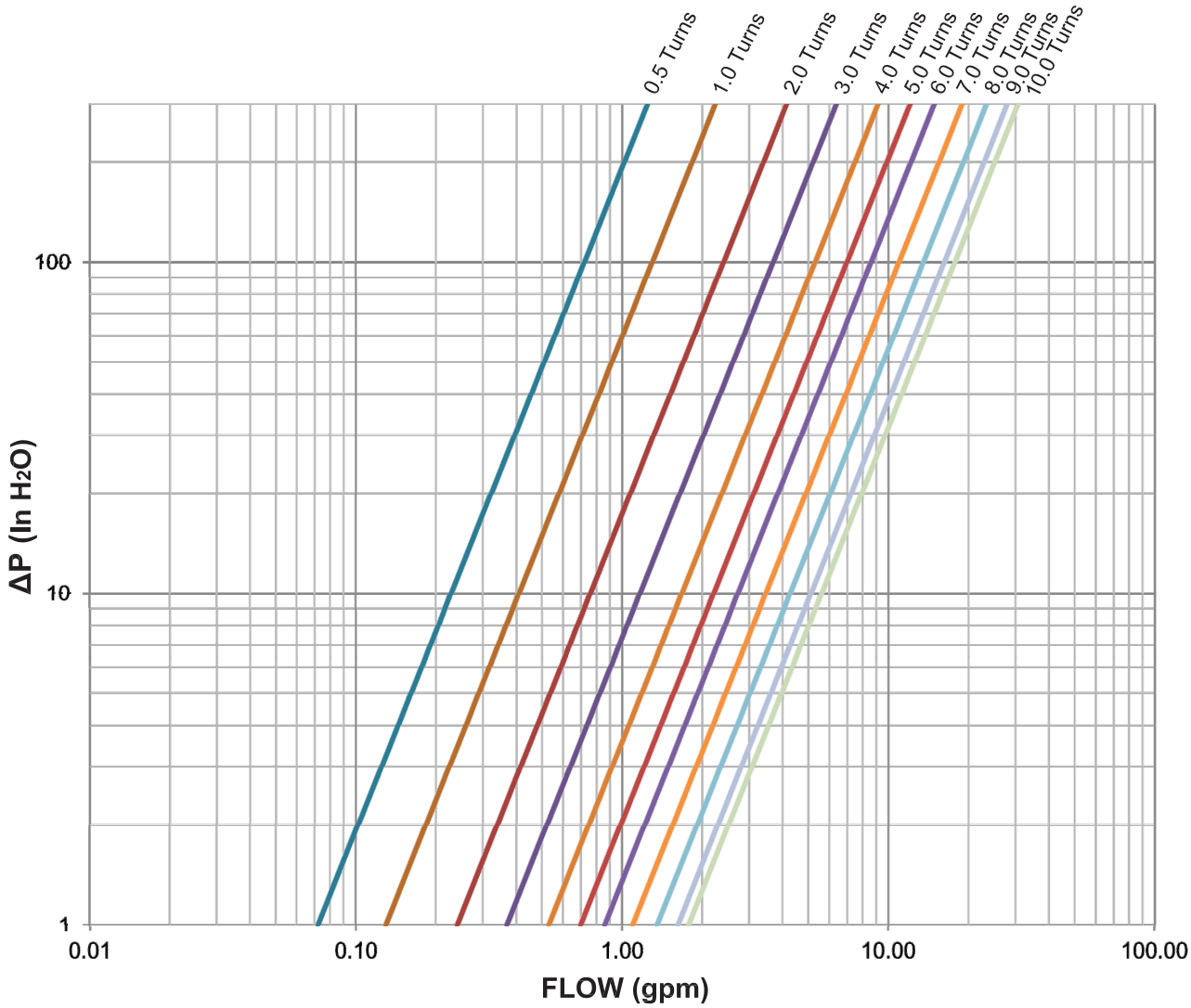
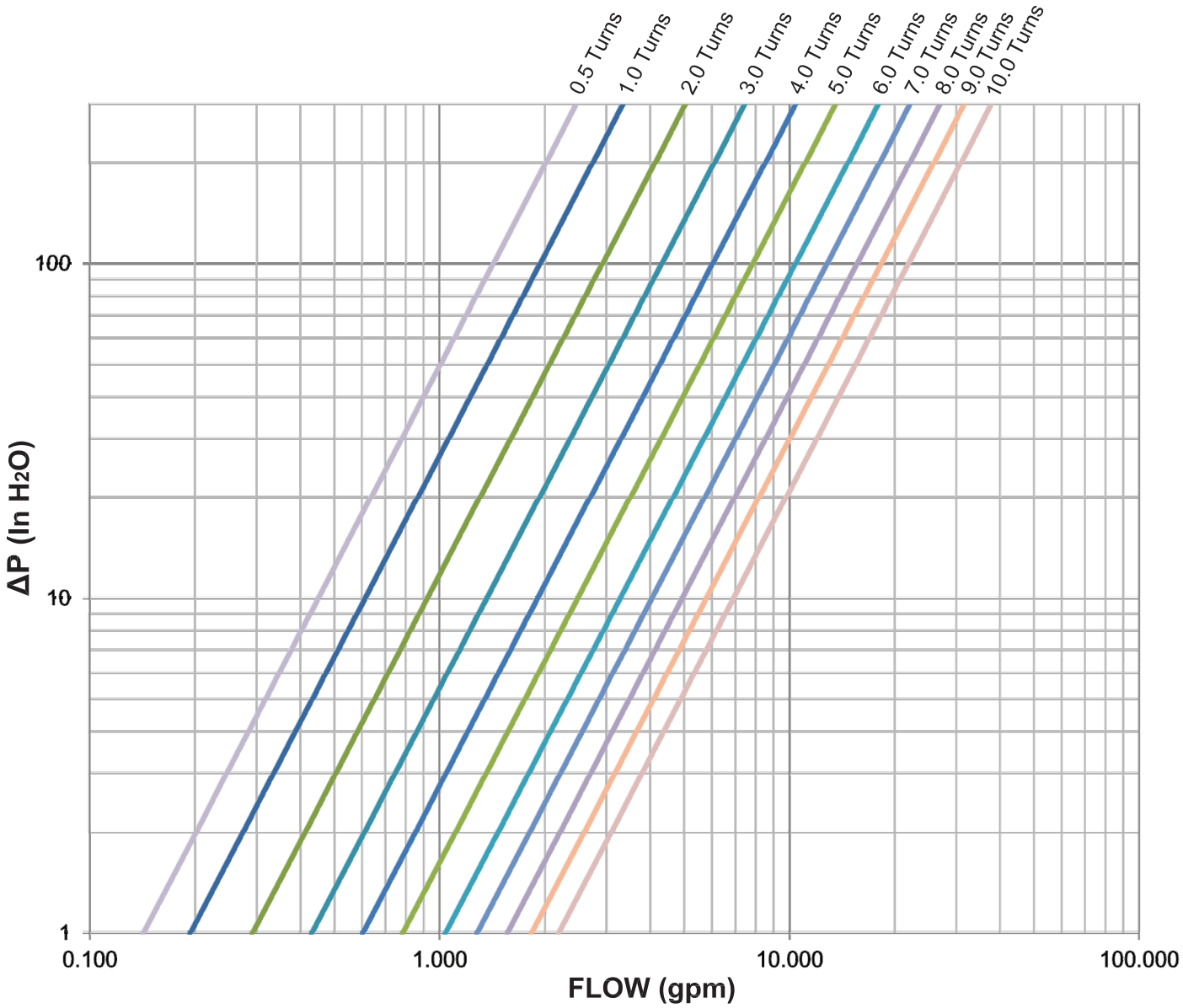


Figure 80: Manual Circuit Setter Flow Chart – 3/4" and 1" Valves



Thermal Expansion Valve (TXV) Installation

The TXV should be located directly below and as close to the distributor as possible. The distance between them should not exceed 18″ and should minimize the use of any bends or elbows between. The sensing bulb from the TXV should be attached to a horizontal section of the suction line within 12″ of the coil header using the proper mounting straps to ensure good thermal contact. On suction lines 7/8″ OD and larger, the bulb should be installed in the 4 or 8 o'clock position. For smaller lines, the bulb may be attached anywhere but the bottom. For optimal performance, a TXV with an external equalization tube is recommended. The equalization tube must be soldered to the suction header by drilling a hole in the header, inserting the tube and securing in place with solder. Care must be taken to ensure that the equalization tube is inserted to the proper depth and is free of crimps, solder, debris, etc.

Mixing Box (Optional)

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 = 0-10VDC 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 in 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 2x the face area and 20% drag from the blade. The discharge loss assumes the sudden expansion off the fan of 10X then a sudden contraction at the discharge of 3x the face area. Losses from a grille are not taken into account.

To determine intake, intake with damper, or discharge plenum loss, use the following equation.

$$([\ V*C\ ] / 4005)^2$$

V = Velocity through the opening

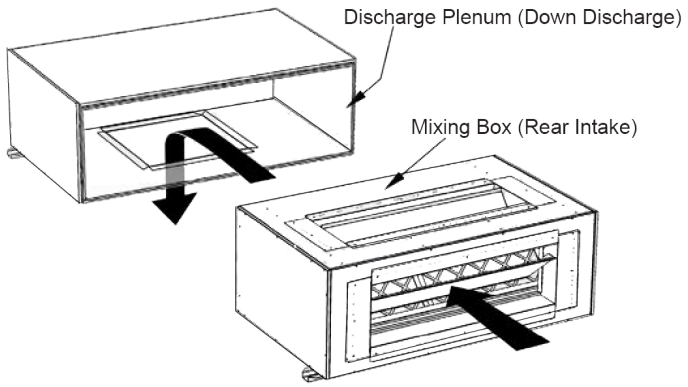
C: Straight intake without damper = 0.75
Turned intake without damper = 1.0
Straight intake with damper = 1.0
Turned intake with damper = 1.33
Straight discharge = 1.5
Turned discharge = 2

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"

Figure 81: Discharge and Mixing Box Examples



Electric Heat

The factory installed electric heat section (if equipped) consists of an open coil heater rack mounted to the unit's primary coil in the preheat position for horizontal units or 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. Electric heat comes pre-wired to the main control box for a single point (or 2-point on unit sizes 060-100) power connection to the unit.

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. The minimum allowable air volume for various combinations of EAT and kW are provided beginning on Table 19 on page 39 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. The switch will reset itself when the temperature drops below a certain level. The secondary thermal protection device is a manual reset thermal cutout. This switch opens at a certain level 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.

Field-Installed Electric Heat

When installing a post electric heat section in the field, ensure that the heater rack is securely mounted in the designated position of the unit's air stream. Electric heat must only operate when the supply fan is running, allowing the air to be heated as it passes through the elements.

The field-installed electric heat kit consists of the mounting rack, electric heating elements, contactors, optional SCR module, and manual and automatic reset thermal limits. The installer must connect the electric heat section to the controller using wire terminals 222 through 236. The power supply for the electric heat must be provided from a separate source, independent of the unit's main power connection.

For MicroTech applications, wire the electric heat using Table 18 below. For non-MicroTech units, the terminals indicated in Table 18 will be available for use with a third-party controller or can optionally be wired directly from your third-party controller to the heating element. See electric heat installation instructions included with the electric heater for more information.

Table 18: Electric Heat Terminal Connections

	MicroTech Terminal		Electric Heat Terminal	Signal
Staged Electric Heat	TB2 or TB3	222C	C	Electric Heat Control Signal
		222	C1	Electric Heat Stage 1
		223	C2	Electric Heat Stage 2
		224	C3	Electric Heat Stage 3
		225	C4	Electric Heat Stage 4
SCR Electric Module	TB2 or TB3	222	T1	Electric Heat Signal (0-10VDC)
		236	T2	Electric Heat Reference

A2L Refrigerant Requirements

Daikin Applied units equipped with an A2L refrigerant (Optional DX Coil Component), require means for mitigation in the unlikely event of a refrigerant leak. Units will therefore come equipped with an R-32 or R-454B Refrigerant Leak Detection System (RDS) and mitigation control relay with normally open contacts for mitigation activation. See "A2L Refrigerant Guidelines" on page 153 and the leak mitigation control board manual for more details.

For applications where an electric heater is used in conjunction with a DX coil, the mitigation process requires the heat source to be de-energized using the RDS. The following installation requirements apply:

- The Daikin Applied Air Handler is equipped with an A2L refrigerant and has a factory installed RDS. The sensor is located in the drain pan and wired to the mitigation control panel.
- The factory installed RDS in the Daikin Applied equipment may not be field modified.
- The RDS relay outputs (dry contacts) are field wired to the electric heater control panel to de-energize the heater element when a refrigerant leak is detected. See DX coil mitigation control panel and electric heater control panel for schematics.

Figure 82: RDS Connection Point - Electric Heat Example

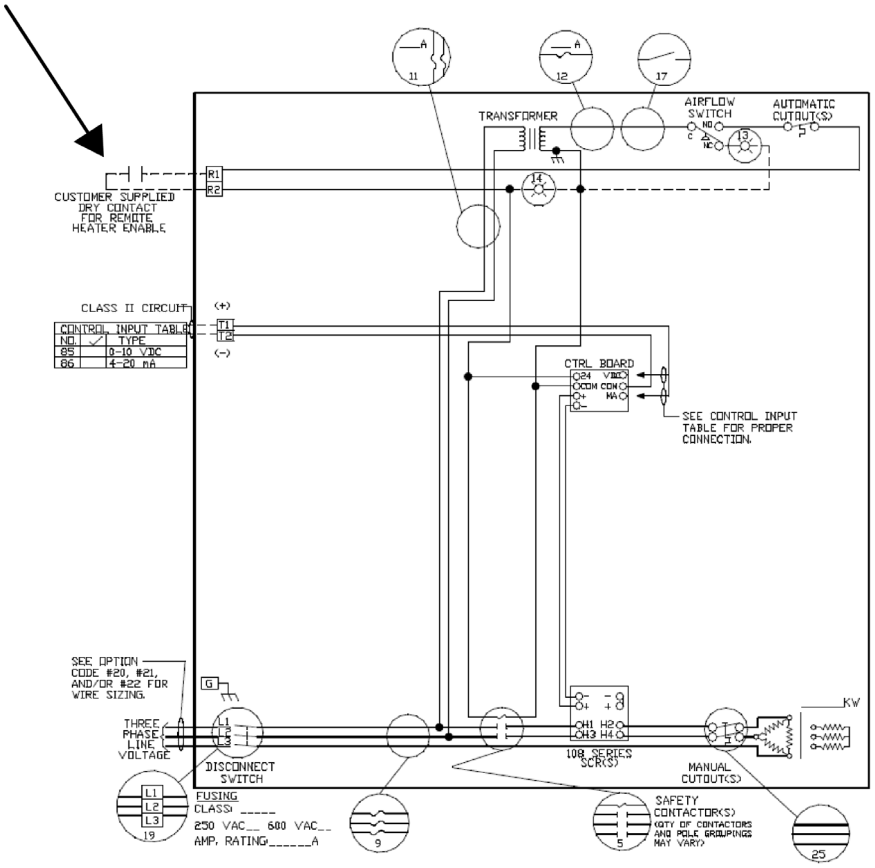


Table 19: Horizontal Minimum Allowable Air Volume with Electric Heat (Unit Sizes 006-020)

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 20: 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 21: 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 22: 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

Table 23: Vertical Electric Heat kW Options by Unit Size

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 24: Vertical Defrost Electric Heat kW Options by Unit Size - 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 25: Vertical Defrost Post Electric Heat kW Options by Unit Size - 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 26: 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 27: Vertical Unit - Heater Amps - Sizes 006-050

Vertical Heater Amps (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 28: Vertical Unit - Defrost Heater Amps - Sizes 060-100

Vertical Heater Amps (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 29: Vertical Unit - Post Heater Amps - Sizes 060-100

Vertical Heater Amps (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

System Description

Units equipped with an energy recovery wheel (ERW), provide energy recovery by drawing outside air across one half of the enthalpy wheel while drawing exhaust air across the other half of the wheel. During winter conditions, latent and sensible heat is transferred from the hotter and moist exhaust air to the colder and dry outside air. During summer conditions, latent and sensible heat is transferred from the hotter and moist outside air to the cooler and dry exhaust air. Energy recovery control consists of starting and stopping an exhaust fan, modulating the speed of the exhaust fan, starting and stopping an ERW, optionally controlling the speed of the ERW, and opening and closing a set of bypass dampers (46″ ERW size only). The outdoor dampers are controlled in the normal manner.

Definitions

The following are descriptions of various components related to the ERW construction (Figure 83):

Bearing, external - The wheel and bearing rotate on the shaft, no field lubrication is required.

Brush seal - The seal used for both the circumferential seal and the inner seal in the cassettes. They are constructed of nylon brush and configured to seal against the ERW band (circumferential seal) and against the wheel face (inner seal). These seals are full contact seals, have an integral clip, and are clipped to the cassette face panel cutout (circumferential) or to the (inner) post.

Cassette - The steel structure that houses the rotor. Cassettes are of punched sheet metal panel construction.

Hub - The center support of an ERW.

Media - The chemical composite part of the ERW which actually performs the heat exchange.

Purge - A small segment of supply air defined by the gap between the inner seal on the outdoor air edge of the center post and the supply air edge of the center post. The purge angle is adjustable. The purge captures the small amount of supply air captive in the ERW when the wheel moves from return to supply and routes it to return to minimize cross contamination.

Rotor - The part of an ERW that performs the energy exchange and consists of the wheel media, hub, spokes, and band.

Arrangements

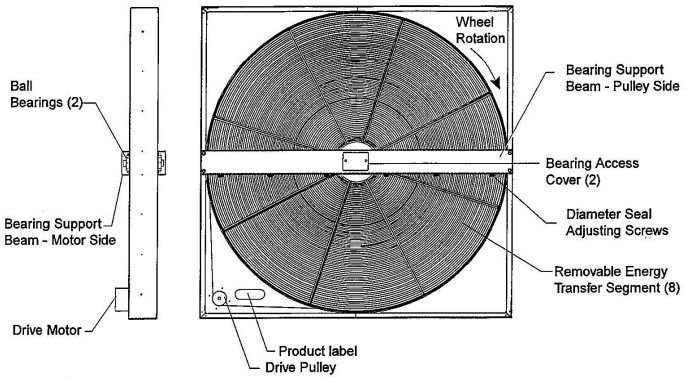
Two arrangements are offered for the ERW:

1. Single ERW without economizer (100% outdoor air unit).
2. Single ERW with economizer and bypass (Figure 83). This arrangement is available with the 46" ERW on all unit sizes.

Wheel Construction

Your Daikin Applied ERW is delivered completely assembled and ready to run. The wheel is built to provide many years of trouble free service following proper installation and performance of the minimal maintenance requirements.

Figure 83: Wheel Construction (Side-by-Side)



Purge and Pressurization

Pressurization is critical to minimize crossover from exhaust to supply and to allow the purge to operate.

Figure 84: Purge and Pressurization

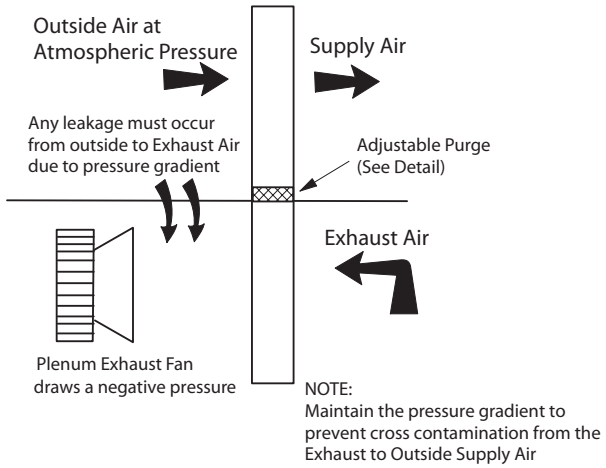
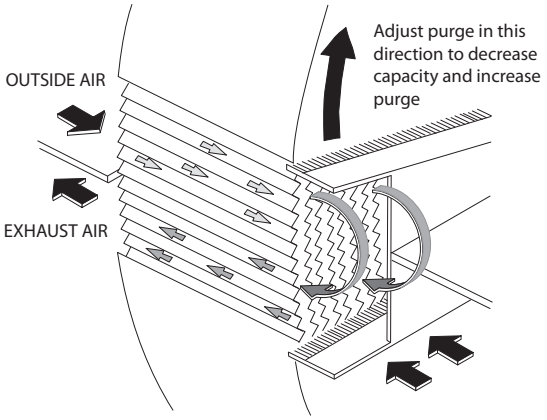


Figure 85: Purge Detail



Drive Motor

The ERW comes standard with a constant speed drive motor which is pre-wired to turn in the proper direction.

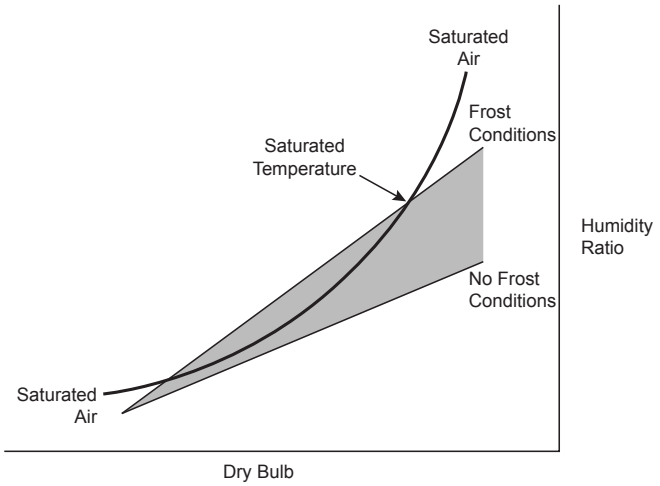
Frost Protection Option

During extremely cold winter conditions, exhaust air stream may freeze the ERW causing damage. To circumvent this possibility, Daikin Applied offers four factory installed frost protection options with the MicroTech system: defrost on/off, constant speed frost prevention, variable speed frost prevention, and preheat.

Defrost ON/OFF Control (Standard)

With this method the ERW is stopped periodically for a defrost time duration when the outdoor air temperature is below an outdoor frost temperature threshold setpoint.

Figure 86: Frost Prevention Psychrometric Chart



Constant Speed Frost Prevention

When there is a threat of frost on the ERW, the wheel is jogged so that less enthalpy transfer occurs and frosting of the wheel is avoided. Frosting can occur on the ERW when the exhaust air leaving the wheel is saturated. This condition occurs when two lines intersect on a psychrometric chart, and it does not occur when these two lines do not intersect (see Figure 86).

Variable Speed Frost Prevention

When there is a threat of frost on the ERW, the wheel is slowed down so that less enthalpy transfer occurs and frosting of the wheel is avoided. Frosting can occur on the ERW when the exhaust air leaving the wheel is saturated. This condition occurs when two lines intersect on a psychrometric chart, and it does not occur when these two lines do not intersect (see Figure 86).

Energy Recovery Exhaust Hoods

Units with the optional energy recovery section have one or two exhaust hoods (depending on model). Each hood is shipped in three pieces, consisting of one top and two sides. Install exhaust hood over the barometric relief dampers by installing two sides first and then install the top.

Variable Speed Frequency Control

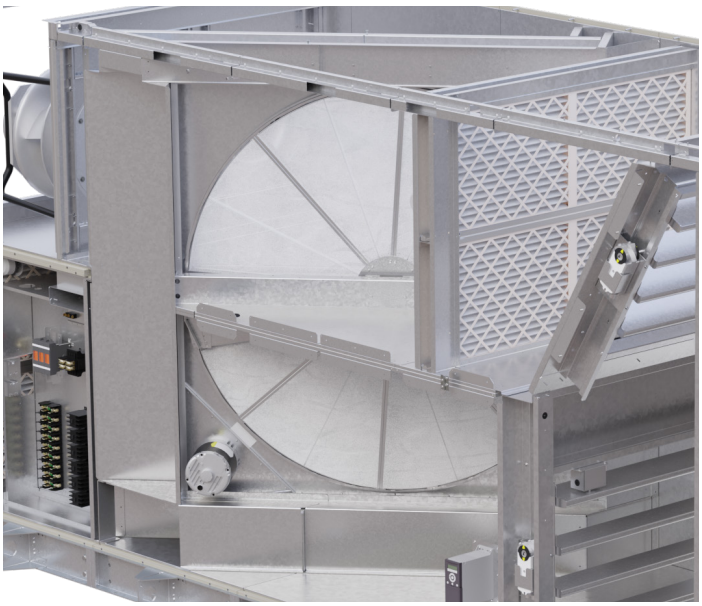
A variable frequency drive is included with the frost protection option and it controls the speed of the ERW. The unit has also been programmed for the recommended range of wheel speed operation. Typical wheel speed is 45 RPM, but the programming can allow for wheel speeds above or below 45 RPM. Check all factory settings to make sure they are consistent with the application. Refer to OM 1357 for additional details.

ERW speed will be controlled by exhaust temperature measurement.

Slide-Out Wheel

The wheel can be pulled out to facilitate cleaning and servicing (Figure 87). Unplug the control wires before sliding the wheel out of position.

Figure 87: Slide-Out Energy Recovery Wheel



Physical Data

Component Weights

Table 30: Horizontal Component Weights (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 31: Horizontal Component Weights (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 32: Vertical Component Weights (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 33: Vertical Component Weights (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 34: Vertical 3/8 in Coil Weights (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 35: Vertical 5/8 in Turbo Spiral Coil Weights (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 36: 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 37: Horizontal Fan and Motor Data - 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 38: Horizontal Fan and Motor Data - 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 39: Horizontal Fan and Motor Data - Sizes 030-050 (Plenum Supply Fans)

Plenum Fan Data			
Unit Size	30	40	50
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 40: Horizontal Fan and Motor Data - 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 41: Vertical Fan and Motor Data - 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 42: Vertical Fan and Motor Data - 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 43: 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	31.75	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 44: 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 45: 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

Coil Size and Connection Type

Table 46: 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 47: 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 48: 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 49: 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 50: 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 51: 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 52: 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 53: VRV Coil Size and Type (Horizontal)

Unit Size	Rows	Fin Height	Fin Length	FPI	Connection Size (SWT [OD])	
					Distributor	Suction
006	3	14	12.5	12	0.375	0.750
008	3	14	16.5	12	0.375	0.750
010	3	14	25	12	0.375	0.875
012	3	14	25	12	0.375	0.875
016	3	14	33	12	0.375	1.125
018	3	14	41.5	12	0.375	1.125
020	3	14	41.5	12	0.375	1.125
030	3	22	39.5	10	0.500	1.375
040	3	26	44.5	12	0.625	1.375
050	3	28	51.5	12	0.625	1.625
060	3	44*	39.5	10	0.5	1.375
080	3	52*	44.5	12	0.625	1.375
100	3	56*	51.5	12	0.625	1.625

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

NOTE 2: *Combined height of two vertically stacked coils.

NOTE 3: Dimensions shown in inches.

Table 54: Horizontal DX Coil Size and Type - R-32 and R-454B

Unit Size	Rows[1]	Circuits		Connection Size (SWT [OD])[3]		Volume (cu in)
		Number[2]	Type	Distributor	Suction	
006	3	1	Normal	0.500	0.750	65
008	3	1	Normal	0.500	0.750	81
010	3	1	Normal	0.500	0.875	115
012	3	1	Normal	0.500	0.875	115
016	3	1	Normal	0.500 (R-32) 0.625 (R-454B)	1.125	147
018	3	1	Normal	0.500	1.125	194
020	3	1	Normal	0.500	1.125	194
030	3	1	Normal	0.875	1.375	303
		2	Interlaced	0.500	0.875	300
040	3	1	Normal	0.875	1.375	395
		2	Interlaced	0.625	1.125	415
050	3	1	Normal	0.875	1.625	523
		2	Interlaced	0.625	1.375	534
060	3	2	Normal	0.875	1.375	607
		4	Interlaced	0.500	0.875	600
080	3	2	Normal	0.875	1.375	791
		4	Interlaced	0.625	1.125	830
100	3	2	Normal	0.875	1.625	1045
		4	Interlaced	0.625	1.375	1068

[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 55: Vertical DX Coil Size and Type - R-32 and R-454B

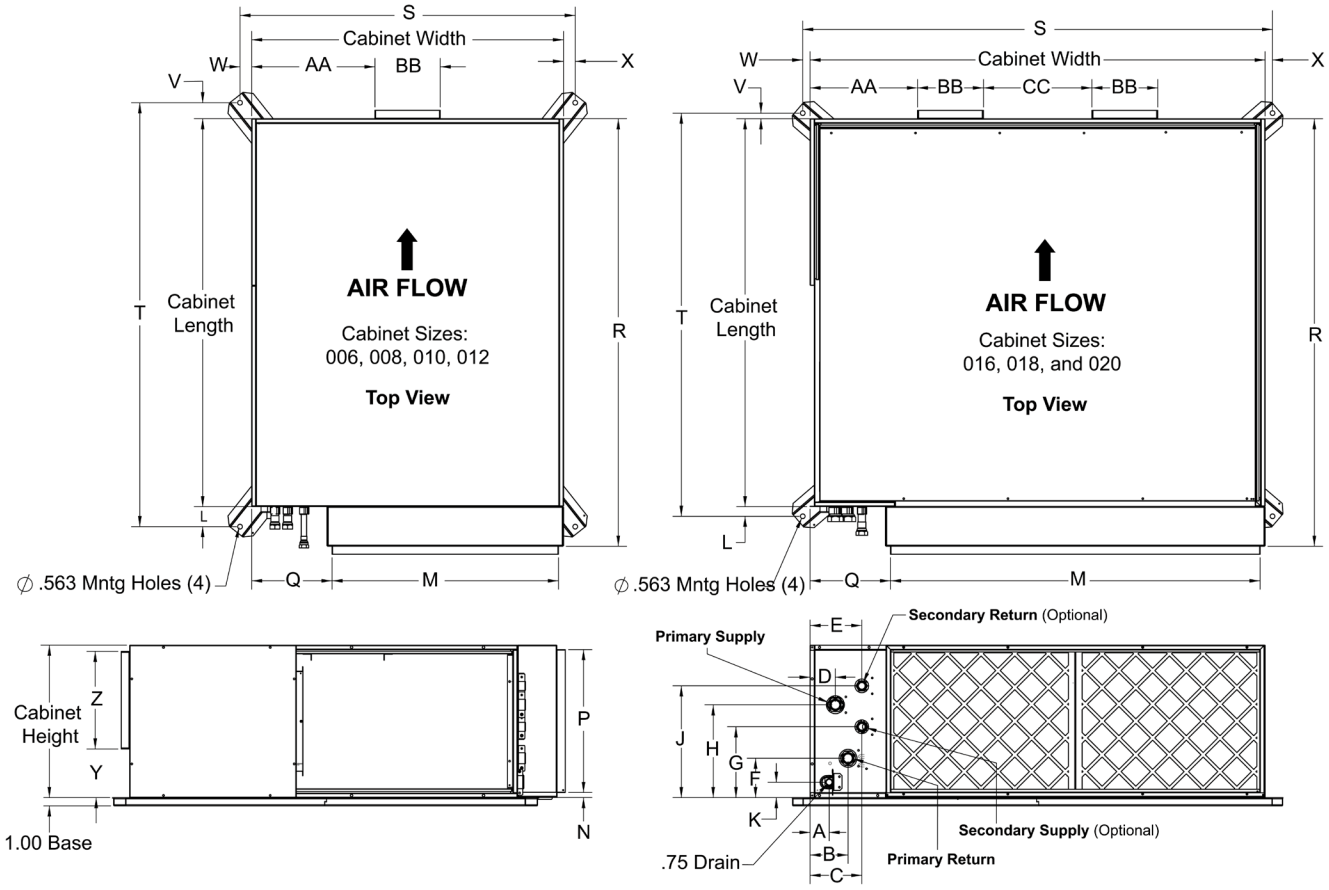
Unit Size	Rows[1]	Circuits		Connection Size (SWT [OD])[3]		Volume (cu in)
		Number[2]	Type	Distributor	Suction	
006	3	1	Normal	0.500	0.875	65
	6	1	Normal	0.500	0.875	121
008	3	1	Normal	0.500	0.875	84
	6	1	Normal	0.500	0.875	169
012	3	1	Normal	0.500	1.125	129
	6	1	Normal	0.625	1.125	233
016	3	1	Normal	0.625	1.125	172
	6	1	Normal	0.625 (R-32) 0.875 (R-454B)	1.125	315
020	3	1	Normal	0.625 (R-32) 0.875 (R-454B)	1.375	188
	6	1	Normal	0.875	1.375	392
030	3	1	Normal	0.875	1.625	284
		2	Interlaced	0.500 (R-32) 0.625 (R-454B)	0.875	284
	6	2	Interlaced	0.875	1.125	611
040	3	1	Normal	0.875	1.625	458
		2	Interlaced	0.625 (R-32) 0.875 (R-454B)	1.375	460
	6	2	Interlaced	0.625 (R-32) 0.875 (R-454B)	1.375	728
050	3	1	Normal	0.875	1.625	579
		2	Interlaced	0.875	1.375	581
	6	2	Interlaced	0.875	1.625	1159
060	3	2	Normal	0.875	1.375	540
		4	Interlaced	0.875	0.875	540
	6	2	Interlaced	0.875	1.125	1091
080	3	2	Normal	0.875	1.375	730
		4	Interlaced	0.625	1.125	730
	6	2	Interlaced	0875	1.375	1474
100	3	2	Normal	0.875	1.625	918
		4	Interlaced	0.875	1.375	918
	6	2	Interlaced	0.875	1.375	1855

[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.

Dimensional Data

Size 006-050 Horizontal Unit Dimensions

Figure 88: Left-Hand, Single and Dual Fan (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.

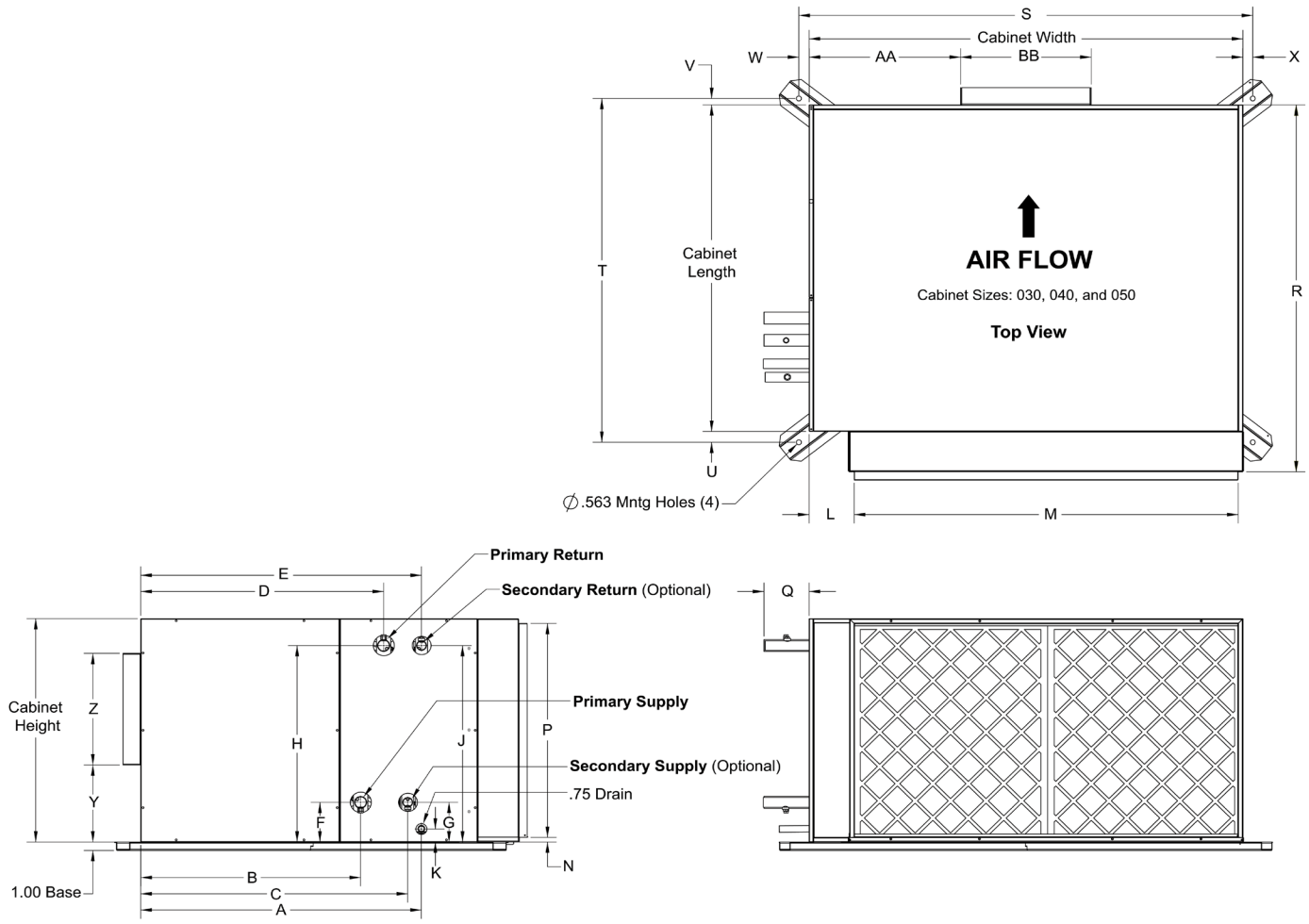
NOTE 2: Left hand unit shown. Right hand unit same as left but opposite.

Table 56: Dimension Letter Reference for Figure 88 on page 58

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 89: Left-Hand, Single Fan (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 57: 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 58: Hydronic Unit Dimensions - Dimension Letter Reference for Figure 89 on page 60

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 59: Hydronic Unit Dimensions - Dimension Letter Reference for Figure 89 on page 60

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 60: DX Unit Dimensions - Dimension Letter Reference for Figure 89 on page 60

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

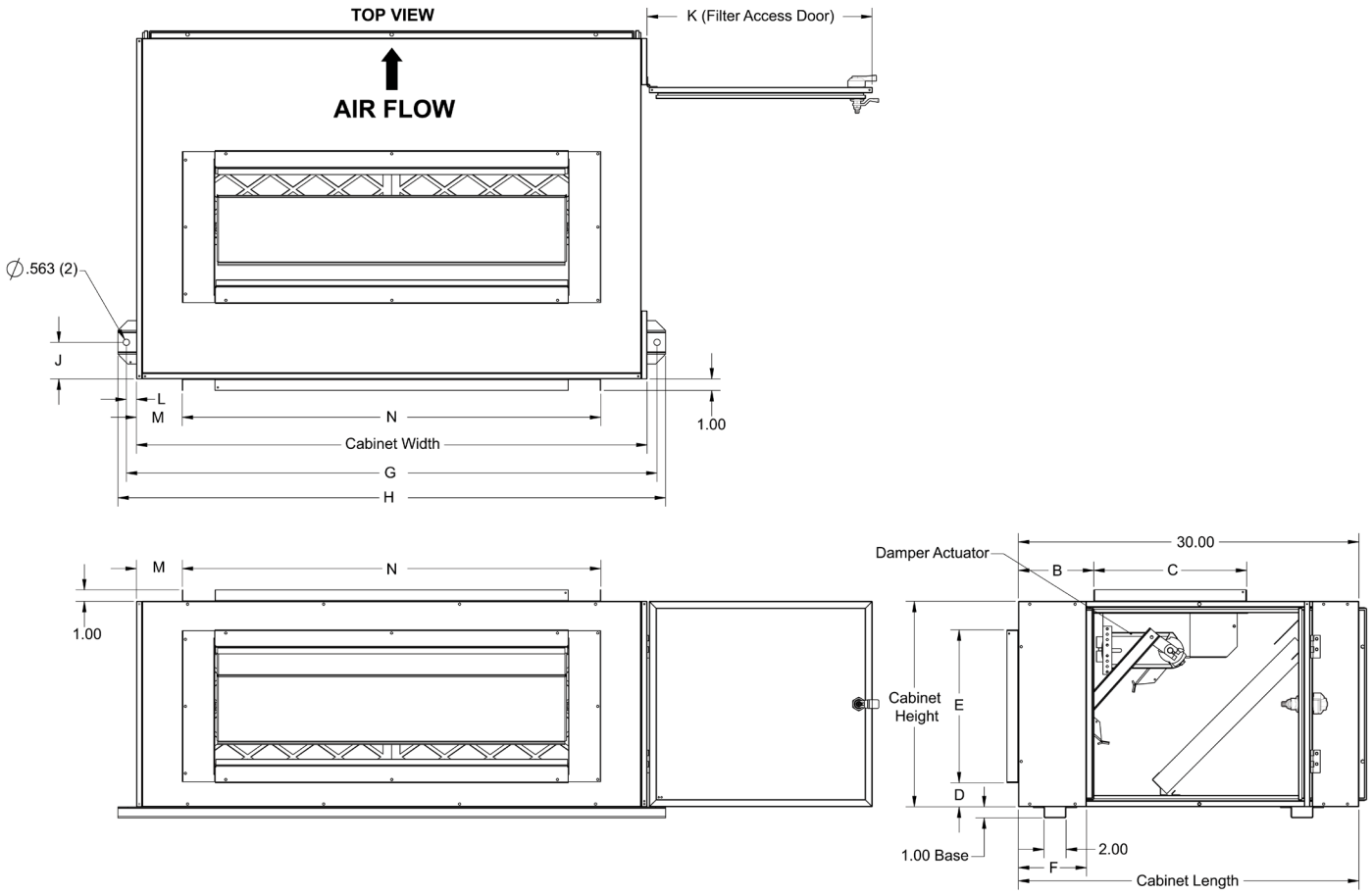
NOTE: Dimensions shown in inches.

Table 61: DX Unit Dimensions - Dimension Letter Reference for Figure 89 on page 60

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



NOTE 1: Dimensions shown in inches.

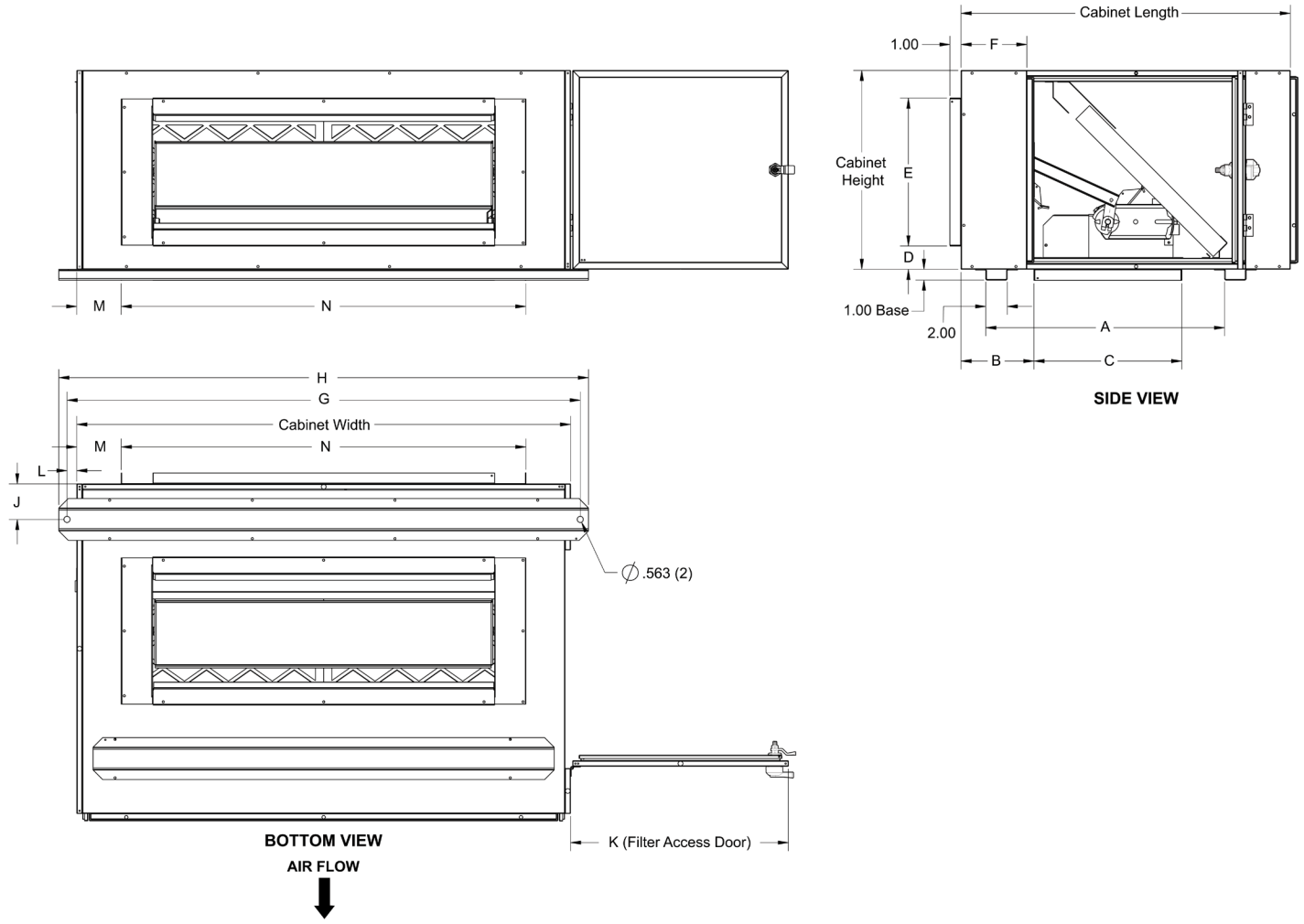
NOTE 2: Dimensions for right hand cabinet sizes 006-020 and cabinet sizes 030-050 with side access filters are similar but opposite.

Table 62: 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 91: Horizontal Mixing Box – Bottom and End Damper, Left Hand Sizes 006–020 and Right Hand Sizes 030–050 – Side Filter Access



NOTE 1: Dimensions shown in inches.

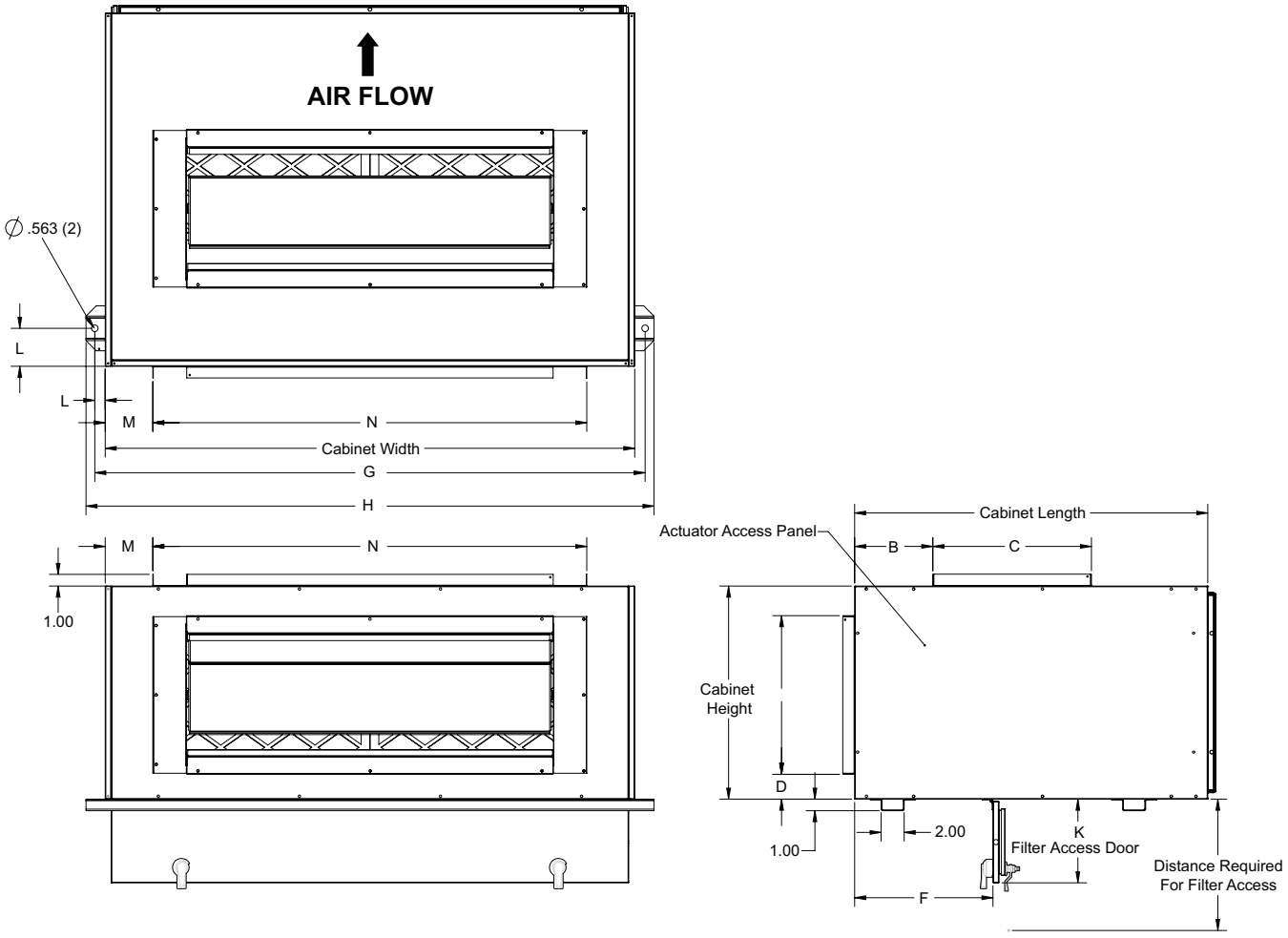
NOTE 2: Dimensions for right hand cabinet sizes 006-020 and cabinet sizes 030-050 with side access filters are similar but opposite.

