



PRECISELINE[®] AIR HANDLERS

HORIZONTAL AND VERTICAL INDOOR AIR HANDLERS

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



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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.

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Introduction

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

Blower Coil Cabinets (Sizes 006 – 020)

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

Light Air Handlers (Sizes 030 – 050)

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

Configurable Air Handlers (Sizes 060 – 100)

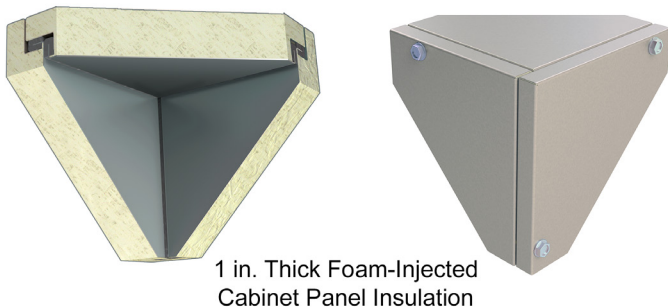
- 3,000-10,000 CFM
- Up to 5" TSP
- Low-leak dampers come standard; optional economizer, exhaust fans, and final filter

Wall-to-Wall Innovation

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

Thermal Integrity

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



No-Fuss Maintenance and Inspection

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

Higher Capacity, Smaller Footprint

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

Premium Features Available

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

Certifications

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

Available Features

Table 1: Available Features Breakdown

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



**Sizes 006-020
(Vertical Model Shown)**



**Sizes 030-050
(Vertical Model Shown)**



**Sizes 060-100
(Horizontal Model Shown)**

Double-Wall Cabinet Construction

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

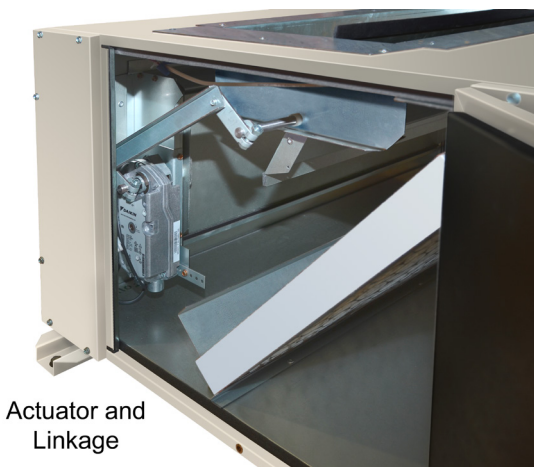


Mixing Box

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

NOTICE

Sizes 060-100 have dual actuators.



Actuator and Linkage

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

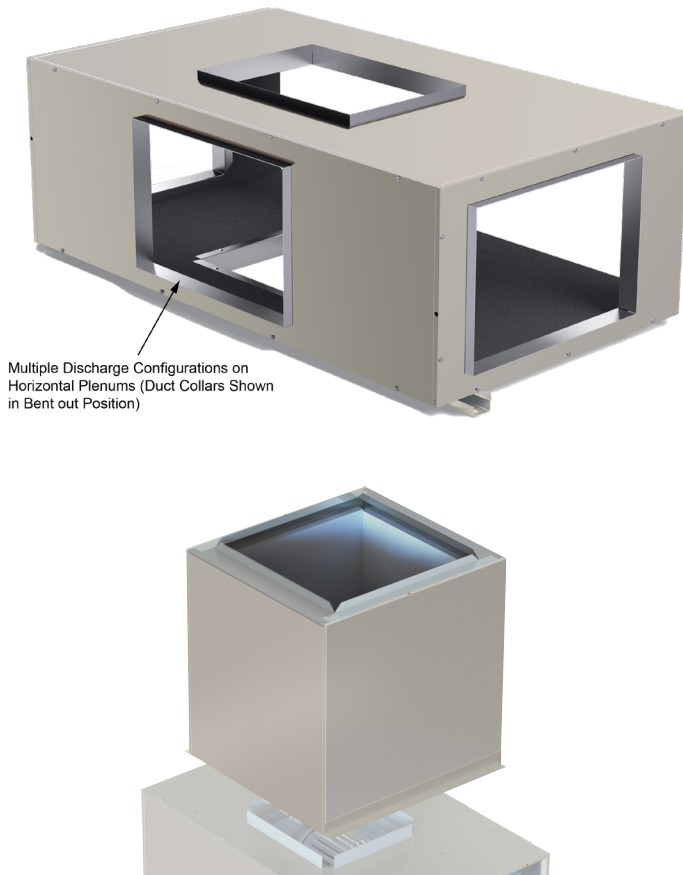
Damper Actuator

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

On unit sizes 06-20, the damper actuator is located on the side opposite the coils. On unit sizes 30-100, the actuator is located on the same side as the coils.

Discharge Plenum

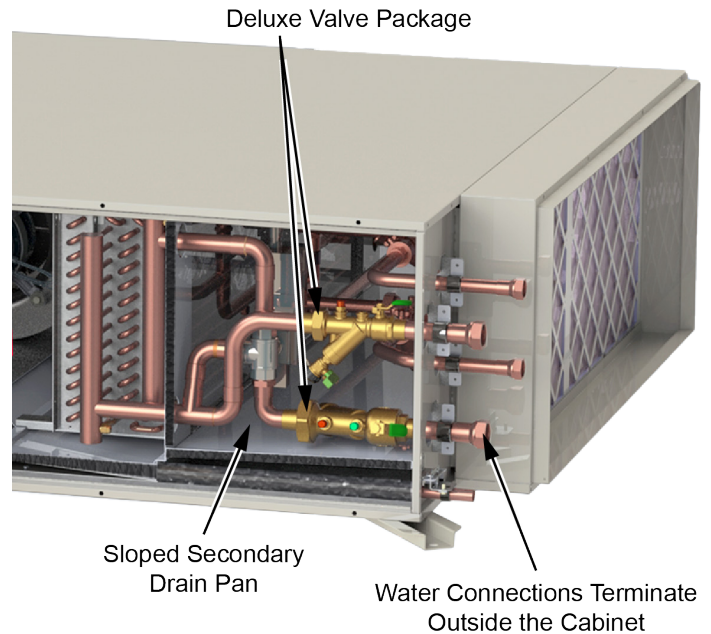
Daikin Applied offers an optional discharge plenum, factory mounted and shipped assembled on the discharge end of the main unit. The plenum is available in multiple discharge configurations. It can be ordered with an industry-leading sound-attenuation package, minimizing sound amplitude and improving sound quality. Competitor models require plenums or discharge sections to be field fabricated in order to turn the discharge air, adding fabrication and labor costs, with no sound dampening option.



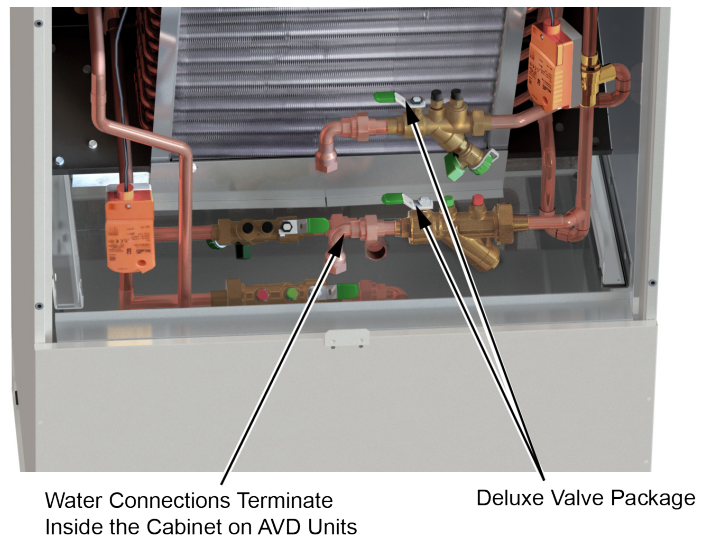
NOTE: Top Discharge Only

Factory-Installed Valve Packages

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



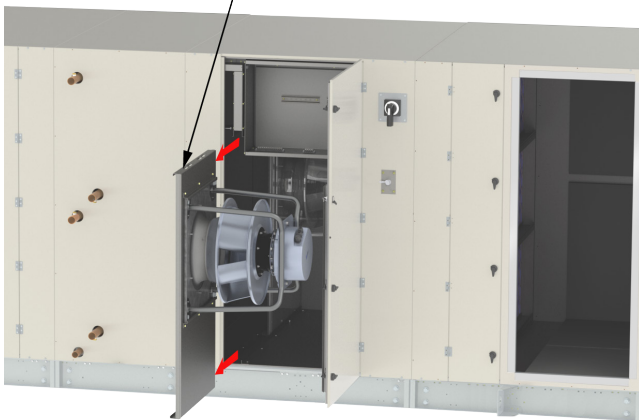
Valve packages provide added value by reducing installing contractors time. Connection points are pre-determined, allowing the building supply and return piping to be pre-installed before the arrival of the air handler.



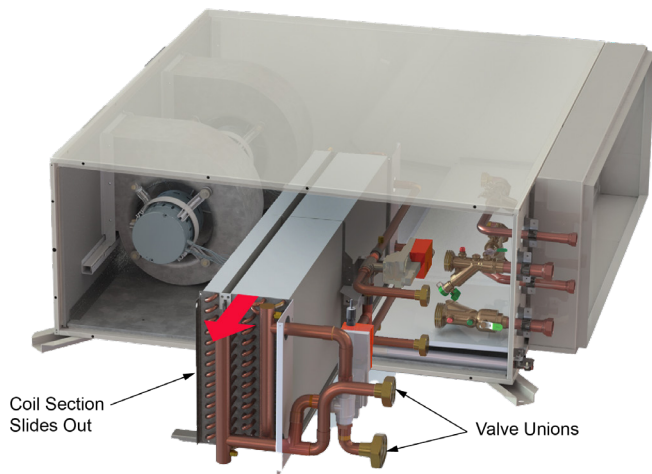
Slide-Out Fan Assembly and Coil Section

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

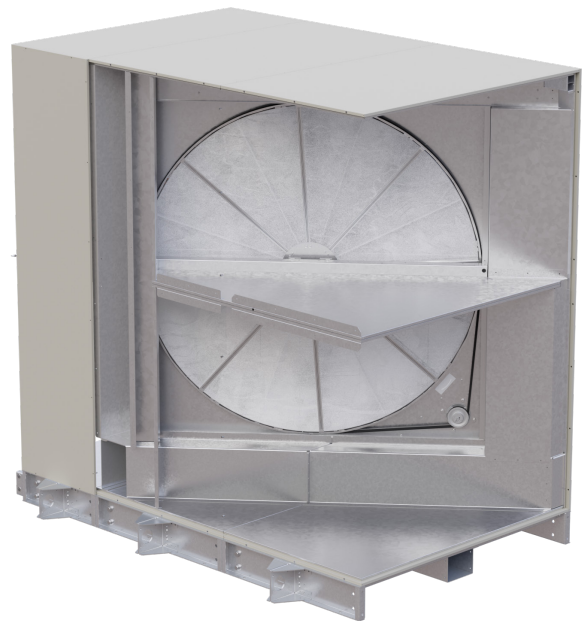
Motor and Fan Assembly are Easily Removed on a Rail and Track System



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



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

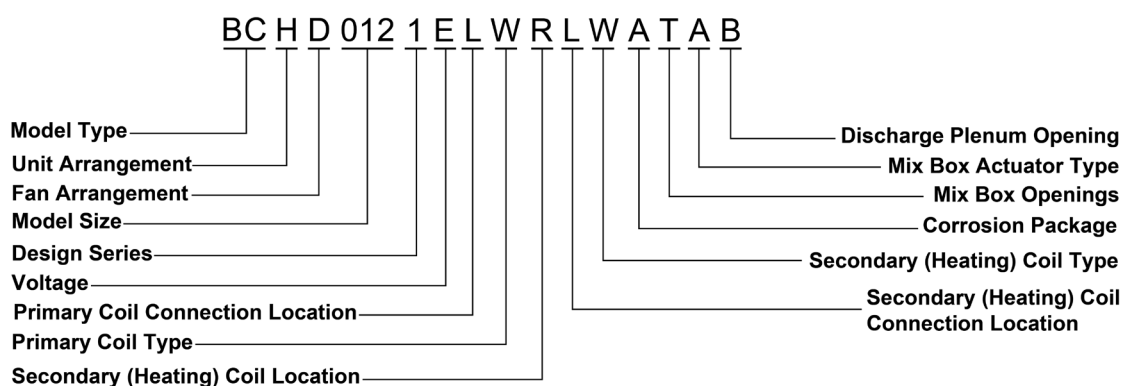


Energy Recovery Wheel

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

- Provide twice as much summer energy recovery as sensible-only alternatives, such as run-around loops.
- Energy recovery can increase the air conditioning capacity by 25% if the minimum outdoor air design is 33%. The cost savings on mechanical heating and cooling components offset the additional investment of energy recovery.