Table 63: 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 92: Horizontal Mixing Box Dimensions – Left Hand Sizes 006–020 and Right Hand Sizes 030–050 – Bottom Filter Access



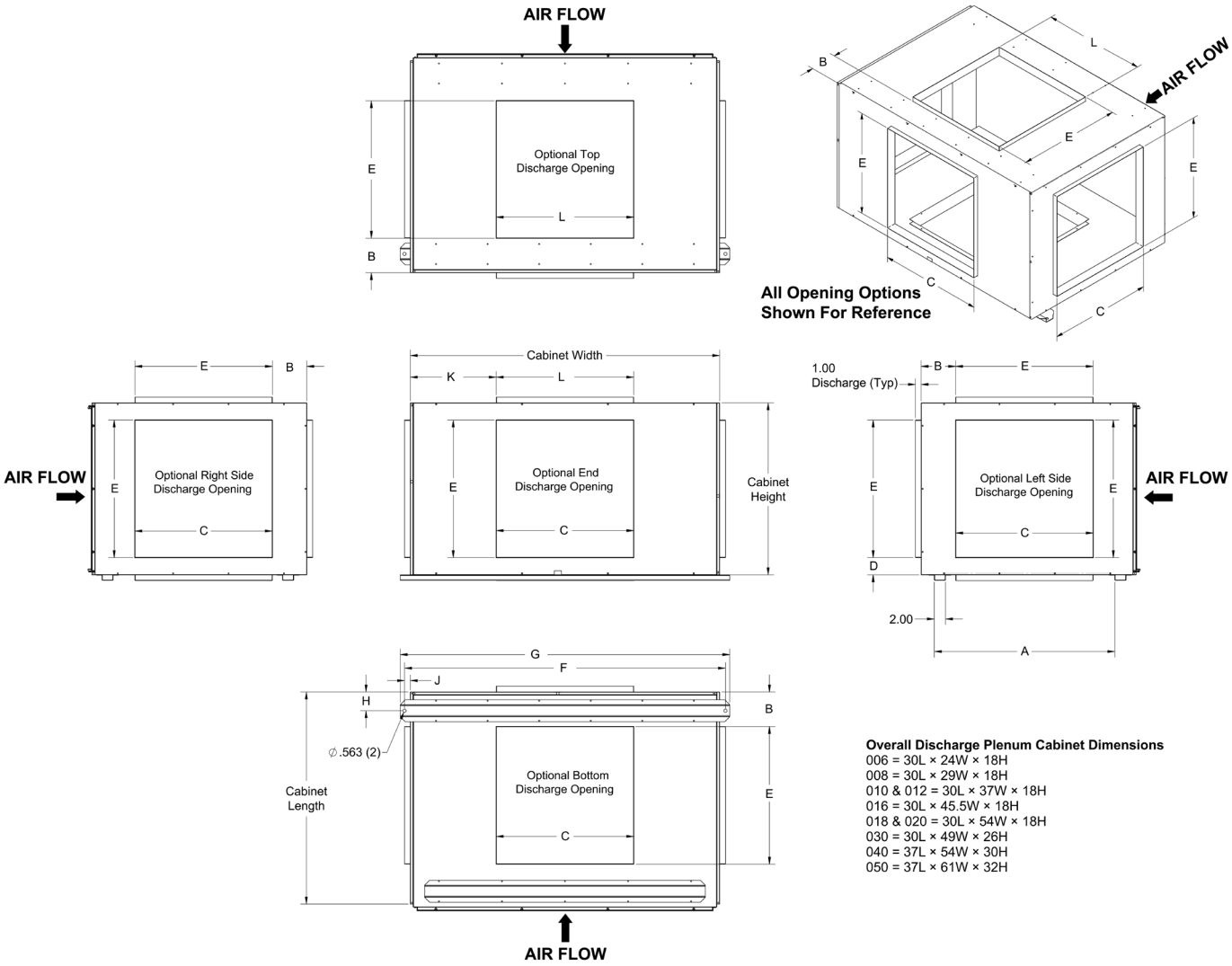
NOTE: Dimensions shown in inches.

Table 64: 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 93: Horizontal Discharge Plenum (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 65: Discharge Plenum Dimension Letter Reference

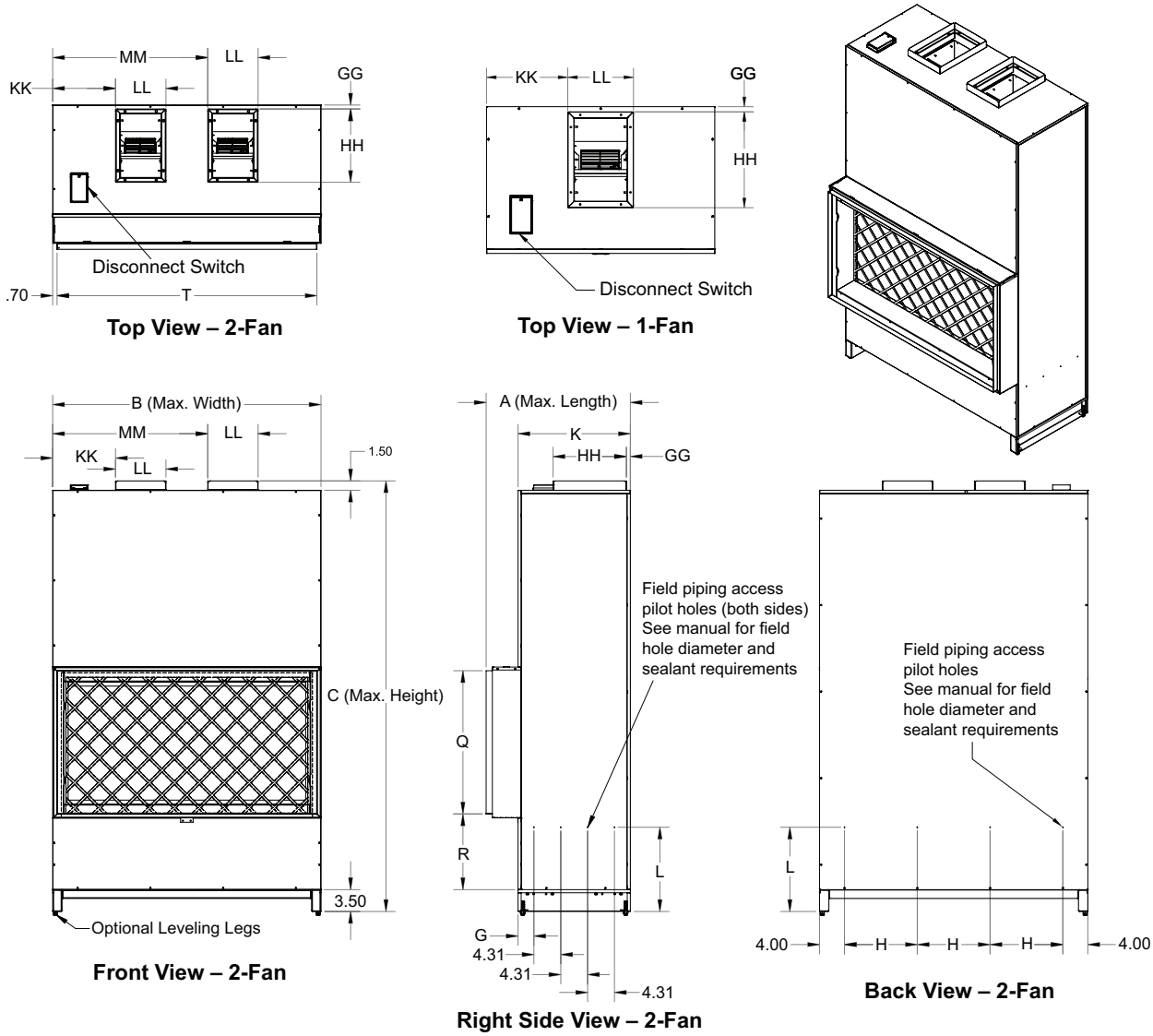
Cabinet	006	008	010	012	016	018	020	030	040	050
A	22.00	22.00	22.00	22.00	22.00	22.00	22.00	24.50	31.50	32.88
B	6.56	6.10	6.56	6.56	6.56	6.56	6.56	5.53	6.02	5.06
C	12.00	12.00	14.00	14.00	16.00	20.00	20.00	24.00	24.00	28.00
D	5.00	3.00	2.00	2.00	2.00	2.00	2.00	3.00	3.00	2.00
E	8.00	12.00	14.00	14.00	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 94: Left-Hand, Single and Dual Fan (Sizes 006-020)



NOTE 1: Dimensions shown in inches.

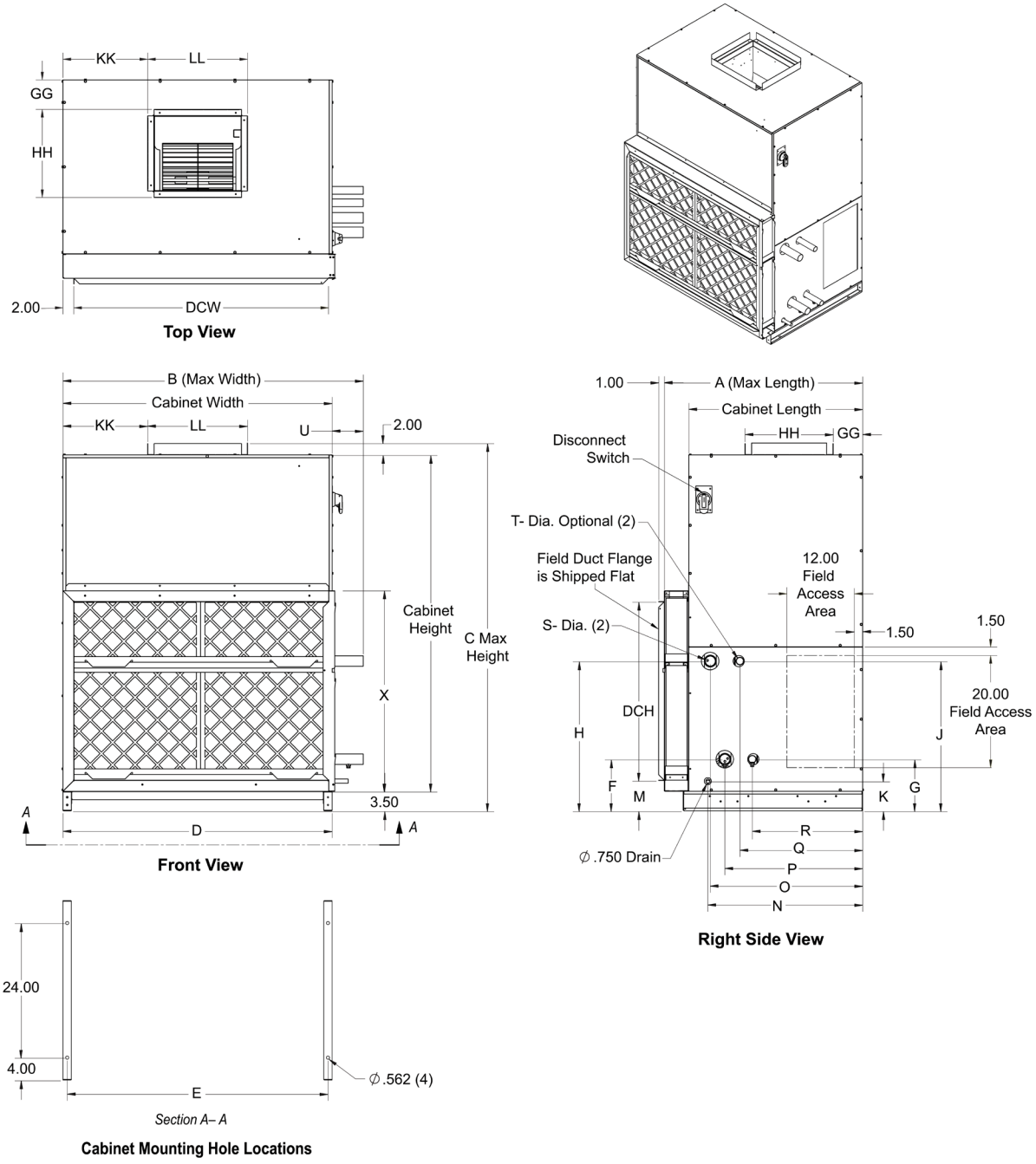
NOTE 2: Sizes 006 - 012 have 1 outlet while sizes 016-020 have 2.

Table 66: 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 95: Vertical Unit Dimensions (Sizes 030-050)



NOTE 1: Dimensions shown in inches.

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

Table 67: General Vertical Unit Dimensions for Figure 95 on page 68

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 68: Vertical Coil Dimensions for Figure 95 on page 68

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.

Vertical Coil Dimensions for Figure 95 on page 68 (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	-

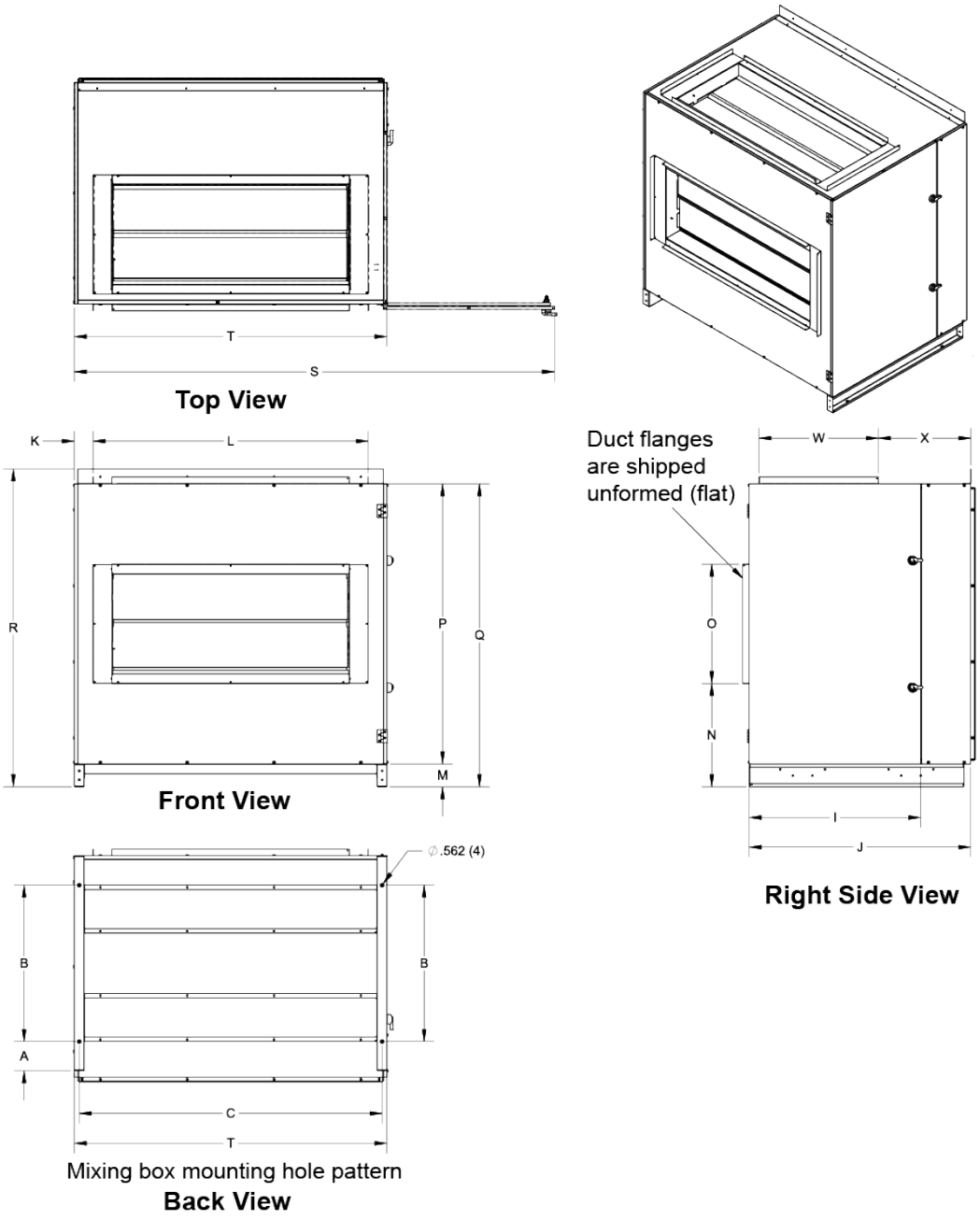
NOTE: Dimensions shown in inches.

Table 69: Vertical Coil Dimensions for Figure 95 on page 68 (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**	**S**	**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 96: Vertical Mixing Box - Top and End Damper, Sizes 030-050 - Side Filter Access



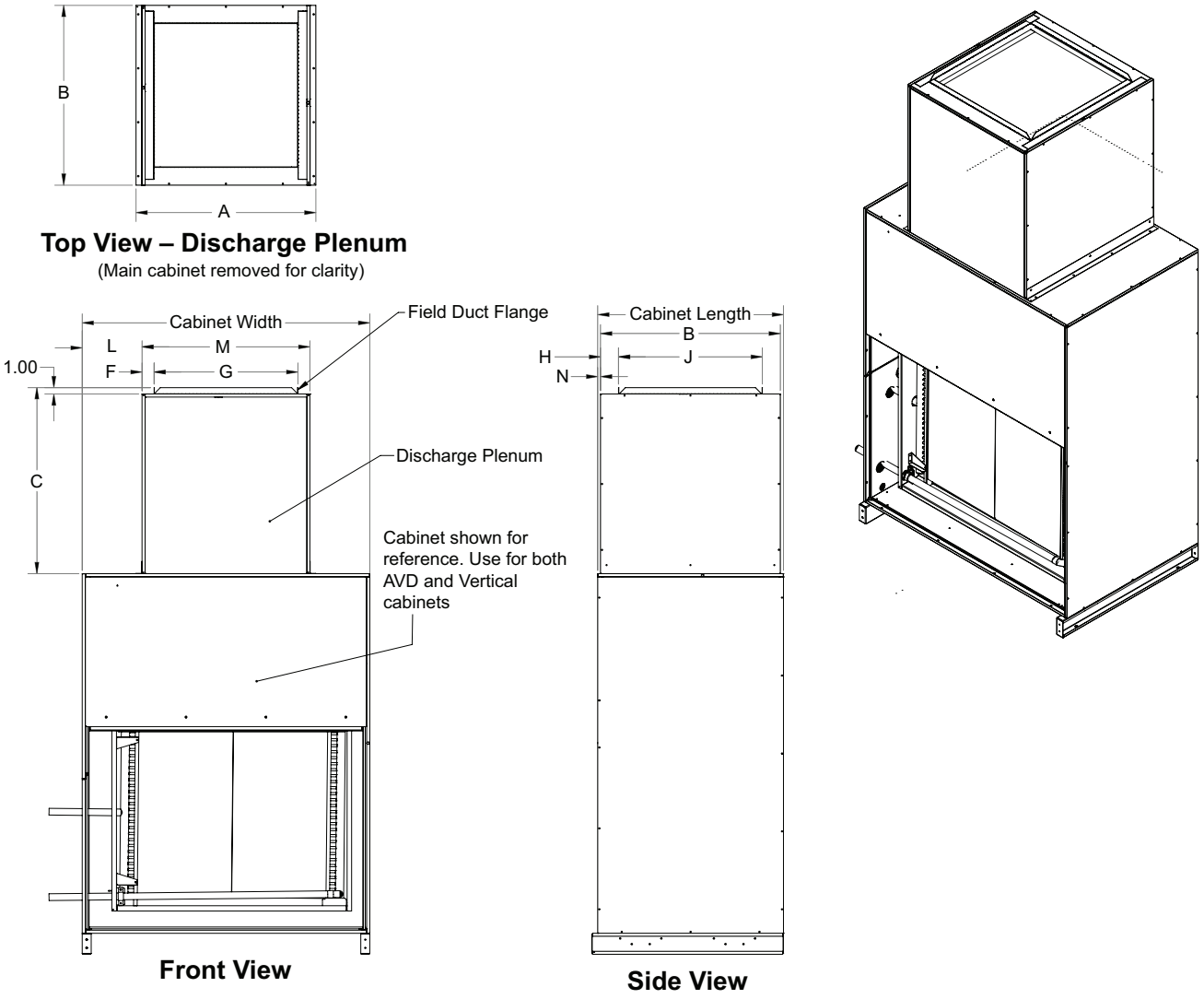
NOTE: Dimensions shown in inches.

Table 70: 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 97: Vertical Discharge Plenum (Sizes 006-050)



NOTE: Dimensions shown in inches.

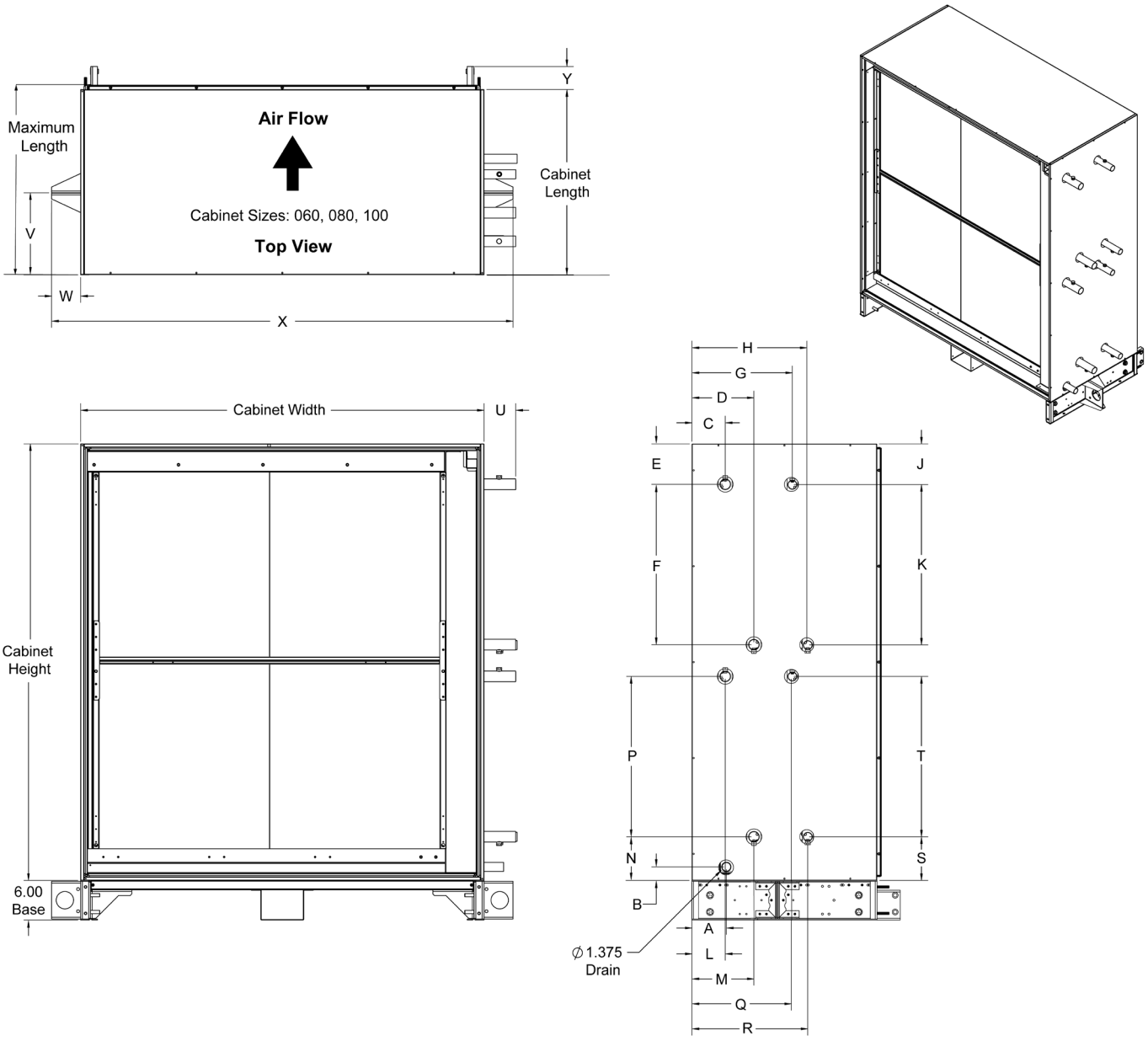
Table 71: Discharge Plenum Dimension Letter Reference

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



NOTE: Dimensions shown in inches.

Table 72: General Unit Dimensions (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 73: Hydronic Coil Unit Dimensions (Sizes 060-100) for Figure 98 on page 74

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 74: DX Unit Dimensions (Sizes 060-100) for Figure 98 on page 74

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	-	-	-	-

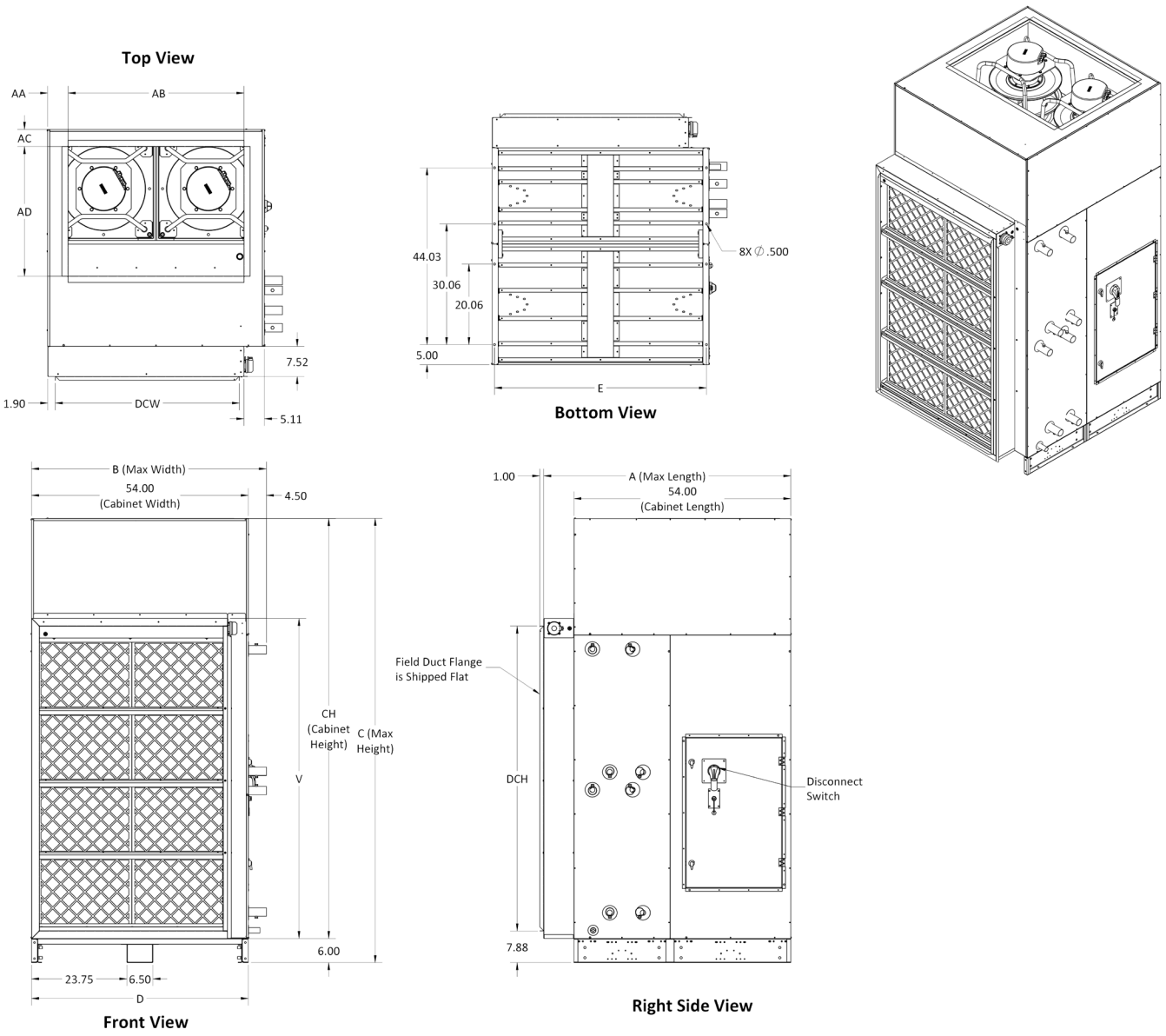
NOTE: Dimensions shown in inches.

Table 75: Steam Unit Dimensions (Sizes 060-100) for Figure 98 on page 74

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



NOTE 1: Dimensions shown in inches.

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

Table 76: Vertical Unit Dimensions - Two Fans (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.

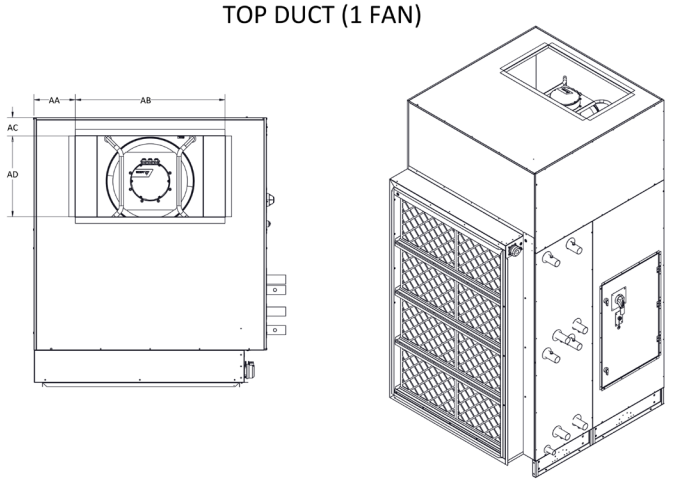
Table 77: Vertical Unit Top Duct Dimensions - Two Fan (Sizes 060-100)

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

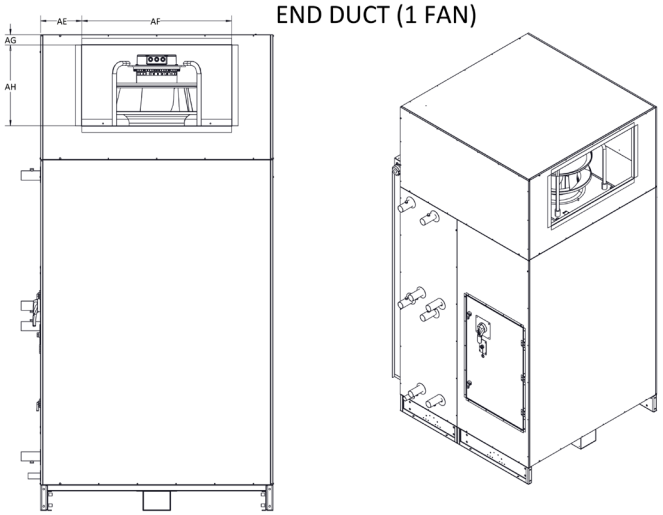
NOTE: Dimensions shown in inches.

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

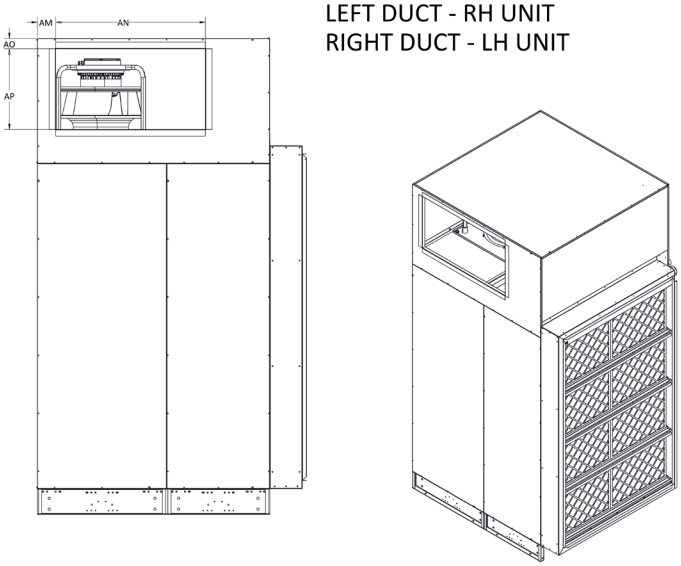
TOP DUCT (1 FAN)



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

DIMENSIONS WILL BE THE SAME FOR BOTH DUCTS

NOTE: Dimensions shown in inches.

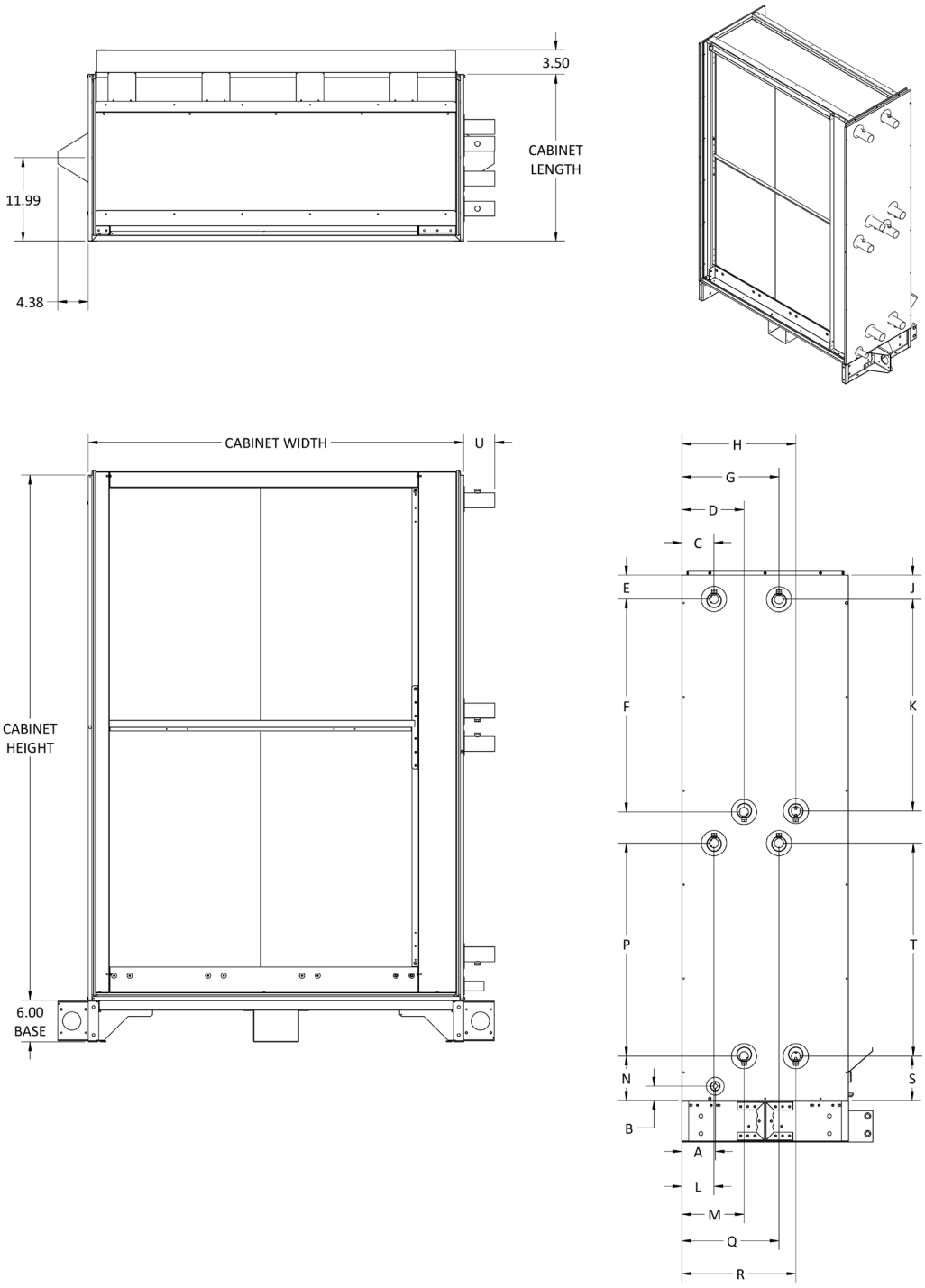
Table 78: Vertical Unit Dimensions - One Fan (Sizes 060-100)

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 101: Vertical Hydronic Coil Unit Dimensions (Sizes 060-100)



NOTE: Dimensions shown in inches.

Table 79: Vertical Unit Coil Dimensions (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 80: Hydronic Coil Unit Dimensions (Sizes 060-100) for Figure 101 on page 81

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 102: Vertical Unit DX Coil Dimensions (Unit Sizes 060-100)

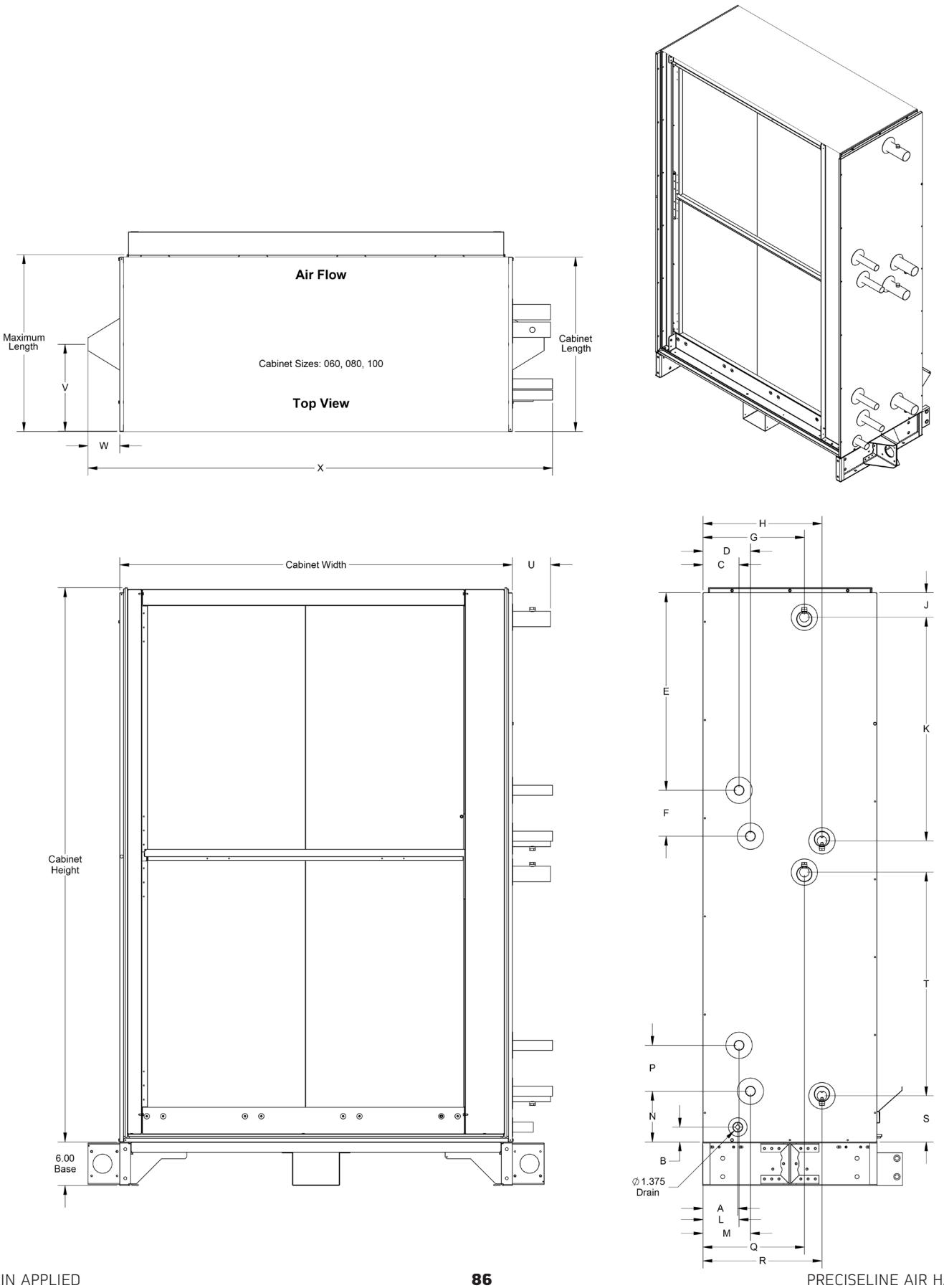


Table 81: Vertical DX Coil Unit Dimensions (Unit Sizes 060-100) for Figure 102 on page 86

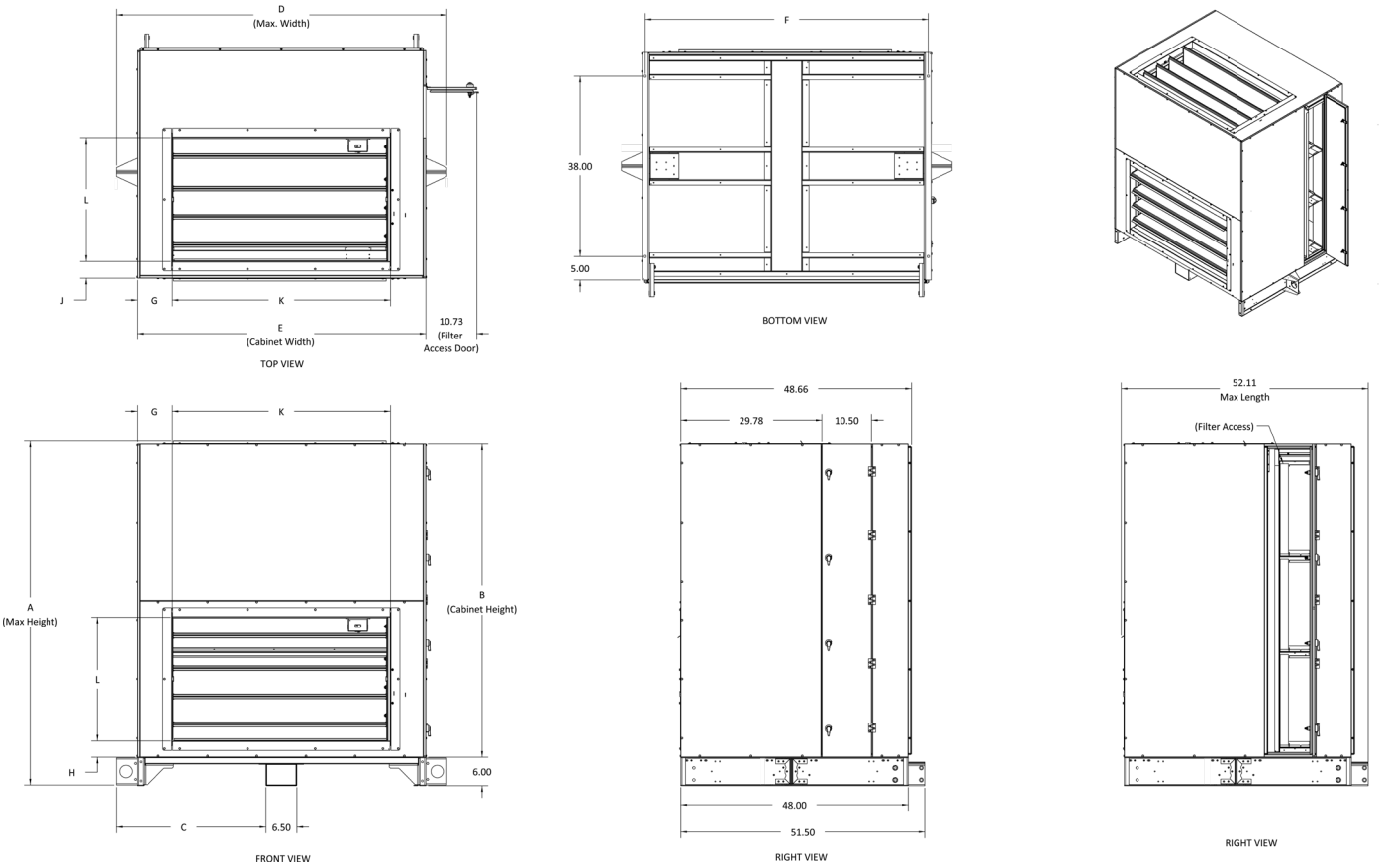
3-Row DX + 2-Row HW																		
Unit Size	A	B	C (Std/ Low)	D (Std/ Low)	E (Std/ Low)	F (Std/ Low)	G (Std/ Low)	H	J (Std/ Low)	K (Std/ Low)	L (Std/ Low)	M (Std/ Low)	N (Std/ Low)	P (Std/ Low)	Q (Std/ Low)	R	S	T (Std/ Low)
060	4.760	2.030	6.264	7.5765	20.672	2.818	13.947	16.371	6.302	16.750	6.264	7.5765	5.903	2.818	13.947	16.371	6.341	16.750
				-	22.74	-	13.6835					-	6.653	-	13.6835			
080	4.760	2.030	6.38	7.8175	24.607	4.000	13.947	16.371	3.362	23.750	6.264	7.8175	7.846	4.000	13.947	16.371	6.341	23.750
			6.264	-	26.145	-	13.6835		4.362	22.750		-	7.308	-	13.683			22.750
100	4.760	2.030	4.701	7.8265	30.115	3.3545	13.947	16.371	3.362	30.750	4.701	7.8265	6.971	3.3545	13.947	16.371	6.341	30.750
			6.264	-	34.114	-	13.6835		4.737	29.375	6.264	-	6.326	-	13.683			29.375
3-Row DX + 1-Row HW																		
Unit Size	A	B	C (Std/ Low)	D (Std/ Low)	E (Std/ Low)	F (Std/ Low)	G	H	J	K	L (Std/ Low)	M (Std/ Low)	N (Std/ Low)	P (Std/ Low)	Q	R	S	T
060	4.760	2.030	6.264	7.5765	20.658	2.818	13.683	16.482	6.802	16.250	6.264	7.5765	5.903	2.818	13.683	16.482	6.341	16.250
				-	22.740	-						-	6.653	-				
080	4.760	2.030	6.264	7.7015	16.918	4.000	13.684	16.371	4.862	22.250	6.264	7.7015	12.521	4.000	13.684	16.371	6.341	22.250
				-	26.131	-						-	7.308	-				
100	4.760	2.030	4.701	7.8265	30.114	3.354	13.683	16.483	3.862	30.250	4.701	7.8265	6.971	3.3545	13.683	16.482	6.341	30.250
			6.264	-	34.127	-					6.264	-	6.326	-				
3-Row DX																		
Unit Size	A	B	C (Std/ Low)	D (Std/ Low)	E (Std/ Low)	F (Std/ Low)	G	H	J	K	L (Std/ Low)	M (Std/ Low)	N (Std/ Low)	P (Std/ Low)	Q	R	S	T
060	4.760	2.030	6.264	7.5765	20.708	2.818	-	-	-	-	6.264	7.5765	5.903	2.818	-	-	-	-
				-	22.776	-						-	6.653	-				
080	4.760	2.030	6.264	7.7015	24.593	4.000	-	-	-	-	6.264	7.7015	7.846	4.000	-	-	-	-
				-	26.131	-						-	7.308	-				
100	4.760	2.030	4.701	7.8265	30.127	3.354	-	-	-	-	4.701	7.8265	6.971	3.354	-	-	-	-
			6.264	-	34.127	-					6.264	-	6.326	-				
2-Row HW + 3-Row DX																		
Unit Size	A	B	C (Std/ Low)	D	E (Std/ Low)	F (Std/ Low)	G (Std/ Low)	H (Std/ Low)	J (Std/ Low)	K (Std/ Low)	L (Std/ Low)	M	N	P (Std/ Low)	Q (Std/ Low)	R (Std/ Low)	S (Std/ Low)	T (Std/ Low)
060	4.760	2.030	5.697	8.121	6.303	16.750	13.514	14.826	20.658	2.818	5.697	8.121	6.341	16.750	13.514	14.826	5.903	2.818
			5.433					-	22.740	-	5.433					-	6.653	-
080	4.760	2.030	5.697	8.121	3.362	23.750	13.514	14.951	21.593	4.000	5.697	8.121	6.341	23.750	13.514	14.951	7.846	4.000
			5.433		4.362	22.750		-	26.131	-	5.433			22.750		-	7.308	-
100	4.760	2.030	5.697	8.121	3.362	30.750	11.951	15.076	30.114	3.3545	5.697	8.121	6.341	30.750	11.951	15.076	6.971	3.354
			5.432		4.737	29.375	13.514	-	34.514	-	5.432			29.375	13.514	-	6.326	-
1-Row HW + 3-Row DX																		
Unit Size	A	B	C	D	E	F	G (Std/ Low)	H (Std/ Low)	J (Std/ Low)	K (Std/ Low)	L	M	N	P	Q (Std/ Low)	R (Std/ Low)	S (Std/ Low)	T (Std/ Low)
060	4.760	2.030	5.433	8.232	6.802	16.250	13.514	14.826	20.658	2.818	5.433	8.232	6.802	16.250	13.514	14.826	5.903	2.818
								-	22.740	-						-	6.653	-
080	4.760	2.030	5.433	8.121	4.862	22.250	13.514	14.951	21.593	4.000	5.433	8.120	6.341	22.250	13.514	14.951	7.846	4.000
								-	26.131	-						-	7.308	-
100	4.760	2.030	5.433	8.232	3.862	30.250	11.951	15.076	30.127	3.3545	5.432	8.232	6.341	30.250	11.951	15.076	6.971	3.354
							13.514	-	34.127	-					13.514	-	6.326	-

6-Row DX + 2-Row HW																	
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	4.760	2.030	4.965	6.402	20.110	3.438	13.947 13.6835	16.371	6.303	16.750	4.965	6.402	5.847	3.438	13.947 13.6835	16.371	6.341	16.750
080	4.760	2.030	4.965	6.527	23.170	4.313	13.947 13.6835	16.371	3.363	23.750 22.750	4.965	6.527	5.972	4.313	13.947 13.6835	16.371	6.341	23.750 22.750
100	4.760	2.030	4.965	6.527	27.158	6.313	13.947 13.6835	16.371	3.362 4.362	30.750 29.375	4.965	6.527	6.972	6.313	13.947 13.6835	16.371	6.341	30.750 29.375
6-Row DX + 1-Row HW																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	4.760	2.030	4.965	6.402	20.096	3.438	13.684	16.483	6.803	16.250	4.965	6.402	5.847	3.438	13.684	16.483	6.341	16.250
080	4.760	2.030	4.965	6.527	23.156	4.313	13.685	16.372	4.863	22.250	4.965	6.527	5.972	4.313	13.685	16.372	6.341	22.250
100	4.760	2.030	4.965	6.527	27.157	6.313	13.683	16.483	3.863	30.250	4.965	6.527	6.972	6.313	13.683	16.483	6.341	30.250
2-Row HW + 6-Row DX																		
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	4.760	2.030	5.697 5.433	8.121	6.303	16.750	12.215	13.652	20.096	3.438	5.697 5.433	8.121	6.341	16.750	12.215	13.652	5.847	3.438
080	4.760	2.030	5.697 5.433	8.121	3.362 4.362	23.750 22.750	12.215	13.774	23.156	4.313	5.697 5.433	8.121	6.341	23.750 22.750	12.215	13.777	5.972	4.313
100	4.760	2.030	5.697 5.433	8.121	3.362 4.737	30.750 29.375	12.215	13.777	27.157	6.313	5.697 5.433	8.121	6.341	30.750 29.375	12.215	13.777	6.972	6.313
1-Row HW + 6-Row DX																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	4.760	2.030	5.434	8.233	6.803	16.250	12.215	13.652	20.096	3.438	5.434	8.233	6.341	16.250	12.215	13.652	5.847	3.438
080	4.760	2.030	5.434	8.121	4.863	22.250	12.215	13.777	23.156	4.313	5.434	8.121	6.341	22.250	12.215	13.777	5.972	4.313
100	4.760	2.030	5.433	8.233	3.863	30.250	12.215	13.777	27.170	6.313	5.433	8.233	6.341	30.250	12.215	13.777	6.972	6.313
6-Row DX																		
Unit Size	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**J**	**K**	**L**	**M**	**N**	**P**	**Q**	**R**	**S**	**T**
060	4.760	2.030	4.964	6.402	20.145	3.437	-	-	-	-	4.965	6.402	5.847	3.438	-	-	-	-
080	4.760	2.030	4.965	6.527	23.156	4.313	-	-	-	-	4.965	6.527	5.972	4.313	-	-	-	-
100	4.760	2.030	4.965	6.527	27.170	6.313	-	-	-	-	4.965	6.527	6.972	6.313	-	-	-	-

LEGEND	
Std	Standard Circuiting Flow
Low	Low Circuiting Flow

NOTE: Dimensions shown in inches.