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

NOTE: Not all code options shown.

Options and Accessories

Electric Heat (Option)

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

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

Size 60 to 100 units require dual-point power for electric heat.

Post Electric Heater Accessory

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

Figure 1: Electric Heat Section (Reheat Coil Shown)



Figure 2: Electric Heat Section (Reheat Coil Shown)

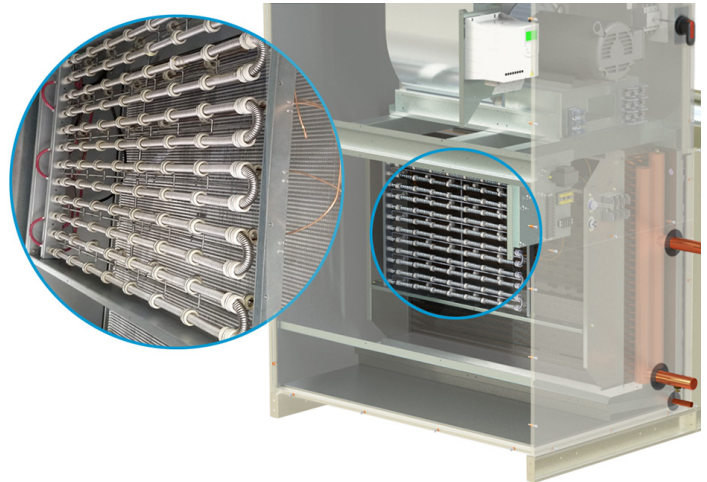


Figure 3: Electric Heat Section (Preheat Coil Shown)

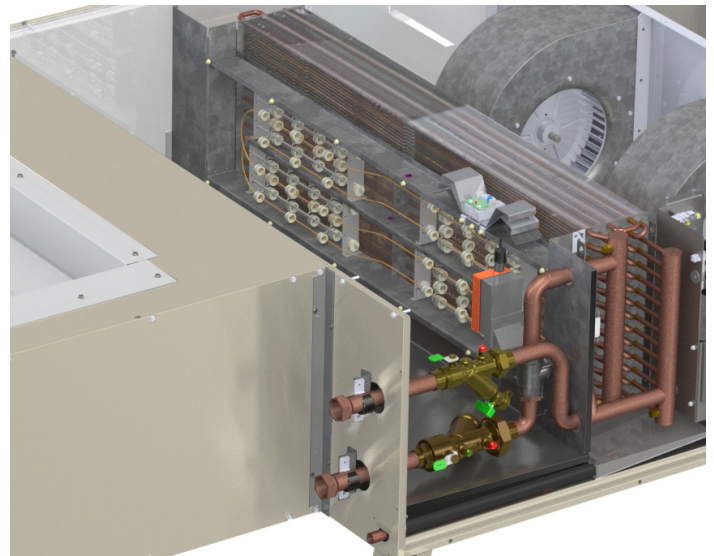
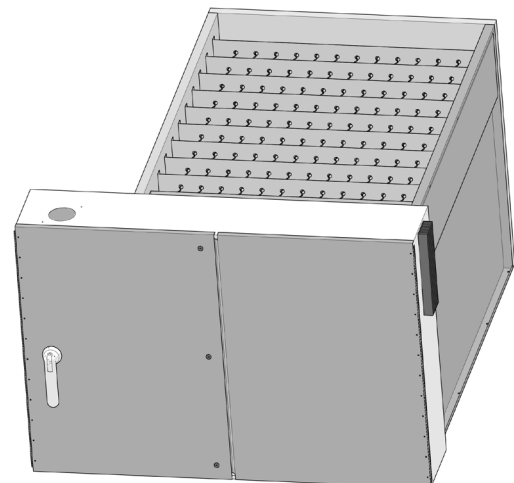
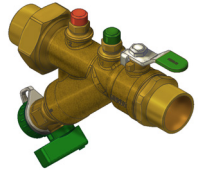
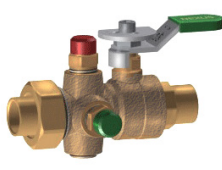
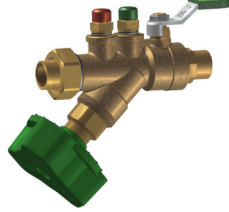


Figure 4: Post Electric Heater Accessory



Shutoff and Ball Valves																															
Shut-off Valve w/Y-Strainer	Autoflow Shut-off Valve w/Strainer	Shut-off Ball Valve	Manual Circuit Setter																												
																															
The deluxe factory installed piping package includes a fully modulating 0-10VDC or 24V ON/OFF control valve (2-way/3-way), a water strainer with blowout, P/T ports, unions, shut-off isolation valves, and an auto-flow circuit setter. This control scheme matched with a fully modulating fan allows for maximum space comfort and energy efficiency. All piping packages are installed with Belimo control valves, Nexus automatic and manual circuit setters, Nexus strainers, and Nexus shut-offs. The control valve and circuit setter are located on the return side of the coil, (with the exception of size 006 and 008 vertical units) The strainer is located on the supply side of the coil. Several control valve types are available.																															
Control Valves																															
Two-Way On/Off (2-Position) Valves	Three-Way On/Off (2-Position) Valves	Two-Way Modulating Valves	Three-Way Fully Modulating Valves																												
2-Way, 0.50FPT, On/Off, 24V, NO	3-Way, 0.75FPT, 24Cv, On/Off, 24V, NC	2-Way, 0.50FPT, 16Cv, Modulating, 0-10VDC	3-Way, 0.50FPT, 16Cv, Modulating, 0-10VDC																												
																															
2-Way, 0.75FPT, On/Off, 24V, NC	3-Way, .050FPT, On/Off, 24V, *Adjustable to NO or NC	Two-way modulating valves allow for finely-tuned water flow which improves space comfort control as well as energy management. Modulating valves respond to a 0-10VDC signal from your thermostat or terminal controller. The valve body operates as an equal-percentage flow type. A method of relieving pump head pressure should be employed when selecting two-way valves. Three-way modulating valves allow for finely-tuned water flow which improves space comfort control as well as energy management. Modulating valves respond to a 0-10VDC signal from your thermostat or terminal controller. The valve body operates as an equal-percentage flow type. A method of relieving pump head pressure should be employed when selecting three-way valves.																													
																															
2-Way, 0.50FPT, On/Off, 24V, *Adjustable to NO or NC																															
These valves will either be in a fully OPEN or fully CLOSED state in response to a 24 VAC signal from the controller. Normally Closed or Normally Open are available, both are of spring-return type. Three way valves are of the mixing type.		Selecting Correct Valve Characteristics Daikin Select Tools™ is automatically configured to match the valve body size to the selected coil. Valve Cv can be automatically selected based on the pressure drop through the coil and required GPM or user selected for more versatility.																													
These valves will either be in a fully OPEN or fully CLOSED state in response to a 24 VAC signal from the controller. Normally Closed or Normally Open are available, both are of spring-return type. A method of relieving pump head pressure should be employed when selecting two-way valves.		Belimo ZoneTight Valves (Size 006 and 008 vertical units) can be field-adjusted to be normally open or normally closed. By adjusting the manual clip, Cv values for the valve can be altered. <table><tr><th rowspan="2">Size</th><th rowspan="2">Valve Model</th><th colspan="8">Clip Position for Cv Adjustment (2-Way Valves)</th></tr><tr><th>1</th><th>2</th><th>3</th><th>4</th><th>5</th><th>6</th><th>N</th><th>No Clip</th></tr><tr><td>1/2"</td><td>Z2050Q-J</td><td>0.5</td><td>0.7</td><td>1.2</td><td>1.7</td><td>2.4</td><td>3.4</td><td>4.8</td><td>5.9</td></tr></table>		Size	Valve Model	Clip Position for Cv Adjustment (2-Way Valves)								1	2	3	4	5	6	N	No Clip	1/2"	Z2050Q-J	0.5	0.7	1.2	1.7	2.4	3.4	4.8	5.9
Size	Valve Model	Clip Position for Cv Adjustment (2-Way Valves)																													
		1	2	3	4	5	6	N	No Clip																						
1/2"	Z2050Q-J	0.5	0.7	1.2	1.7	2.4	3.4	4.8	5.9																						

Filter Options for Horizontal Units

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

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

NOTE: For filter details refer to, [Table 42 on page 49](#).

Figure 5: Unit Size 020 Bottom or Top Filter Access

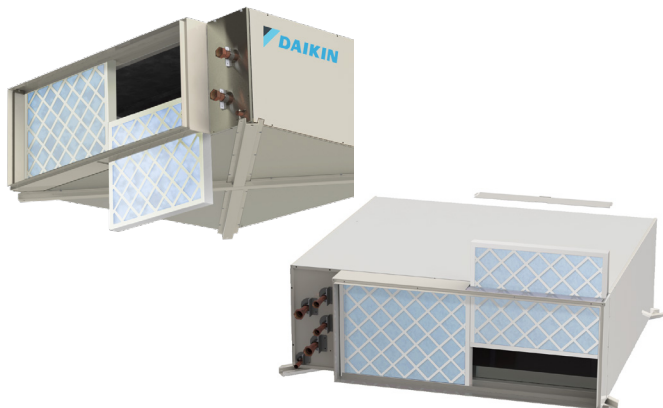


Figure 6: Unit Size 020 Side Filter Access

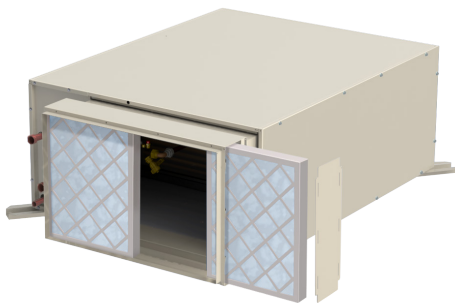


Figure 7: Unit Size 040 Bottom or Top Filter Access



Figure 8: Unit Size 040 Side Filter Access



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

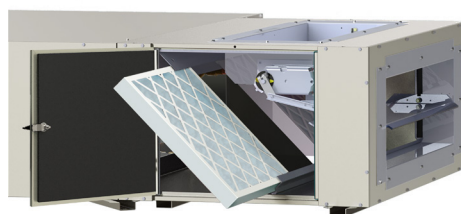


Figure 10: Optional Mixing Box Bottom Filter Access



Filter Options for Vertical Units

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

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

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

NOTE: For filter details refer to, [Table 43 on page 49](#).

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

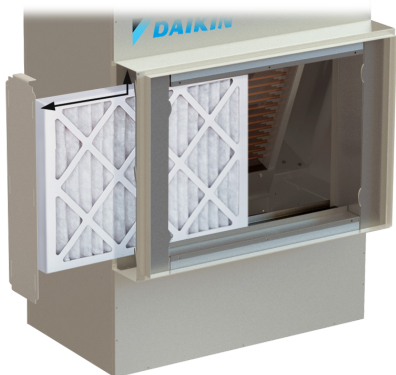


Figure 12: Unit Sizes 006 - 020 External Filter Removal on Right Side

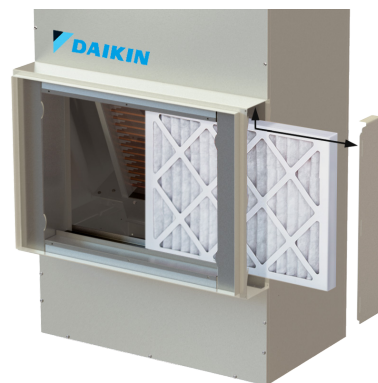


Figure 13: Unit Sizes 006 - 020 Internal Filter Removal



Figure 14: Sizes 030 - 050 Filter Access



Figure 15: Sizes 030 - 050 Side Filter Access



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



Figure 17: Sizes 060-100 Pre-Filter Removal



Performance Data

Coil Performance Data

Table 2: Horizontal Primary Coil Performance Data

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

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

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

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

Table 3: Horizontal Secondary Coil Performance Data

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

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

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

Table 4: Vertical Primary Coil Performance Data - Sizes 006-050

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

NOTE 1: Cooling Conditions: EAT = 80/67, EWT = 45, LWT = 55**NOTE 2:** Heating Conditions: EAT = 70, EWT = 180, LWT = 160