Figure 103: Horizontal Mixing Box Dimensions (Sizes 060-100)



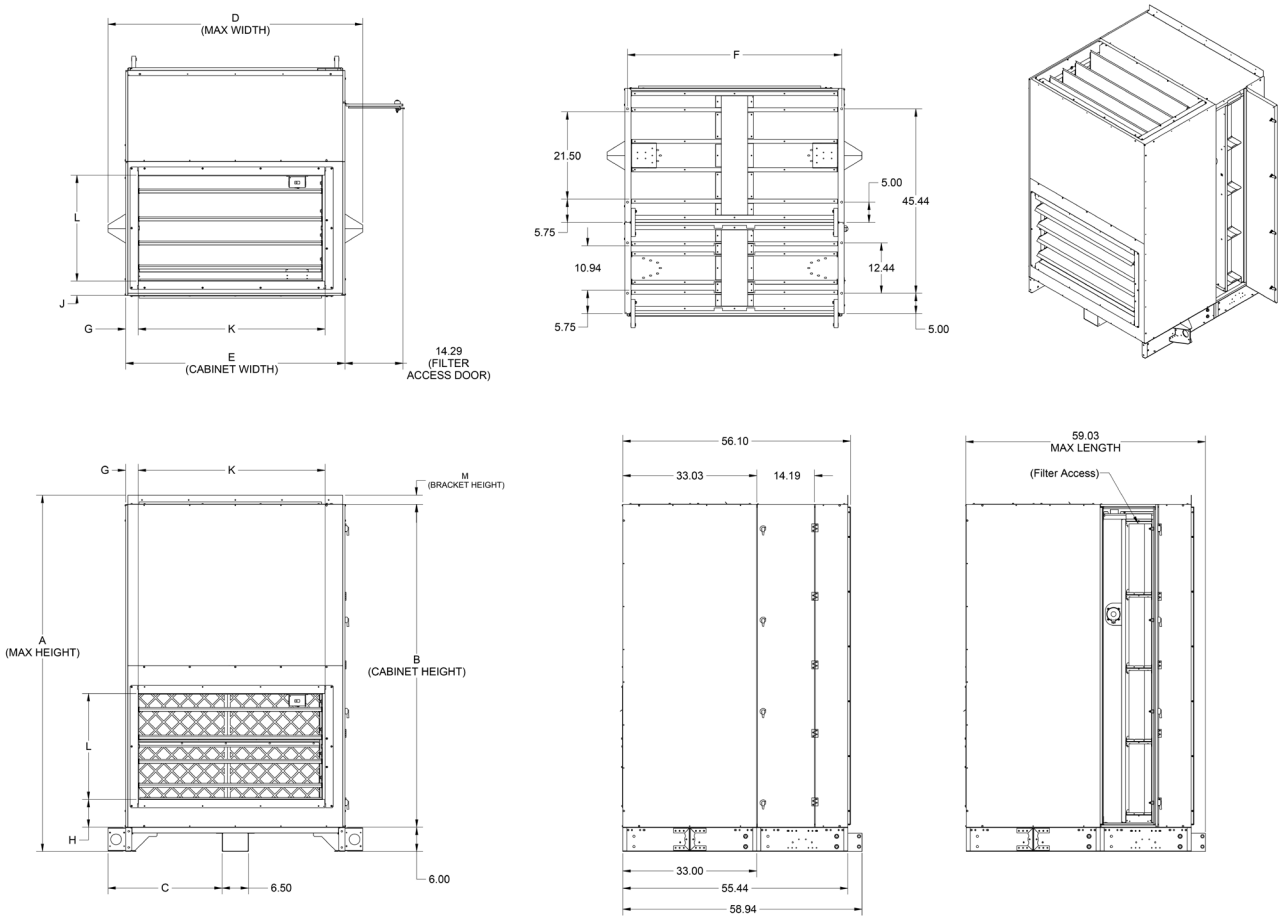
NOTE: Dimensions shown in inches.

Table 82: 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 104: Vertical Mixing Box Dimensions (Sizes 060-100)



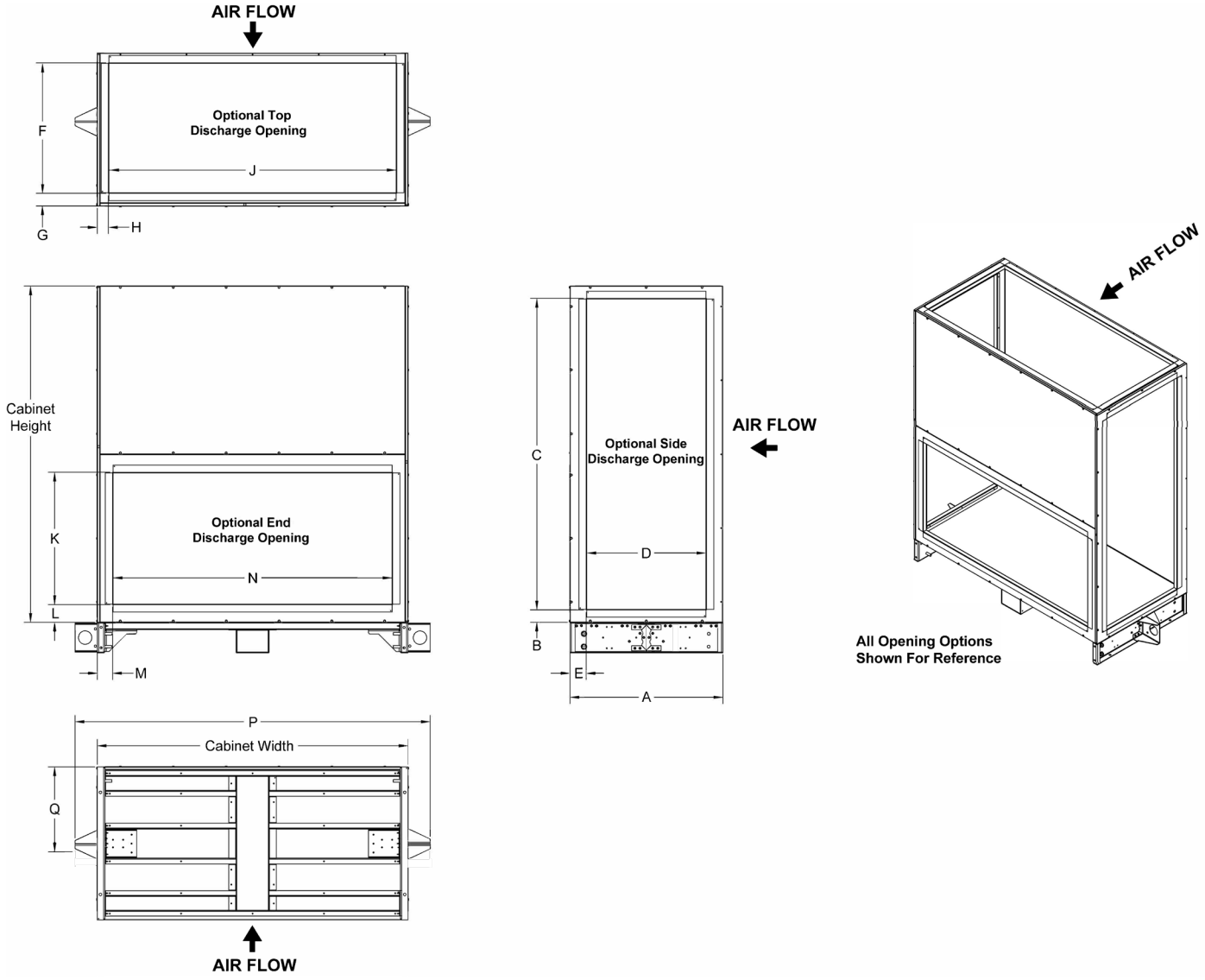
NOTE: Dimensions shown in inches.

Table 83: 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 105: Discharge Plenum Without Filter (Sizes 060-100)



NOTE: Dimensions shown in inches.

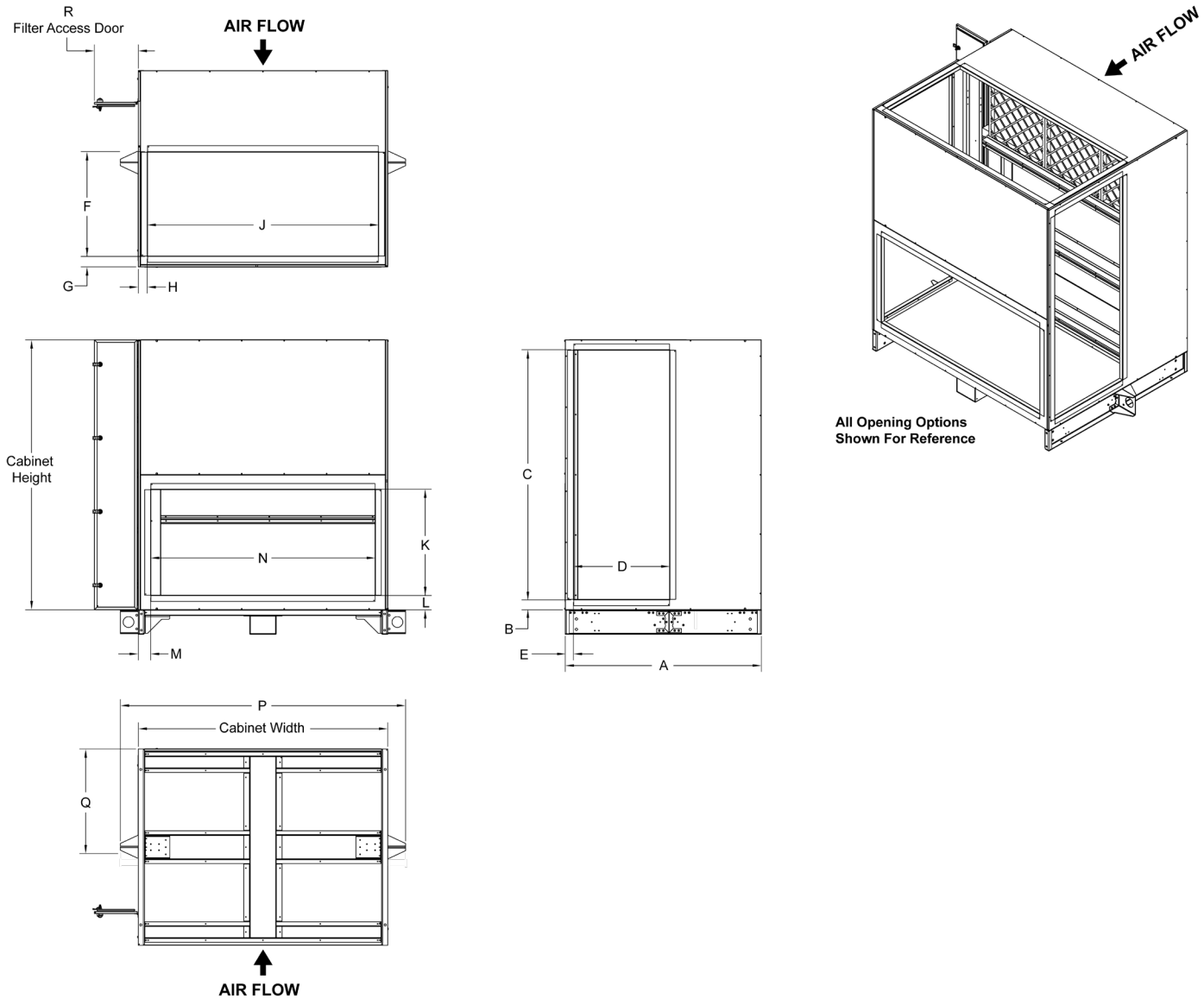
Table 84: Discharge Plenum Without Filter Dimension Letter Reference

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 106: Discharge Plenum With Filter (Sizes 060-100)



NOTE: Dimensions shown in inches.

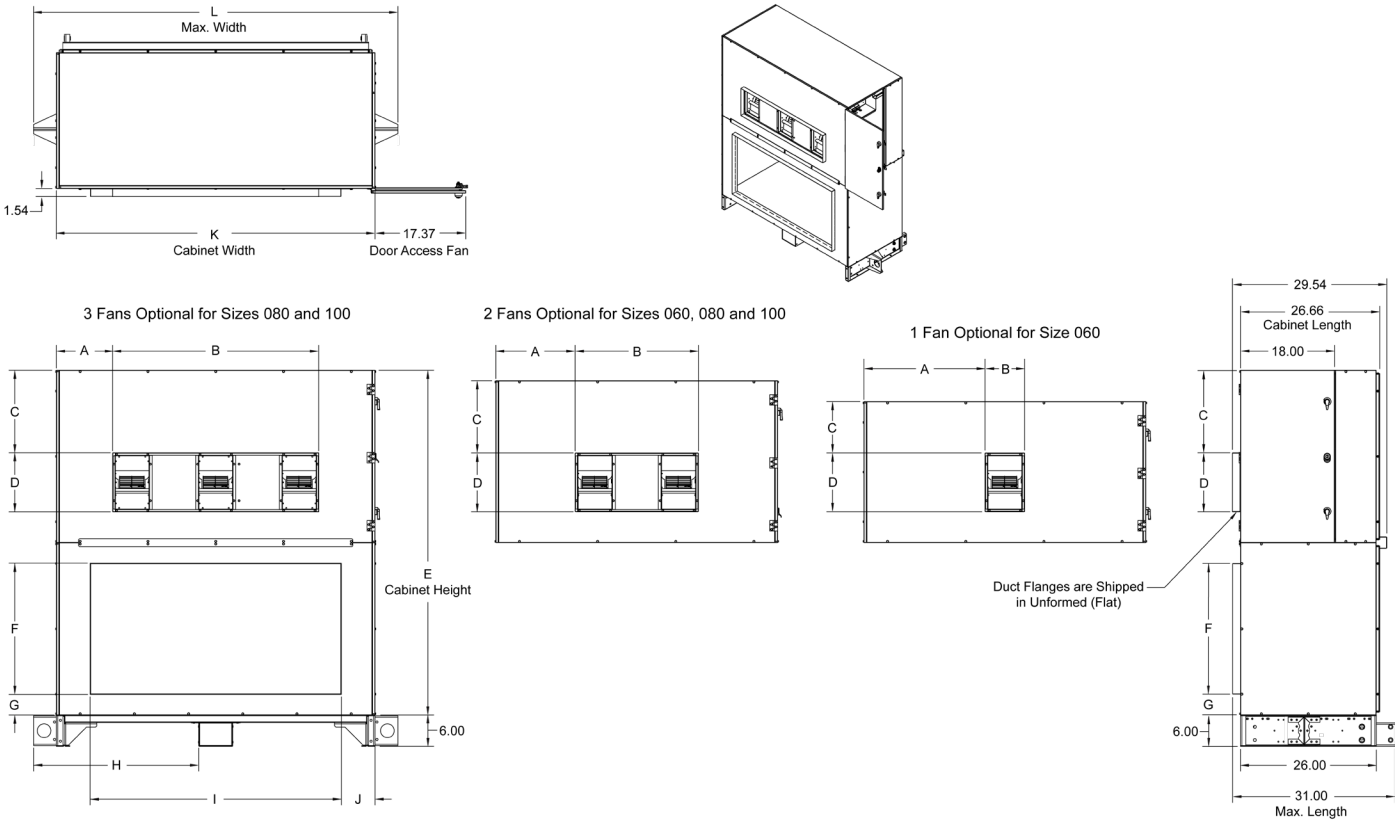
Table 85: Discharge Plenum With Filter Dimension Letter Reference

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 107: Horizontal Exhaust Air / Outdoor Air Dimensions (Sizes 060-100)



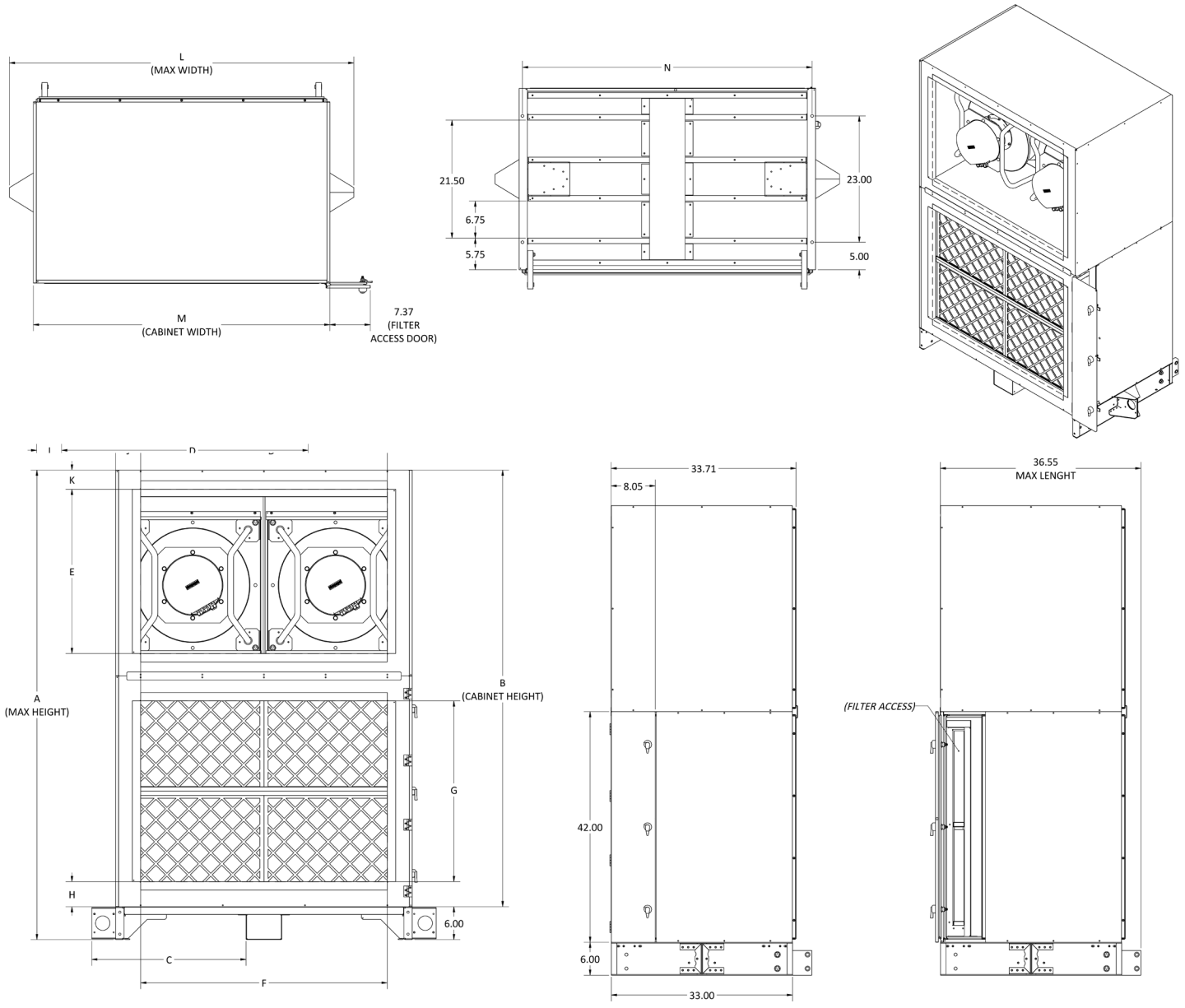
NOTE: Dimensions shown in inches.

Table 86: 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 108: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans (Sizes 060-100)



NOTE: Dimensions shown in inches.

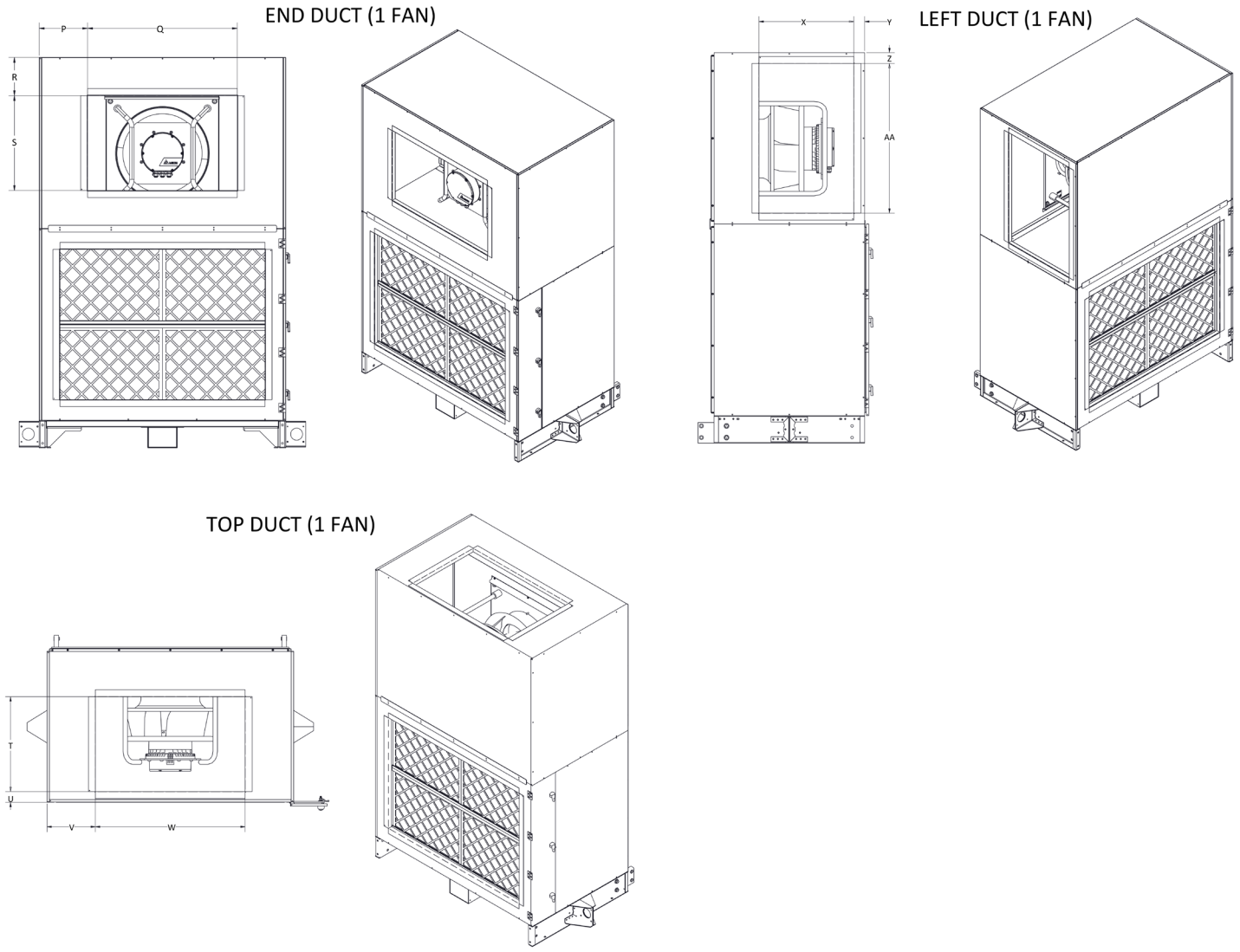
Table 87: Exhaust Air / Outdoor Air Section - Two Fans Dimension Letter Reference

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 109: Vertical Exhaust Air / Outdoor Air Dimensions - One Fan (Sizes 060-100)



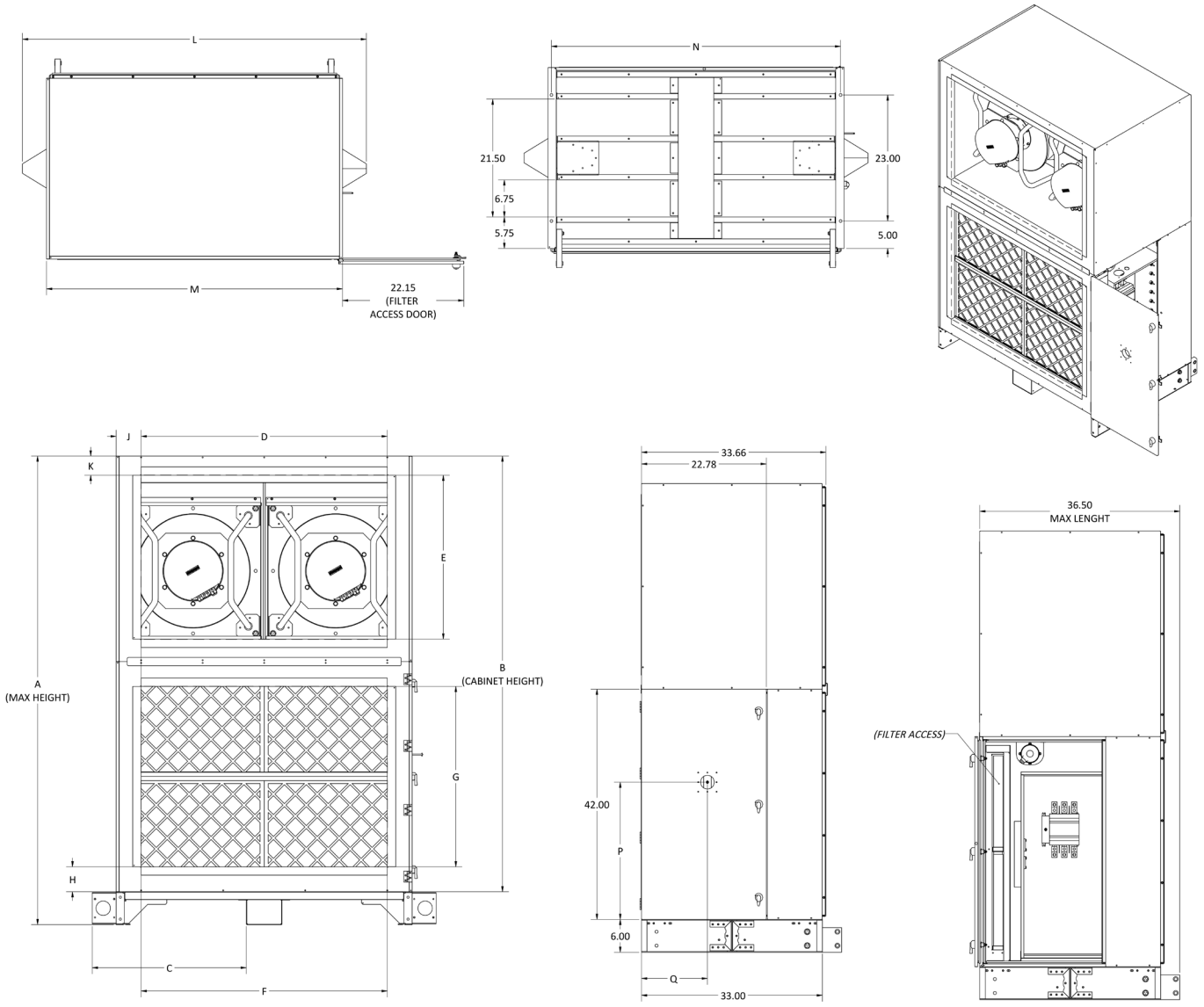
NOTE: Dimensions shown in inches.

Table 88: 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 110: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans / Electric Heat (Sizes 060-100)



NOTE: Dimensions shown in inches.

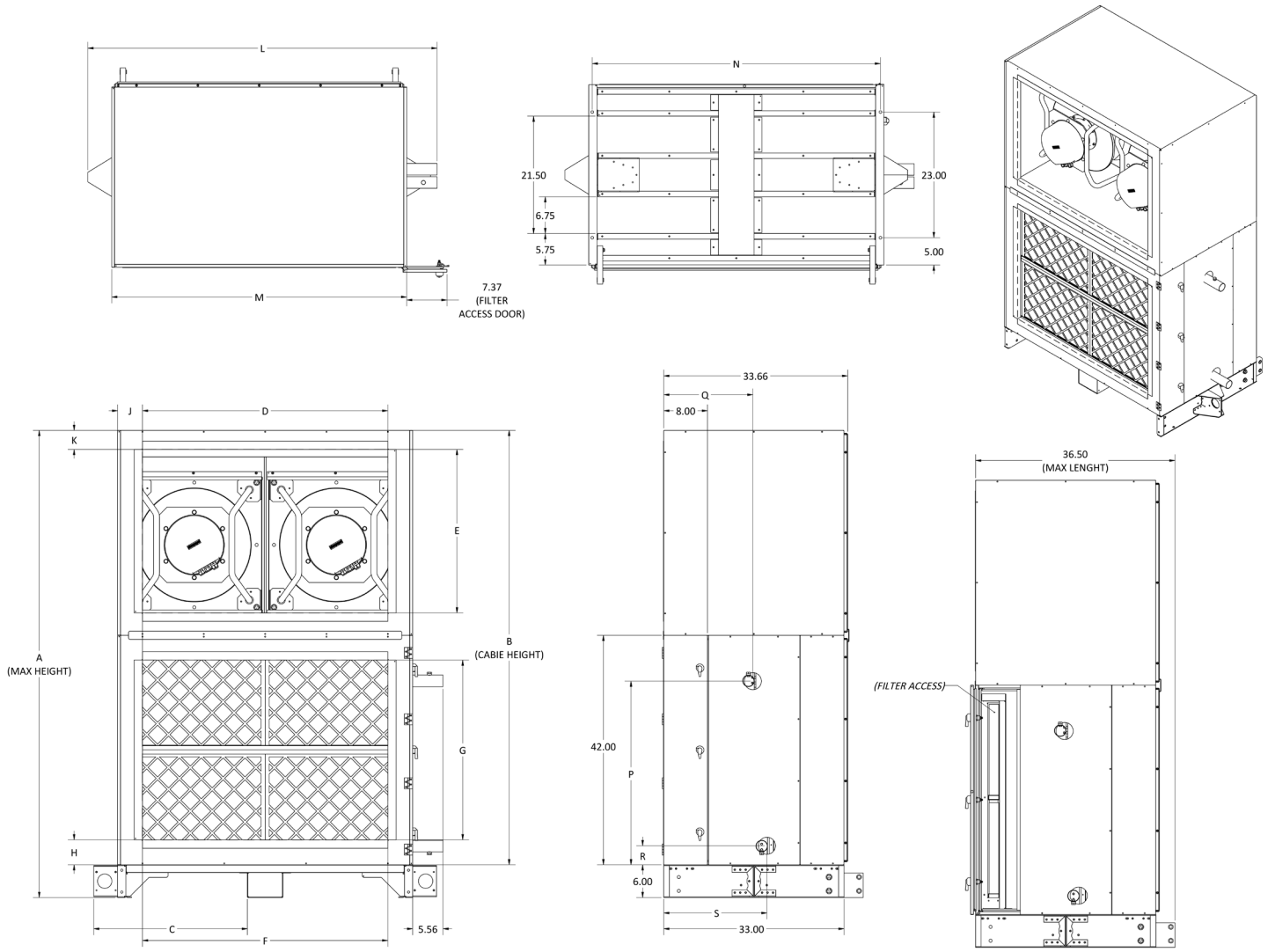
Table 89: Exhaust Air / Outdoor Air Section - Two Fans / Electric Heat Dimension Letter Reference

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



NOTE: Dimensions shown in inches.

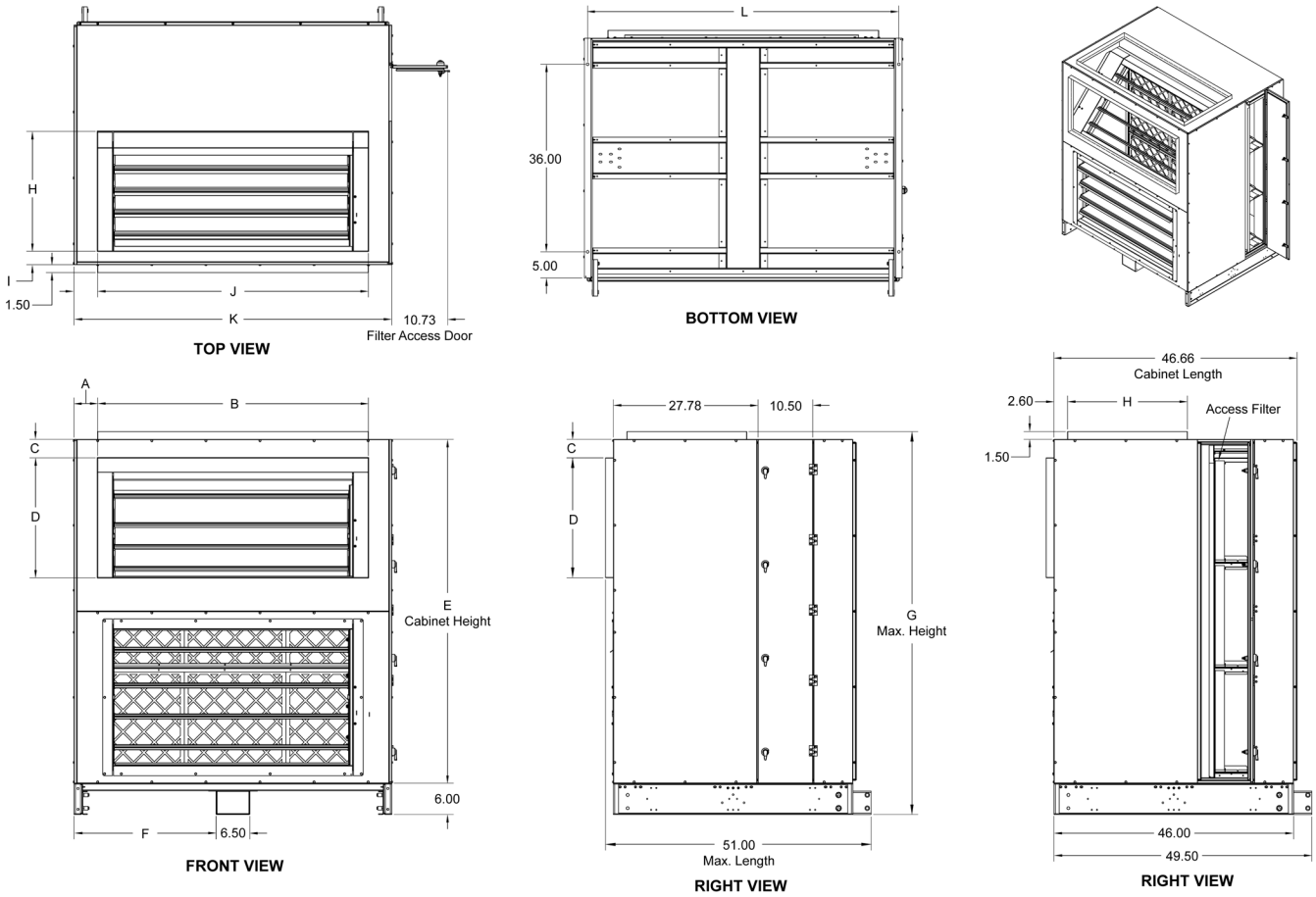
Table 90: Exhaust Air / Outdoor Air Section - Two Fans / Hot Water Dimension Letter Reference

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 112: Horizontal Economizer Dimensions (Sizes 060-100)



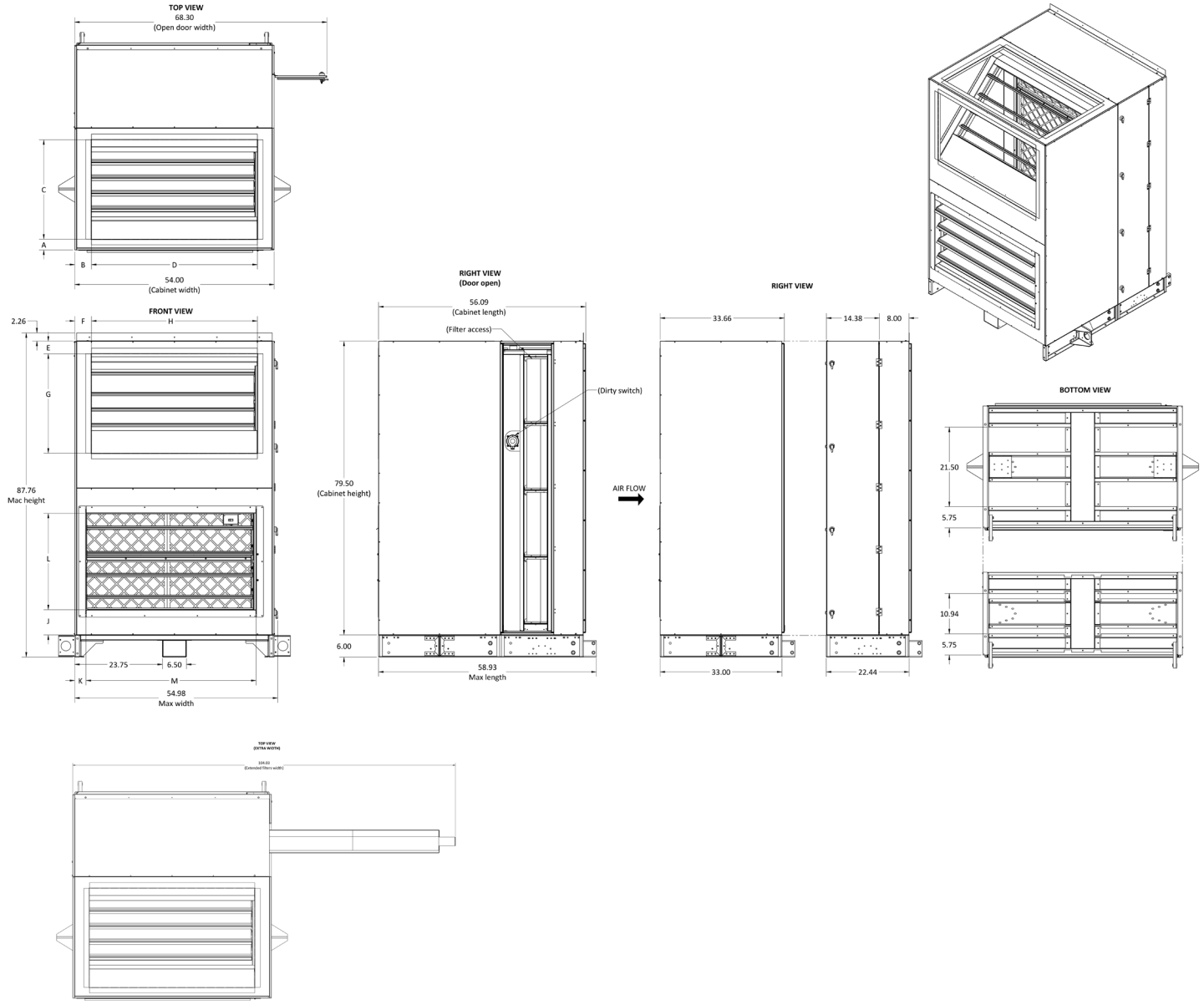
NOTE: Dimensions shown in inches.

Table 91: 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 113: Vertical Economizer End Section Dimensions (Sizes 060-100)



NOTE: Dimensions shown in inches.

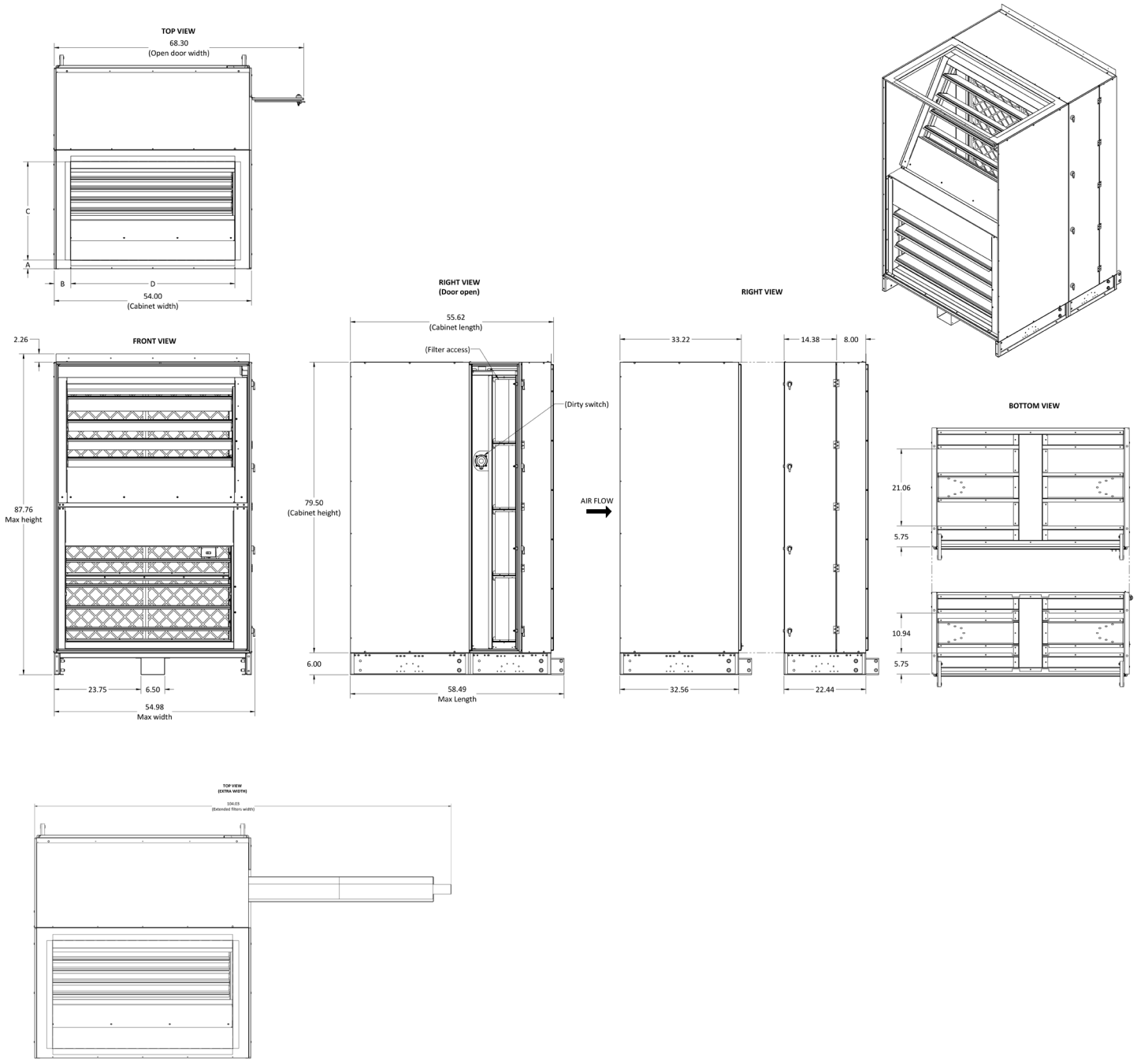
Table 92: Economizer End Section Dimension Letter Reference

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 114: Vertical Economizer Dimensions (Sizes 060-100)



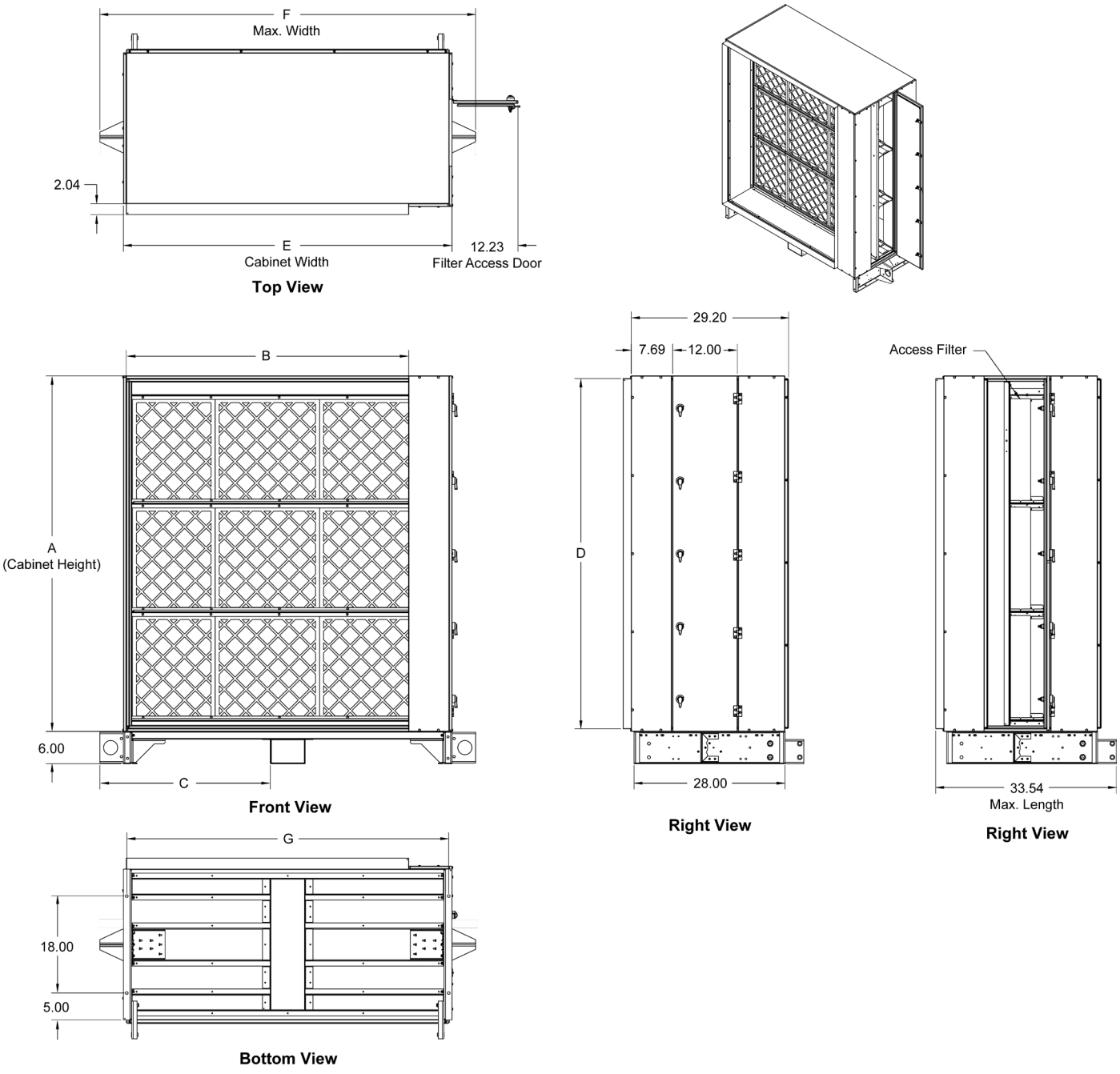
NOTE: Dimensions shown in inches.