Table 5: Vertical Primary Coil Performance Data - Sizes 060-100

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Cooling Performance			
				Total Btu/h	Sensible Btu/h	GPM	Pressure Drop (ft H ₂ O)
60	6000	2	12	147344	120002	29.5	3.9
	6000	4	12	228955	162865	45.8	16.8
	6000	6	12	272400	183239	54.8	12.6
	6000	8	12	298665	194955	59.8	8.1
60	6000	2	16	180326	140549	36.1	5.7
	6000	4	16	259528	177578	51.9	21.1
	6000	6	16	297195	194340	59.5	14.6
	6000	8	16	319416	204203	63.9	9.1
80	8000	2	12	191010	155671	38.2	6.2
	8000	4	12	280147	206591	56	7.9
	8000	6	12	347621	237682	69.5	6.5
	8000	8	12	402541	261808	80.6	14
80	8000	2	16	232217	181760	46.5	9
	8000	4	16	321428	226438	64.3	10.2
	8000	6	16	380691	252384	75.3	7.5
	8000	8	16	430076	274143	86	15.8
100	10000	2	12	242347	197303	45.5	6.5
	10000	4	12	385854	273022	77.2	26.3
	10000	6	12	435975	297745	87.2	9.6
	10000	8	12	504446	327825	100.9	15.1
100	10000	2	16	294603	230265	59	9.4
	10000	4	16	437495	297963	87.5	33.1
	10000	6	16	477031	315989	94.3	11.1
	10000	8	16	538631	343145	107.7	17

NOTE: Cooling Conditions: EAT = 80/67, EWT = 45, LWT = 55**Table 6: Vertical Turbo Spiral (Primary Coil) Performance Data - Unit Sizes 060-100**

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Cooling Performance			
				Total Btu/h	Sensible Btu/h	GPM	Pressure Drop (ft H ₂ O)
60	6000	2	12	106594	92903	24.2	9.3
	6000	4	12	183735	142829	41.9	8.9
	6000	6	12	233048	164559	53.1	6.4
80	8000	2	12	142856	124337	32.4	13.6
	8000	4	12	244962	190385	55.8	12.8
	8000	6	12	306317	219086	69.8	8.8
100	10000	2	12	177950	155524	40.4	13.9
	10000	4	12	316911	242224	72.2	12.1
	10000	6	12	391676	278616	89.2	9

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

Table 7: Vertical Secondary Coil Performance Data - Sizes 006-050

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

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

Table 8: Vertical Secondary Coil Performance Data - Sizes 060-100

Unit Size	Nominal Air Flow SCFM	Number of Rows	Fins per Inch	Heating Performance		
				Total Btu/h	GPM	Pressure Drop (ft H ₂ O)
60	6000	1	12	233318	24	1.7
	6000	2	12	380833	38.8	0.57
60	6000	1	16	283090	28.8	2.47
	6000	2	16	439107	44.8	0.74
80	8000	1	12	308314	31.7	2.42
	8000	2	12	506542	51.7	0.8
80	8000	1	16	375394	38.5	3.5
	8000	2	16	584716	59.7	1.03
100	10000	1	12	388568	39.9	2.61
	10000	2	12	636618	65	0.79
100	10000	1	16	472882	48.6	3.79
	10000	2	16	734461	75	1.02

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

Table 9: Horizontal DX Coil Performance Data

Unit Size	Circuits		Fin Height	Finned Length	CFM	EAT		Suction Temp	FPI	Total	Sensible	LAT		APD	Connection Size	
	Number	Type				DB	WB					DB	WB		Liquid	Suction
006	1	Normal	14	12.5	600	80	67	45	12	20455	14797	57.5	56.2	0.379	0.500	0.750
									16	23060	16253	55.2	54.6	0.518	0.500	0.750
008	1	Normal	14	16.5	800	80	67	45	12	27983	20000	57.1	55.8	0.385	0.500	0.750
									16	31279	21882	55.0	54.4	0.525	0.500	0.750
010	1	Normal	14	25	1000	80	67	45	12	35464	25461	56.7	55.7	0.290	0.500	0.875
									16	40060	27887	54.5	54.0	0.400	0.500	0.875
012	1	Normal	14	25	1200	80	67	45	12	39519	29041	57.9	56.6	0.379	0.500	0.875
									16	44926	32018	55.6	55.0	0.518	0.500	0.875
016	1	Normal	14	33	1600	80	67	45	12	55588	39849	57.2	55.9	0.385	0.500	1.125
									16	62680	43813	55.0	54.3	0.525	0.500	1.125
018	1	Normal	14	41.5	1800	80	67	45	12	67101	46958	56.1	55.0	0.327	0.500	1.125
									16	74718	51177	54.0	53.5	0.449	0.500	1.125
020	1	Normal	22	41.5	2000	80	67	45	12	71003	50440	56.9	55.7	0.382	0.500	1.125
									16	79274	55156	54.8	54.2	0.521	0.500	1.125
030	1	Normal	22	39.5	3000	80	67	45	12	106172	75513	57.0	55.7	0.383	0.875	1.375
									16	118817	82688	54.8	54.2	0.523	0.875	1.375
	2	Interlaced	22	39.5	3000	80	67	45	12	106172	75513	57.0	55.7	0.383	0.500	0.875
									16	118817	82688	54.8	54.2	0.523	0.500	0.875
040	1	Normal	26	44.5	4000	80	67	45	12	141746	100750	57.0	55.7	0.384	0.875	1.375
									16	157734	109963	54.9	54.2	0.524	0.875	1.375
	2	Interlaced	26	44.5	4000	80	67	45	12	150755	105289	54.9	54.9	0.384	0.625	1.125
									16	157734	109963	54.9	54.2	0.524	0.625	1.125
050	1	Normal	28	51.5	5000	80	67	45	12	175437	125212	57.1	55.8	0.386	0.875	1.625
									16	196935	137345	54.9	54.2	0.526	0.875	1.625
	2	Interlaced	28	51.5	5000	80	67	45	12	175437	125212	57.1	55.8	0.386	0.625	1.375
									16	196935	137345	54.9	54.2	0.526	0.625	1.375
060	2	Normal	22	39.5	6000	80	67	45	12	212344	151026	57	55.7	0.383	0.875	1.375
									16	237634	165376	54.8	54.2	0.523	0.875	1.375
	4	Interlaced	22	39.5	6000	80	67	45	12	212344	151026	57	55.7	0.383	0.5	0.875
									16	237634	165376	54.8	54.2	0.523	0.5	0.875
080	2	Normal	26	44.5	8000	80	67	45	12	283492	201500	57	55.7	0.384	0.875	1.375
									16	315468	219926	54.9	54.2	0.524	0.875	1.375
	4	Interlaced	26	44.5	8000	80	67	45	12	301510	210578	54.9	54.9	0.384	0.625	1.125
									16	315468	219926	54.9	54.2	0.524	0.625	1.125
100	2	Normal	28	51.5	10000	80	67	45	12	350874	250424	57.1	55.8	0.386	0.875	1.625
									16	393870	274690	54.9	54.2	0.526	0.875	1.625
	4	Interlaced	28	51.5	10000	80	67	45	12	350874	250424	57.1	55.8	0.386	0.625	1.375
									16	393870	274690	54.9	54.2	0.526	0.625	1.375