Table 93: 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 115: Return Filter Dimensions (Sizes 060-100)



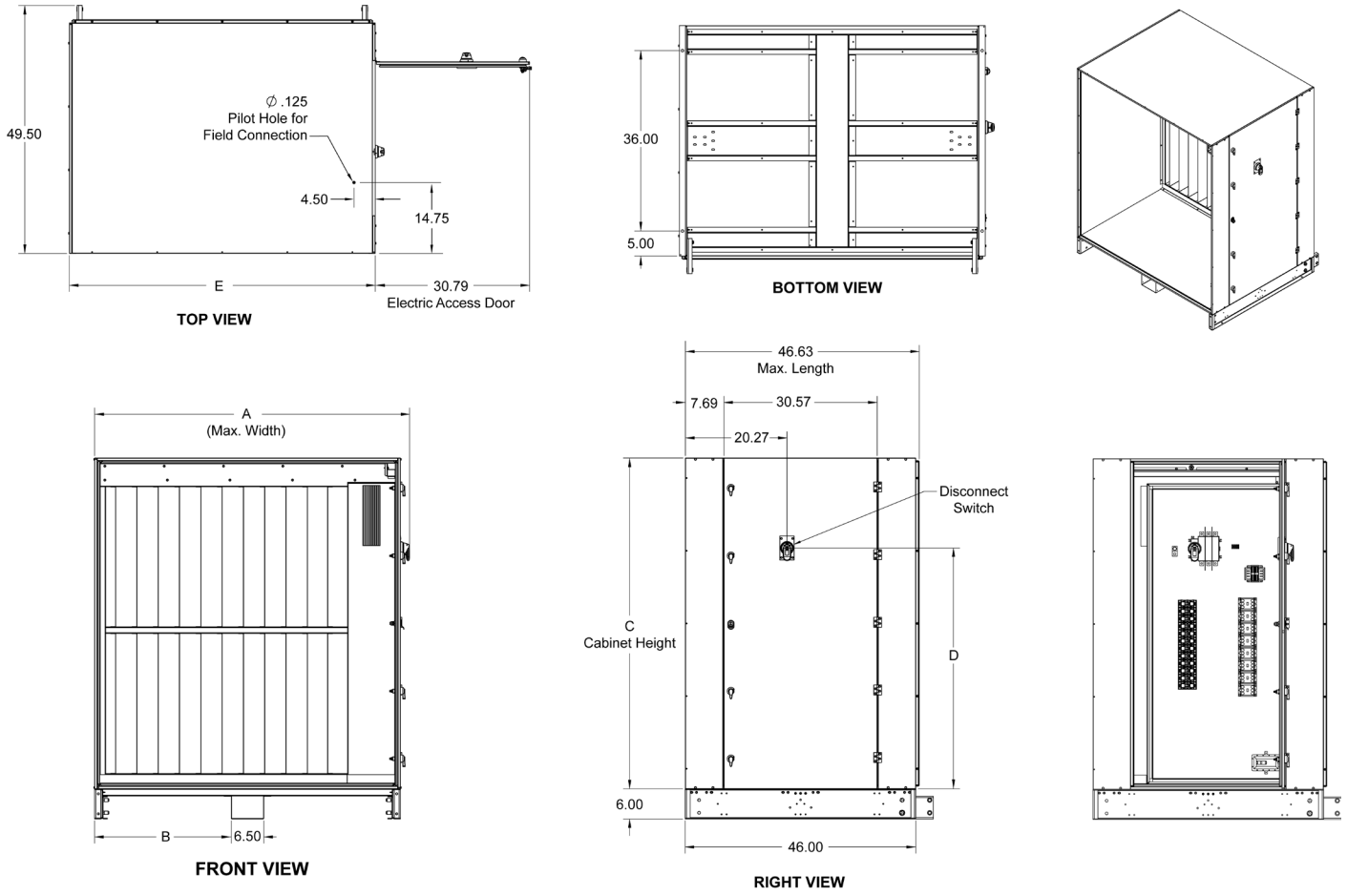
NOTE: Dimensions shown in inches.

Table 94: 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 116: Electric Heat Section Dimensions (Sizes 060-100)



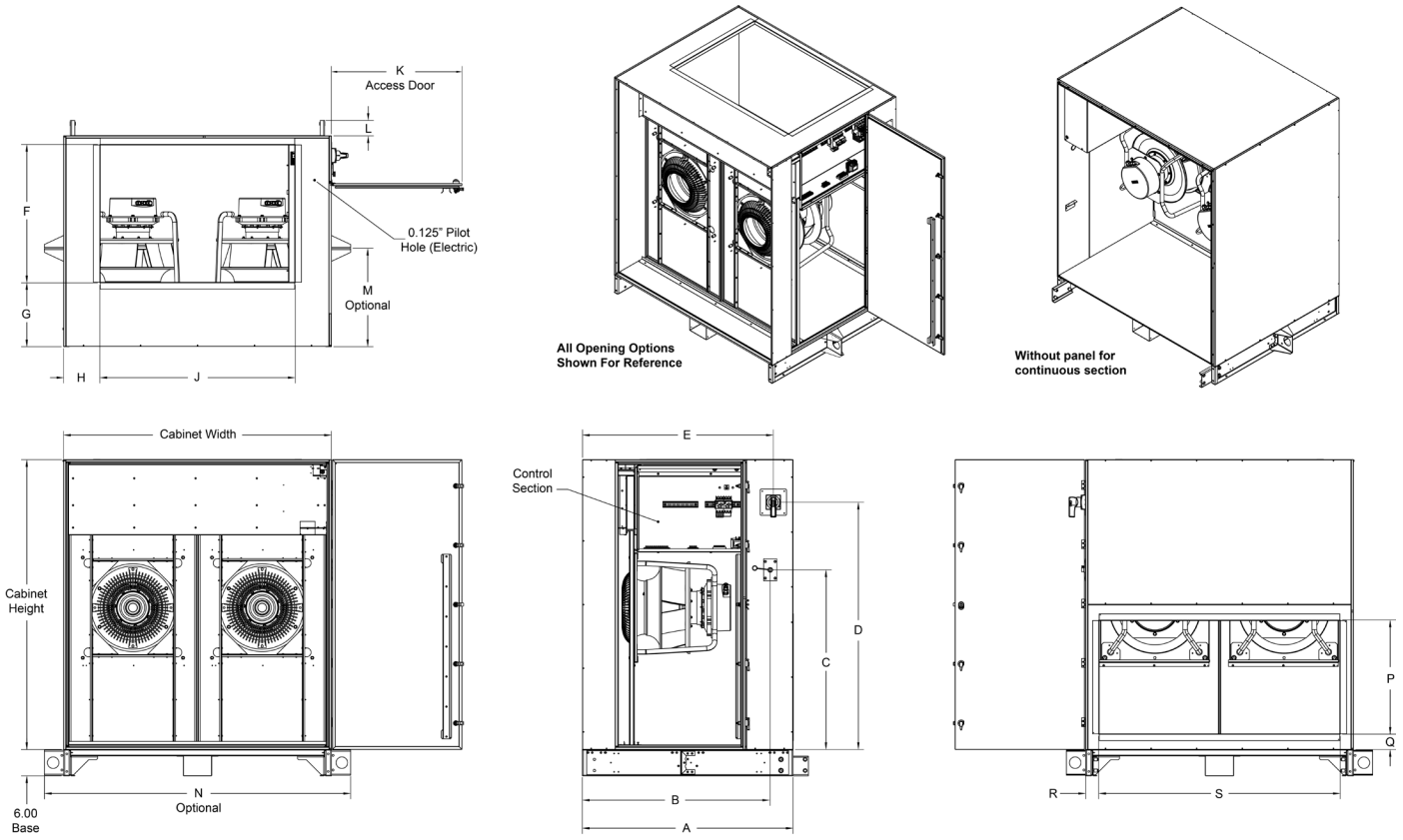
NOTE: Dimensions shown in inches.

Table 95: 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 117: Horizontal Supply Air Fan Section Dimensions (Sizes 060-100)



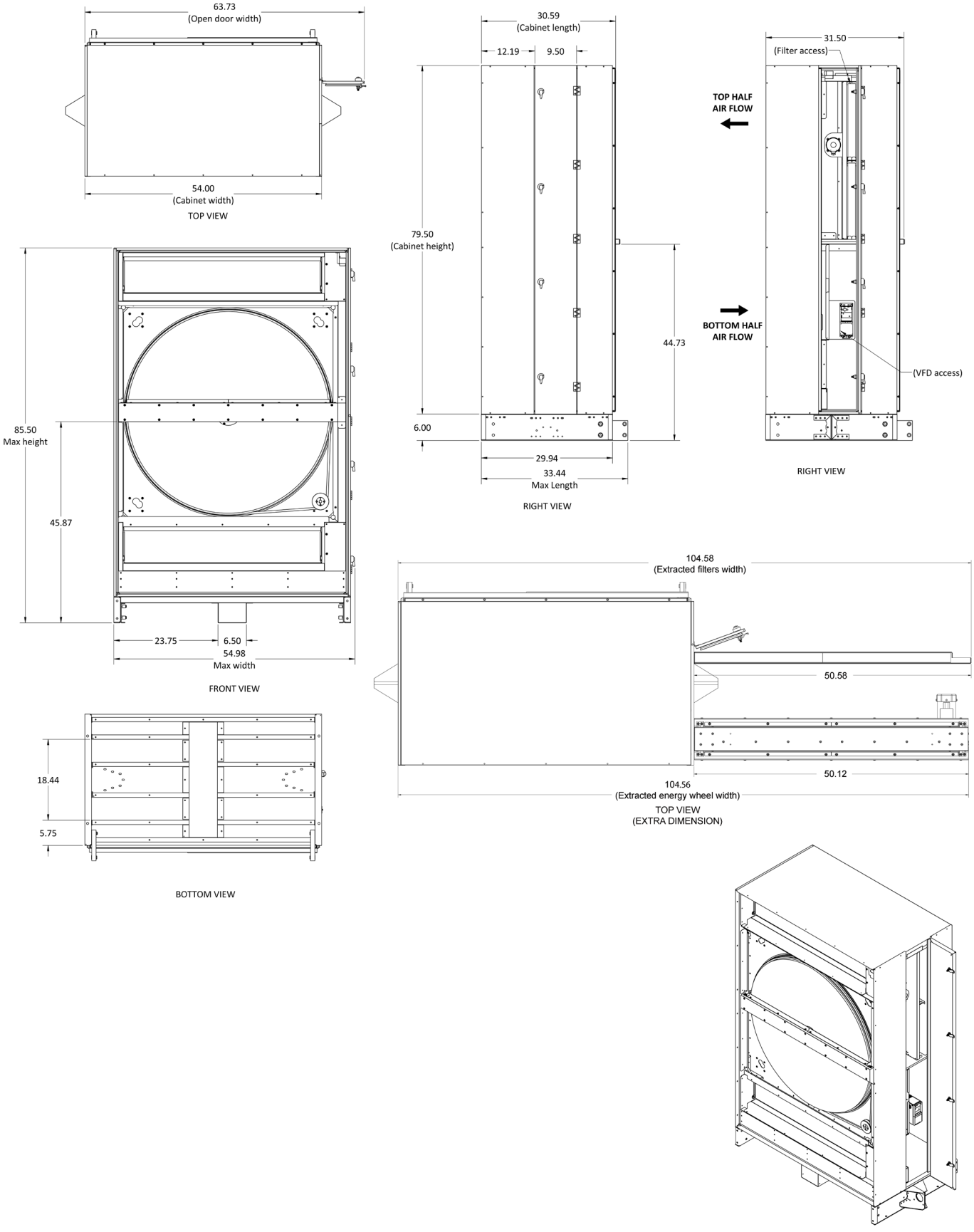
NOTE: Dimensions shown in inches.

Table 96: 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

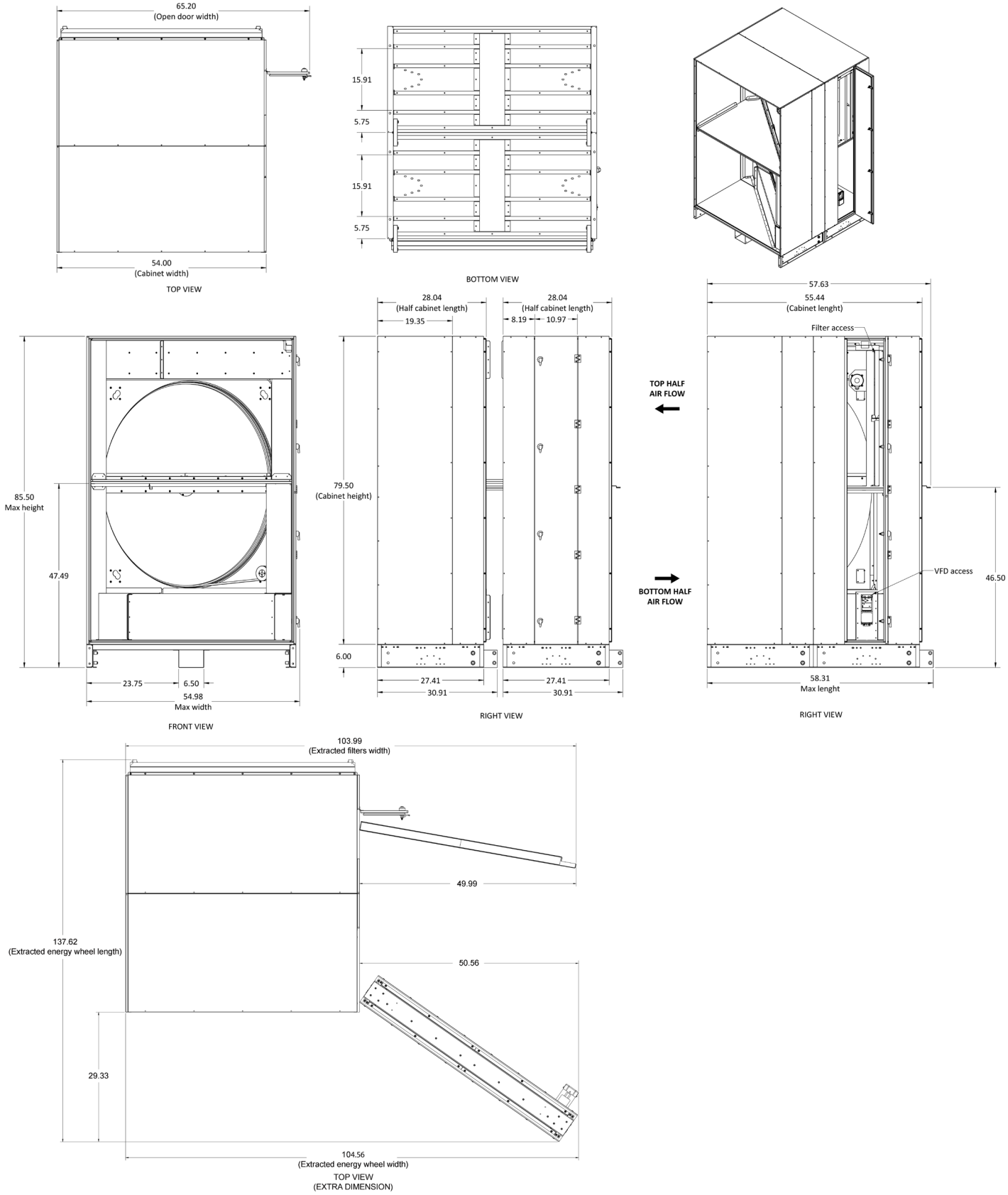
NOTE: Dimensions shown in inches.

Figure 118: Energy Recovery Wheel - 46 in (Sizes 060-100)



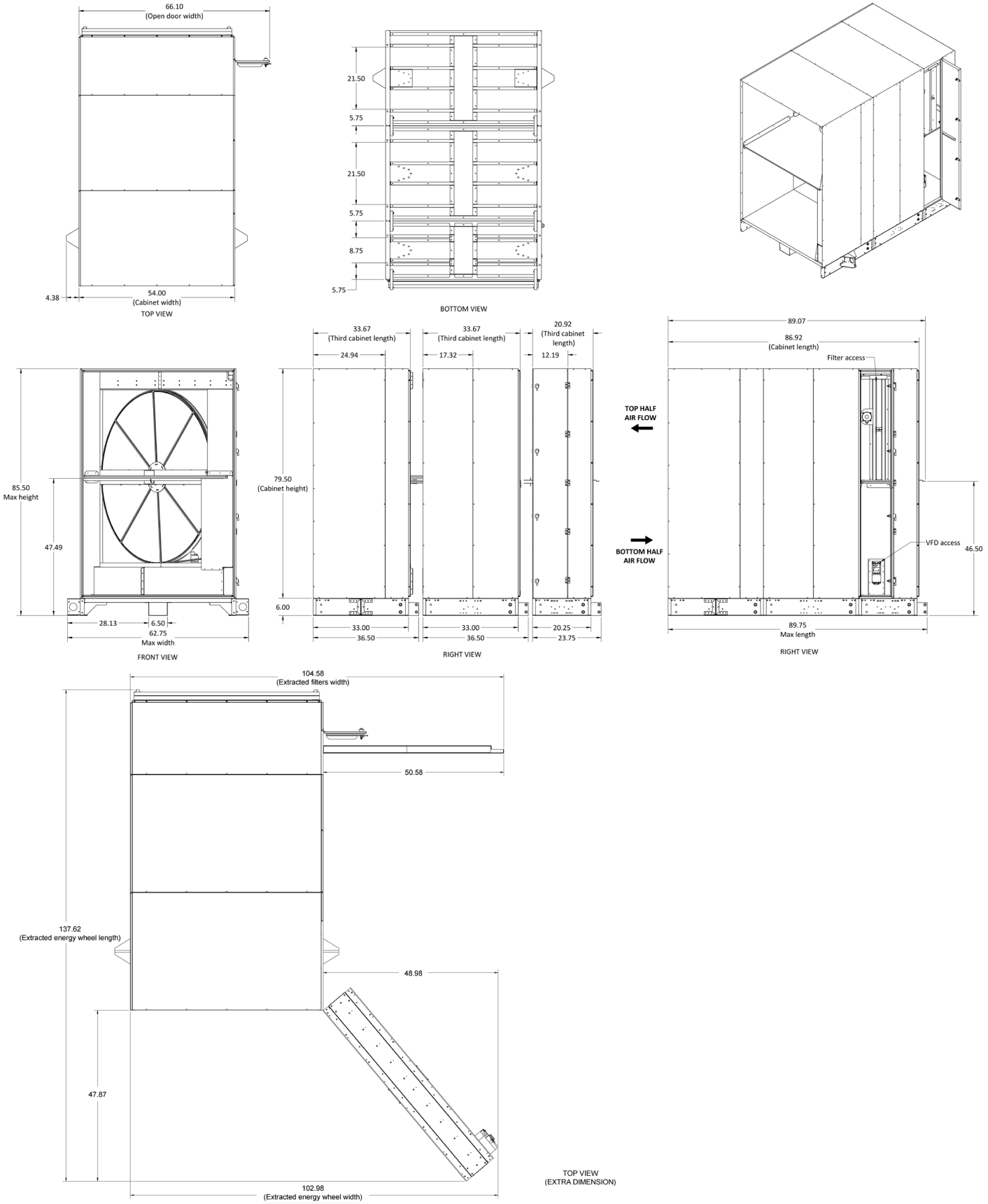
NOTE: Dimensions shown in inches.

Figure 119: Energy Recovery Wheel - 52 in (Sizes 060-100)



NOTE: Dimensions shown in inches.

Figure 120: Energy Recovery Wheel - 58 in (Sizes 060-100)



NOTE: Dimensions shown in inches.

Electrical

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

- Allowable voltage tolerances (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
- Minimum Circuit Ampacity (MCA) Calculation is based on the following formulas:
  - Sizes 006-050:
    Unit MCA = 1.25 (heater FLA + motor loads)
  - 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
- MROPD is calculated per UL 1995 methodology.
- Size wires in accordance with Table 310-16 or 310-19 of the National Electrical Code.
- Wires should be sized for a maximum of 3% voltage drop.

Electrical Installation

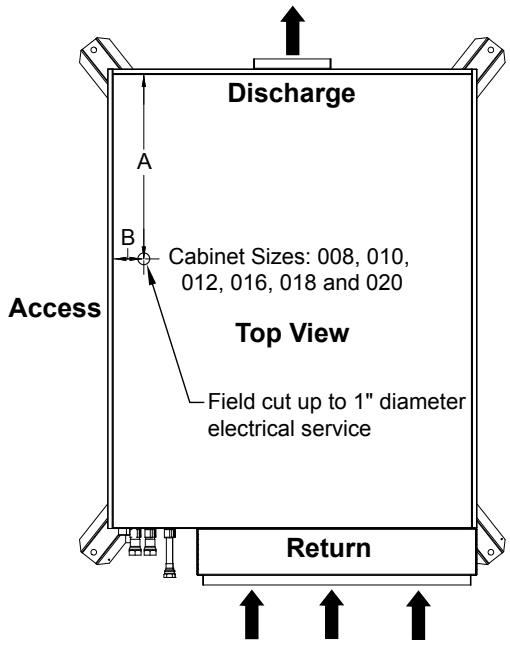
- Electrical service to the fan must correspond to the rated voltage on the motor nameplate and be in conformance with the National Electric Code and local restrictions.
- The unit metal frame must be connected to the building electrical ground and all wiring must be in conformance with the national 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" (4.76 mm) pilot hole, and are shown in the following drawings.

- 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.
- 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, sizes 030 – 050, are provided with a three pole switch.
- 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.
- All field provided controllers must be powered by the unit transformer.
- All grounds, both AC and DC, are to be consolidated at the unit.
- 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.

Figure 121: Horizontal Cabinet Sizes 008-020 Field Cut Electrical Service Entry Pilot Hole Location



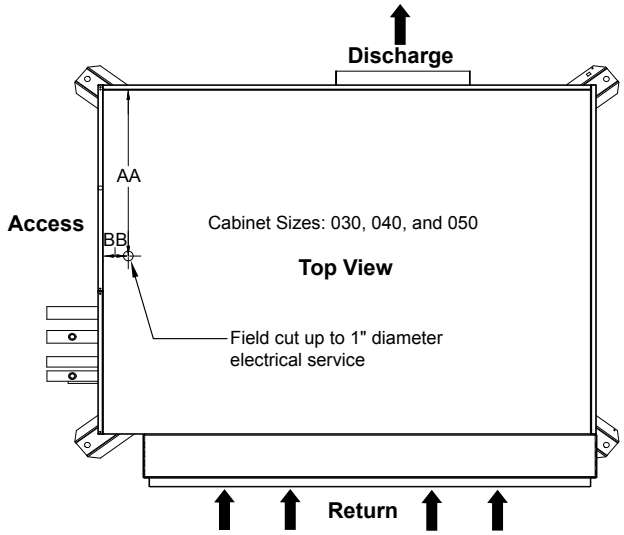
NOTE: Left hand unit shown. Right hand unit values same but opposite.

Table 97: Figure 121 Letter Dimensions

Unit Sizes	Left-Hand		Right-Hand	
	A	B	A	B
008, 010, 012, 016, 018, 020	17.51	1.92	17.51	1.92

NOTE: Dimensions shown in inches.

Figure 122: Horizontal Cabinet Sizes 030-050 Field Cut Electrical Service Entry Pilot Hole Location



NOTE: Left hand unit shown. Right hand unit values same but opposite.

Figure 123: Figure 122 Letter Dimensions

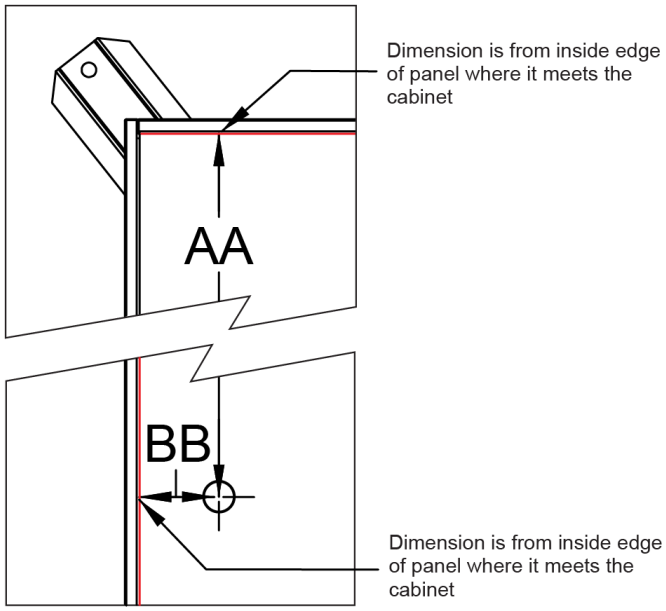


Table 98: Figure 122 and Figure 123 Letter Dimensions

Unit Sizes	Top or Bottom Entry	Left-Hand		Right-Hand	
		AA	BB	AA	BB
030	Top	18.97	2	19	2
	Bottom	18.74	3.45	18.35	3.45
040	Top	21.74	2.31	21.73	1.93
	Bottom	21.03	3.44	21.02	3.44
050	Top	21.46	1.93	21.65	2.63
	Bottom	20.95	3.62	20.95	3.62

NOTE: Dimensions shown in inches.

Figure 124: Vertical Cabinet Sizes 006-020 Field Cut Electrical Service Entry Pilot Hole Location

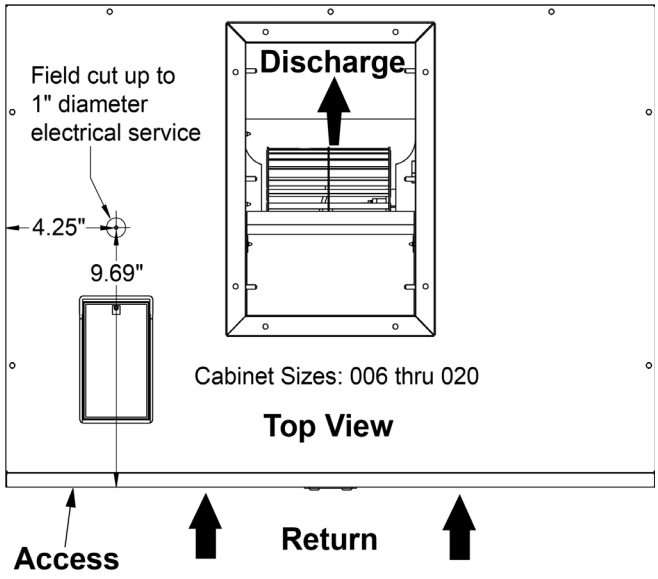


Figure 125: Vertical Cabinet Sizes 030-050 Field Cut Electrical Service Entry Pilot Hole Location

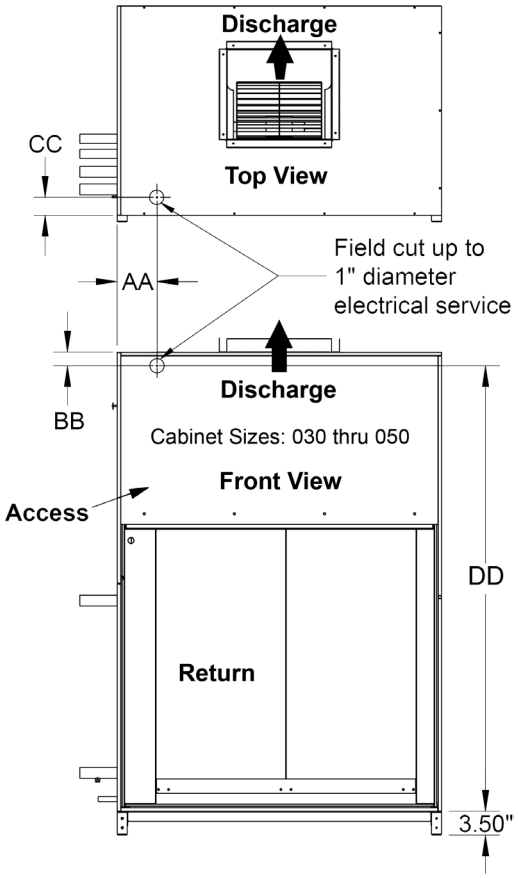


Table 99: Figure 125 Letter Dimensions

	Unit Size		
Dimension	030	040	050
AA	5.88	5.85	5.85
BB	2.00	2.00	2.00
CC	2.64	2.64	2.64
DD	54.00	57.97	57.97

Figure 126: Horizontal Cabinet Sizes 060 - 100 Field Cut Electrical Service Entry Pilot Hole Location (Fan Section)

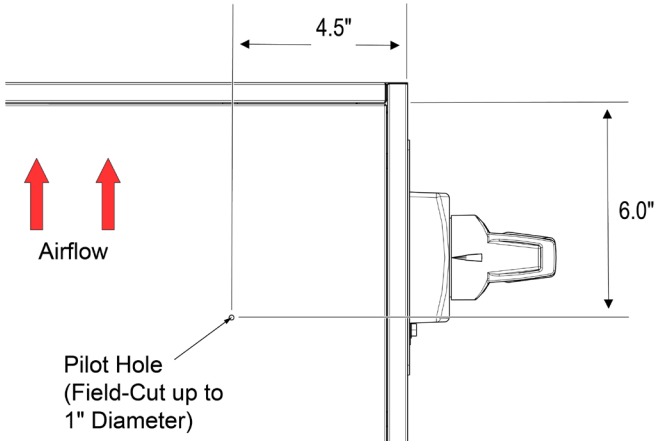
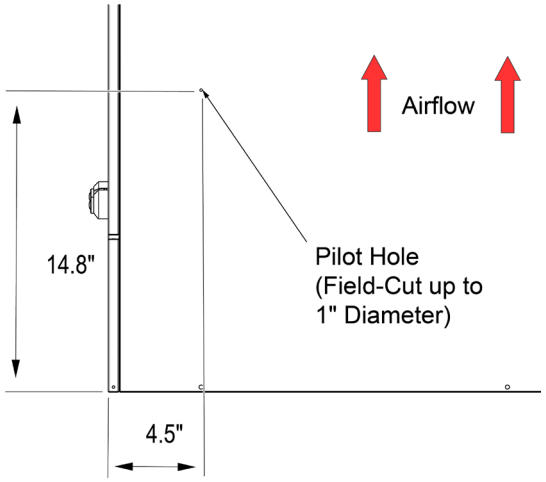


Figure 127: Horizontal Cabinet Sizes 060 - 100 Field Cut Electrical Service Entry Pilot Hole Location (Electric Heat Section)



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.

Figure 128: Terminal Block Layout (Sizes 006-050)

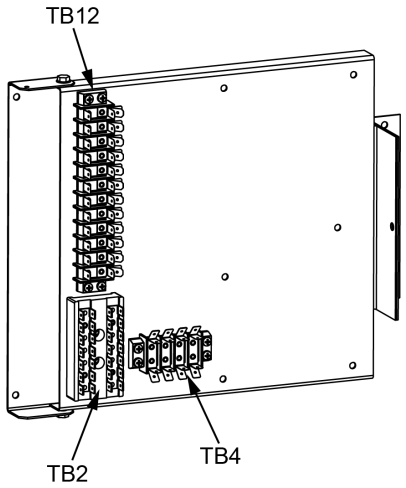
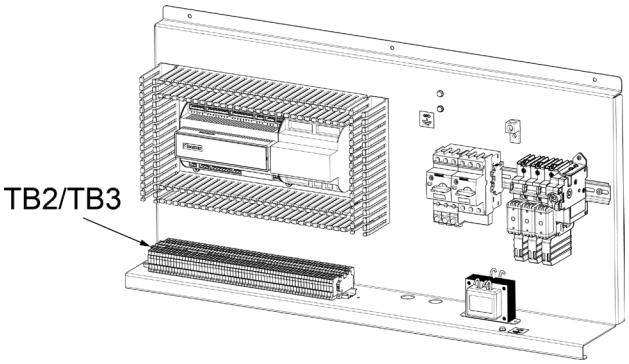


Figure 129: Terminal Block Layout (Sizes 060-100)



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 100 and Table 101 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/TB3, TB4, and TB12 which is located in the Low Voltage Control Panel, shown in Figure 128 and Figure 129.

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 sizes 006-050 and TB2-299 & TB2-236 on 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 100: 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 101: 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.

Accessories and Sensors

Integrated Thermostat

Mounting considerations:

- The device is suitable for semi-flush mounting with a recessed conduit box.
- The unit should not be mounted in recesses, shelving, behind curtains or doors or above or near direct heat sources.
- Avoid direct sun and draft.
- The conduit must be sealed on the device side, as currents of air in the conduit can affect the sensor reading.
- Local installation regulations must be observed.

Cable connection:

- Connection (screw) terminals:
  Solid or stranded conductors 0.8 to 2.5 mm^2
- Cable type: 2-core, twisted pair, unscreened
- Max. distance between 2 units: 700 m

Use a flathead screwdriver to gently pry the front covering to access the terminals shown in Figure 130.

Figure 130: Thermostat Installation

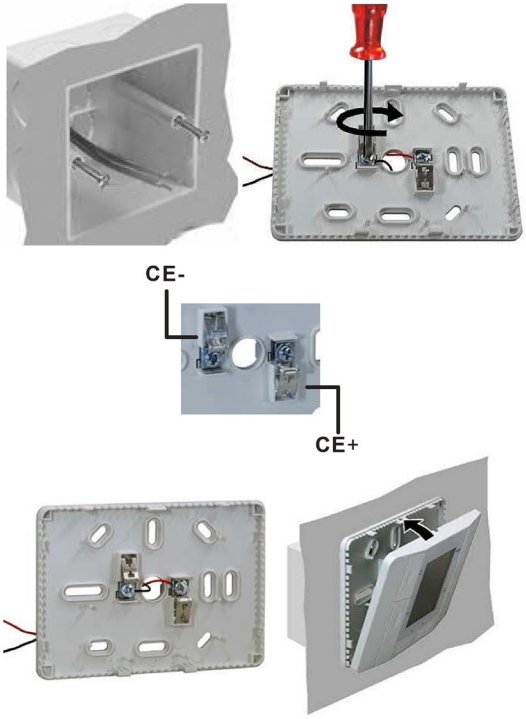
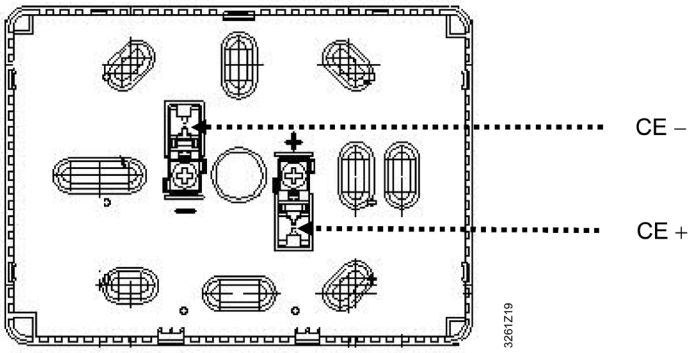


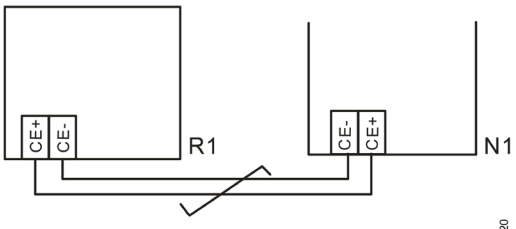
Figure 131: Integrated Thermostat Terminal Layout

Terminal layout



2-wire interface, power supply
+ Device power supply, data (positive)
– Device power supply, data (negative)

Wiring diagram The example below shows the room unit connected to Microtech 4 Lite controller.



R1: Integrated Thermostat
N1: MicroTech 4 Lite Controller

Economizer Space Humidity Sensor

NOTICE

Do not use sensors in areas with possible acid fumes or chemical vapors that can corrode sensor metal parts or with volatile or explosive gases.

The sensor(s) can be mounted to the inner wall of the duct or space as illustrated in Figure 132.

When field installing a space humidity sensor, it may be necessary to modify the configuration settings of the MicroTech controller to indicate that a space humidity sensor is installed and connected. If desired, the Economizer Control settings may need to be modified to match the desired sequence of operations. Refer to OM 1357 for details.

Figure 132: Economizer Space Humidity Sensor Installation

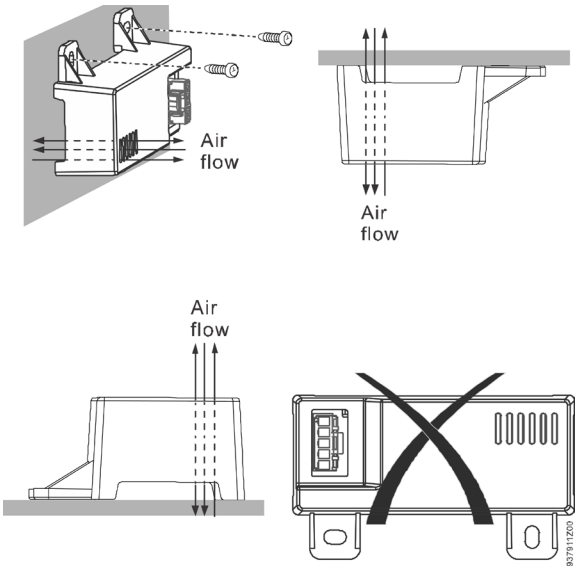
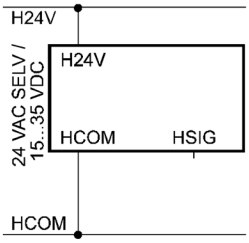


Figure 133: Economizer Space Humidity Sensor Terminal Layout

H24V	Operating voltage 24 VAC (-25 %…+30 %) or 15…35 VDC
HSIG	Relative humidity signal output 0...10 VDC

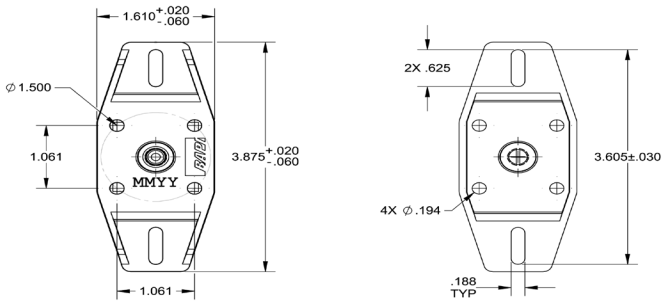


Connect the wires to the sensor as follows.

- ► H23V - 24VDC Supply
- ► HCOM - Sensor Common / Ground
- ► HSIG - Space Humidity Sensor

Outdoor Air Temperature (OAT) Sensor

Figure 134: Outdoor Air Temperature Sensor



NOTE: Dimensions shown in inches.

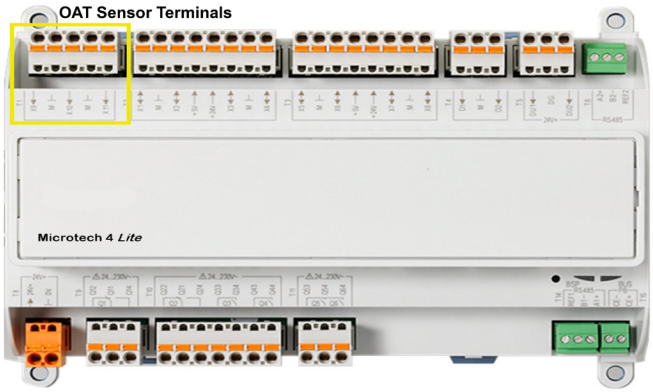
Installation

- All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run any of this device's wiring in the same conduit as other AC power wiring. Tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your Daikin Applied representative.
- Mount sensor in desired location. This sensor must be field installed between the OA intake and unit mixing box/ economizer outdoor air connection. The location should be selected to provide a typical representation of the outdoor air temperature. Do no place near heat generating equipment, or other features that could affect sensor measurement.

NOTICE

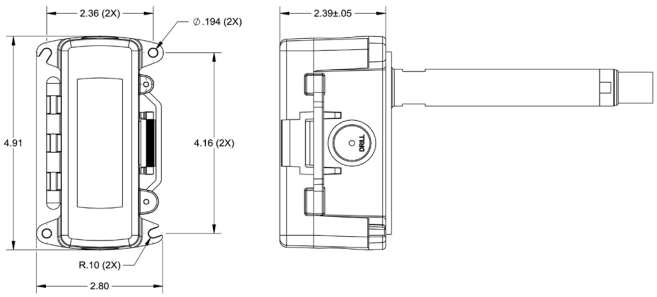
For Sizes 006-050, outdoor air temperature connections are made directly on the MicroTech 4 Lite controller terminals T7 X-11 and M. See Figure 135 for details.

Figure 135: Wiring Terminals for OAT Sensor



Outdoor Air Temperature and Humidity (OATH) Sensor

Figure 136: Outdoor Air Temperature and Humidity Sensor



NOTE: Dimensions shown in inches.

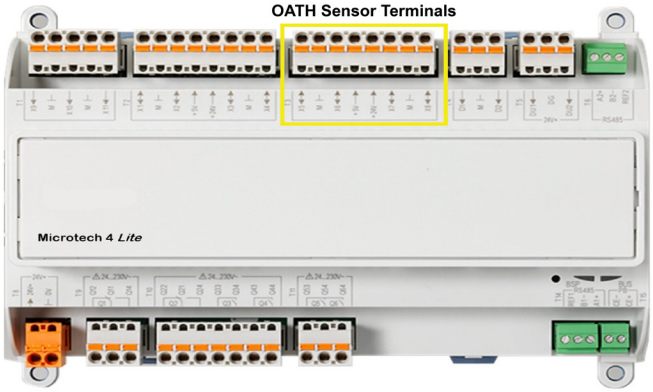
Installation

- All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run any of this device's wiring in the same conduit as other AC power wiring. Tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your Daikin Applied representative.
- Mount sensor in desired location. This sensor must be field installed between the OA intake and unit mixing box/ economizer outdoor air connection. The location should be selected to provide a typical representation of the outdoor air temperature. Do no place near heat generating equipment, or other features that could affect sensor measurement.
- Drill a 1 inch hole for the probe in the duct and use two number 8 sheet metal screws to attach the sensor to the duct.
- Run minimum 5-conductor wires from the sensor location to the unit. Daikin Applied recommends using shielded 22AWG for all connections. The shield should be earth grounded only at the power source. Larger gauge wire may be required for runs greater than 250′.
- Connect the wires to the sensor as follows:
  - ► White - 0-10VDC Humidly
  - ► Black - Sensor Common / Ground
  - ► Red - 24VDC Power (+24V)
  - ► Yellow (qty 2) - Outdoor Temperature Thermistor

NOTICE

For Sizes 006-050, outdoor air temperature connections (two yellow wires on the sensor) are made directly on the MicroTech 4 Lite controller terminals T7 X-11 and M and the outdoor air humidity and power connections are made directly on the MicroTech 4 Lite controller terminals T8-X4 (Humidity Output), M (Sensor Common/Ground), and +24 (24VDC Power). See Figure 137 for details.

Figure 137: Wiring Terminals for OATH Sensor



Duct Static Pressure Sensor

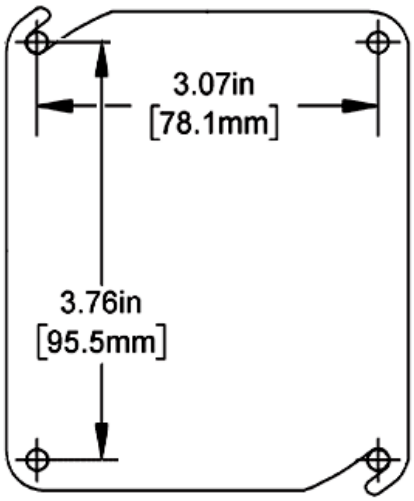
Additional Required Parts:

- (4) #10 x ¾″ self-tapping sheet metal screws
- ¼” tubing (1/8″ to 3/16″ I.D.)
- Duct pressure tap
- Minimum 3-conductor shielded 22AWG wire

Installation

- All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run any of this device's wiring in the same conduit as other AC power wiring. Tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your Daikin Applied representative.

Figure 138: Drill Holes Mounting Locations



- Use the sensor as a template to locate and mark the mounting holes. See Figure 138.
- Locate the field provided duct pressure tap near the end of a long duct to ensure that all terminal box take-offs along the run have adequate static pressure. The tap should be in a non-turbulent flow area of the duct. Keep it several duct diameters away from take-off points, bends, neckdowns, attenuators, vanes, or other irregularities that may create turbulent air flow.
- Mount sensor on the supply duct with the provided screws near the location selected for the duct pressure. See Figure 139 and Figure 140.