Table 10: Vertical DX Coil Performance Data

Unit Size	Rows	Circuits		Fin Height	Fin Length	CFM	EAT		Suction Temp	FPI	Total	Sensible	LAT		APD	Connection Size		
		Number	Type				DB	WB					DB	WB		Liquid	Suction	
006	3	1	Normal	14	12.5	600	80	67	45	12	20872	15099	57	55.9	0.379	0.5	0.875	
										14	22314	15930	55.7	55	0.443	0.5	0.875	
										16	23530.5	16584.7	54.7	54.3	0.518	0.5	0.875	
006	6	1	Normal	14	12.5	600	80	67	45	12	29309.7	19134.1	50.7	50.6	0.759	0.5	0.875	
										14	30193	19517	50.1	50.1	0.886	0.5	0.875	
										16	30804	19785.5	49.7	49.6	1.036	0.5	0.875	
008	3	1	Normal	16	14.5	800	80	67	45	12	27761	20098	57	55.9	0.382	0.5	0.875	
										14	29695	21212	55.8	55.1	0.447	0.5	0.875	
										16	31321.4	22087.5	54.8	54.3	0.522	0.5	0.875	
008	6	1	Normal	16	14.5	800	80	67	45	12	39577.5	25727.7	50.5	50.4	0.765	0.5	0.875	
										14	41019	26357	49.7	49.7	0.894	0.5	0.875	
										16	42128.9	26848.2	49.1	49.1	1.044	0.5	0.875	
012	3	1	Normal	18	18.5	1200	80	67	45	12	40690.8	29684.9	57.4	56.2	0.408	0.5	1.125	
										14	42765	31041	56.3	55.6	0.476	0.5	1.125	
										16	44497.9	32084.5	55.5	55.1	0.556	0.5	1.125	
012	6	1	Normal	18	18.5	1200	80	67	45	12	58628.8	38272.4	50.7	50.6	0.816	0.625	1.125	
										14	60571	39116	50	50	0.952	0.625	1.125	
										16	61932.8	39714.1	49.6	49.5	1.111	0.625	1.125	
016	3	1	Normal	20	23.5	1600	80	67	45	12	57671.9	41085.1	56.5	55.5	0.375	0.625	1.125	
										14	61005	43097	55.4	54.7	0.437	0.625	1.125	
										16	63835.7	44680.7	54.5	54.1	0.513	0.625	1.125	
016	6	1	Normal	20	23.5	1600	80	67	45	12	80324.8	51964.2	50.2	50.1	0.751	0.875	1.125	
										14	83166	53212	49.4	49.4	0.877	0.875	1.125	
										16	85191.4	54112.6	48.9	48.9	1.025	0.875	1.125	
020	3	1	Normal	20	29	2000	80	67	45	12	69672.3	50352.4	57	55.9	0.383	0.875	1.375	
										14	74567	53162	55.7	55	0.447	0.875	1.375	
										16	78698.3	55379.4	54.7	54.3	0.522	0.875	1.375	
020	6	1	Normal	20	29	2000	80	67	45	12	99493.2	64557.7	50.4	50.3	0.765	0.875	1.375	
										14	102672	65948	49.7	49.6	0.893	0.875	1.375	
										16	104892.3	66929.6	49.2	49.2	1.044	0.875	1.375	
030	3	1	Normal	26	34.5	3000	80	67	45	12	108667.6	77327.5	56.4	55.4	0.366	0.875	1.625	
										14	116228	81621	55.1	54.5	0.427	0.875	1.625	
										16	122196	84846.8	54.1	53.7	0.5	0.875	1.625	
		2	Interlaced	26	34.5	3000	80	67	45	12	108667.6	77327.5	56.4	55.4	0.366	0.625	0.875	
										14	116228	81621	55.1	54.5	0.427	0.625	0.875	
										16	122196	84846.8	54.1	53.7	0.5	0.625	0.875	
030	6	1	Normal	26	34.5	3000	80	67	45	12	—	—	—	—	—	—	—	
										14	—	—	—	—	—	—	—	—
										16	—	—	—	—	—	—	—	—
		2	Interlaced	26	34.5	3000	80	67	45	12	147704.9	96170.7	50.6	50.5	0.731	0.875	1.125	
										14	151626	97877	50	50	0.855	0.875	1.125	
										16	154645.7	99203.1	49.6	49.6	1	0.875	1.125	
040	3	1	Normal	30	38.5	4000	80	67	45	12	144032.4	102551	56.6	55.5	0.385	0.875	1.625	
										14	153790	108187	55.3	54.6	0.449	0.875	1.625	
										16	161384.1	112377.9	54.3	53.9	0.525	0.875	1.625	
		2	Interlaced	30	38.5	4000	80	67	45	12	144032.4	102551	56.6	55.5	0.385	0.875	1.375	
										14	153790	108187	55.3	54.6	0.449	0.875	1.375	
										16	161384.1	112377.9	54.3	53.9	0.525	0.875	1.375	
040	6	1	Normal	30	38.5	4000	80	67	45	12	—	—	—	—	—	—	—	
										14	—	—	—	—	—	—	—	—
										16	—	—	—	—	—	—	—	—
		2	Interlaced	30	38.5	4000	80	67	45	12	198736.5	129006.9	50.4	50.3	0.77	0.875	1.375	
										14	206145	132249	49.6	49.6	0.899	0.875	1.375	
										16	211839.4	134773.2	49	49	1.05	0.875	1.375	
050	3	1	Normal	38	38.5	5000	80	67	45	12	181160	128739	56.5	55.4	0.378	0.875	1.625	
										14	193398	135781	55.2	54.5	0.441	0.875	1.625	
										16	202916.3	141015.6	54.2	53.8	0.515	0.875	1.625	
		2	Interlaced	38	38.5	5000	80	67	45	12	181160	128739	56.5	55.4	0.378	0.875	1.375	
										14	193398	135781	55.2	54.5	0.441	0.875	1.375	
										16	202916.3	141015.6	54.2	53.8	0.515	0.875	1.375	
050	6	1	Normal	38	38.5	5000	80	67	45	12	—	—	—	—	—	—	—	
										14	—	—	—	—	—	—	—	—
										16	—	—	—	—	—	—	—	—
		2	Interlaced	38	38.5	5000	80	67	45	12	249252.6	161620.3	50.3	50.2	0.755	0.875	1.625	
										14	258466	165657	49.5	49.5	0.882	0.875	1.625	
										16	265538.3	168796.1	48.9	48.9	1.031	0.875	1.625	

Table 11: VRV Coil Performance Data

Unit Size	Rows	Fin Height	Fin Length	CFM	EAT		Suction Temp	FPI	Total	Sensible	LAT		APD	Connection Size	
					DB	WB					DB	WB		Liquid	Suction
006	3	14	12.5	600	81	66	43	12	21157	16439	55.94	54.43	0.379	0.375	0.75
008	3	14	16.5	800	81	66	43	12	28855	22178	55.65	54.14	0.385	0.375	0.75
012	3	14	25	1200	81	66	43	12	41126	32372	56.33	54.79	0.379	0.375	0.875
016	3	14	33	1600	81	66	43	12	57534	44280	55.7	54.18	0.385	0.375	1.125
020	3	14	41.5	2000	81	66	43	12	73165	55897	55.44	53.95	0.382	0.375	1.125
030	3	22	39.5	3000	81	66	43	10	109502	83728	55.48	53.98	0.382	0.500	1.375
040	3	26	44.5	4000	81	66	43	12	145887	111580	55.5	54	0.384	0.625	1.375
050	3	28	51.5	5000	81	66	43	12	180084	138499	55.67	54.16	0.386	0.625	1.375
060	3	22	39.5	6000	81	66	45	10	219004	167456	55.48	53.98	0.383	0.5	1.375
080	3	26	44.5	8000	81	66	45	12	291774	223160	55.49	53.99	0.384	0.625	1.375
100	3	28	51.5	10000	81	66	45	12	360168	276998	55.67	54.16	0.386	0.625	1.625

Table 12: Vertical Steam Coil Performance Data

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

Table 13: Horizontal Steam Coil Performance Data

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

Heating Data

Table 14: 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 15: 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 16: 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 17: 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 18: Vertical Electric Heat kW Options by Unit Size - Sizes 006-050

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

Table 19: 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 20: 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 21: 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 22: 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 23: 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 24: 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 Performance Data

Table 25: Pressure Drop Through Energy Recovery Wheel (in H₂O)

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

Table 26: Energy Recovery Wheel Sizes and Airflows

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

Table 27: Energy Recovery Wheel Performance

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

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

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

Electrical Data

Field Power Wiring

DANGER

Improper ground may result in severe injury or death.

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

DANGER

Hazardous voltage. Can cause severe injury or death.

Disconnect electric power before servicing equipment. More than one disconnect may be required to de-energize the unit.

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

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

Supply Power Wiring

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

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

Electrical Installation

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

NOTICE

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

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

Electric Heat Control

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

Valve Control

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

Motor Controls

- Unit sizes 006 – 020 ship with an EC motor factory configured for either three speed or analog control.
- 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.
- 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.

- 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

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

Field Control Wiring

DANGER

LOCKOUT/TAGOUT all power sources prior to wiring or servicing the unit. Electrical shock hazard that may cause severe injury or death. Connect only low voltage NEC Class II circuits to terminal blocks TB2, TB4, 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 28](#) shows the possible field connections that can be made.

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

NOTICE

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

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

Emergency Stop

The terminals TB12-T10 & TB2-Ground on sizes 006-050 and TB2/TB3-299 & TB2/TB3-236 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.

Table 28: Potential Field Connections and Locations (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+)
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

**Table 29: Potential Field Connections and Locations
(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

	Label	Description	Signal
TB2 or TB3	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
	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).

[illegible]

Figure 19: 1 Phase Power, SCR Electric Heat, Modulating Valve, Modulating Damper, Modulating Fan