Figure 139: Secure Sensor with Provided Screws

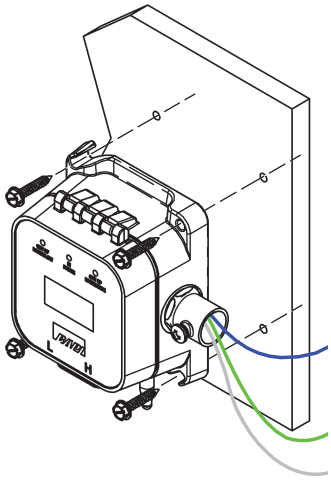
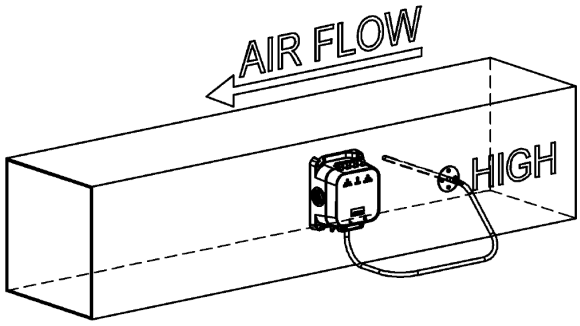
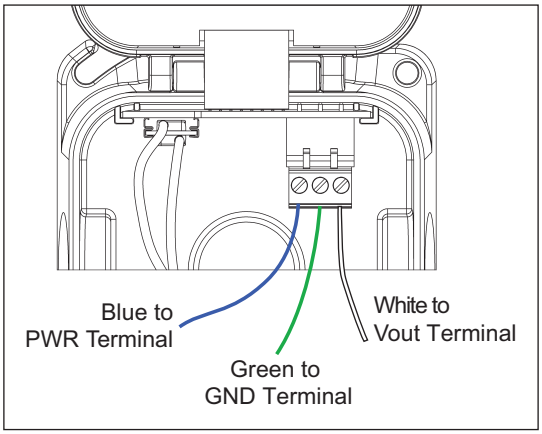


Figure 140: Sensor Location In Supply Duct



- Connect the wires to the sensor as follows (See Figure 141.):
  - ► White to Vout - DSP Input
  - ► Green to GND - Sensor Common/Ground
  - ► Blue to PWR - 24VDC Supply

Figure 141: Connect Wires to Sensor Terminals



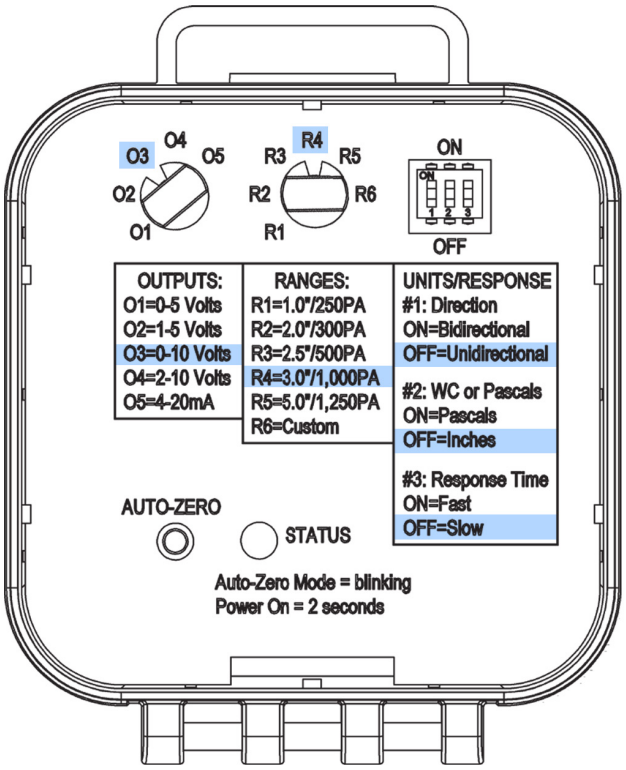
- Run 3-conductor wire from the sensor location to the unit. Daikin Applied recommends using shielded 22AWG for all connections. Larger gauge wire may be required for runs of greater than 250′.
- Connect the field provided tube between the tap and the high pressure (H) port on the sensor.
- The sensor has internal setting options. For proper operation the setting must be as follows: Also refer to Figure 142.
  - ► OUTPUTS = 0-10 Volts
  - ► RANGES = 3.0″/1,000PA
  - ► UNITS/RESPONSE

    #1: Direction = OFF = Unidirectional

    #2: WC or Pascals = OFF=Inches

    #3: Response Time = OFF=Slow

Figure 142: Sensor Operation Settings



Space CO2 Sensor

Installation

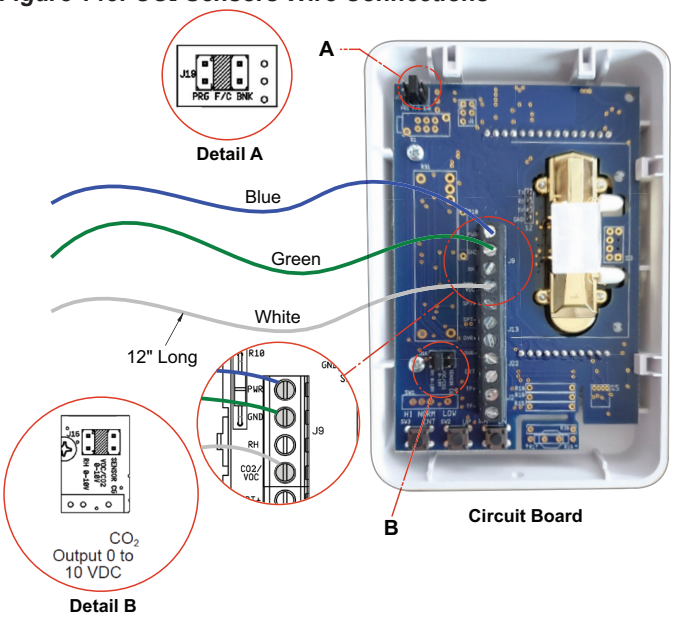
- All wiring must comply with the National Electric Code (NEC) and local codes. Do NOT run any of this device's wiring in the same conduit as other AC power wiring. Tests show that fluctuating and inaccurate signal levels are possible when AC power wiring is present in the same conduit as the signal lines. If you are experiencing any of these difficulties, please contact your Daikin Applied representative.
- Mount sensor in desired location. The location should be selected to provide a typical representation of the space CO2 level. Do no place near heat generating equipment, operable windows, supply/return duct terminals or other features that could affect sensor measurement.
- Run (2) minimum 2-conductor wires from the sensor location to the unit. Daikin Applied recommends using shielded 22AWG for all connections and a separate twisted pair for the power wire connections. The shield should be earth grounded only at the power source. Larger gauge wire may be required for runs greater than 250'.

⚠ CAUTION

The AC power wiring at terminals [PWR] & [GND] should be run in a separate twisted shielded pair to avoid fluctuating and inaccurate signal levels induced into the other sensor signal wires. This sensor AC power can be run in the same conduit with the sensor signal wire as long as it's run in twisted, shielded pair and terminated properly.

- Connect the wires to the sensor as follows:
  - ► Blue to PWR - 24VAC Supply
  - ► Green to GND - Ground
  - ► White to CO_2/VOC - Space CO_2 Input

Figure 143: CO_2 Sensors Wire Connections

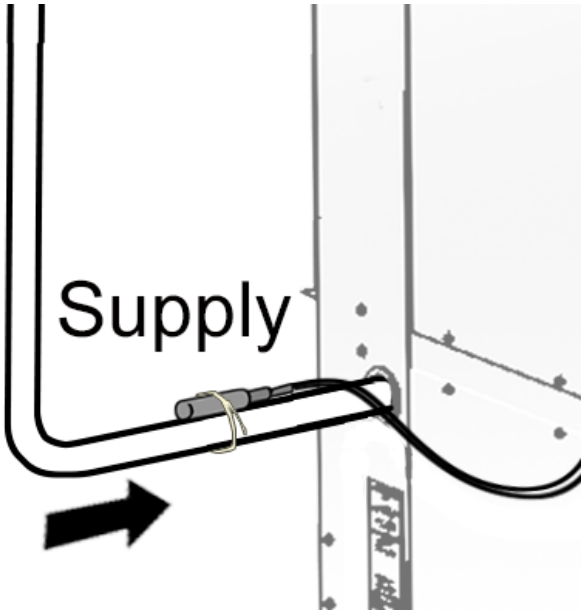


Entering/Leaving Water and Space Temperature Sensor

Mount sensor on water piping as shown in Figure 144 using the zip ties. Wrap the sensor and pipe with the insulation.

Ideally the sensor should be located on the water supply line in an area where there is continuous water flow. This sensor must be attached correctly on 2-Pipe chilled water/hot water changeover units for proper unit operation.

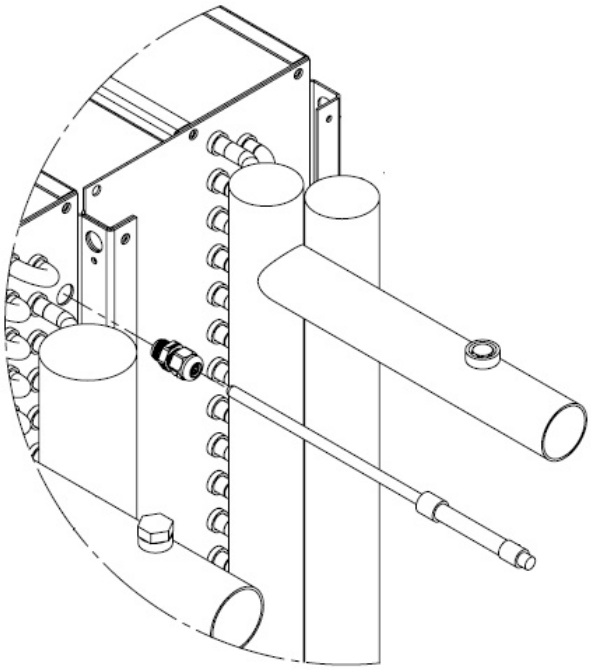
Figure 144: Sensor Mounting Location



Leaving Coil Temperature Sensor

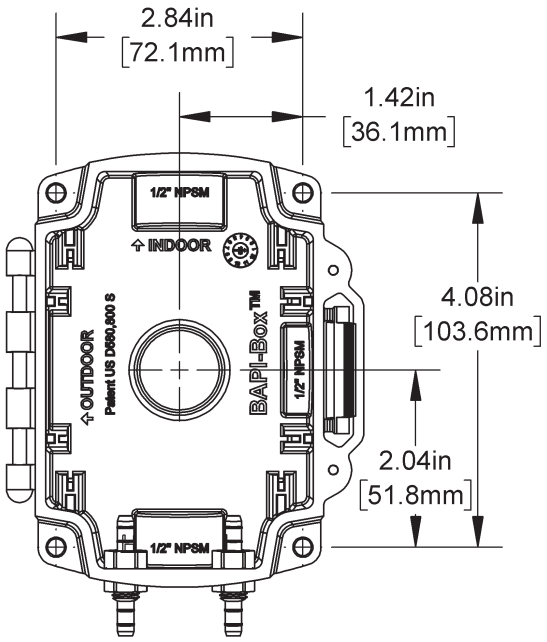
This sensor needs to be installed downstream of the cooling coil but upstream of the heating coil on units with dehumidification that have either modulating cooling valves or 2/4 compressor stages. A 1/2″ hole needs to be field drilled in the end plate to install the included plug for mounting the sensor.

Figure 145: Leaving Coil Temperature Sensor Install



Air Flow Switch

Figure 146: Air Flow Switch Mounting Holes Location



Installation

- Two field provided duct pressure taps will be required to install this sensor. Locate one tap in the ductwork upstream of the fan and the second downstream of the fan.
- Mount sensor on the entering air duct near the location selected for the duct pressure. See Figure 147.
- Connect the field provided tube between the down stream port and the high pressure (H) port on the sensor, and between the up stream tap to the low pressure (L) port on the sensor.
- Run the wires from the sensor location to the unit.
- **For sizes 006-050:**
  - Disconnect the wire at TB12-T6 that runs to TB2 24+.
  - Connect that wire from TB2 24+ to the Normally Open terminal on the sensor.
  - Connect a second wire from the Common terminal on the sensor to TB4-T6.
- **For unit sizes 060-100:**
  - Connect the first wire from the Normally Open terminal on the sensor to TB12-T6.
  - Connect the second wire from the Common terminal on the sensor to TB2-24+.
- After installing the sensor, it is necessary to change the ‘Air Flow Proving=’ configuration setting in the MicroTech unit controller from Uninstalled to Installed. Refer to OM 1357 for details.

Figure 147: Air Flow Switch and Sensing Probe Locations

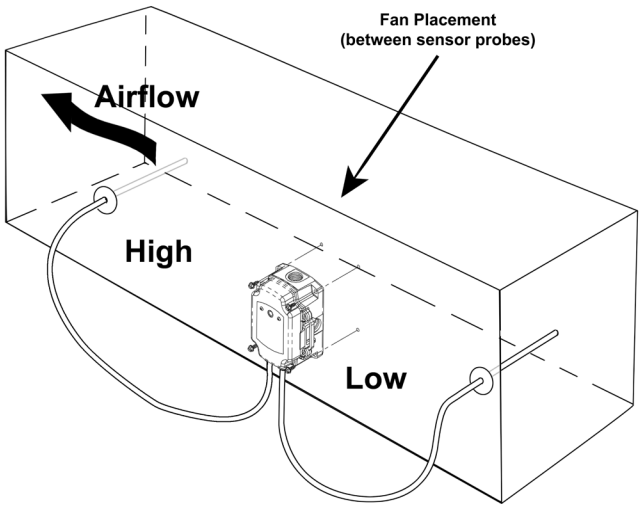
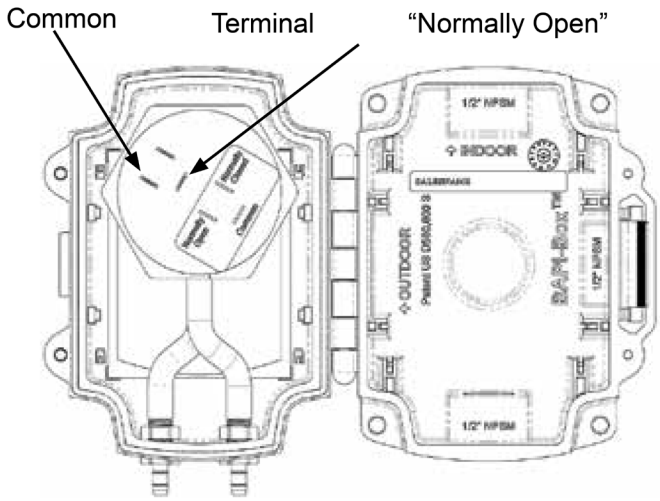


Figure 148: Sensor Terminals



Duct Pressure Taps

Units that the fan will control to a duct static pressure require a reading, which requires that pressure taps be field installed and plumbed back to the pressure sensors in the unit. When required, these sensors will be field installed.

Carefully locate and install the field provided pressure tap. Improperly locating or installing the tap may cause unsatisfactory operation of the building VAV system. Consider the following pressure tap location and installation recommendations. The installation must comply with all applicable local code requirements.

1. Install a tee fitting with a leak-tight removable cap in each tube near the sensor fitting. This facilitates connecting a manometer or pressure gauge if testing is required.
2. Differentiate between the duct pressure (HI) and reference pressure (LO) taps by using different color tubing or by tagging the tubes. Daikin Applied recommends 3/16" I.D. plastic tubing.
3. Locate the duct pressure (HI) tap near the end of a long duct to ensure that all terminal box take-offs along the run have adequate static pressure.
4. Locate the duct pressure tap in a non-turbulent flow area of the duct. Keep it several duct diameters away from take-off points, bends, neckdowns, attenuators, vanes, or other irregularities that may create turbulent air flow.
5. Use a static pressure tip or the bare end of the plastic tubing for the duct tap. (If the duct is lined inside, use a static pressure tip device.)
6. Install the pressure tap so that it senses only static pressure (not velocity pressure). If a bare tube end is used, it must be smooth, square (not cut at an angle) and perpendicular to the airstream.
7. Locate the reference pressure (LO) tap somewhere near the duct pressure tap within the building.
8. If the reference pressure tap is not connected to the sensor, unsatisfactory operation will result.

Discharge Air Temperature Sensor

The discharge air temperature sensor should be installed in the supply air duct, downstream of the PreciseLine unit. Locate the sensor at a location that approximates the average duct temperature. To avoid the affects of radiation, the sensor should not be in direct line of sight with the electric heat elements. Generally, locate the sensor 5-10' from the unit discharge and after one duct turn to allow for air mixing. Do not install downstream of VAV boxes or other dampers.

1. Drill a 3/8" diameter hole in the duct, insert the temperature probe and secure plate to duct using 2-#8 screws.
2. Be sure to apply gasket or sealant to back of mounting plate prior to screwing the plate to the duct to create an air tight seal.

Figure 149: Temperature Sensor Installation

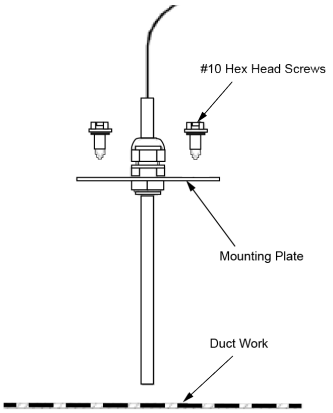
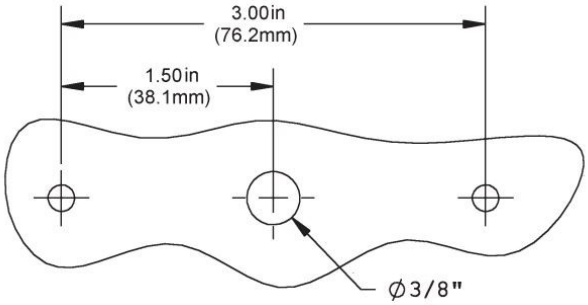


Figure 150: Temperature Sensor Mounting Measurements



MicroTech 4 Lite Portable Interface

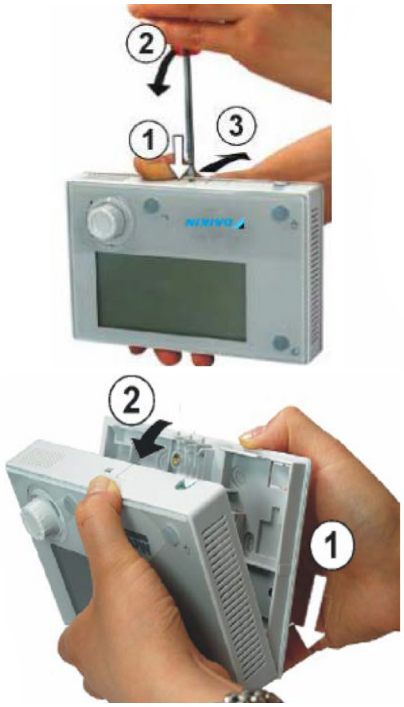
⚠ WARNING

Electric shock hazard. Can cause death, personal injury, or equipment damage.

This equipment must be properly grounded. Connections and service to the MicroTech unit controller must be performed only by personnel knowledgeable in the operation of the equipment being controlled.

1. Remove plastic cover (Figure 151).
2. Mount the portable interface. The portable interface can be either panel mounted or wall mounted.

Figure 151: Removing the Cover



Direct Connection

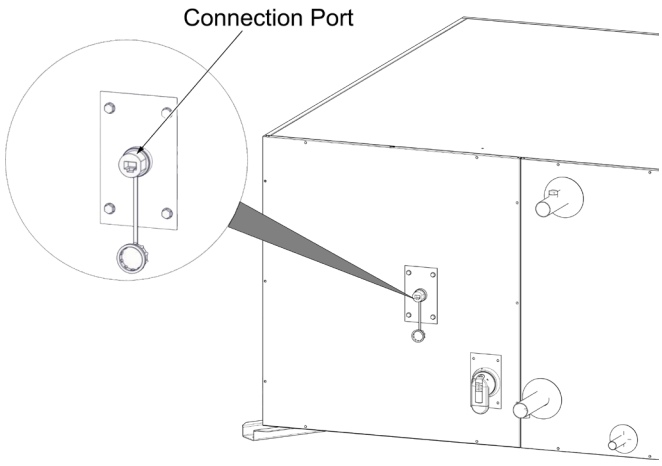
The portable interface can be wired directly to a single MicroTech unit controller over a standard RJ45 (Ethernet) connection.

1. Locate the external RJ45 plug shown in Figure 152.
2. Follow Figure 152 for connection details. Note the distance limitations provided.
3. Cycle power to the unit(s) once the wiring of the portable interface is complete.

Interface Details for RJ45 Connector:

- Bus connection - RJ45 Interface
- Max length of shielded cable: 164 ft (50 m)
- Max length of unshielded cable: 9.8 ft (3 m)
- Cable type: standard Ethernet cable

Figure 152: Connection Port (Size 030 Shown)



Using the Portable Interface

Hardware Features

The portable interface keypad/display consists of an 8-line by 30 character display, a “push and roll” navigation wheel, and three buttons: Alarm, Home (Menu), and Back (Figure 153).

- Turn the navigation wheel clockwise (right) or counterclockwise (left) to navigate between lines on a screen and also to increase and decrease changeable values when editing. Press down on the wheel to use it as an Enter button.
- Press the Back button to display the previous page.
- Press the Home button to return to the main screen from the current page.
- Press the Alarm button to view the Alarm Lists menu.

Keypad/Display Features

The first line on each page includes the page title and the line number to which the cursor is currently “pointing.” The line numbers are X/Y to indicate line number X of a total of Y lines for that page. The left most position of the title line includes an “up” arrow to indicate there are pages “above” the currently displayed items, a “down” arrow to indicate there are pages “below” the currently displayed items or an “up/down” arrow to indicate there are pages “above and below” the currently displayed page. Each line on a page can contain status-only information or include changeable data fields. When a line contains status-only information and the cursor is on that line, all but the value field of that line is highlighted meaning the text is white with a black box around it. When the line contains a changeable value and the cursor is at that line, the entire line is highlighted.

Each line on a page may also be defined as a “jump” line, meaning pushing the navigation wheel will cause a “jump” to a new page. An arrow is displayed to the far right of the line to indicate it is a “jump” line and the entire line is highlighted when the cursor is on that line.

NOTICE

Only menus and items that are applicable to the specific unit configuration are displayed.

Figure 153: Portable Interface Main Features

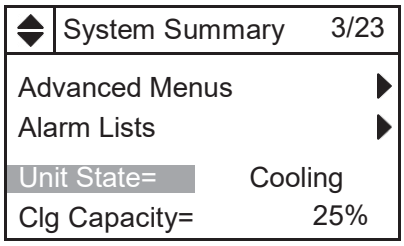
Keypad/Display Functions

The keypad/display Information is organized into five main menus or menus groups; Alarm Lists Menu, System Summary Menu, Standard Menus, Extended Menus and Advance Menus.

NOTICE

Only menus and items that are applicable to the specific unit configuration are displayed.

Figure 154: Keypad Controls



The Alarm Lists Menu includes active alarm and alarm log information. The System Summary Menu includes status information indicating the current operating condition of the unit. Standard Menus include basic menus and items required to setup the unit for general operation. These include such things as control mode, occupancy mode and heating and cooling setpoints. Extended Menus include more advanced items for “tuning” unit operation such as PI loop parameters and time delays. Advanced Menus include the most advanced items such as “unit configuration” parameters and service related parameters. These generally do not need changing or accessing unless there is a fundamental change to or a problem with the unit operation.

Passwords

When the keypad/display is first accessed, the Home Key is pressed, the Back Key is pressed multiple times, or if the keypad/display has been idle for the Password Timeout timer (default 10 minutes), the display will show a “main” page where the user can enter a password or continue without entering a password.

Various menu functions are accessible or inaccessible, depending on the access level of the user, and the password they enter, if any. There are four access levels, including no password, Level 2, Level 4, and Level 6, with Level 2 having the highest level of access. Without entering a password, the user has access only to basic status menu items. Entering the Level 6 password (5321) allows access to the Alarm Lists Menu, Quick Menu, and the View Status Unit Menus group. Entering the Level 4 password (2526) allows similar access as Level 6 with the addition of the Commission Unit Menu, Manual Control, and Service Menu groups. Entering the Level 2 password (6363) allows similar access as Level 4 with the addition of the Unit Configuration Menu. To access the advanced menu, you need to enter a level 2 password and set the enable advanced menu flag to Yes in the service menu.

Continuing without entering one of these three levels allows access only to the Alarm Lists Menu and the System Summary Menu.

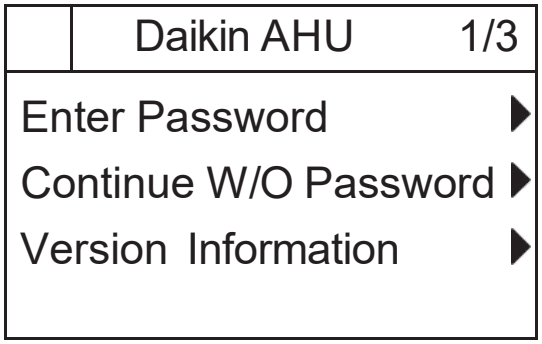
NOTICE
Alarms can be acknowledged without entering a password.

The password field initially has a value **** where each * represents an adjustable field. These values can be changed by entering the Edit Mode.

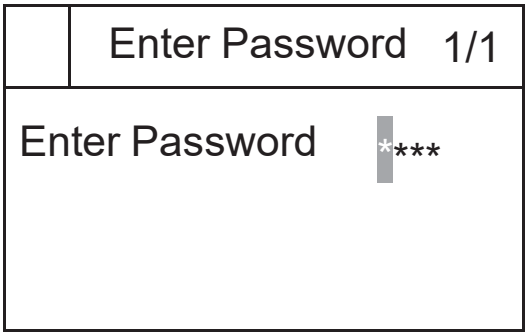
Entering an invalid password has the same effect as continuing without entering a password.

Once a valid password has been entered, the controller allows further changes and access without requiring the user to enter a password until either the password timer expires or a different password is entered. The default value for this password timer is 10 minutes. It is changeable from 3 to 30 minutes via the Timer Settings menu in the Extended Menus.

Figure 155: Password Main Page



Password Entry Page



Navigation Mode

In the Navigation Mode, when a line on a page contains no editable fields all but the value field of that line is highlighted meaning the text is white with a black box around it. When the line contains an editable value field the entire line is inverted when the cursor is pointing to that line.

When the navigation wheel is turned clockwise, the cursor moves to the next line (down) on the page. When the wheel is turned counter-clockwise the cursor moves to the previous line (up) on the page. The faster the wheel is turned the faster the cursor moves.

When the Back Button is pressed the display reverts back to the previously displayed page. If the Back button is repeatedly pressed the display continues to revert one page back along the current navigation path until the “main menu” is reached.

When the Menu (Home) Button is pressed the display reverts to the “main page.”

When the Alarm Button is depressed, the Alarm Lists menu is displayed.

Edit Mode

The Editing Mode is entered by pressing the navigation wheel while the cursor is pointing to a line containing an editable field. Once in the edit mode pressing the wheel again causes the editable field to be highlighted. Turning the wheel clockwise while the editable field is highlighted causes the value to be increased. Turning the wheel counter-clockwise while the editable field is highlighted causes the value to be decreased.

The faster the wheel is turned the faster the value is increased or decreased. Pressing the wheel again cause the new value to be saved and the keypad/display to leave the edit mode and return to the navigation mode.

Accessory Dimensions

Figure 156: Integrated Thermostat

All figures in mm

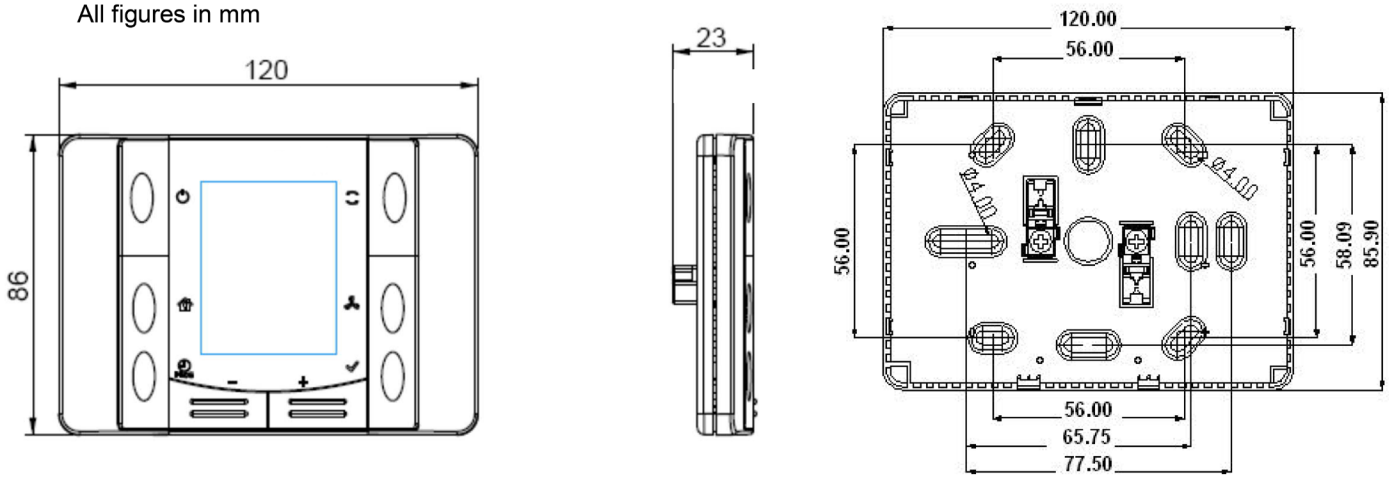
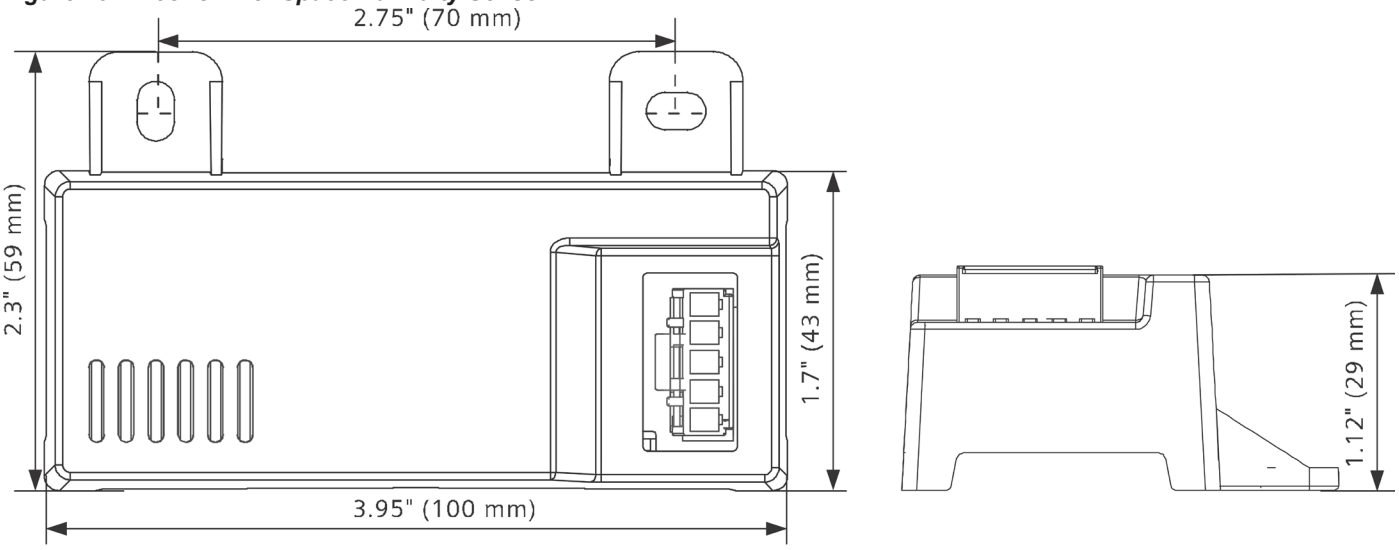


Figure 157: Economizer Space Humidity Sensor



Dimensions in inch (mm)

MicroTech 4 Lite Unit Operation

Preparing Unit for Operation

Power-up

There is a 115 VAC control circuit transformer and several 24VAC circuit transformers within the unit to control the various loads and sensors within the unit. See as-built schematics that are sent with the unit to familiarize yourself with the various features and control circuits.

NOTICE

Unit ships with factory installed jumpers in the emergency stop circuit between terminals TB12-T10 and TB2-Ground on size 006-050 and TB2-299 and TB2-236 on sizes 060-100.

Fan Only

The unit enters the Fan Only operating state after the power up and anytime there is no requirement for heating, cooling, or dehumidification. Once entering the Fan Only state of operation the unit will then, based on sensor inputs transition into any of the remaining states of operation - heating, cooling, economizer, econo-cooling, or dehumidification.

Fan Operation

Within 30 seconds (default configurable) on units configured for an airflow status switch, the controller expects to get feedback from the switch that the fans are operating properly. If MCB-the controller does receive that feedback, the controller assumes the fans did not start. It then shuts down the unit and generates an alarm. Units configured for DPS control, the supply fan(s) is modulated to maintain the duct static pressure setpoint.

Two-Positions Damper Operation

On units equipped with a two-position outdoor air damper, the outdoor air damper will be commanded open any time the fan is running in the occupied state.

Economizer Operation

If the unit is equipped with a 0-100% modulating economizer and the conditions are suitable for free cooling, the unit attempts to satisfy the cooling load by using the outdoor air economizer before using mechanical cooling.

The transition to economizer operation will occur if all the following are true:

- The control temperature rises above the occupied cooling setpoint by more than half the occupied cooling deadband.
- The economizer operation is not disabled.

Compressor Operation

Single Compressor

In this configuration a single output is used for compressor control. When mechanical cooling is required, it will be energized. When mechanical cooling is no longer required, it will be de-energized.

Two Compressors

When cooling is required, the Compressor 1 output will be energized. When mechanical cooling is no longer required, it will be de-energized. If Compressor Stages is 2, the compressor 2 output will be energized when the control temperature reaches the active cooling setpoint plus the compressor cooling differential. If the Compressor 2 output is energized and the control temperature falls below the active cooling setpoint + Compressor Cooling Differential – Unoccupied Off Differential, then Compressor 2 output will de-energize.

Four Compressors

When Compressor Stages is 4, the controller will use a PI control to stage the 4 compressor stages.

If the Supply Fan Control is ‘Constant Speed’, the PI loop will stage to control to space temperature. If the Supply Fan Control is ‘Duct Static Pressure’ or ‘Single Zone VAV’, the PI loop will stage to control discharge air temperature to the Cooling Discharge Air Temperature Setpoint.

The compressor outputs Compressor 1, Compressor 2, Compressor 3, and Compressor 4 each represent 25% of the heating capacity.

- When cooling output is >0%, Compressor 1 will be energized and it will be de-energized when the cooling output is 0%.
- When cooling output is >25% Compressor 2 will be energized and it will be de-energized when the cooling output is 20%.
- When cooling output is >50% Compressor 3 will be energized and it will be de-energized when the cooling output is 45%.
- When cooling output is >75% Compressor 4 will be energized and it will be de-energized when the cooling output is 70%.

Compressor Staging

For all compressor configurations, when mechanical cooling is no longer required, all outputs will be de-energized subject to minimum on times. Additionally, when a stage of cooling is de-energized, the interstage timer will start and the next stage of cooling will not be initiated or deactivated until the interstage timer expires.

Minimum Compressor On/Off Time

When a compressor is turned off, it must remain off for the duration of the Compressor Minimum Off Time. When a compressor is turned on, it must remain on for the duration of the Compressor Minimum On Time. After initial power up of the controller, clearing of a fault, or transition from unoccupied, all compressors must remain off for the duration of the Compressor Minimum Off Time plus a randomly (at each power up) generated value of up to 60 additional seconds. This prevents multiple units from turning on their compressors at the same time when power is applied. If Compressor Minimum On Time or Compressor Minimum Off Time is '0' then that functionality is disabled.

Lead Compressor Selection

If Lead Compressor Configuration is Run Hours, when a compressor is needed to satisfy the cooling requirement, the controller will turn on the compressor with the lowest total runtime. If Lead Compressor Configuration is Compressor 1, when a compressor is needed to satisfy the cooling requirement, the controller will turn on the compressors in numerical order. Compressors will be turned off in the reverse order that they were turned on.

VAV Box Signal/Fan Operation Signal

Digital Output #6 (MCB-T4-DO6) will be energized any time the fan is running.

Dehumidification Operation

In dehumidification mode, mechanical cooling is used to cool air low enough to lower the moisture content of the air and then reheat it to comfort conditions. Dehumidification is only available on units with a reheat coil that are equipped with space humidity, discharge air temperature, and (when necessary) leaving coil temperature sensors.

Passive Dehumidification

Passive dehumidification can be field-enabled on constant air volume units with space humidity sensors, but without reheat coils. Passive dehumidification can be used to reduce the supply fan speed when the unit is cooling and the space humidity is above the dehumidification setpoint.

Dehumidification Initiation

An analog sensor is mounted in the space to sense Relative Humidity. Active dehumidification is disabled when the unit is in the cooling or heating state. Passive dehumidification is only available when the unit is in the cooling state. When dehumidification is enabled, operation is initiated when Humidity Control is set to either Relative Humidity or Dew Point and that value rises above the appropriate setpoint by more than half its deadband.

Dehumidification Termination

Dehumidification is terminated if the selected variable, Relative Humidity or Dew Point, drops below the appropriate humidity setpoint by more than half its deadband plus the appropriate differential. Dehumidification is also terminated if cooling is disabled for any reason or the unit enters either the Heating or Cooling state.

Chilled/Hot/Changeover Water Valve Operation

Two-Position On/Off Valves

Appropriate valve will be open when cooling or heating is required and closed when it is not.

Modulating Valves

When cooling or heating is required, valves will modulate open or closed to meet demand. For Single Zone VAV and DSP fan control, the valve will modulate to maintain a discharge air temperature. For constant speed fan control, the valve will modulate to maintain a control temperature (space, return, or an average of the two).

Valve Action

Valve control is factory configured to be direct or reverse acting based on how they were ordered. If necessary, this can be configured in the field using the controller's operation manual.

Entering Water Temperature Sampling

Units with a changeover chilled/hot water valve come with an entering water temperature sensor (field installed for certain applications) required to ensure that the water temperature is adequate for the appropriate mode of operation. On a call for heating or cooling, the valve will be opened to a minimum position and the water temperature monitored. If the temperature is deemed to be adequate within 2 minutes, normal operation will occur. If the temperature is deemed to be inadequate, the mode of operation (heating/cooling) will be locked out for 2 hours.

Electric Heat Operation

Single Stage Electric Heat

Electric heat will be enabled when heating is required and off when it is not.

4 Stage/SCR Electric Heat

When heating is required, the heating output will stage/modulate on/off to meet demand. For Single Zone VAV and DSP fan control, the electric heat output will modulate to maintain a discharge air temperature. For Constant Speed fan control, the electric heat output will modulate to maintain a control temperature (space, return, or an average of the two).

Servicing High Voltage Control Panel Components

⚠ DANGER

LOCKOUT/TAGOUT all power sources prior to servicing the unit. Hazardous voltage may cause serious injury, death, and property damage. Disconnect electric power before servicing equipment. More than one disconnect may be required to de-energize the unit.

Disconnect all electric power to the unit when servicing control panel components. Unless power is disconnected to the unit, the components remain energized. Always inspect units for multiple disconnects to ensure all power is removed from the control panel and its components before servicing.

Before Start-up

1. Verify that the unit is completely and properly installed with ductwork connected.
2. Verify that all construction debris is removed, and that the filters are clean.
3. Verify that all electrical work is complete and properly terminated.
4. Verify that all electrical connections in the unit control panel and compressor terminal box are tight, and that the proper voltage is connected.
5. Verify all nameplate electrical data is compatible with the power supply.
6. Verify the phase voltage imbalance is no greater than +/- 3%.
7. Manually rotate all fans and verify that they rotate freely.
8. Verify all fasteners on the fan assemblies are still tight.
9. Verify that the evaporator condensate drain trap is installed and that the drain pan is level.
10. If unit is curb mounted, verify that the curb is properly flashed to prevent water leakage.
11. Before attempting to operate the unit, review the control layout description to become familiar with the control locations.
12. Review the equipment and service literature, the sequences of operation, and the wiring diagrams to become familiar with the functions and purposes of the controls and devices.
13. Determine which optional controls are included with the unit.

Initial Manual Mode Start-Up

Initial Start-up should be performed in manual control mode before proceeding to the cooling/heating start up.

Power Up

1. Close the unit disconnect switch. Power should now be supplied to the control panel, and the LEDs on MCB1 should follow the normal startup sequence.

Supply Fan Start-up

1. Verify all duct and unit mounted isolation dampers are open.
2. Place the unit in the Off Mode in order to initiate the Manual Control Mode through the keypad menu. **Main Menu\Manual Control\Ctrl Mode = Off**
3. Place the unit into Manual Control Mode through the keypad menu **Main Menu\Manual Control\Manual Ctrl = Enabled**
4. Activate the fan through the keypad menu **Main Menu\ Manual Control\SAF Cap Cmd = 40%**
    a. Check Fan rotation for proper rotational direction
4. Speed the fan up through the keypad menu **Main Menu\ Manual Control\SAF Cap Cmd = 100%**
    a. Check the manual motor protectors or that the circuit breakers have not tripped.
    b. Check the phase monitor.

OA Damper Start-up

1. Open the outdoor air damper through the keypad menu: **Main Menu\Manual Control\OA Damper Pos=30%.**
    a. Verify that the OA damper position moved and the Return air damper (if present) also moved.
    b. Leave OA damper Open for next step

Exhaust Fan Start-up

1. Verify all duct and unit mounted isolation dampers are open.
2. Activate the fan through the keypad menu **Main Menu\ Manual Control\Exh Fan Cmd = 40%**
    a. Check fan rotation for proper rotational direction
3. Speed the fan up through the keypad menu **Main Menu\ Manual Control\Exh Fan Cap Cmd = 100%**
    a. Check the manual motor protectors or that the circuit breakers have not tripped.
    b. Check the phase monitor.

Leaving Manual Control when complete through the keypad menu: **Main Menu\Manual Control\Manual Ctrl = Normal**

Cooling/Heating Start Up

NOTICE

Operational Override using the Manual Ctrl Type commands should only be used by trained service technicians as several timing functions are reduced to speed system check out. The Manual Ctrl Type commands should only be used for a short period of time for testing of the unit's operation by a trained service technician. The Manual Ctrl Type should be returned to Normal to allow for normal unit operation. If Manual Ctrl Type is left as something other than Normal after system check out, the unit may be damaged. If no modifications have been made to the controller for 30 minutes, the Manual Ctrl Type will revert to Normal When in Operational Override, the modified time values listed in Table 102 will be used.

Table 102: Operational Override Time Values

Control Parameter	Modified Time
Duct Static Pressure Control Delay	5 Seconds
Compressor Minimum On Time	6 Seconds
Compressor Minimum Off Time	6 Seconds
Condensate Overflow Alarm Delay	2 Seconds
Cooling Interstage Time	6 Seconds
Heating Interstage Time	6 Seconds

Economizer/OA Damper and Cooling Start-up

1. Verify all duct and unit mounted isolation dampers are open.
2. Place the unit in the Off mode in order to initiate the Manual Control Mode through the keypad menu: **Main Menu\ Manual Control\Ctrl Mode = Off**
3. Place the unit into Override Cooling Mode through the keypad menu: **Main Menu\Manual Control\Manual Ctrl Type = Cooling**
    a. The fan will activate
    b. If present, the economizer/OA damper will open
    c. If present, the chilled water valves will open
    d. If present all compressor outputs will stage on

Alternatively, individual outputs can be commanded to on using the Output Override functionality. See MicroTech 4 Lite Operations Manual for more information.

Heating Startup

1. Verify all duct and unit mounted isolation dampers are open.
2. Place the unit in the Off mode in order to initiate the Manual Control Mode through the keypad menu: **Main Menu\ Manual Control\Ctrl Mode = Off**
3. Place the unit into Override Cooling Mode through the keypad menu: **Main Menu\Manual Control\Manual Ctrl Type = Heating**
    a. The fan will activate
    b. If present, the hot water valves will open
    c. If present electric heat outputs will stage on

Alternatively individual outputs can be commanded on using the Output Override functionality. See the MicroTech 4 Lite Operations Manual for more information.

Setup for Normal Operation

When all start-up procedures are completed, set the controls and program the MicroTech unit controller for normal operation. Use the following list as a guide; some items may not apply to your unit.

1. Set the heating and cooling parameters as required for normal unit operation.
    a. **Main Menu\Commission Unit\Unit Set-Up\Ctrl Temp Scr = Space, Return, Average** based on application needs.
    b. **Main Menu\Commission Unit\Cooling Set-Up\Occ Clg Spt** & **DAT Clg Spt**.
    c. **Main Menu\Commissioning Unit\Heating Set-Up\Occ Htg Spt** & **DAT Htg Spt.**
2. Set the low ambient compressor lockout setpoint as required in menu, **Main Menu\Commission Unit\Cooling Set-up\Clg Lo Oat Lk =**. Do not set it below 50°F (10°C) unless the unit is equipped for low ambient operation.
3. Set the compressor lead/lag function as desired using keypad menu **Main Menu\Advanced Menus\Cooling Set-up\ Lead Compressor**
4. Set the duct static pressure control parameters as required in keypad menu **Main Menu\Quick Menu\ SAF DSP Spt =___ in.** based on application and unit configuration.
5. Set the EF Control Parameters based on the application
    a. If EF Control = Tracking, then set the fan tracking parameters as required in keypad menu. **Main Menu\ Commission Unit\EF Set-up\Min EF Cap, Max EF Cap**
    b. If **Main Menu\ Commission Unit\EF Set-up\EF Ctrl = Constant**, Set the constant exhaust fan speed as required in keypad menu location **Main Menu\ Advanced Menus\EF Set-Up\EF Const Speed Setpt= %** based application and unit configuration.
8. Set the Outside air damper and economizer control parameters as required in keypad menu **Main Menu\ Commission Unit\Econo Set-Up**
    a. Set the OAD Min and OAD Max positions
    b. Set the OAD Out Scaling based on application and unit configuration
    c. Set the Econo Strategy based on application and unit configuration
    d. Set the Econo OAT Setpt, Temp Diff Setpt, Out Enth Setpt, or Enth Diff Setpt based on application and unit configuration
    e. If the unit is performance DCV (Demand Control Ventilation), go to: **Main Menu\Commission Unit\ C02 Set-Up**. Set the Min OA CO2 Spt = lower threshold of CO2 allowed and Max OA CO2 Spt = upper threshold of CO2 allowed.
9. Set the control timers as required in keypad menu **Main Menu\Commission Unit\Timer Settings.**
    a. Set the date and time in keypad menu **Set-up\ Service\Time\Date\.**
    b. Set the operating schedule as required using keypad menus. **Main Menu\ViewStatus\Date\ Time and Date\ Time\Schedules.**

NOTICE

When used with a Building Automation System, these settings may need to be kept at the default of no schedule.

Maintaining Control Parameter Records

Daikin Applied recommends that the MicroTech unit controller's setpoints and parameters be recorded and saved for future reference. If the Microprocessor Control Board requires replacement, this record facilitates entering the unit's proper data.

Example Wiring Diagrams

Figure 158: 3 Phase Power, SCR Electric Heat, No Valve, Modulating Damper, VFD Fan

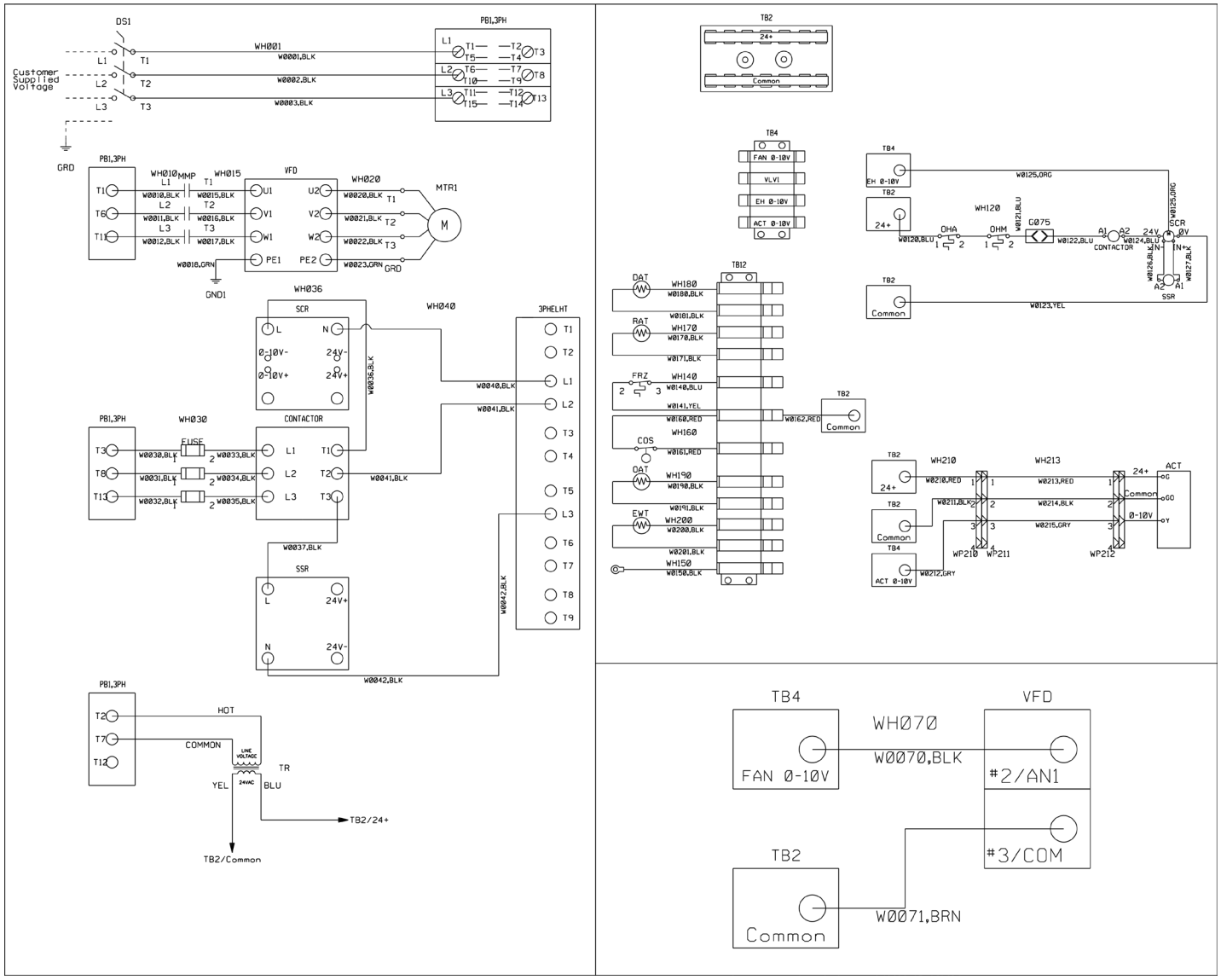


Figure 159: 1 Phase Power, SCR Electric Heat, Modulating Valve, Modulating Damper, Modulating Fan

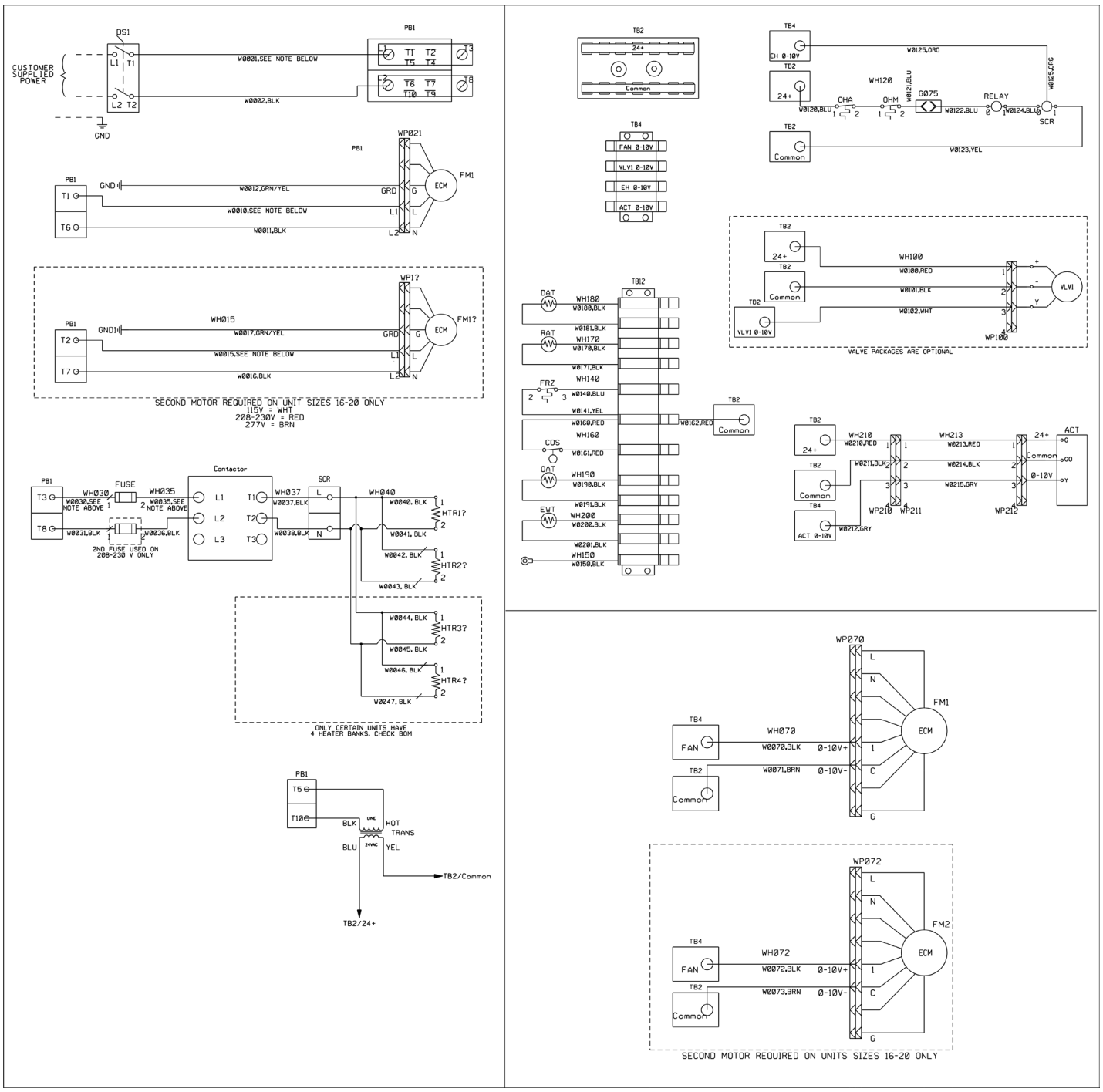


Figure 160: 1 Phase Power, On-Off Electric Heat, On-Off Valve, On-Off Damper, 3-Speed Fan

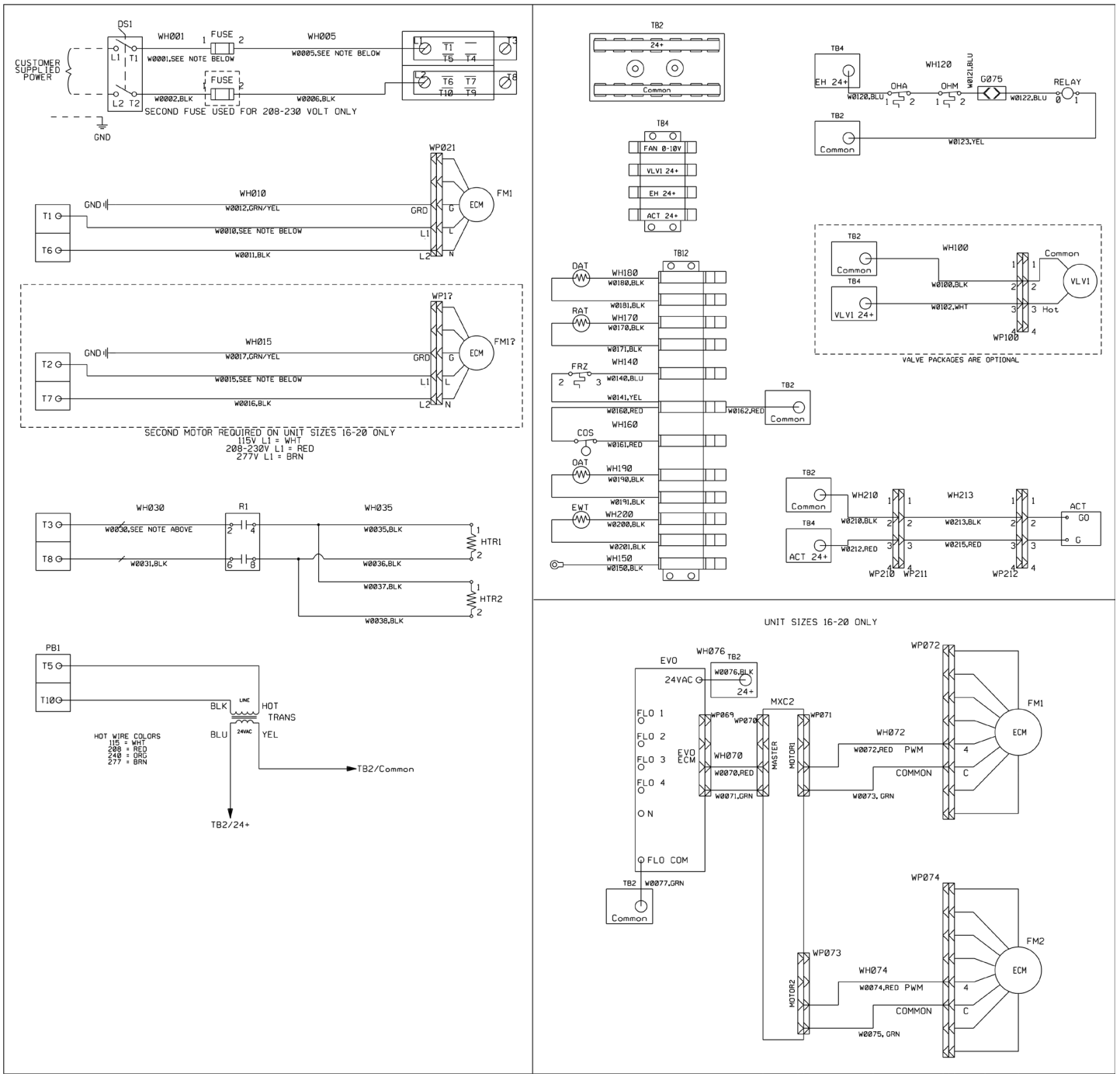


Figure 161: 3-Phase Power, Welded Aluminum Airfoil Plenum Fan, On-Off Electric Heat, On/Off Damper, Fused with MicroTech Controller for Unit Sizes 006-050

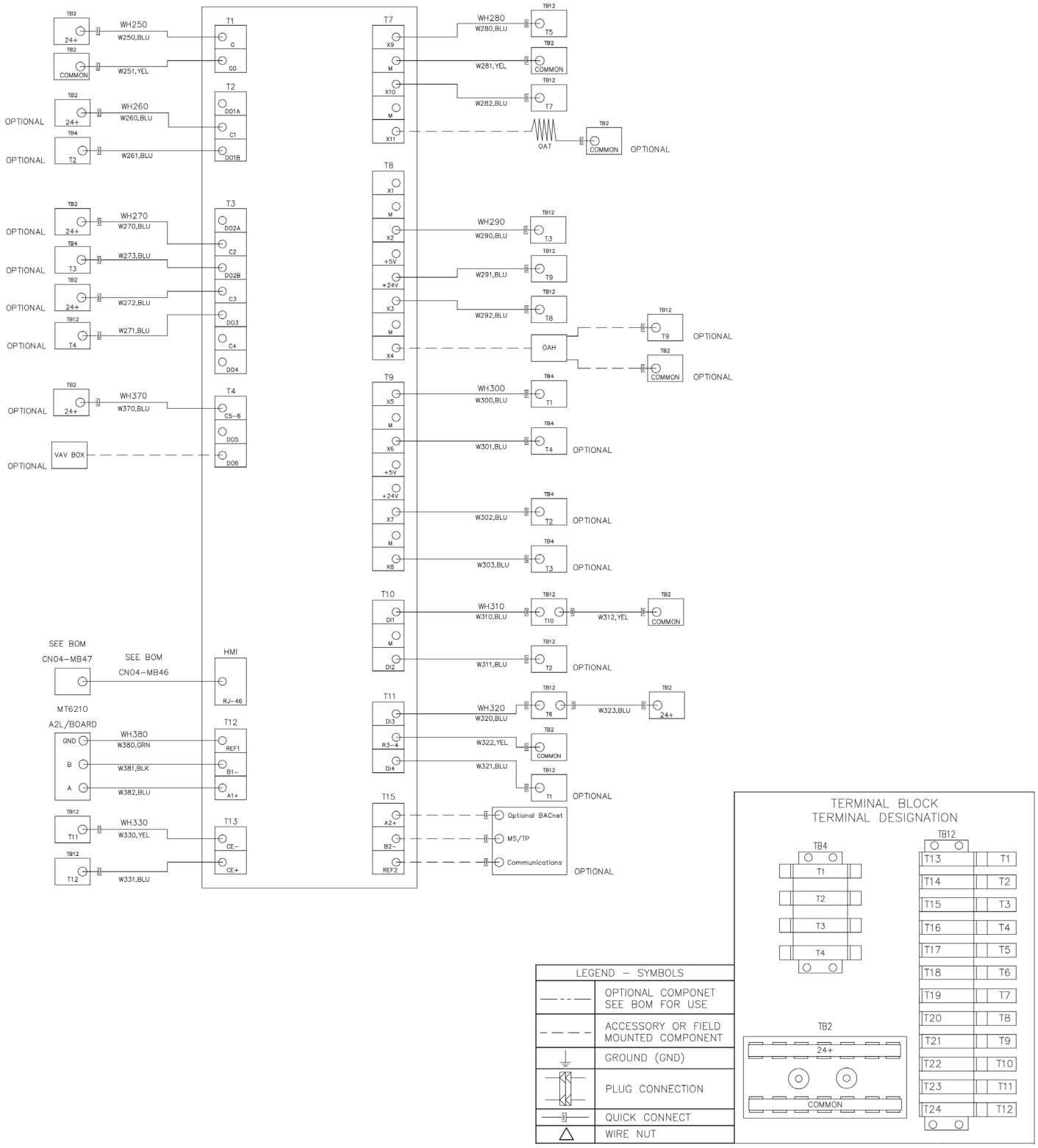


Figure 162: A2L Mitigation Board Controller for Unit Sizes 006-050

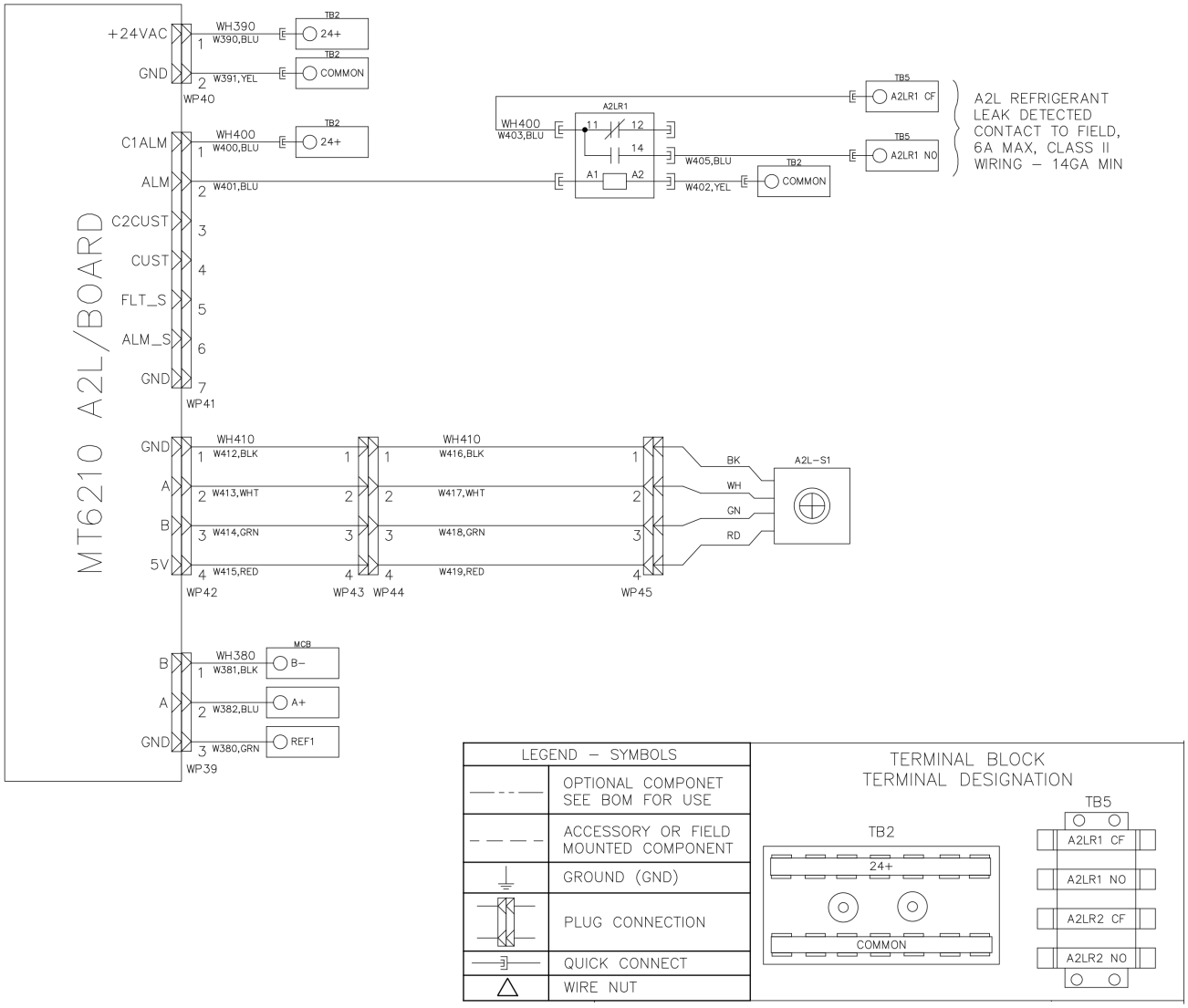


Figure 163: MicroTech Controller for Unit Sizes 060-100 with Optional Energy Recovery Wheel

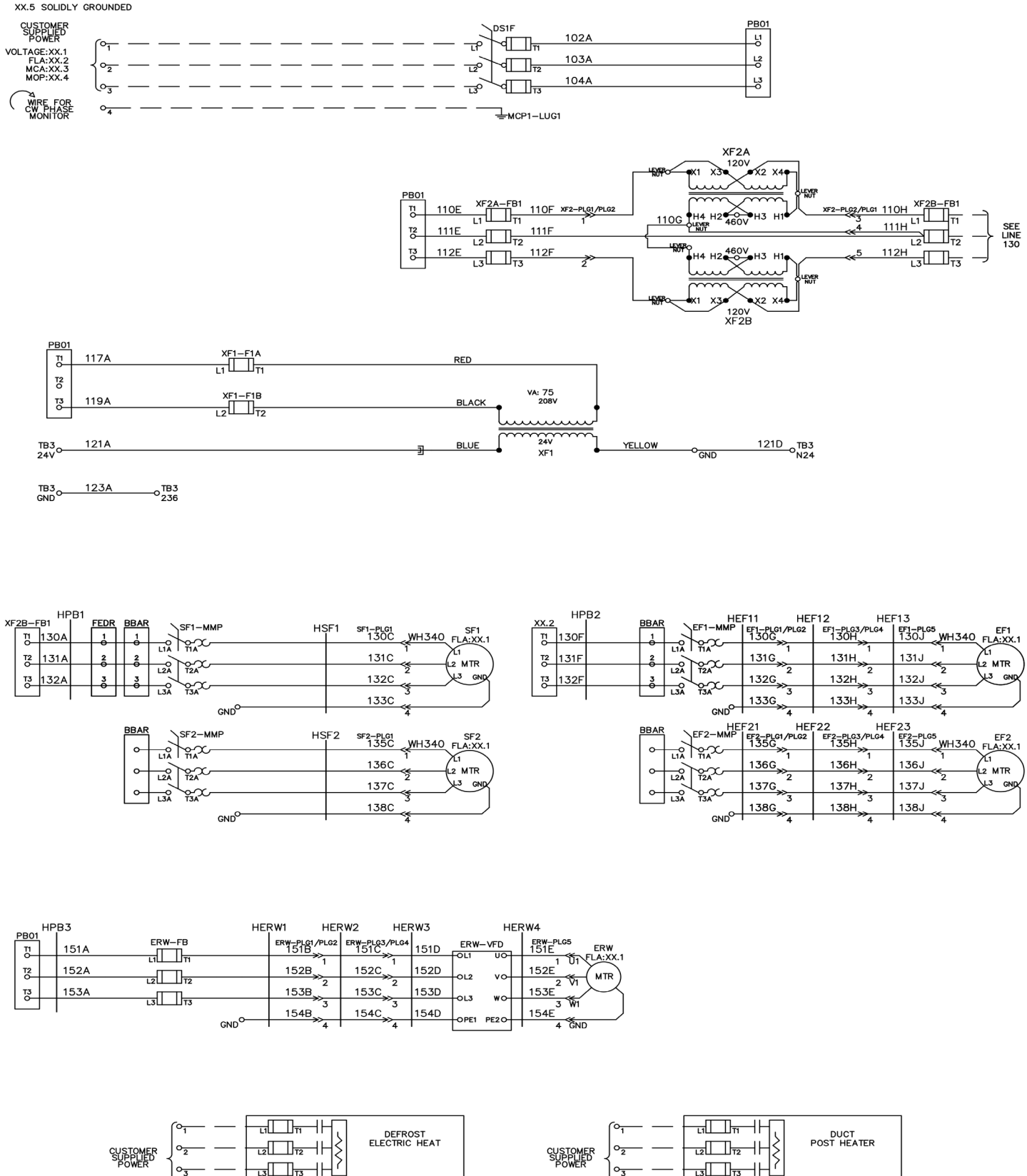


Figure 164: MicroTech Controller for Unit Sizes 060-100 with Optional Energy Recovery Wheel

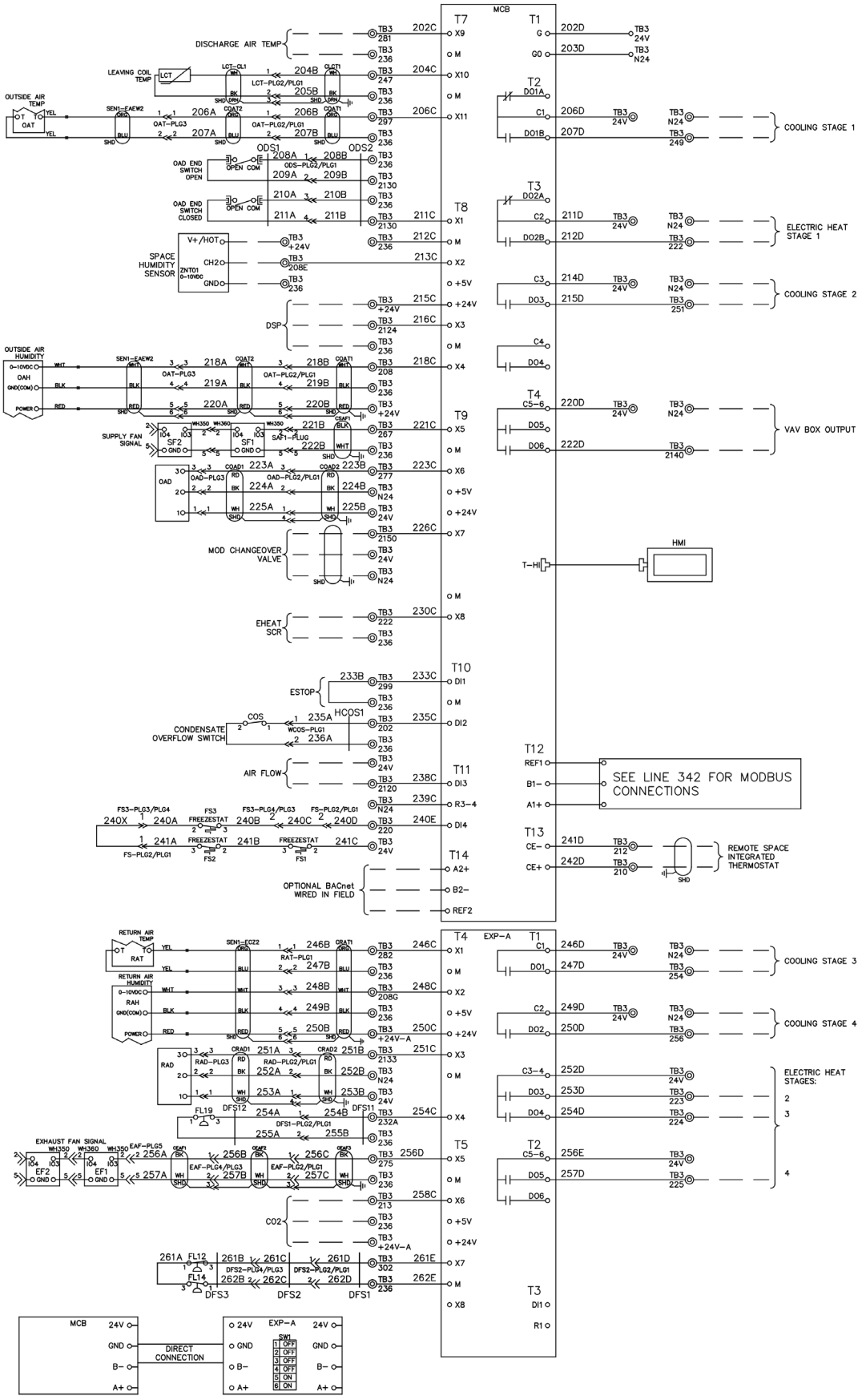
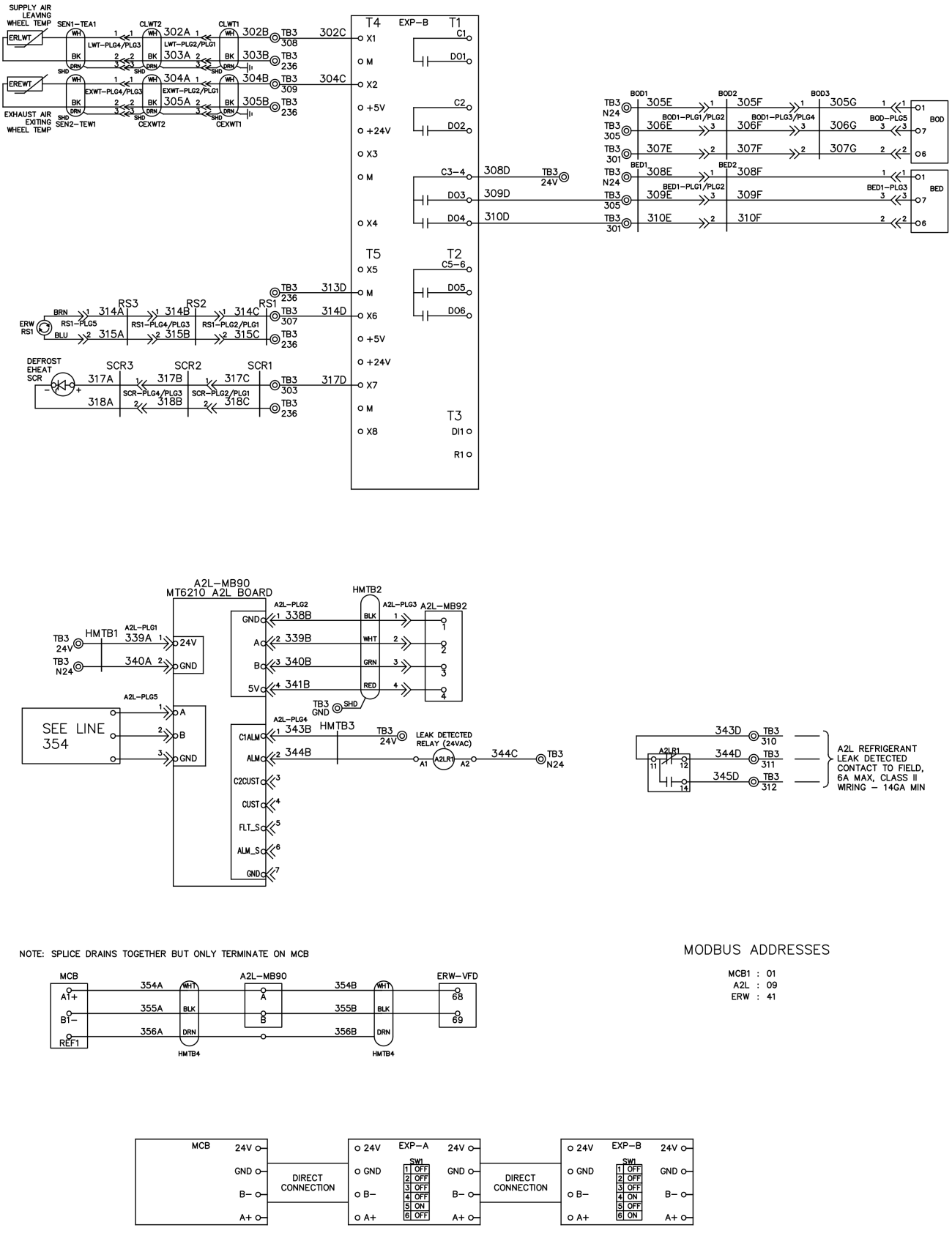


Figure 165: MicroTech Controller for Unit Sizes 060-100 with Optional Energy Recovery Wheel & A2L Controller



NOTE: SPLICE DRAINS TOGETHER BUT ONLY TERMINATE ON MCB

MODBUS ADDRESSES

MCB1 : 01
A2L : 09
ERW : 41

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: Devices may or may not be on unit.

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

Hot Wire Colors

115V = WHT

208V = RED

240V = ORG

277V = BRN

480V = BLK/RED

575V = BLK

MMP/Fuse

575V = Fuse

208/240/480V = MMP

Operation

Startup Checks

When performing startup and service, always take thorough safety precautions. Start-up functions must be performed by trained, experienced personnel.

⚠ DANGER

FAN MOTOR REQUIRES OVERLOAD PROTECTION. Failure to provide motor overload protection can result in fire, property damage, electric shock, personal injury or death. Connect motor to an overload protective device rated in compliance with local electric codes.

⚠ DANGER

FIRE/ELECTRIC SHOCK HAZARD can cause property damage, personal injury, or death. Wire fan power supply and ground motor frame in accordance with local electric codes.

⚠ WARNING

DO NOT OVERHEAT FAN MOTOR. High air temperatures the fan section can cause the fan motor to burnout. On draw-through air handlers or air handlers with the fan section down the air stream from the heating section, the discharge air temperature of the heating section must not exceed 125°F (55°C).

⚠ WARNING

ROTATING FAN(S) can cause severe injury or death. Before servicing fans, lockout and tag out power.

Before Starting the Unit

- ☐ Make sure that fan electrical power source is disconnected and locked in the OFF position before entering fan section.
- ☐ With ductwork connected, check the unit for complete and proper installation.
- ☐ Check that all construction debris is removed and filters are clean.
- ☐ Check that all electrical work is complete and properly terminated. Check that all electrical connections are tight and that the proper voltage is connected. Phase imbalance must not exceed 2%.
- ☐ Fan motors are pre-lubricated and do not need grease before startup.
- ☐ Check that fan wheel(s) turn freely, are aligned properly and do not rub against the fan housing(s), etc.
- ☐ Leak test the thermal system to verify that connections are tight.
- ☐ Check that condensate drain is trapped and clear of debris.
- ☐ Rotate shaft by hand to be sure it is free.
- ☐ Fan startup: Fan should start and run. Verify fan rotation is correct.

NOTICE

3-phase motor rotation may be reversed by reversing two legs of the three-phase power at the motor.

Energy Recovery Wheel

Pre-Startup Checks

1. By hand, turn wheel clockwise (as viewed from the pulley side) to verify wheel turns freely through 360° rotation.
2. During rotation, confirm wheel segments are fully engaged in the wheel frame and segment retainers are completely fastened.
3. With hands and objects away from moving parts, apply power and confirm wheel rotation. Wheel rotates clockwise as viewed from the pulley side.
4. If wheel has difficulty starting, disconnect power and inspect for excessive interference between the wheel surface and each of the four (4) diameter seals.

Diameter Seal Adjustment

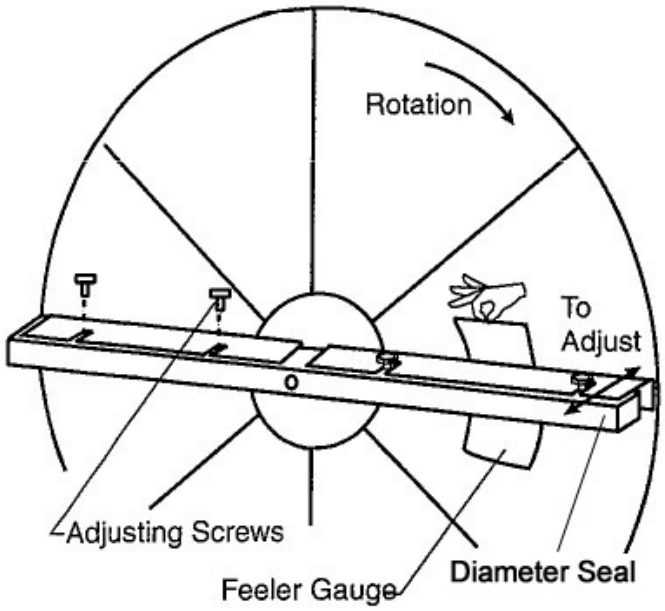
⚠ WARNING

Keep hands away from rotating wheel! Contact with rotating wheel can cause personal injury.

The diameter seal is set at the factory. To check the seal, slide a ¼ inch feeler gauge between the seal and the media at multiple locations on both sides of the bearing as you rotate the wheel slowly by hand (clockwise when viewed from the pulley side). Verify that the media slightly grabs the feeler gauge during the rotation. If necessary, follow the steps below to reset the seal to a slight interference fit with the wheel media.

1. Loosen diameter seal adjusting screws. See Figure 166.
2. Move adjustable diameter seals away from wheel.
3. Using a ¼ inch feeler gauge, adjust the diameter against the wheel. See Figure 166.
4. Tighten diameter seal adjusting screws.
5. Apply power per the start up procedure.

Figure 166: Energy Recovery Wheel Adjusting



Maintenance

⚠ DANGER

LOCKOUT/TAGOUT all power sources prior to service, pressurizing, de-pressuring, or powering down the unit. Failure to follow this warning exactly can result in serious injury or death. Disconnect electrical power before servicing the equipment. More than one disconnect may be required to de-energize the unit. Be sure to read and understand the installation, operation, and service instructions within this manual.

Energy Recovery Wheel

Routine energy wheel maintenance is not required other than to periodically clean the energy transfer media. The wheel should also be inspected once per year to verify that the wheel, motor, belt, energy transfer segments, and seals are all in good working order. For more detailed information, refer to the wheel manufacturer's maintenance manual.

Hydronic Coil Removal

⚠ WARNING

SHARP EDGES AND COIL SURFACES are a potential injury hazard. Avoid contact with them.

⚠ WARNING

Clean drain pan regularly so mold does not develop or water overflows causing property damage.

1. For maximum performance, the coil must be clean.

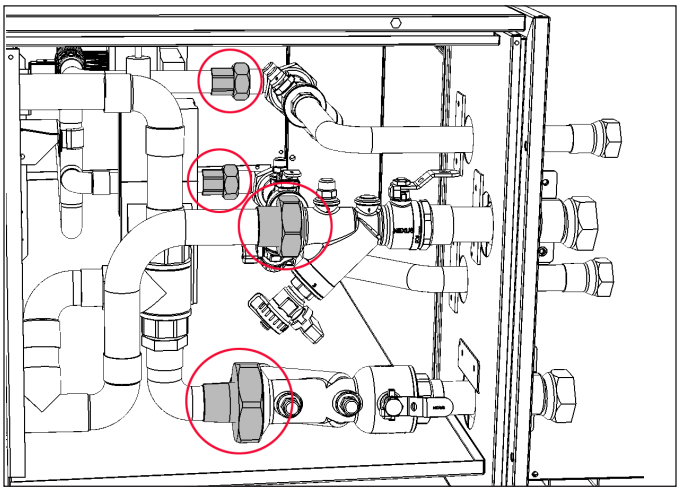
   Check once a year under normal operating conditions and brush or vacuum clean if necessary. Use a chemical coil cleaner on multiple row coils. Read and follow the chemical cleaner instructions since some cleaners may contain harsh chemicals. Take care not to damage fins while cleaning.

2. Drain pans in any air conditioning unit may have some moisture, with growth of organisms possible due to airborne spores and bacteria. Clean drain pans periodically to prevent build-up from plugging the drain and causing the drain pan to overflow. Keep drain pans clean to prevent the spread of disease. Cleaning should be performed by qualified personnel.
3. Dirt and lint can clog the condensate drain, especially with dirty filters. Inspect twice a year to help avoid overflow.

Hydronic Coil Removal - Horizontal Unit Sizes 006 - 020

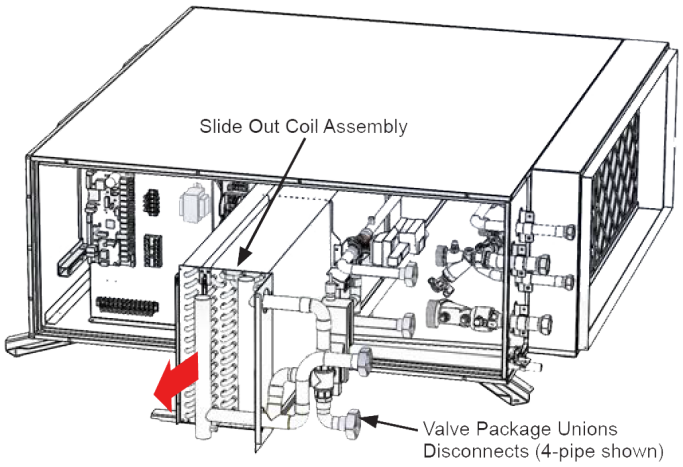
1. Remove coil section access panel.
2. Drain the coils.
3. Disconnect unions on supply and return of heating and cooling coils inside cabinet. Field piping does not need to be disconnected.

Figure 167: Heating and Cooling Coil Unions



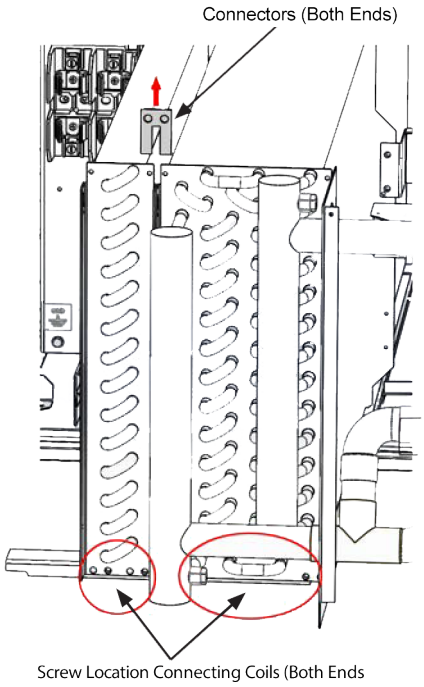
4. Disconnect any valve, damper, or electric heat wires that may interfere with removing the coil.
5. Slide the coil out by pulling on the header tube. The coil is not fastened in cabinet. If unit is equipped with factory installed valve package, part of the valve package will be removed with coil.

Figure 168: Slide Coil Out



6. For four pipe units, the cooling coil is attached to the preheat or reheat coil. To separate the coils remove the screws along the bottom edge of the header end plate, on each end of the coil and the connectors.

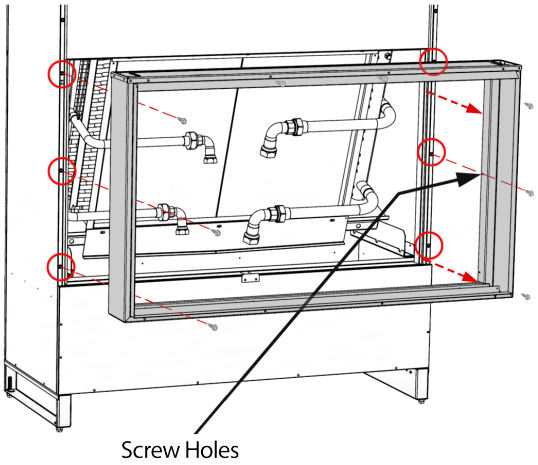
Figure 169: Four Pipe Unit, Detaching Coils



7. For units with the electric heat option, the electric heat rack is attached to the cooling coil in the preheat position. To separate the electric heat rack from the cooling coil remove the screws on each end of the coil, and the connectors.

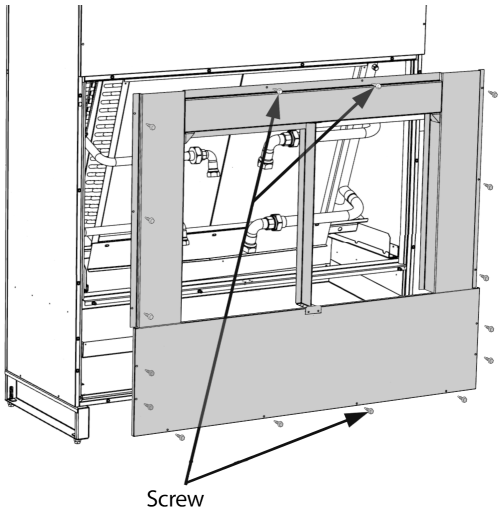
Hydronic Coil Removal - Vertical Unit Sizes 006 - 020

1. Remove screws on the inside right (3) and inside left (3), holding external filter frame.

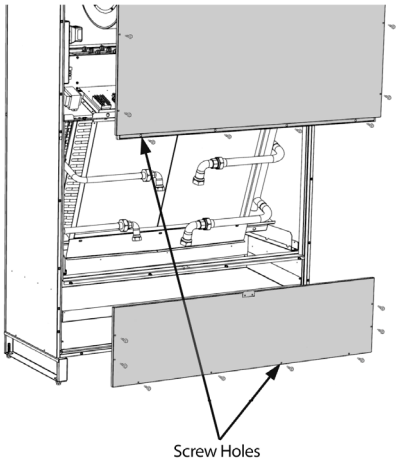


OR

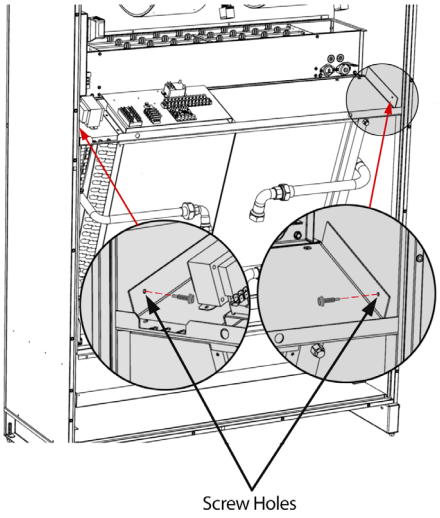
1. Remove screws holding internal filter brackets and bottom panel assembly.



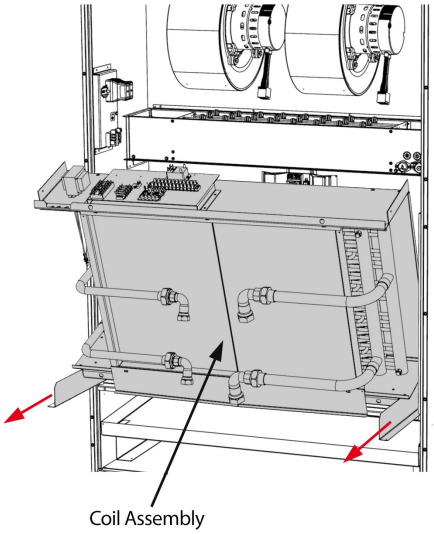
2. Remove screws holding upper and lower front panels (number dependent on unit size).



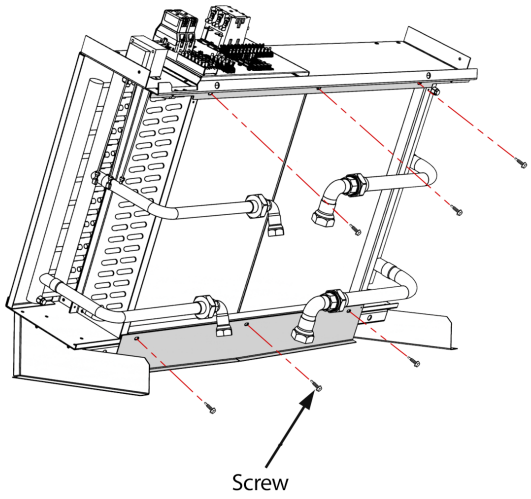
3. Remove 2 screws holding coil.



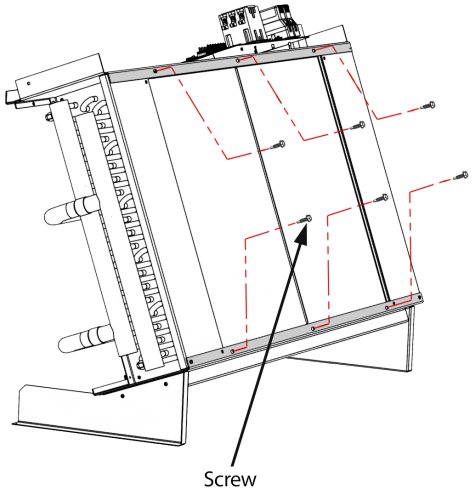
4. Slide out coil assembly.



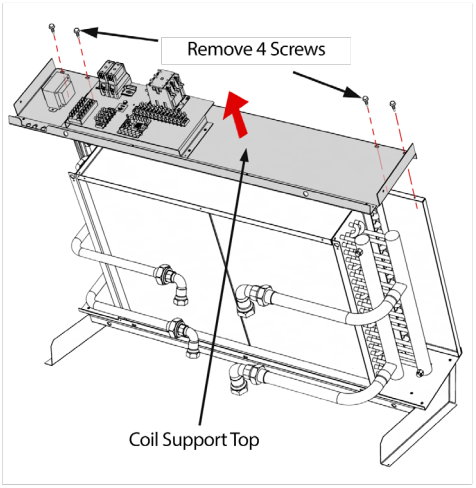
5. Remove screws along front of coil at bottom and top holding coil.



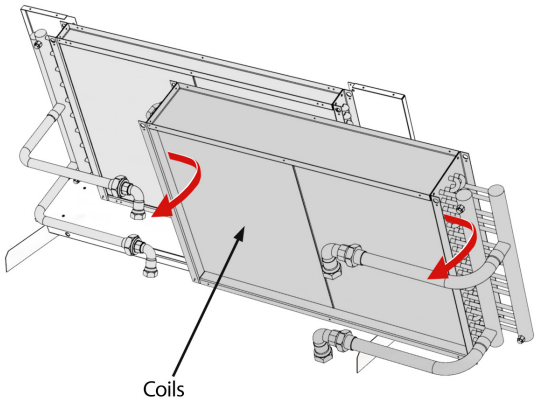
6. Remove screws along back of coil at bottom and top holding coil.



7. Remove coil support top.



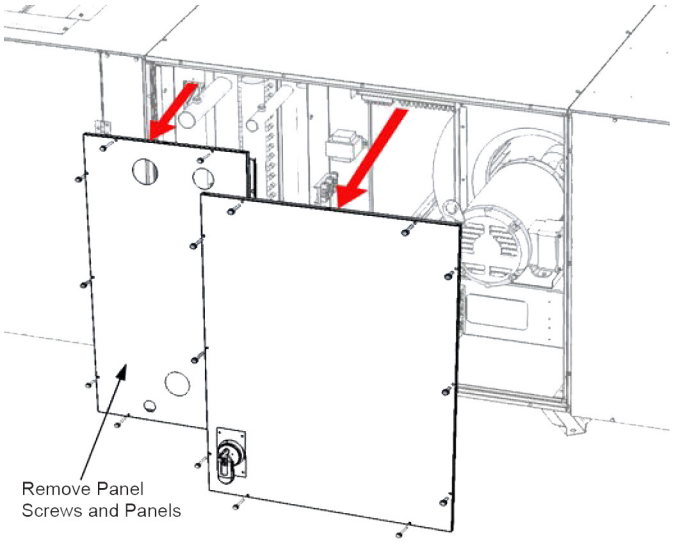
8. Separate and remove coils.



Hydronic Coil Removal - Horizontal Unit Sizes 030 - 050

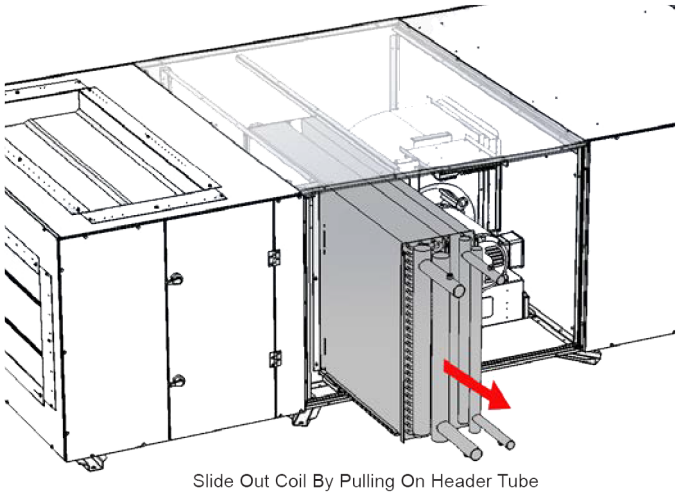
1. Remove coil section panels.

Figure 170: Remove Panel Screws and Panels



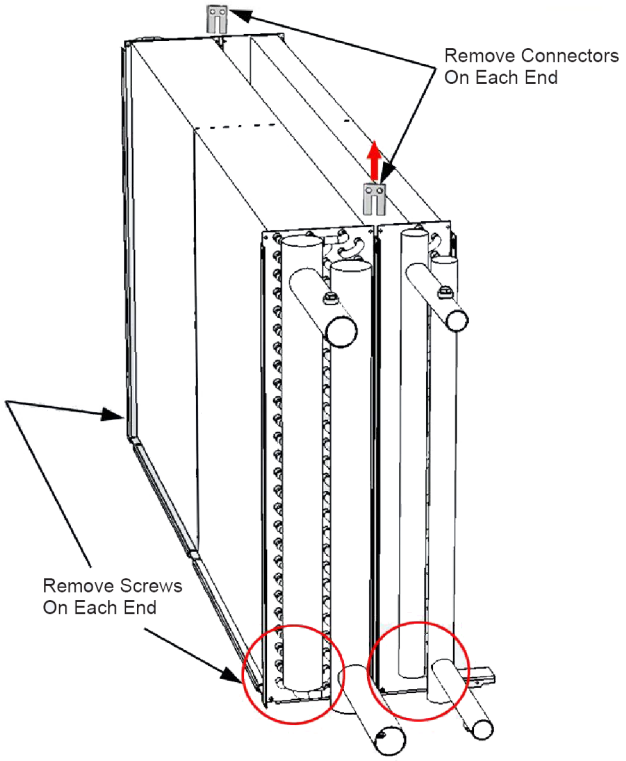
2. Drain coils.
3. Disconnect supply and return on heating and cooling coils from field piping.
4. Remove any field piping that might be interfere with coil removal.
5. Disconnect any damper or electric heat wires that may interfere with coil removal.
6. Slide the coil out by pulling on the header tube.

Figure 171: Slide Coil Out



7. For four pipe units, the cooling coil is attached to the preheat or reheat coil. To separate the coils remove the screws on each end of the coil and the connectors.

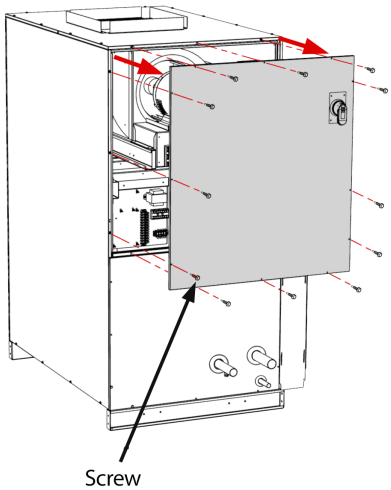
Figure 172: Remove Screws Holding Coil Sections Together and Connectors On Each End



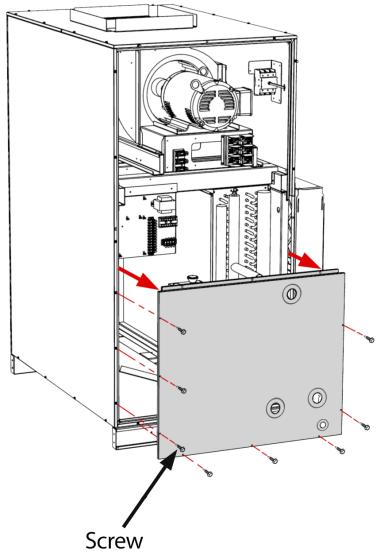
8. For units with the electric heat option, the electric heat rack is attached to the cooling coil in the preheat position. To separate the electric heat rack from the cooling coil remove the screws on each end of the coil, and the connectors.

Hydronic Coil Removal - Vertical Unit Sizes 030 - 050

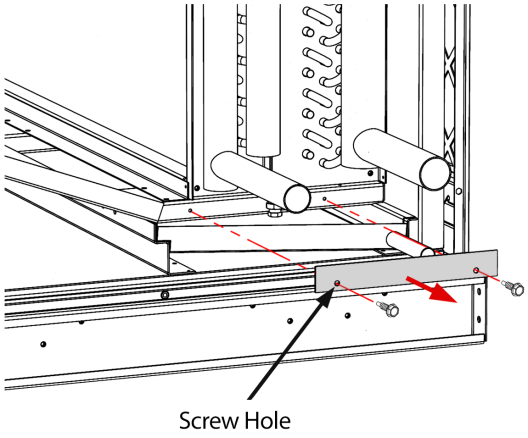
1. Remove screws and remove top access panel with disconnect switch.



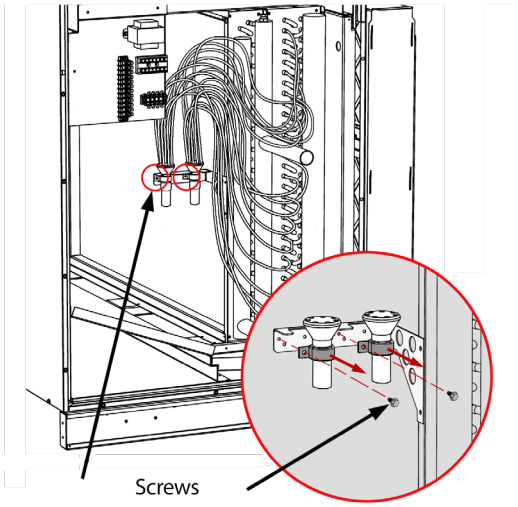
2. Remove screws and remove bottom access panel.



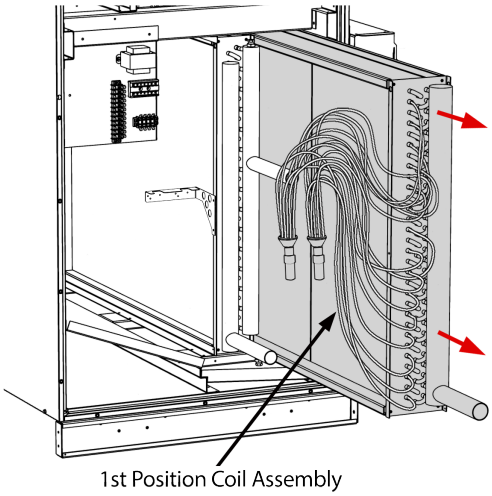
3. Remove screws and remove coils stop plate.



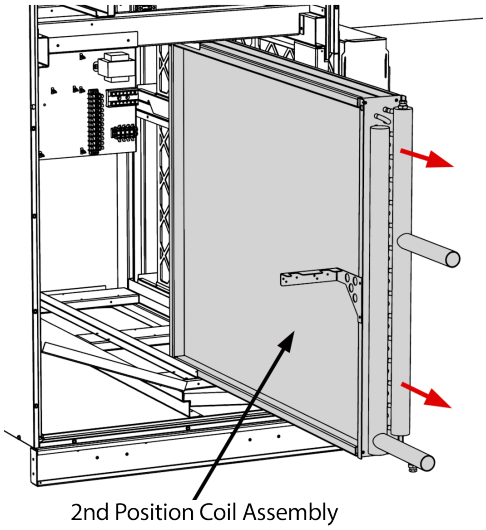
4. Remove screws from clamps holding distributors and cap tubes to bracket.



5. Slowly pull out the 1st position coil assembly using caution to not damage cap tubes.

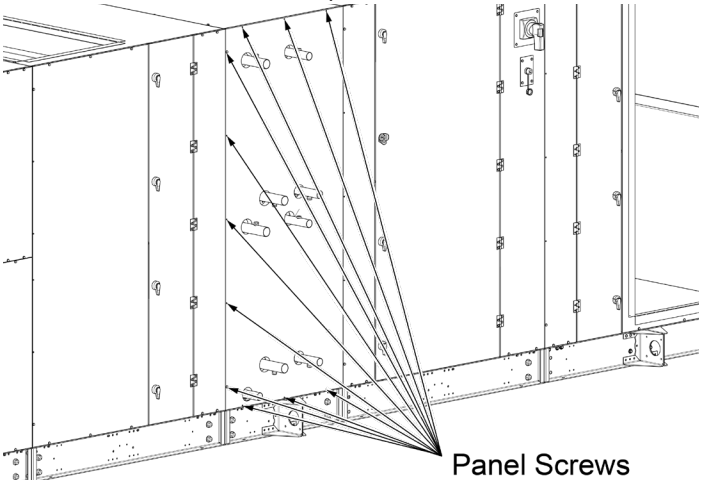


6. Slide out the 2nd position coil.

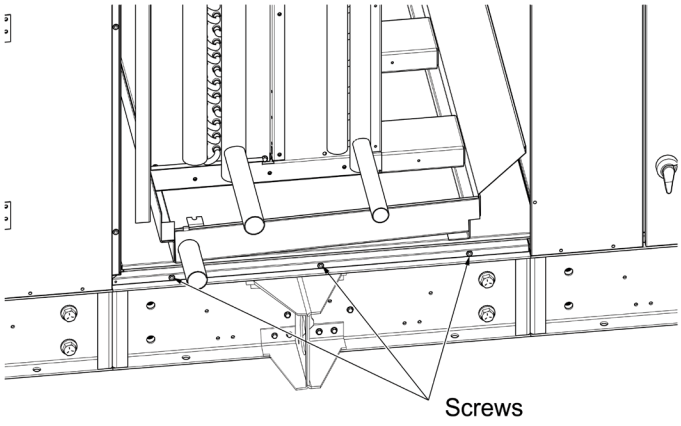


Hydronic Coil Removal: Horizontal Unit Sizes 060 - 100 (Primary Coil and Optional Secondary Coil Shown)

1. Remove screws securing the access panel to the cabinet, then remove the access panel.



2. Remove screws securing the stopper bracket to the cabinet. Remove the bracket.

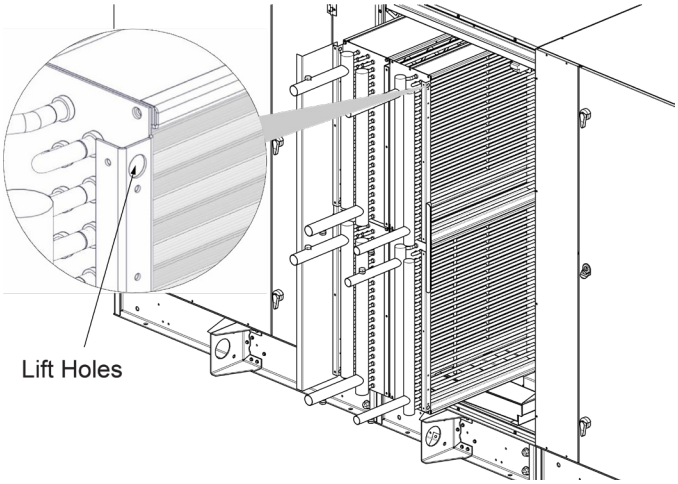


3. Pull to slide the entire coil assembly out of the cabinet. If using support straps/hooks, pull the coil assembly out partially and secure the supports to any of the available lift holes.

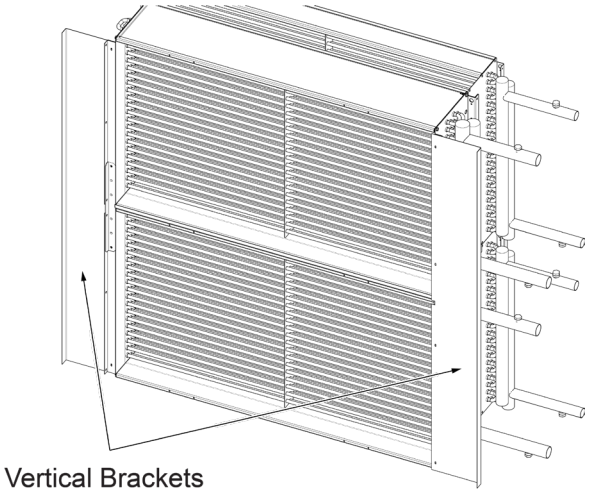
⚠ DANGER

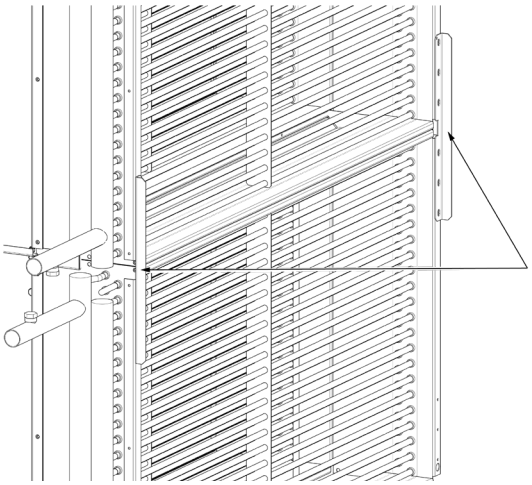
COIL ASSEMBLY IS HEAVY!

Failure to use the proper lifting equipment to support the weight of the assembly can cause property damage, personal injury, or death. Supports should be able to lift the weight of the coils as detailed in Table 31 on page 49.

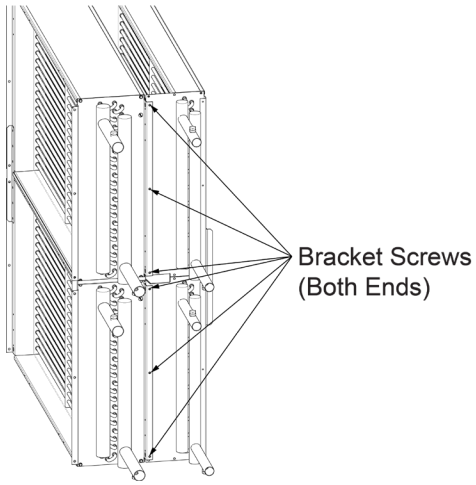


4. Place the coil assembly on a flat surface.
5. To detach the individual coils, remove the screws securing the coils to each joining bracket.



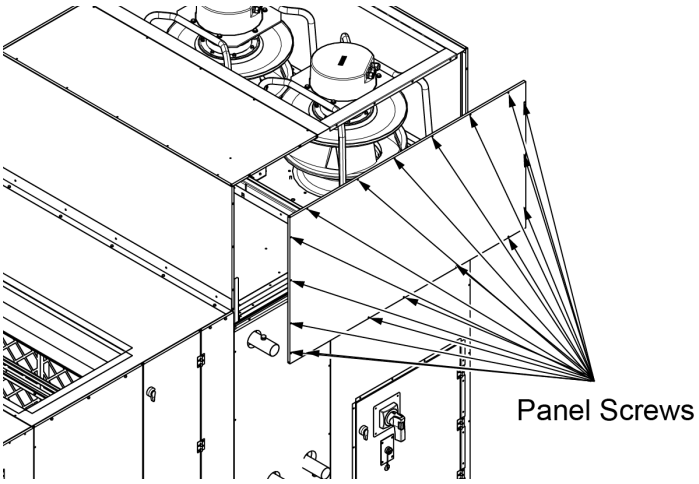


NOTE: The image below only applies to units with the optional secondary coil.

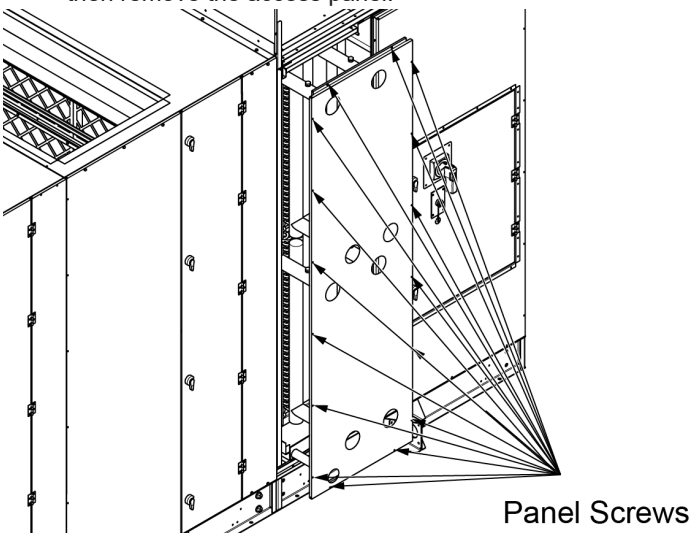


Hydronic Coil Removal - Vertical Unit Sizes 060 - 100 (Primary Coil and Optional Secondary Coil Shown)

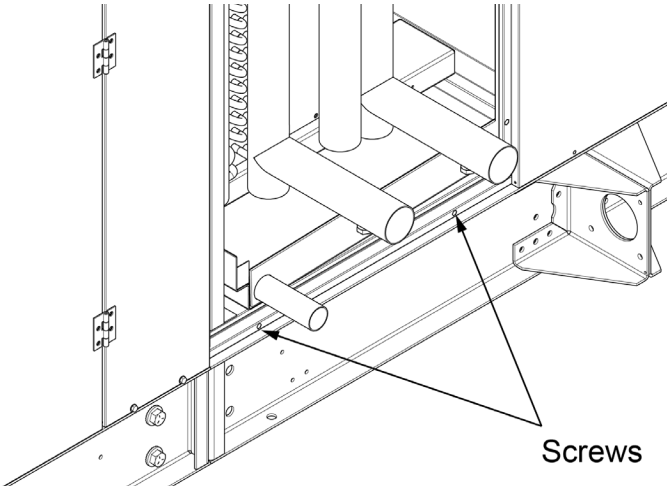
1. Remove screws securing the access panel to the fan section, then remove the fan access panel.



2. Remove screws securing the access panel to the cabinet, then remove the access panel.



3. Remove screws securing the stopper bracket to the cabinet. Remove the bracket.

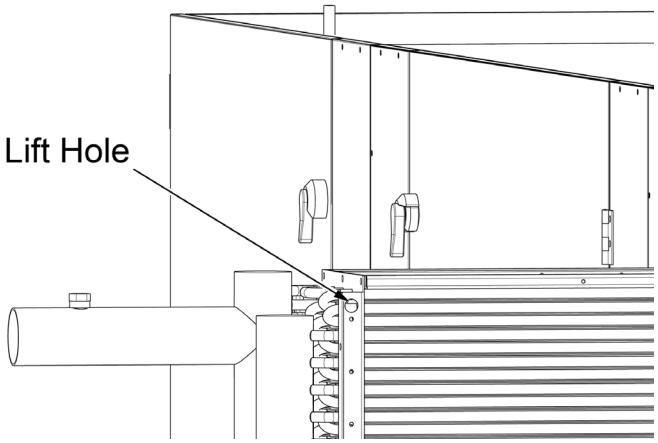


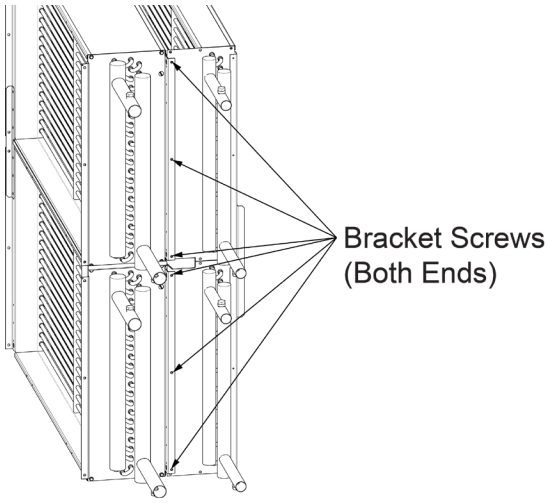
4. Pull to slide the entire coil assembly out of the cabinet. If using support straps/hooks, pull the coil assembly out partially and secure the supports to any of the available lift holes.

⚠ DANGER

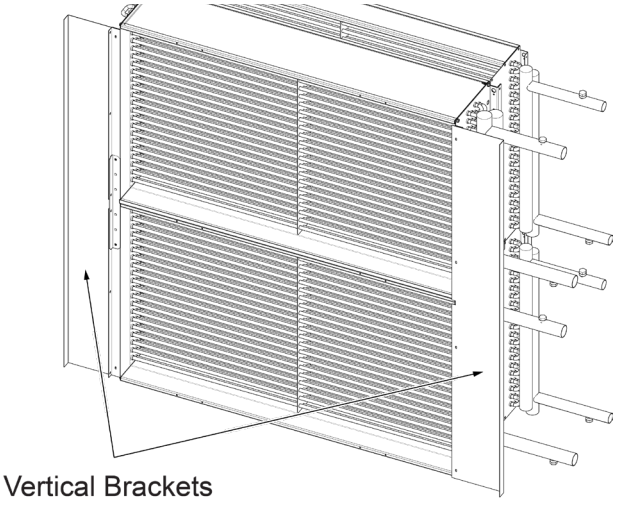
COIL ASSEMBLY IS HEAVY!

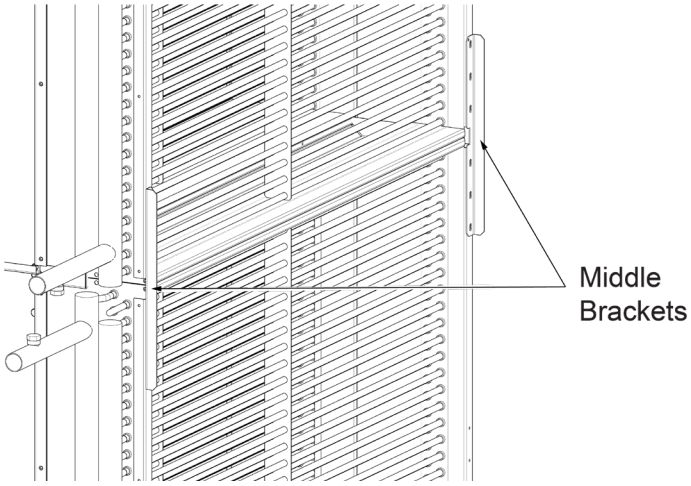
Failure to use the proper lifting equipment to support the weight of the assembly can cause property damage, personal injury, or death. Supports should be able to lift the weight of the coils as detailed in Table 34 on page 51.





5. Place the coil assembly on a flat surface.
6. To detach the individual coils, remove the screws securing the coils to each joining bracket.





NOTE: The image below only applies to units with the optional secondary coil.

Fan Motor Removal

Horizontal Units Size 006-020

1. Unplug the wires going from the control box to motor.
2. Remove the top and bottom screws on the downstream side of the control box and loosen the top and bottom screws on the upstream side. Swing the control box out to make room for the fan housing to slide out.
3. Remove the set screw on the fan housing rail and slide out the blower assembly.

Figure 173: Remove Set Screw On Fan Housing Rail

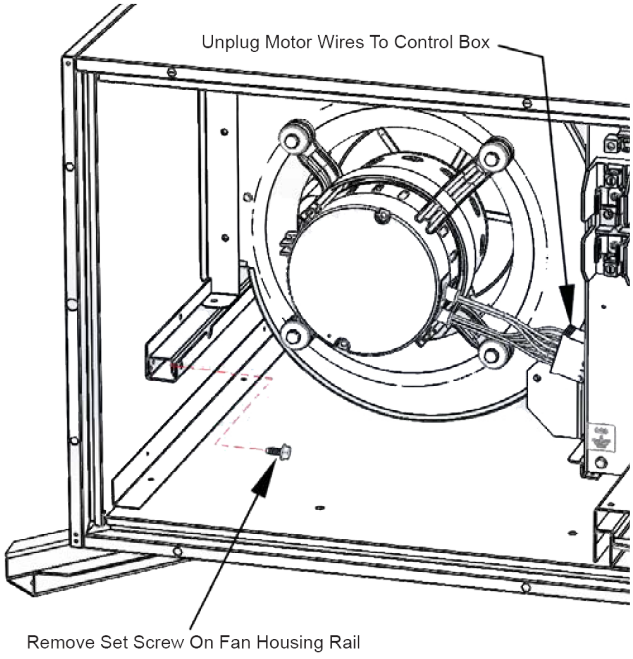
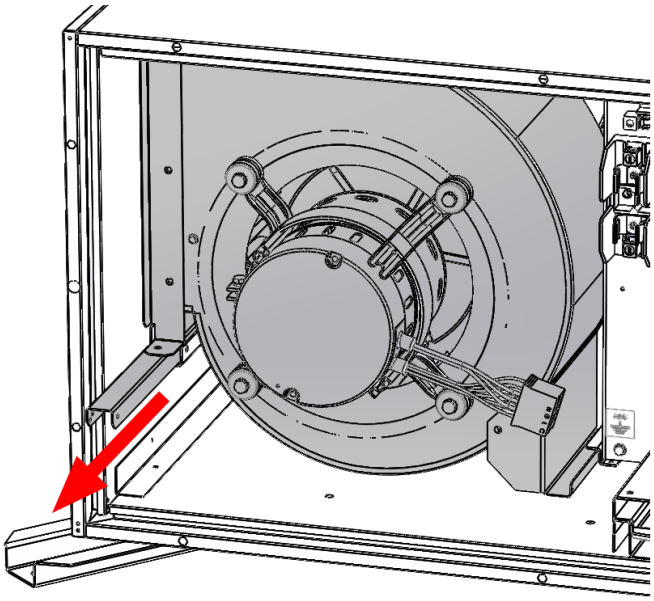
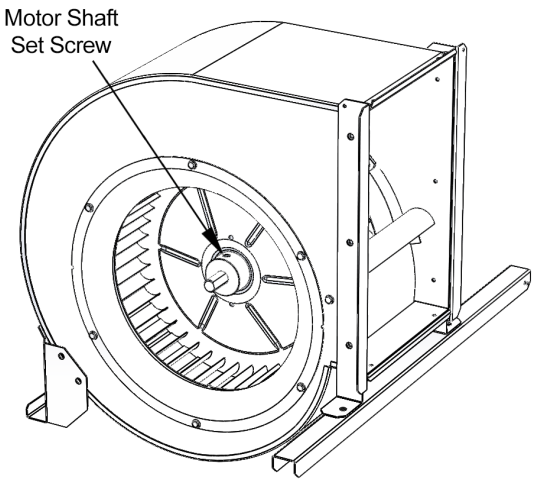


Figure 174: Slide Out The Blower Assembly



4. Loosen the motor shaft set screw on the opposite side of the fan.

Figure 175: Loosen The Motor Shaft Set Screw



5. Remove the four bolts holding the belly band to the fan housing and pull the motor out.

Figure 176: Loosen The Motor Shaft Set Screw

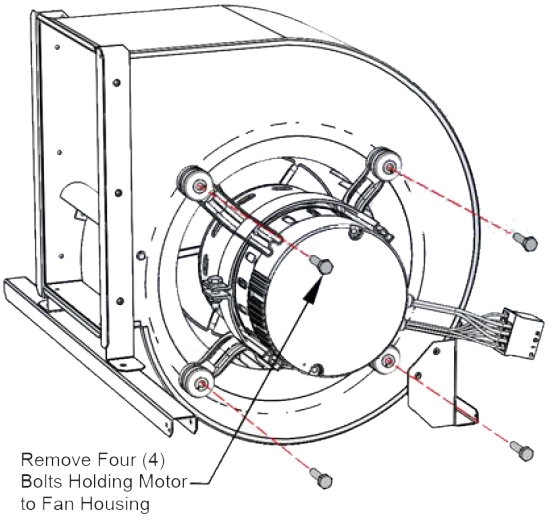
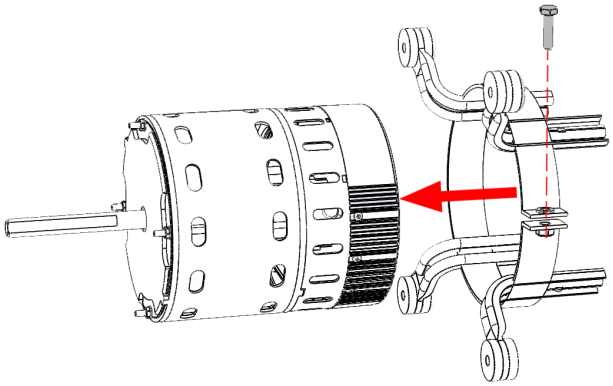


Figure 177: Loosen Belly Band Bolt And Remove From Motor



6. Reverse this process to install the new motor, taking care to center the fan on the shaft before tightening the motor shaft set screw.

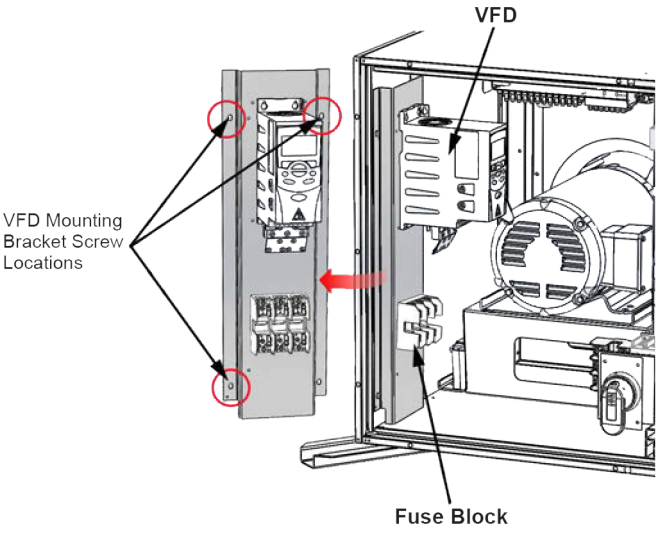
Horizontal Units Size 030-050 (DWDI Forward-Curved Fans)

1. Disconnect the wires from the motor to the VFD at the VFD. The wires between the VFD/Fuse Block and the control box may be left attached.

NOTICE
Unit size 030 shown. Views may vary by unit size. For clarity not all wiring and components are shown.

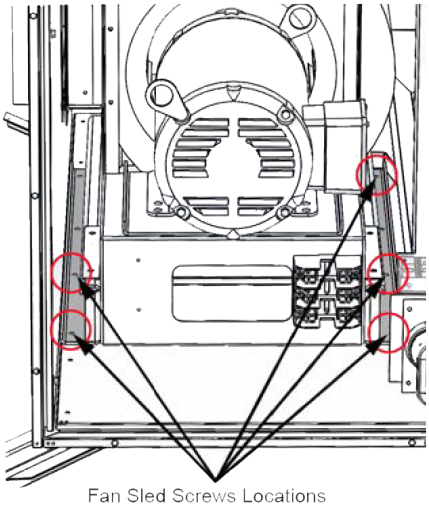
2. Remove the VFD mounting bracket by removing three mounting screws; two on the access panel side of the bracket and one on the upper-back side of the bracket.
3. The VFD mounting bracket with the control box wires still attached should be moved out of the way and supported to avoid straining the wires.

Figure 178: Remove VFD Mounting Bracket



4. Remove the five screws holding the fan sled to the cabinet bottom panel; two screws on the access panel side and three on the upstream side of the sled.

Figure 179: Remove Five (5) Screws Holding Fan Sled



5. Pull the sled assembly out, using caution to support its weight and gain access to the motor shaft set screws shown in Figure 180.

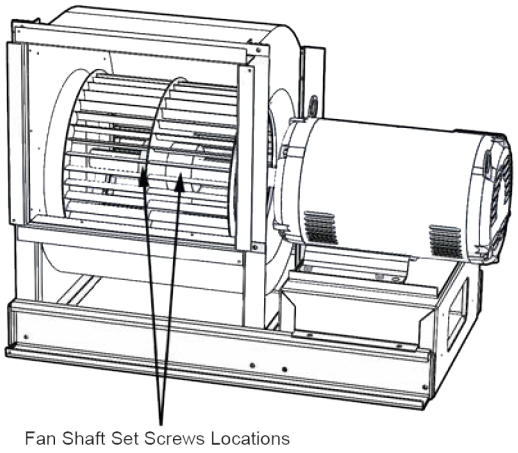
⚠ DANGER

FAN MOTOR SLED ASSEMBLY IS HEAVY!

Failure to use the proper lifting equipment specified to support the weight of the sled assembly can cause property damage, personal injury, or death. Supports should be able to withstand at least 200 lbs of weight.

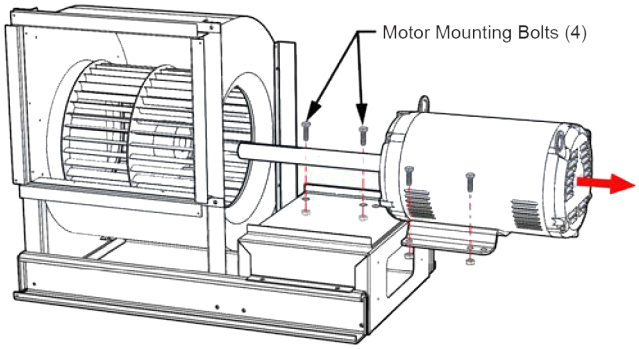
6. Loosen the two motor shaft set screws; one on either side of the fan center partition.

Figure 180: Fan Shaft Set Screw Locations



7. Remove the four motor mounting bolts using a wrench to hold the nut on the underside of the motor base.
8. Slide the motor shaft out of the fan hub while supporting the motor.

Figure 181: Motor Mounting Bolts

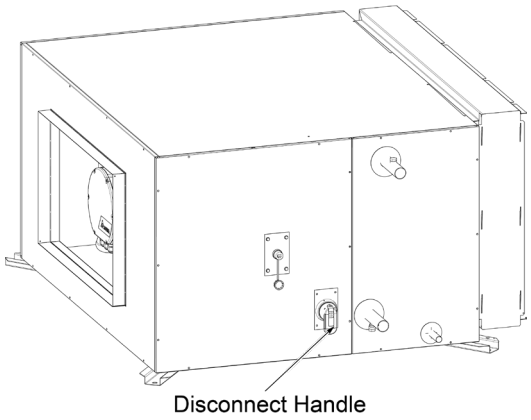


To replace with poly phase motor:

1. Place the new motor on the base and insert the shaft into the fan hub, leaving the set screws loose.
2. Install the motor mounting bolts, washers and nuts leaving the nuts loose.
3. Adjust the motor on the base and the fan on the shaft so that the fan is straight and centered in the housing.
4. Tighten the mounting bolts and shaft set screws.
5. Push the sled into the cabinet until it is against the back stop and the fan housing is tight against the front panel.
6. Reinstall and tighten the five sled screws.
7. Reattach the VFD bracket on the front panel
8. Reconnect the motor wires to the VFD.

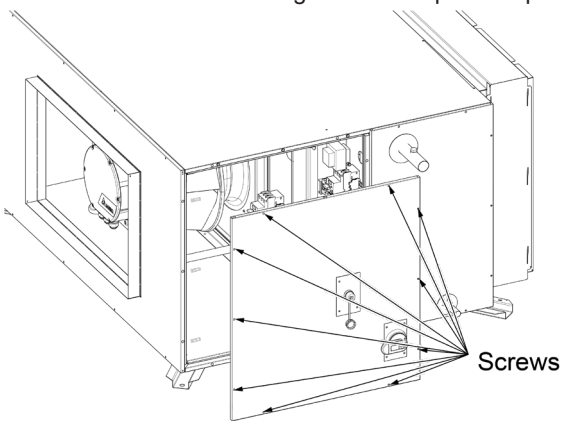
Horizontal Unit Sizes 030 - 050 (Welded Aluminum Airfoil Plenum Fans)

1. Turn the switch disconnect handle to the off position.



NOTE: Single fan model shown.

2. Remove the screws holding the access panel in place.

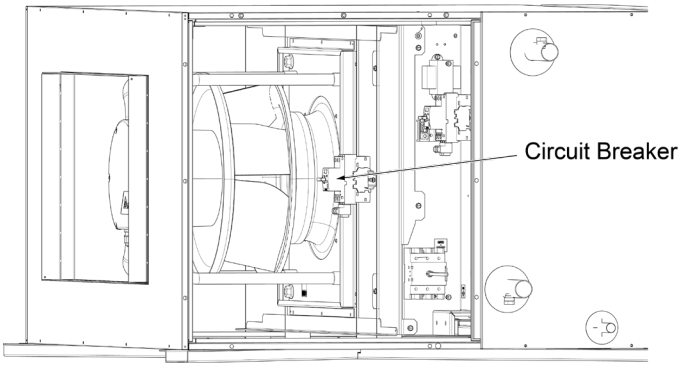


3. Detach the low-voltage and power wires from the fan motor by releasing the plastic connectors.

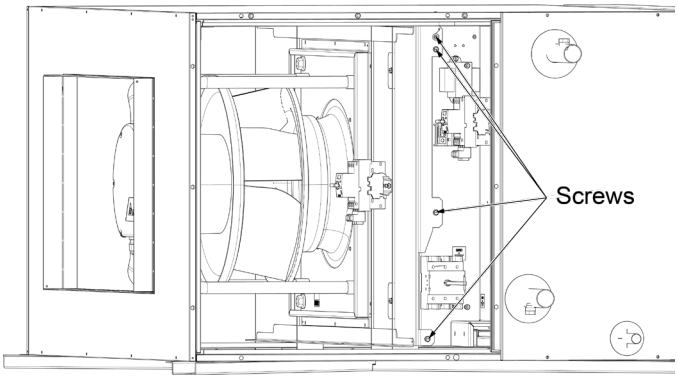
NOTICE

Remember the fan motor orientation when installing a new fan. Matching the motor orientation will ensure wires can reach the connectors of the new motor.

4. SIZE 030 ONLY: detach wires connecting the circuit breaker to the terminal block.



5. Remove the screws holding the fan sled assembly in place (single fan models only).



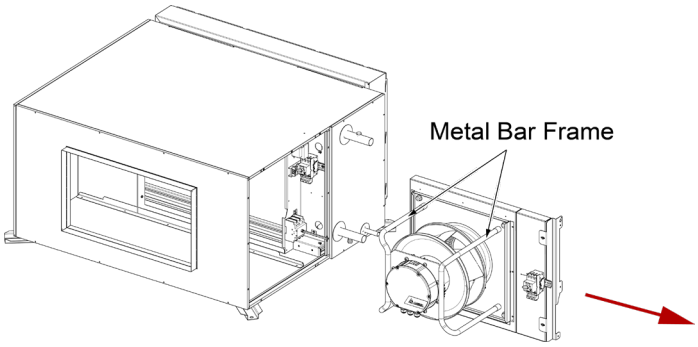
6. Secure supports to the metal bar frame.

⚠ DANGER

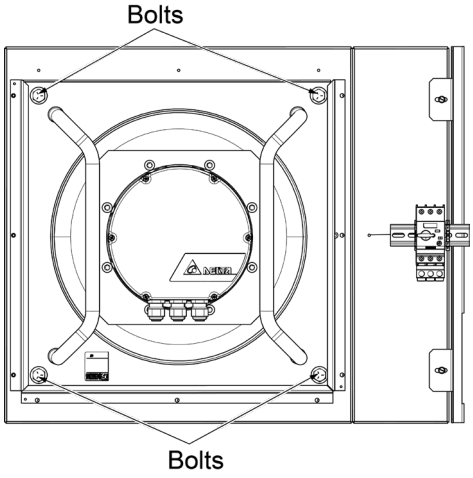
FAN SLED ASSEMBLY IS HEAVY!

Failure to use the proper lifting equipment to support the weight of the sled assembly can cause property damage, personal injury, or death. Supports should be able to withstand at least 200 lbs of weight.

7. Remove the fan sled assembly from the cabinet and lower onto a flat surface.



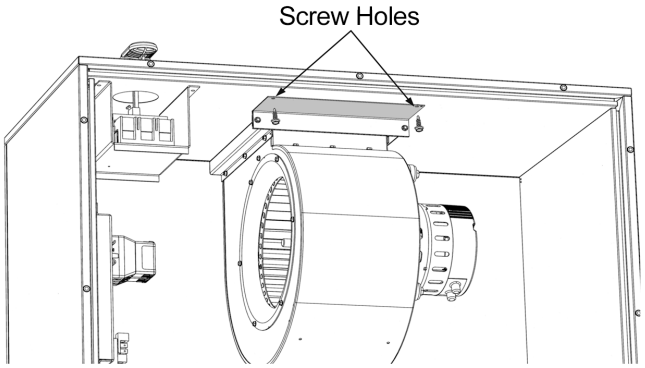
8. Remove the bolts holding the fan(s) to the slide-out sled.



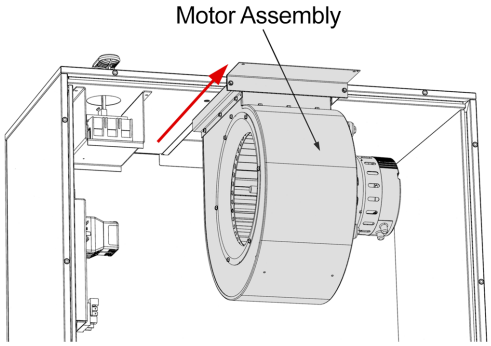
9. Remove fan from the slide-out sled.
10. Repeat steps 3-8 for second fan (if equipped).

Vertical Unit Sizes 006 - 020 (DWDI Forward-Curved Fans)

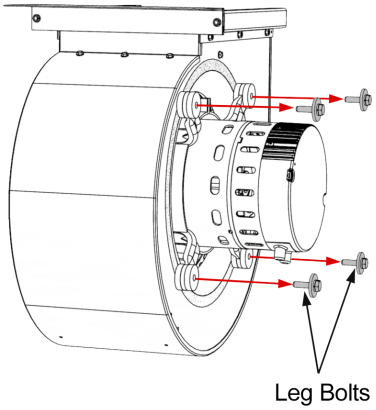
1. Remove 2 screws.



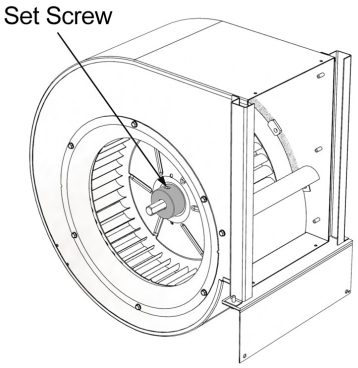
2. Slide out fan and motor assembly.



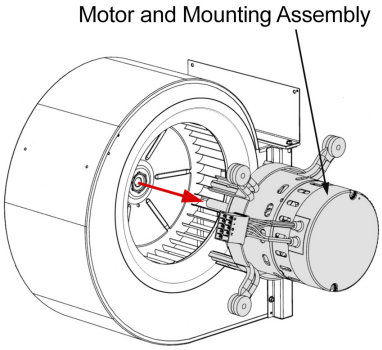
3. Remove motor mount leg bolts.



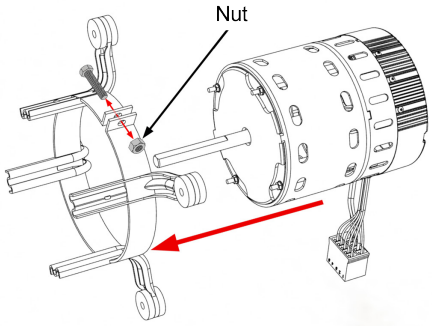
4. Loosen set screw holding fan to fan shaft.



5. Remove motor and mounting assembly.

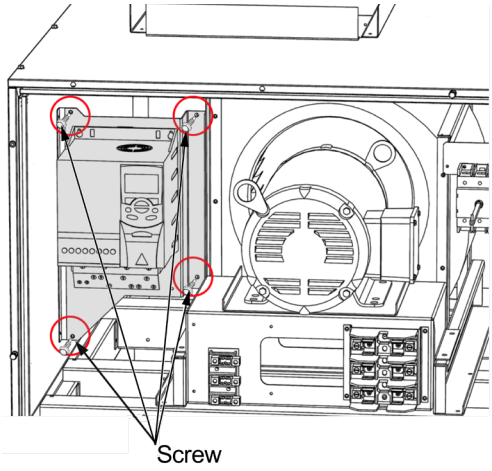


6. Loosen bolt and nut to remove belly band from motor.

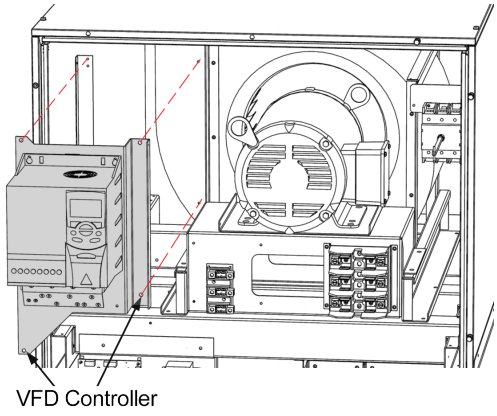


Vertical Unit Sizes 030 - 050 (DWDI Forward-Curved Fans)

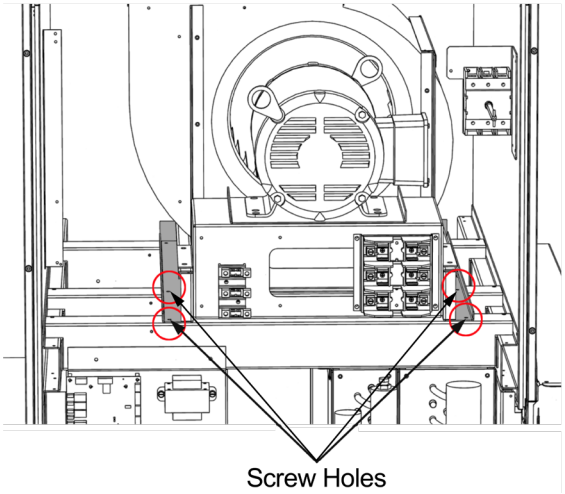
1. Remove 4 screws holding VFD controller.



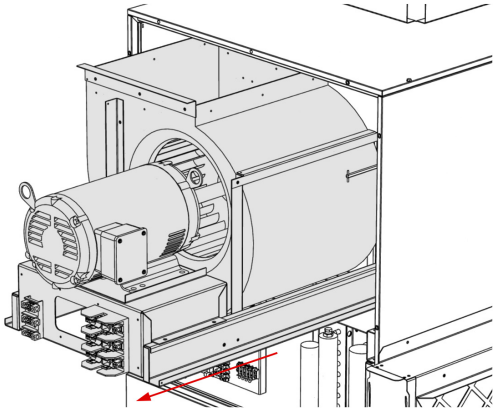
2. Remove VFD controller.



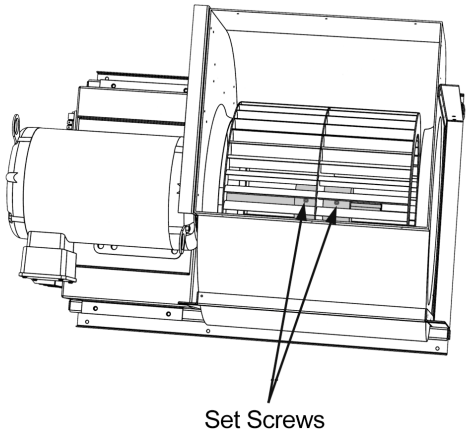
3. Remove 4 screws along motor sled rails.



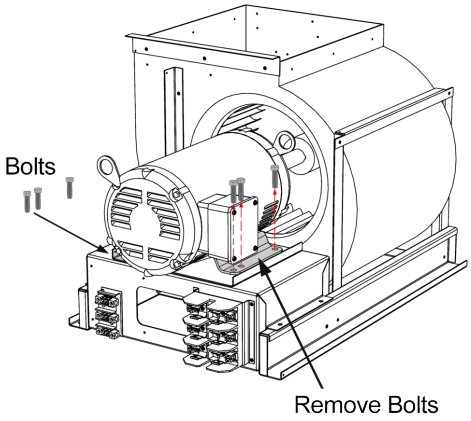
4. Slide out motor and fan assembly sled.



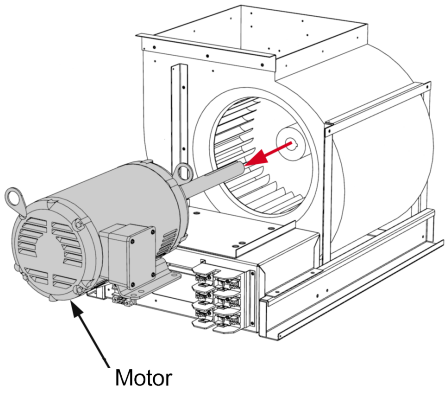
5. Loosen fan wheel set screws (2) on either side of the fan wheel central plate.



6. Remove (6) bolts, 3 on each side holding motor to sled assembly.

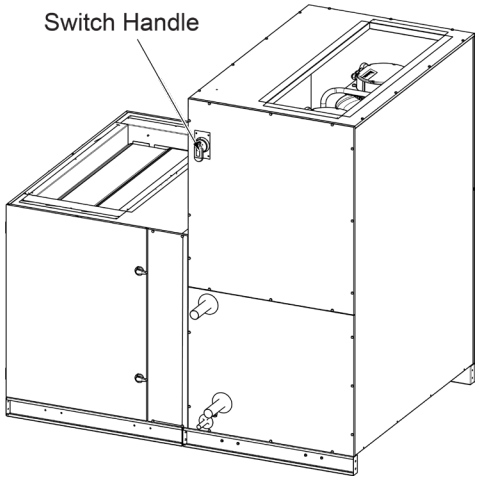


7. Slide out motor from fan housing.



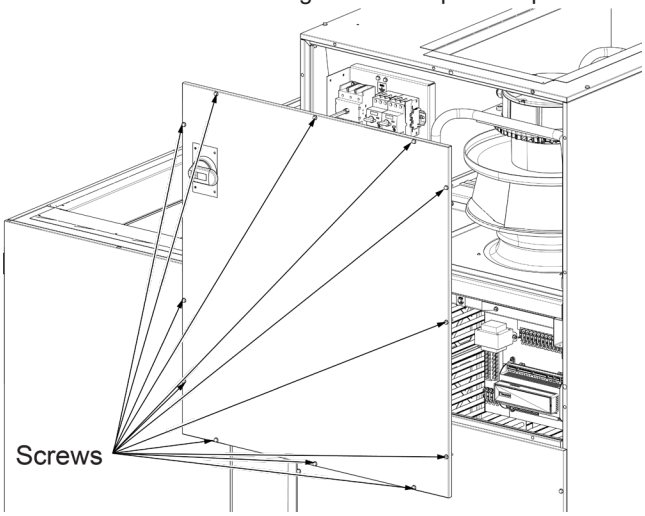
Vertical Unit Sizes 030 - 050 (Welded Aluminum Airfoil Plenum Fans)

1. Turn the switch disconnect handle to the off position.



NOTE: Dual fan assembly shown.

2. Remove the screws holding the access panel in place.



3. Detach the low-voltage and power wires from the motor by releasing the plastic connectors.

NOTICE

Remember the motor orientation when installing a new fan. Matching the motor orientation will ensure wires can reach the connectors of the new motor.

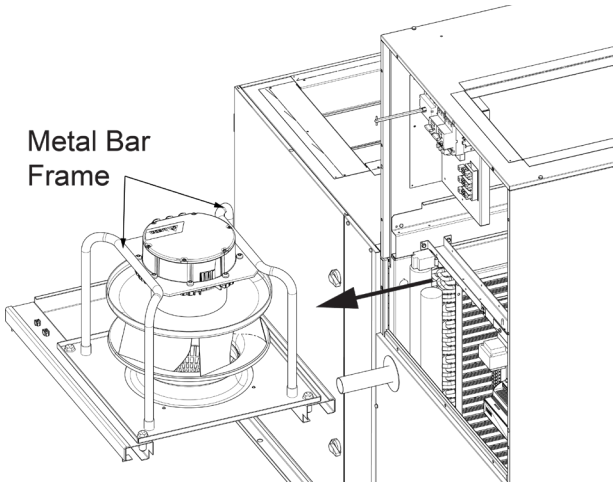
4. Secure supports to the metal bar frame.

⚠ DANGER

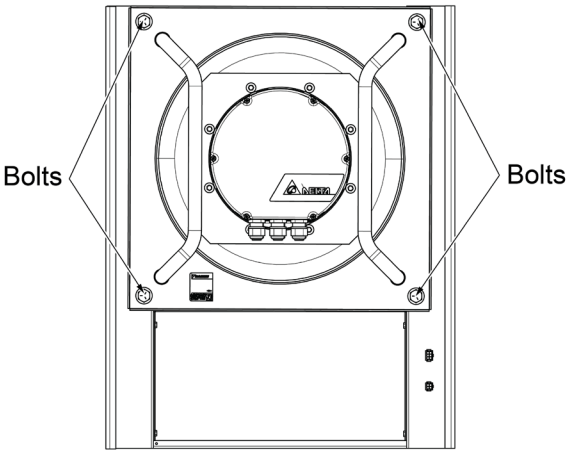
FAN SLED ASSEMBLY IS HEAVY!

Failure to use the proper lifting equipment to support the weight of the sled assembly can cause property damage, personal injury, or death. Supports should be able to lift at least 200 lbs.

5. Remove the fan sled assembly from the cabinet and lower onto a flat surface.



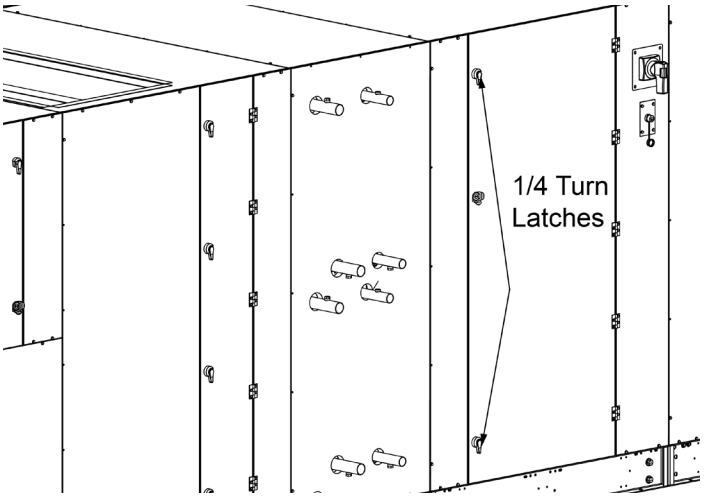
6. Remove the bolts holding the fan to the slide-out sled.



7. Remove fan from the slide-out sled.
8. Repeat steps 2-8 for second fan (if equipped).

Horizontal Unit Sizes 060 - 100 (Welded Aluminum Airfoil Plenum Fans)

1. Open the cabinet access door by turning the quarter-turn latches.



NOTICE

Dual fan model shown.

2. Detach the low-voltage and power wires from the fan motor(s) by releasing the plastic connectors.

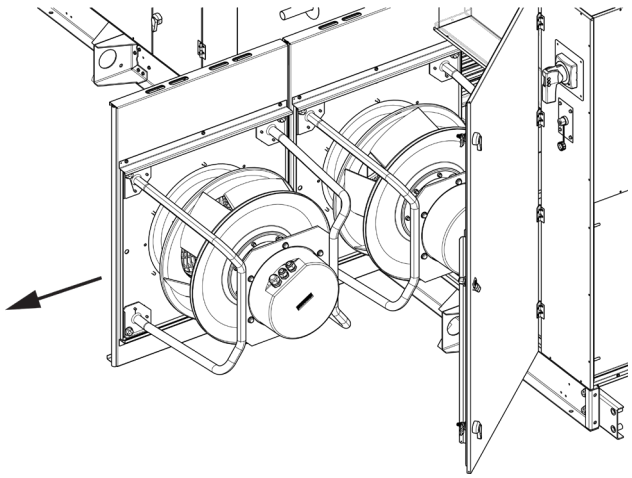
NOTICE

Remember the motor orientation when installing the new fan. Matching the motor orientation will ensure wires can reach the connectors of the new motor.

3. Slide the fan(s) out fully from the cabinet along the slide-out rail.

⚠ DANGER

NEVER slide fans out of the cabinet unless the cabinet is securely fastened to a flat surface or to another cabinet section. Failure to do so will create a tipping hazard, which can cause property damage, personal injury, or death.



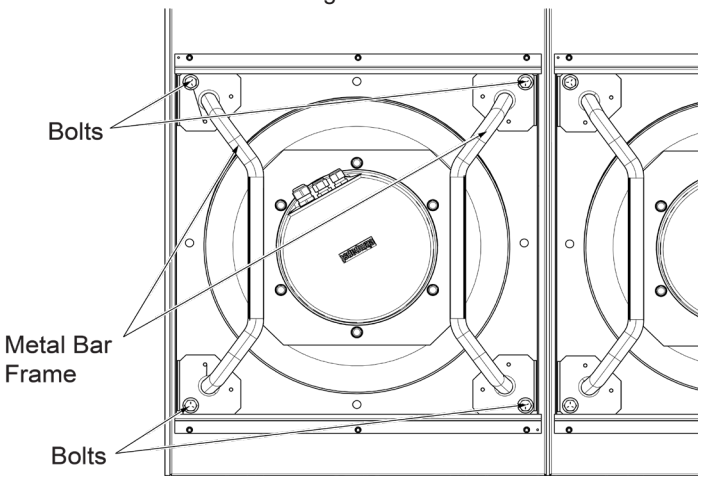
4. Secure supports to the metal bar frame.

⚠ DANGER

FAN SLED ASSEMBLY IS HEAVY!

Failure to use the proper lifting equipment to support the weight of the sled assembly can cause property damage, personal injury, or death. Supports should be able to lift at least 150 lbs.

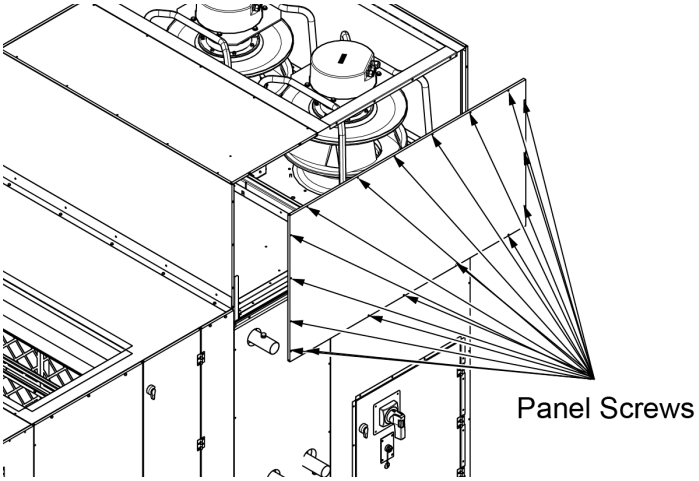
5. Remove the bolts holding the fan to the slide-out sled.



6. Remove fan from the slide-out sled.
7. Repeat steps 4-6 for second fan (if equipped).

Vertical Unit Sizes 060 - 100 (Welded Aluminum Airfoil Plenum Fans)

1. Remove screws securing the access panel to the fan section, then remove the fan access panel.



NOTICE

Dual fan model shown.

2. Detach the low-voltage and power wires from the fan motor(s) by releasing the plastic connectors.

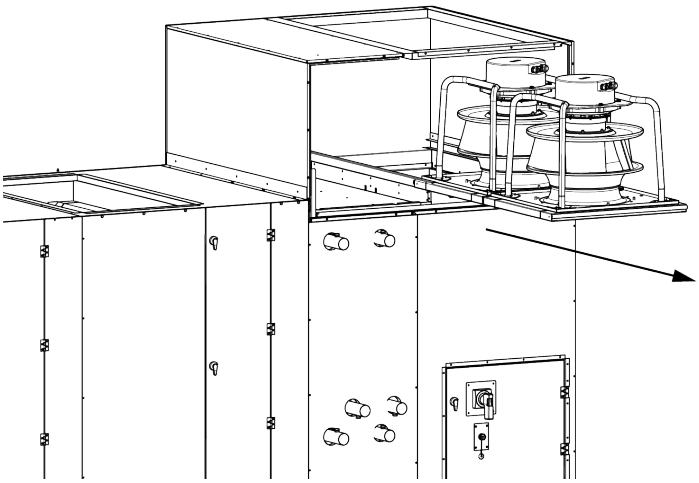
NOTICE

Remember the motor orientation when installing the new fan. Matching the motor orientation will ensure wires can reach the connectors of the new motor.

3. Slide the fan(s) out fully from the cabinet along the slide-out rail.

⚠ DANGER

NEVER slide fans out of the cabinet unless the cabinet is securely fastened to a flat surface or to another cabinet section. Failure to do so will create a tipping hazard, which can cause property damage, personal injury, or death.



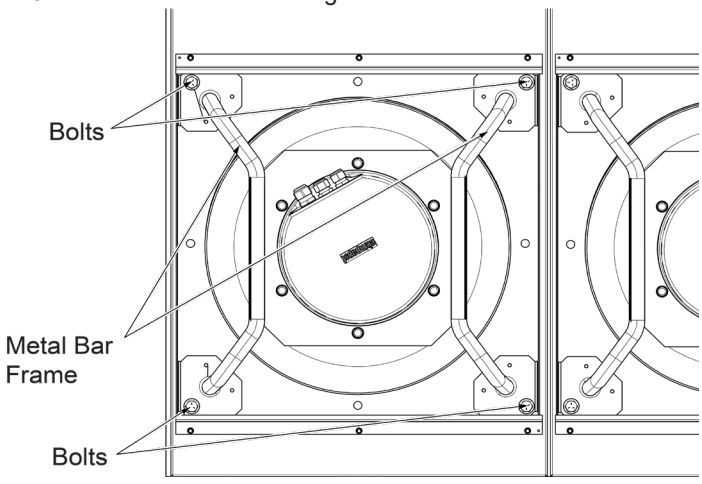
4. Secure supports to the metal bar frame.

⚠ DANGER

FAN SLED ASSEMBLY IS HEAVY!

Failure to use the proper lifting equipment to support the weight of the sled assembly can cause property damage, personal injury, or death. Supports should be able to lift at least 150 lbs.

5. Remove the bolts holding the fan to the slide-out sled.



6. Remove fan from the slide-out sled.
7. Repeat steps 4-6 for second fan (if equipped).

A2L 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.

Be aware that R-32 and R-454B 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.

⚠ DANGER

LOCKOUT/TAGOUT all power sources prior to servicing the unit or opening any panels or doors. This Appliance is equipped with a Refrigerant Leak Detection system and the system components such as supply fans may begin operation unexpectedly and without warning.

⚠ WARNING

Unit must be powered at all times, except when servicing. The appliance is designed with leakage mitigation, which requires continuous 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.

⚠ WARNING

In the unlikely event that a refrigerant leak occurs, all dampers must be driven to remain fully open to provide ventilation.

⚠ WARNING

Units using A2L refrigerants connected to one or more rooms must be ducted directly to the space. Open areas, such as false ceilings cannot be used as a return air duct.

Safety Considerations

This unit is equipped with an A2L (R-32 or R-454B) refrigerant and a Refrigerant Leak Detection and Mitigation system. In the unlikely event of a refrigerant leak, the unit must be instructed to take mitigating actions such as activation of diluting airflow and/or disabling certain unit functions. For full details on the mitigation modes and sequence of operation please refer to the literature for the A2L mitigation control board. For connection to customer control systems or a Building Management System a field connection is provided with the A2L controls. Please refer to the unit specific electrical schematic for the connection details.

Maintaining and servicing A2L refrigerants should only be performed as recommended by this manual and by personnel licensed or certified in their jurisdiction to handle A2L refrigerants under a controlled procedure. Dismantling the unit and treatment of the refrigerant, oil, and additional parts must be done in accordance with the relevant local, state, and national regulations.

Only use tools meant for use on the unit's designated A2L refrigerant, such as a gauge manifold, charge hose, gas leak detector, reverse flow check valve, refrigerant charge base, vacuum gauge, or refrigerant recovery equipment.

Field Installation Considerations

All field installed or modified refrigerant containing pipe-work including piping material, pipe routing, and installation shall include protection from physical damage in operation and service, and be in compliance with national and local codes and standards, such as ASHRAE 15, ASHRAE 15.2, IAPMO Uniform Mechanical Code, ICC International Mechanical Code, or CSA B52. All field joints shall be accessible for inspection prior to being covered or enclosed.

After completion of any field installed piping for split systems the pipework shall be pressure tested with an inert gas and vacuum tested prior to being charged with refrigerant per the procedure below.

The minimum test pressure for the low side of the system shall be the low side design pressure and the minimum test pressure for the high side of the system shall be the high side design pressure, unless the high side of the system, cannot be isolated from the low side of the system in which case the entire system shall be pressure tested to the low side design pressure.

NOTICE

For information on field control wiring requirements when electric or gas heat ignition sources are present, consult "Electric Heat" on page 38.

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. 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 starting on page 155. 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 103 on page 154. 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 103: 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

Figure 182: R-32 Refrigerant - Required Minimum Room Area Chart

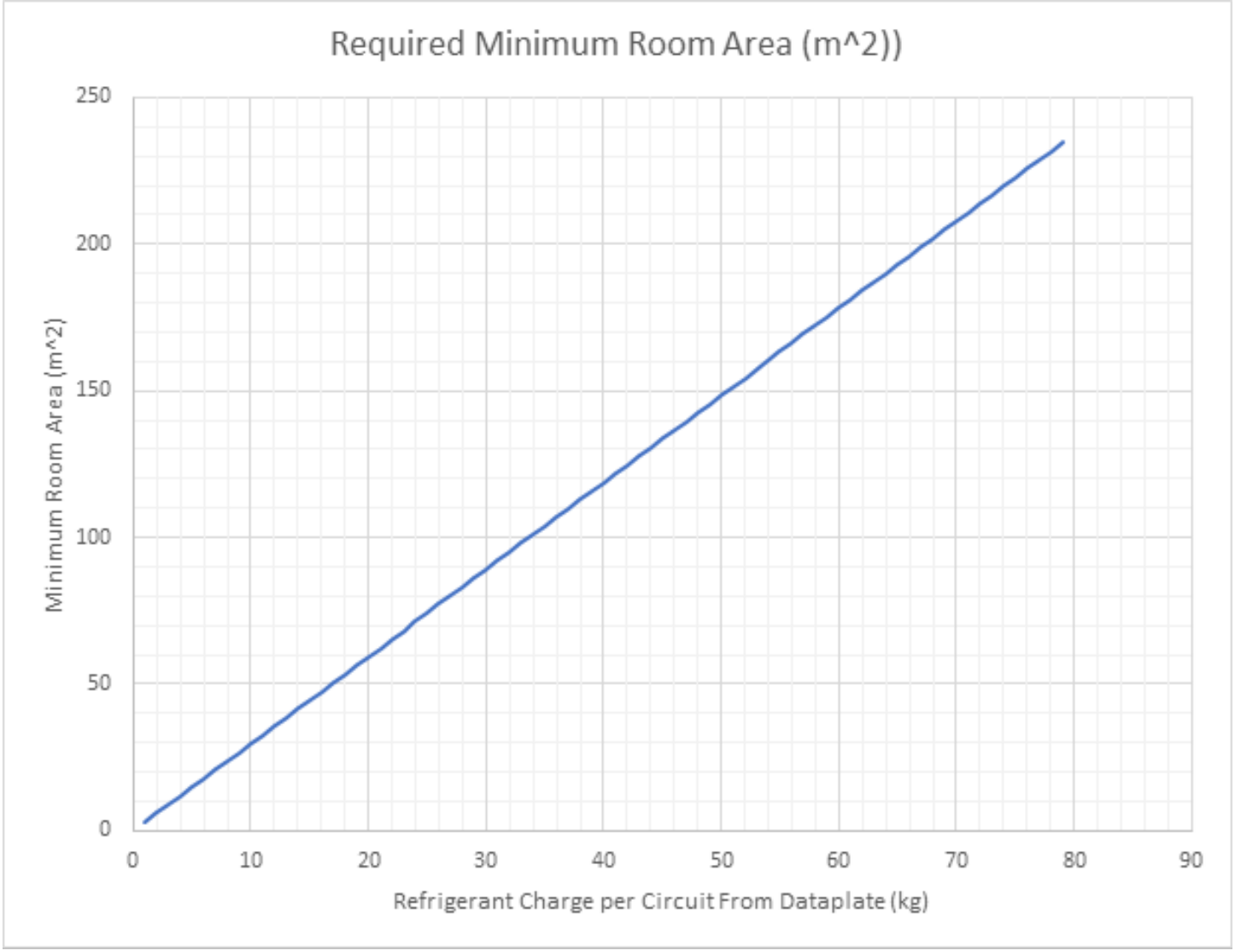
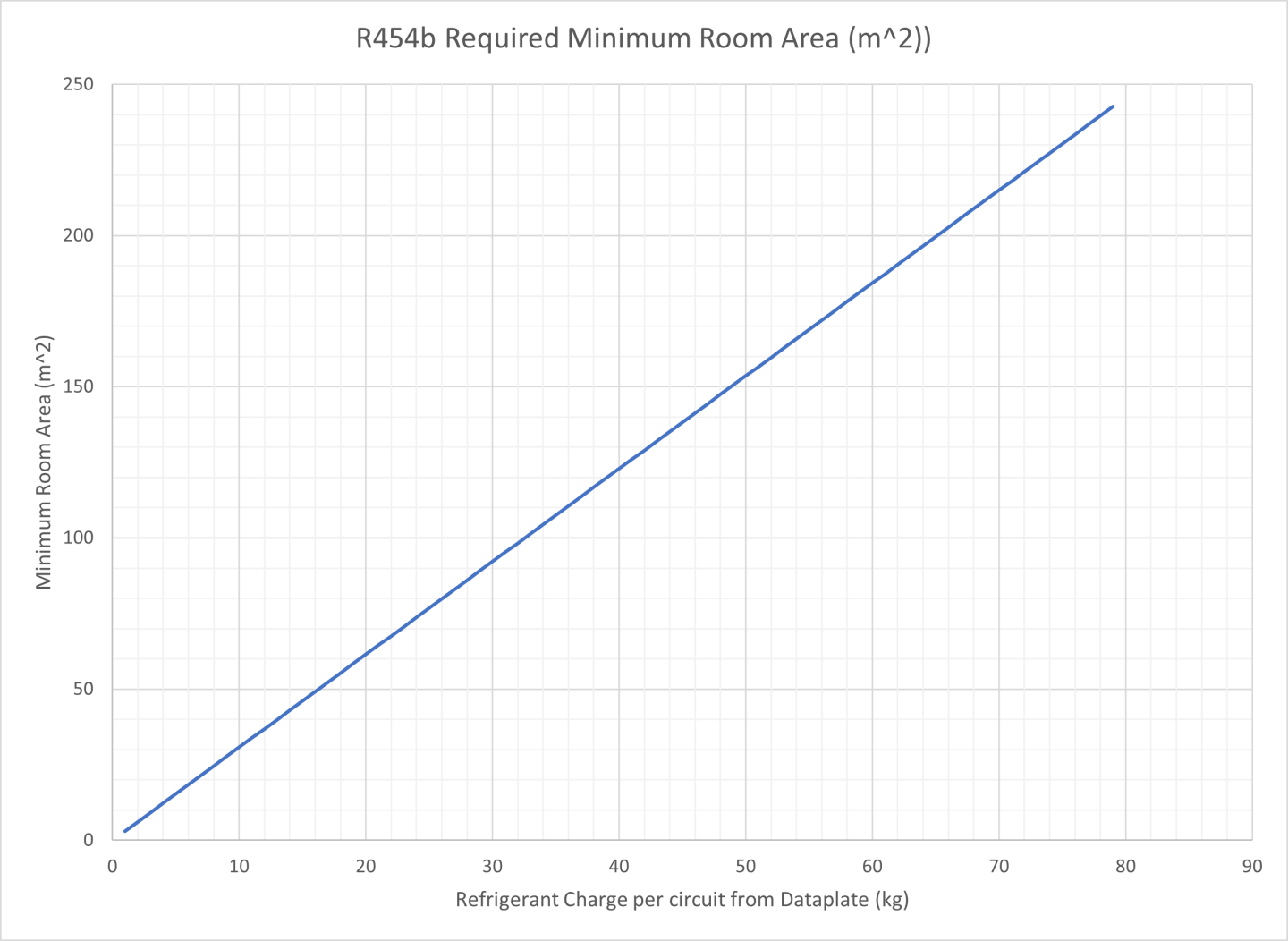


Figure 183: R-454B Refrigerant - Required Minimum Room Area Chart



Leak Mitigation System and Sensors

For Additional Instructions on how to operate the Leak Mitigation System, refer to A2L Mitigation Board Installation Manual.

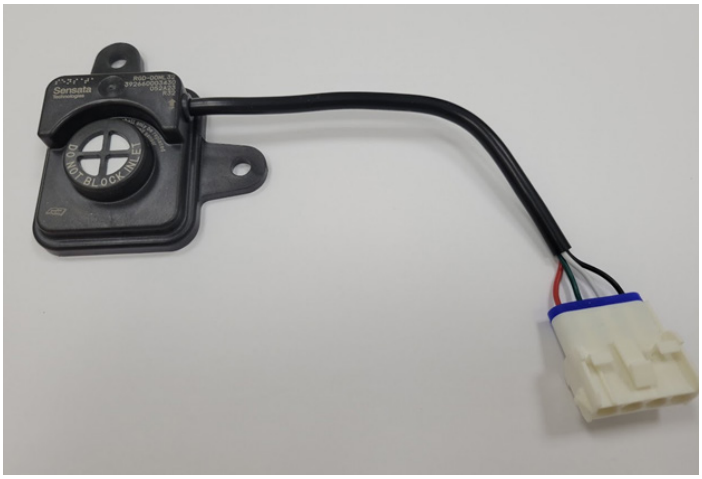
⚠ WARNING

This equipment is equipped with a Refrigerant Leak Detection System. 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 184: Sample Refrigerant Detection Sensor



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

⚠ WARNING

Auxiliary devices which may be a Potential Ignition Source shall not be installed in the duct work. Examples of such Potential Ignition Sources are hot surfaces with a temperature exceeding 700°C and electric switching devices.

⚠ WARNING

The unit must be stored and/or located to prevent mechanical damage of the refrigeration system. Do not store the unit near sources of open flame, electrical switching devices, or hot surfaces above 700°C. If the unit is stored indoors the storage area should be larger than the Minimum Room Area specified in this manual. The storage space should be well ventilated and not allow for the stagnation of leaked refrigerant. Failure to do so may result in a fire or explosion hazard.

⚠ WARNING

Only auxiliary devices approved by Daikin Applied or declared suitable for installation with the unit's designated A2L refrigerant shall be installed in the connecting ductwork.

Performing Service

Remove Ignition Sources

Always perform a safety check of the area to ensure the risk of ignition is minimized before servicing the unit.

Personnel Awareness

Inform maintenance staff and others working in the local area of the nature of work being carried out. Only personnel attending to the refrigerant system should be present.

Check for Presence of Airborne Refrigerant

Check the area with an appropriate refrigerant detector prior to and during work to ensure all personnel are aware of potentially toxic or flammable gases in the air. Ensure that the leak detection equipment being used is suitable for use with all applicable refrigerants, i.e., non-sparking, adequately sealed or intrinsically safe.

Presence of fire extinguisher

If any hot work is to be conducted on the refrigerating equipment or any associated parts, appropriate fire extinguishing equipment should be available to hand. Have a dry powder or CO2 fire extinguisher adjacent to the charging area.

No Ignition Sources

No person carrying out work in relation to a REFRIGERATING SYSTEM which involves exposing any pipe work shall use any sources of ignition in such a manner that it may lead to the risk of fire or explosion. All possible ignition sources, including cigarette smoking, should be kept sufficiently far away from the site of installation, repairing, removing and disposal, during which refrigerant can possibly be released to the surrounding space. Prior to work taking place, the area around the equipment is to be surveyed to make sure that there are no flammable hazards or ignition risks. “No Smoking” signs shall be displayed.

Ventilated area

Ensure that the area is in the open or that it is adequately ventilated before breaking into the system or conducting any hot work. A degree of ventilation shall continue during the period that the work is carried out.

Checks to the refrigerating equipment

Where electrical components are being changed, they shall be fit for the purpose and to the correct specification. At all times the manufacturer’s maintenance and service guidelines shall be followed. If in doubt, consult the manufacturer’s technical department for assistance.

The following checks shall be applied to installations using FLAMMABLE REFRIGERANTS:

- The actual REFRIGERANT CHARGE is in accordance with the room size within which the refrigerant containing parts are installed.
- The ventilation machinery and outlets are operating adequately and are not obstructed.
- If an indirect refrigerating circuit is being used, the secondary circuit shall be checked for the presence of refrigerant.
- Marking to the equipment continues to be visible and legible. Markings that are illegible shall be corrected.
- Refrigerating pipe or components are installed in a position where they are unlikely to be exposed to any substance which may corrode refrigerant containing components, unless the components are constructed of materials which are inherently resistant to being corroded or are suitably protected against being so corroded.

Checks to electrical devices

Repair and maintenance to electrical components shall include initial safety checks and component inspection procedures. If a fault exists that could compromise safety, then no electrical supply shall be connected to the circuit until it is satisfactorily dealt with. If the fault cannot be corrected immediately but it is necessary to continue operation, an adequate temporary solution shall be used. This shall be reported to the owner of the equipment so all parties are advised.

Initial safety checks shall include:

- that capacitors are discharged: this shall be done in a safe manner to avoid possibility of sparking;
- that no live electrical components and wiring are exposed while charging, recovering or purging the system;
- that there is continuity of earth bonding.

Repairs to sealed components

Sealed electrical components shall be replaced.

Repair to intrinsically safe components

Intrinsically safe components must be replaced.

Cabling

- Check that cabling will not be subject to wear, corrosion, excessive pressure, vibration, sharp edges or any other adverse environmental effects. The check shall also take into account the effects of aging or continual vibration from sources such as compressors or fans.

Detection of flammable refrigerants

Under no circumstances shall potential sources of ignition be used in the searching for or detection of refrigerant leaks. A halide torch (or any other detector using a naked flame) shall not be used.

The following leak detection methods are deemed acceptable for all refrigerant systems:

- Electronic leak detectors may be used to detect refrigerant leaks but, in the case of FLAMMABLE REFRIGERANTS, the sensitivity may not be adequate, or may need re-calibration. (Detection equipment shall be calibrated in a refrigerant-free area.) Ensure that the detector is not a potential source of ignition and is suitable for the refrigerant used. Leak detection equipment shall be set at a percentage of the LFL of the refrigerant and shall be calibrated to the refrigerant employed, and the appropriate percentage of gas (25 % maximum) is confirmed.
- Leak detection fluids are also suitable for use with most refrigerants but the use of detergents containing chlorine shall be avoided as the chlorine may react with the refrigerant and corrode the copper pipe-work.

NOTE: Examples of leak detection fluids are:

- bubble method; or
- fluorescent method agents.

If a leak is suspected, all naked flames shall be removed/extinguished.

If a leakage of refrigerant is found which requires brazing, all of the refrigerant shall be recovered from the system, or isolated (by means of shut off valves) in a part of the system remote from the leak. Removal of refrigerant shall be according to instructions above.

Removal and evacuation

- When breaking into the refrigerant circuit to make repairs, or for any other purpose, conventional procedures shall be used. However, for flammable refrigerants it is important that best practice be followed, since flammability is a consideration.
- The following procedure shall be adhered to:
  a. safely remove refrigerant following local and national regulations
  b. purge the circuit with inert gas
  c. evacuate
  d. purge with inert gas
  e. open the circuit by cutting or brazing
- The refrigerant charge shall be recovered into the correct recovery cylinders. For appliances containing flammable refrigerants, the system shall be purged with oxygen-free nitrogen to render the appliance safe for flammable refrigerants. This process might need to be repeated several times.
- Compressed air or oxygen shall not be used for purging refrigerant systems.
- For appliances containing flammable refrigerants, refrigerants purging shall be achieved by breaking the vacuum in the system with oxygen-free nitrogen and continuing to fill until the working pressure is achieved, then venting to atmosphere, and finally pulling down to a vacuum.
- When the final oxygen-free nitrogen charge is used, the system shall be vented down to atmospheric pressure to enable work to take place.

- Ensure that the outlet for the vacuum pump is not close to any potential ignition sources and that ventilation is available.

Charging procedures

In addition to conventional charging procedures, the following requirements shall be followed.

- Ensure that contamination of different refrigerants does not occur when using charging equipment.
- Hoses or lines shall be as short as possible to minimize the amount of refrigerant contained in them.
- Cylinders shall be kept in an appropriate position according to the instructions.
- Ensure that the REFRIGERATING SYSTEM is electrically connected to ground to protect against electrical shock and to ensure safe discharge of static electricity during maintenance or prior to charging with refrigerant.
- Label the system when charging is complete (if not already).
- Extreme care shall be taken not to overfill the REFRIGERATING SYSTEM.
- Prior to recharging the system, it shall be pressure-tested with the appropriate purging gas. The system shall be leak-tested on completion of charging but prior to commissioning. A follow up leak test shall be carried out prior to leaving the site.

Decommissioning

Before carrying out this procedure, it is essential that the technician is completely familiar with the equipment and all its detail. It is recommended good practice that all refrigerants are recovered safely.

Prior to the task being carried out, an oil and refrigerant sample shall be taken in case analysis is required prior to re-use of recovered refrigerant.

It is essential that electrical power is available before the task is commenced.

- Become familiar with the equipment and its operation.
- Isolate system electrically.
- Before attempting the procedure, ensure that mechanical handling equipment is available, if required, for handling refrigerant cylinders; all personal protective equipment is available and being used correctly; the recovery process is supervised at all times by a competent person; recovery equipment and cylinders conform to the appropriate standards.
- Pump down refrigerant system, if possible.
- If a vacuum is not possible, make a manifold so that refrigerant can be removed from various parts of the system.
- Make sure that cylinder is situated on the scales before recovery takes place.
- Start the recovery machine and operate in accordance with instructions.
- Do not overfill cylinders (no more than 80 % volume liquid charge).
- Do not exceed the maximum working pressure of the cylinder, even temporarily.
- When the cylinders have been filled correctly and the process completed, make sure that the cylinders and the equipment are removed from site promptly and all isolation valves on the equipment are closed off.
- Recovered refrigerant shall not be charged into another REFRIGERATING SYSTEM unless it has been cleaned and checked.

Labeling

Equipment shall be labeled stating that it has been de-commissioned and emptied of refrigerant. The label shall be dated and signed. For appliances containing FLAMMABLE REFRIGERANTS, ensure that there are labels on the equipment stating the equipment contains FLAMMABLE REFRIGERANT.

Recovery

- When removing refrigerant from a system, either for servicing or decommissioning, the refrigerant must be removed safely.
- When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used are designated for the recovered refrigerant and labeled for that refrigerant (i.e., special cylinders for the recovery of refrigerant). Cylinders shall be complete with pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders are evacuated and, if possible, cooled before recovery occurs.
- The recovery equipment shall be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.
- The recovered refrigerant shall be returned to the refrigerant supplier in the correct recovery cylinder, and the relevant waste transfer note arranged. Do not mix refrigerants in recovery units and especially not in cylinders.

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that FLAMMABLE REFRIGERANT does not remain within the lubricant. The evacuation process shall be carried out prior to returning the compressor to the suppliers. Only electric heating to the compressor body shall be employed to accelerate this process. When oil is drained from a system, it shall be carried out safely.

Lubrication

R-32 should only be used with manufacturer-approved oil, such as DAPHNE FW68DE. The HFC refrigerant components in R-32 will not be compatible with mineral oil or alkylbenzene lubricants. R-32 systems will be charged with the OEM recommended lubricant, ready for use with R-32.

R-454B should only be used with manufacturer-approved oil. Check with your condensing unit supplier to verify the acceptable oils to use with the refrigerant system.

Leak Detection

NEVER use the following when attempting to detect A2L refrigerant leaks:

- A halide torch (or any other detector using a naked flame)
- Substances containing chlorine

Pressure Testing and Refrigerant Evacuation

- Make sure that air or any matter other than A2L refrigerants do not enter the refrigeration cycle.
- If refrigerant gas leaks occur in an enclosed area, ventilate the space as soon as possible.
- A2L refrigerants should always be recovered and never released directly into the environment.
- Only use tools meant for use on the unit's designated A2L refrigerant (such as a gauge manifold, charging hose, or vacuum pump adapter).

Commissioning

- Ensure proper connection of all piping and carry out a leak test before charging with refrigerant.
- Check safety equipment before putting into service.

Decommissioning

ALWAYS remove refrigerant charge before decommissioning the unit.

- Ensure sufficient ventilation at the equipment location.
- Be aware that malfunction of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.
- Discharge capacitors in a way that won't cause any spark.
- A2L refrigerants should always be recovered and never released directly into the environment. Take care that the drained refrigerant will not cause any danger. In doubt, one person should guard the outlet. Take special care that drained refrigerant will not float back into the building.

Recovery

Recovery Cylinders

When transferring refrigerant into cylinders, ensure that only appropriate refrigerant recovery cylinders are employed. Ensure that the correct number of cylinders for holding the total system charge is available. All cylinders to be used should be designated for the recovered refrigerant and labeled for that refrigerant. Cylinders should be complete with a pressure-relief valve and associated shut-off valves in good working order. Empty recovery cylinders should be evacuated and, if possible, cooled before recovery occurs.

Recovery Equipment

The recovery equipment should be in good working order with a set of instructions concerning the equipment that is at hand and shall be suitable for the recovery of all appropriate refrigerants including, when applicable, FLAMMABLE REFRIGERANTS. In addition, a set of calibrated weighing scales shall be available and in good working order. Hoses shall be complete with leak-free disconnect couplings and in good condition. Before using the recovery machine, check that it is in satisfactory working order, has been properly maintained and that any associated electrical components are sealed to prevent ignition in the event of a refrigerant release. Consult manufacturer if in doubt.

Recovered Refrigerant

The recovered refrigerant should be returned to the refrigerant supplier in the correct recovery cylinder with the relevant waste transfer note assigned. Do not mix refrigerants in recovery units and especially not in cylinders.

Compressor or Compressor Oils

If compressors or compressor oils are to be removed, ensure that they have been evacuated to an acceptable level to make certain that no refrigerant remains within the lubricant. The evacuation process should be carried out prior to returning compressors to the supplier(s). Only electric heating to the compressor body shall be employed to accelerate this process.

Handling and Storage

Precautions for Safe Handling

- Waste air is to be released into the atmosphere only via suitable separators. Open and handle receptacle with care.
- Keep ignition sources away.
- Do not smoke near the unit.
- Protect against electrostatic charges.

Conditions for Safe Storage

- Requirements to be met by storerooms and receptacles:
  - Store only in unopened original receptacles
  - Store in a cool and dry location
- Further information about storage conditions:
  - Keep container tightly sealed
  - Store in cool, dry conditions in well sealed receptacle
  - Protect from heat and direct sunlight
- Maximum storage temperature:
  - 104°F (40°C)

Disposal

- Waste treatment method recommendation:
  - Must be specially treated adhering to official regulations.
  - Incineration in an adequate incinerator is recommended.
  - Uncleaned packaging disposal must be made according to official regulations.
- Ensure sufficient ventilation at the working place.
- Remove the refrigerant. A2L refrigerants should always be recovered and never released directly into the environment. Take care that the drained refrigerant will not cause any danger. In doubt, one person should guard the outlet. Take special care that drained refrigerant will not float back into the building.
- Evacuate the refrigerant circuit.
- Purge the refrigerant circuit with nitrogen for 5 min.
- Evacuate again.
- Cut out the compressor and drain the oil.

Competence of Personnel

There are specific procedures that must be followed for the installation, repair, maintenance, and decommissioning of equipment that uses A2L refrigerants.

Training for these procedures is carried out by national training organizations or manufacturers that are accredited to teach the relevant national competency standards that may be set in legislation. The achieved competence should be documented by a certificate.

Information and Training

The training should include the substance of the following

- Information about the explosion potential of flammable refrigerants to show that flammables may be dangerous when handled without care.
- Information about potential ignition sources, especially those that are not obvious, such as lighters, light switches, vacuum cleaners, electric heaters.
- Information about the different safety concepts:
  - Unventilated: Safety of the appliance does not depend on ventilation of the housing. Switching off the appliance or opening of the housing has no significant effect on safety. Nevertheless, it is possible that leaking refrigerant may accumulate inside the enclosure and flammable atmosphere will be released when the enclosure is opened.
  - Ventilated enclosure: Safety of the appliance depends on ventilation of the housing. Switching off the appliance or opening of the enclosure has a significant effect on safety. Care should be taken to ensure sufficient ventilation before.
  - Ventilated room: Safety of the appliance depends on the ventilation of the room. Switching off the appliance or opening of the housing has no significant effect on safety. The ventilation of the room shall not be switched off during repair procedures.
- Information about refrigerant detectors:
  - Principle of function, including influences on the operation.
  - Procedures, how to repair, check or replace a refrigerant detector or parts of it in a safe way.
  - Procedures, how to disable a refrigerant detector in case of repair work on the refrigerant carrying parts.
- Information about the concept of sealed components and sealed enclosures according to IEC 60079-15:2010.
- Information about the correct working procedures:
  - Commissioning
    a. Ensure that the floor area is sufficient for the refrigerant charge or that the ventilation duct is assembled in a correct manner.
    b. Connect the pipes and carry out a leak test before charging with refrigerant.
    c. Check safety equipment before putting into service.
  - Maintenance
    a. Portable equipment shall be repaired outside or in a workshop specially equipped for servicing units with flammable refrigerants.
    b. Ensure sufficient ventilation at the repair place.
    c. Be aware that malfunction of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.
    d. Discharge capacitors in a way that won't cause any spark. The standard procedure to short circuit the capacitor terminals usually creates sparks.
    e. Reassemble sealed enclosures accurately. If seals are worn, replace them.
    f. Check safety equipment before putting into service.
  - Repair
    a. Portable equipment shall be repaired outside or in a workshop specially equipped for servicing units with flammable refrigerants.
    b. Ensure sufficient ventilation at the repair place.
    c. Be aware that malfunction of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.

d. Discharge capacitors in a way that won't cause any spark.

e. When brazing is required, the following procedures shall be carried out in the right order:

- Remove the refrigerant. A2L refrigerants should always be recovered and never released directly into the environment. Take care that the drained refrigerant will not cause any danger. In doubt, one person should guard the outlet. Take special care that drained refrigerant will not float back into the building.
- Evacuate the refrigerant circuit.
- Remove parts to be replaced by cutting, not by flame.
- Purge the braze point with nitrogen during the brazing procedure.
- Carry out a leak test before charging with refrigerant.

a. Reassemble sealed enclosures accurately. If seals are worn, replace them.

b. Check safety equipment before putting into service.

— Decommissioning

a. The refrigerant charge must be removed before decommissioning.

b. Ensure sufficient ventilation at the equipment location.

c. Be aware that malfunction of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.

d. Discharge capacitors in a way that won't cause any spark.

e. Remove the refrigerant. A2L refrigerants should always be recovered and never released directly into the environment. Take care that the drained refrigerant will not cause any danger. In doubt, one person should guard the outlet. Take special care that drained refrigerant will not float back into the building.

— Disposal

a. Ensure sufficient ventilation at the working place.

b. Remove the refrigerant. A2L refrigerants should always be recovered and never released directly into the environment. Take care that the drained refrigerant will not cause any danger. In doubt, one person should guard the outlet. Take special care that drained refrigerant will not float back into the building.

Maintenance

- Equipment shall be repaired outside or in a workshop specially equipped for servicing units with A2L refrigerants.
- Ensure sufficient ventilation at the location where repairs are taking place.
- Be aware that malfunction of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.
- Discharge capacitors in a way that won't cause sparks.
- When repairs are Reassemble sealed enclosures. If seals are worn, replace them.
- Check safety equipment before putting into service.

Repair

- Portable equipment shall be repaired outside or in a workshop specially equipped for servicing units with FLAMMABLE REFRIGERANTS.
- Ensure sufficient ventilation at the repair place.
- Be aware that malfunction of the equipment may be caused by refrigerant loss and a refrigerant leak is possible.
- Discharge capacitors in a way that won't cause any spark.
- When brazing is required, the following procedures shall be carried out in the right order:
  - Remove the refrigerant. A2L refrigerants should always be recovered and never released directly into the environment. Take care that the drained refrigerant will not cause any danger. In doubt, one person should guard the outlet. Take special care that drained refrigerant will not float back into the building.
  - Evacuate the refrigerant circuit.
  - Remove parts to be replaced by cutting, not by flame.
  - Purge the braze point with nitrogen during the brazing procedure.
  - Carry out a leak test before charging with refrigerant.
- Reassemble sealed enclosures accurately. If seals are worn, replace them.
- Check safety equipment before putting into service.

Appendix

Warranty Registration Form

PreciseLine Air Handler Equipment Warranty Registration Form

To comply with the terms of Daikin Applied Warranty, this form must be completely filled out and the record retained by the sales representative or the owner in order to comply with the terms of the Daikin Applied warranty.

JOB INFORMATION

Job Name:

Daikin G.O.:

Startup Date:

Daikin S.O.:

No. of Units at Site:

Sales Office:

Installation Address:

Purchasing Contractor Information:

UNIT INFORMATION

Unit Model No.:

Unit Serial No.:

Unit Location:

Unit Tagging:

INITIAL CHECK

Is the unit free of visible shipping damage or corrosion?	Yes	No	N/A
Is unit mounted level?	Yes	No	N/A
Does the unit meet all location, installation and service clearances per IOM Bulletin?	Yes	No	N/A
Are all setscrews on pulleys, bearing, and fans tightened?	Yes	No	N/A
Have the hold-down bolts been backed off on spring mounted fan isolators?	Yes	No	N/A
With the power off, do fans turn freely by hand?	Yes	No	N/A
Does electrical service correspond to unit nameplate?	Yes	No	N/A
Nameplate: Volts: Hertz: Phase:			
Are all electrical power connections tight?	Yes	No	N/A
Has unit been properly grounded and all field wiring confirmed to unit electrical specifications?	Yes	No	N/A
Is the main disconnect adequately fused and are fuses installed per local code?	Yes	No	N/A
Is the condensate drain trapped?	Yes	No	N/A
Fill the drain pan. Does water drain freely?	Yes	No	N/A

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FAN DATA

Are the supply fans rotating correctly? Yes No N/A Supply Fan RPM:

Supply Fan Motor Amp Draw per Phase: L1 amps: L2 amps: L3 amps:

Fan array units only: L1 amps: L2 amps: L3 amps:

Are the return fans rotating correctly? Yes No N/A Return Fan RPM:

Return Fan Motor Amp Draw per Phase: L1 amps: L2 amps: L3 amps:

Fan array units only: L1 amps: L2 amps: L3 amps:

Record supply static pressure at unit in inches of H_2O:

Record return static pressure at unit (with outside air dampers closed) in inches of H_2O:

* If additional fans are on the unit, please add them to the space below.

DAMPERS (IF APPLICABLE)

Are blades and seals present? Yes No N/A Do dampers open smoothly and shut tight? Yes No N/A

ELECTRIC HEAT (IF APPLICABLE)

Does electrical heat service correspond to unit nameplate? Yes No N/A

Volts: Hertz: Phase:

Are the electric heat coils free of visible shipping damage? Yes No N/A

Have all electrical terminals been tightened? Yes No N/A

Does sequence controller stage contactors properly? Yes No N/A

Amp draw across each phase at each heating stage:

	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5
Phase L1:					
Phase L2:					
Phase L3:					

Operate electric heat with fans off. Electric heat must cycle on high limit control. Yes No N/A

CHILLED WATER COIL (IF APPLICABLE)

Pressure test OK? Yes No N/A

Fill the drain pan. Does water drain freely? Yes No N/A

HOT WATER COIL (IF APPLICABLE)

Pressure test OK? Yes No N/A

Fill the drain pan. Does water drain freely? Yes No N/A

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HEAT RECOVERY (IF APPLICABLE)

Heat Wheel Model No.: Heat Wheel Serial No.:

Does the heat wheel rotate freely?	Yes	No	N/A
Does the heat wheel VFD operate properly?	Yes	No	N/A
Is there any air bypass around heat wheel?	Yes	No	N/A

SUMMARY & SIGNATURES

Note any repairs made:

Items not installed per IOM Manual and/or recommended corrective actions:

Installation and Check Performed By:

Print Name

Signature Date:

Company Name:

Title:

Additional Comments:

Limited Product Warranty

DAIKIN APPLIED AMERICAS INC.
LIMITED PRODUCT WARRANTY
(**United States and Canada**)

WARRANTY

Daikin Applied Americas Inc. dba Daikin Applied ("Company") warrants to contractor, purchaser and any owner of the product (collectively "Owner") that, subject to the exclusions set forth below Company, at its option, will repair or replace defective parts in the event any product manufactured by Company, including products sold under the brand name Daikin and used in the United States or Canada, proves defective in material or workmanship within twelve (12) months from initial startup or eighteen (18) months from the date shipped by Company, whichever occurs first. Authorized replacement parts are warranted for the remainder of the original warranty. All shipments of such parts will be made FOB factory, freight prepaid and allowed. Company reserves the right to select carrier and method of shipment. In addition, Company provides labor to repair or replace warranty parts during Company normal working hours on products with rotary screw compressors or centrifugal compressors. Warranty labor is not provided for any other products.

Company must receive the Registration and Startup Forms for products containing motor compressors and/or furnaces within ten (10) days of original product startup, or the ship date and the startup date will be deemed the same for determining the commencement of the warranty period and this warranty shall expire twelve (12) months from that date. For additional consideration, Company will provide an extended warranty(ies) on certain products or components thereof. The terms of the extended warranty(ies) are shown on a separate extended warranty statement.

No person (including any agent, sales representative, dealer or distributor) has the authority to expand the Company's obligation beyond the terms of this express warranty or to state that the performance of the product is other than that published by Company.

EXCLUSIONS

1. If free warranty labor is available as set forth above, such free labor does not include diagnostic visits, inspections, travel time and related expenses, or unusual access time or costs required by product location.
2. Refrigerants, fluids, oils and expendable items such as filters are not covered by this warranty.
3. This warranty shall not apply to products or parts : (a) that have been opened, disassembled, repaired, or altered, in each case by anyone other than Company or its authorized service representative; (b) that have been subjected to misuse, abuse, negligence, accidents, damage, or abnormal use or service; (c) that have not been properly maintained; (d) that have been operated or installed, or have had startup performed, in each case in a manner contrary to Company's printed instructions; (e) that have been exposed, directly or indirectly, to a corrosive atmosphere or material such as, but not limited to, chlorine, fluorine, fertilizers, waste water, urine, rust, salt, sulfur, ozone, or other chemicals, contaminants, minerals, or corrosive agents; (f) that were manufactured or furnished by others and/or are not an integral part of a product manufactured by Company; or (g) for which Company has not been paid in full.
4. This warranty shall not apply to products with rotary screw compressors or centrifugal compressors if such products have not been started, or if such startup has not been performed, by a Daikin Applied or Company authorized service representative.

SOLE REMEDY AND LIMITATION OF LIABILITY

THIS WARRANTY CONSTITUTES THE SOLE WARRANTY MADE BY COMPANY. COMPANY'S LIABILITY TO OWNER AND OWNER'S SOLE REMEDY UNDER THIS WARRANTY SHALL NOT EXCEED THE LESSER OF: (i) THE COST OF REPAIRING OR REPLACING DEFECTIVE PRODUCTS; AND (ii) THE ORIGINAL PURCHASE PRICE ACTUALLY PAID FOR THE PRODUCTS. COMPANY MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, REGARDING PREVENTION OF MOLD/MOULD, FUNGUS, BACTERIA, MICROBIAL GROWTH, OR ANY OTHER CONTAMINATES. THIS WARRANTY IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT AND UNDER NO CIRCUMSTANCE SHALL COMPANY BE LIABLE TO OWNER OR ANY THIRD PARTY FOR INCIDENTAL, INDIRECT, SPECIAL, CONTINGENT, CONSEQUENTIAL, DELAY OR LIQUIDATED DAMAGES FOR ANY REASON, ARISING FROM ANY CAUSE WHATSOEVER, WHETHER THE THEORY FOR RECOVERY IS BASED IN LAW OR IN EQUITY, OR IS UNDER A THEORY OF BREACH CONTRACT OR WARRANTY, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE. THE TERM "CONSEQUENTIAL DAMAGE" INCLUDES, WITHOUT LIMITATION, THOSE DAMAGES ARISING FROM BUSINESS INTERRUPTION OR ECONOMIC LOSS, SUCH AS LOSS OF ANTICIPATED PROFITS, REVENUE, PRODUCTION, USE, REPUTATION, DATA OR CROPS.

ASSISTANCE

To obtain assistance or information regarding this warranty, please contact your local sales representative or a Daikin Applied office.

Form No. 933-430285Y-01-A (11/2023)
Part No. 043028500 Rev.0F

Notes / Comments

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