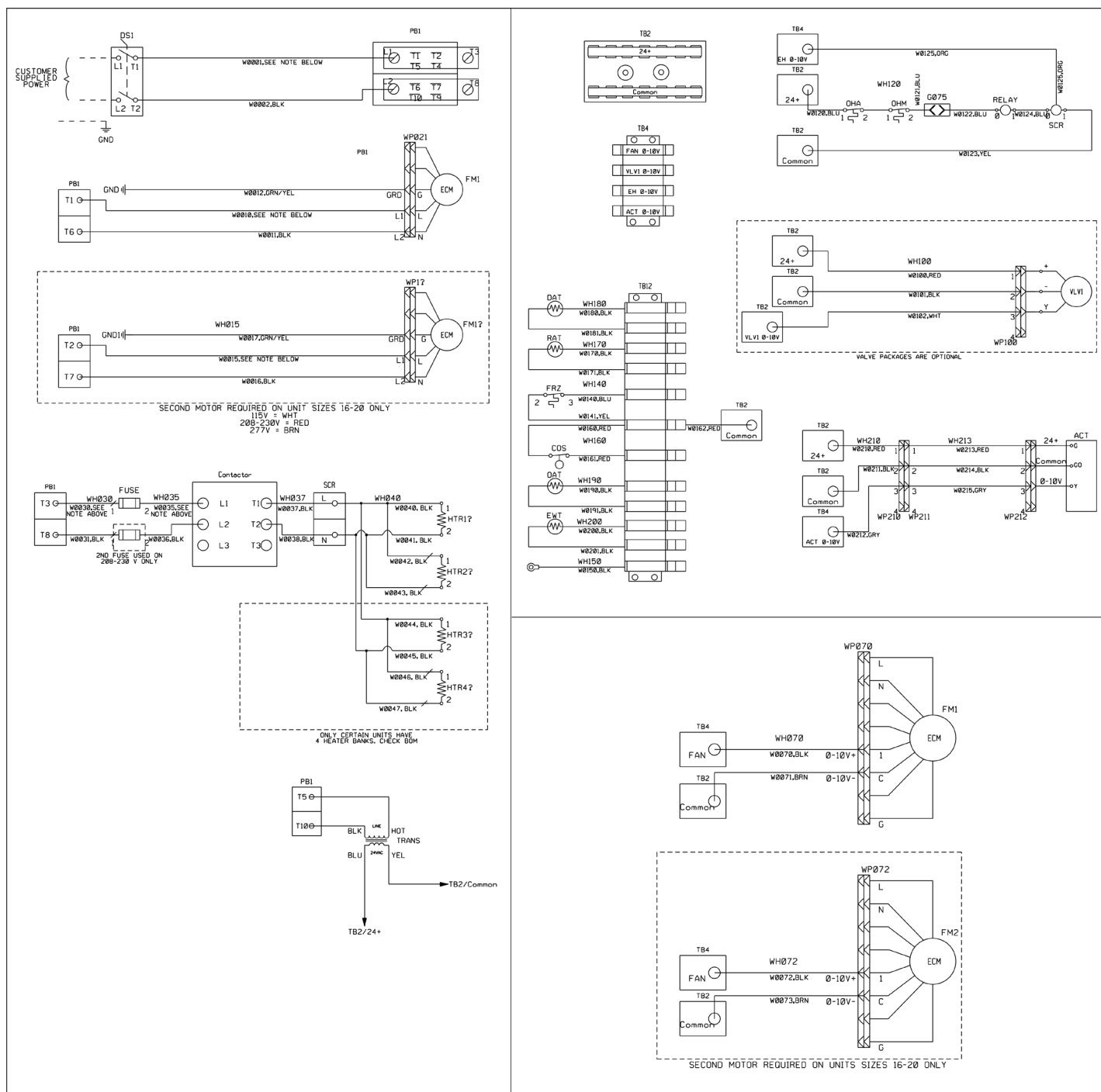


Figure 20: 1 Phase Power, On-Off Electric Heat, On-Off Valve, On-Off Damper, 3-Speed Fan

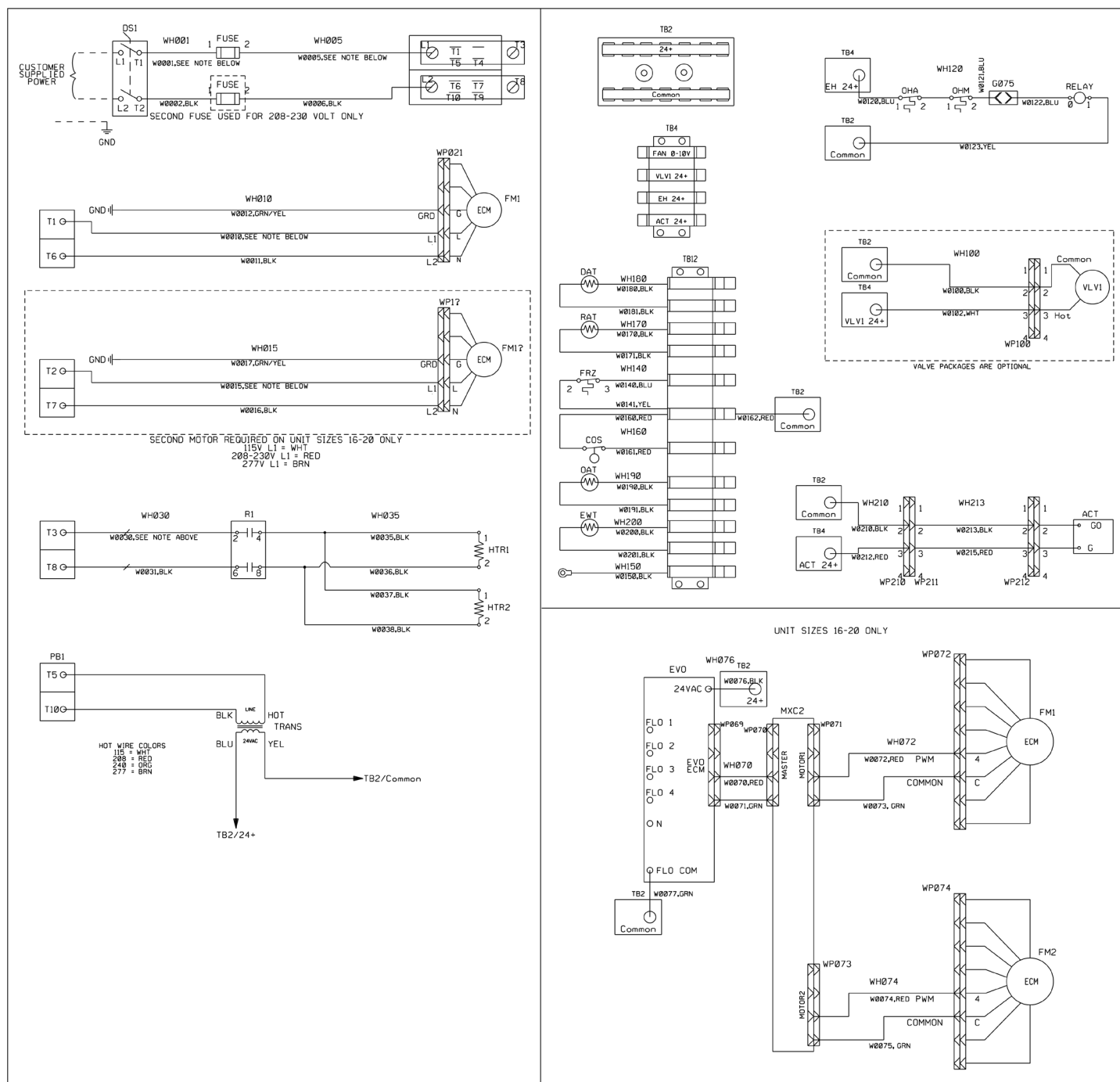


Figure 21: 3-Phase Power, Welded Aluminum Airfoil Plenum Fan, On-Off Electric Heat, On/Off Damper, Fused

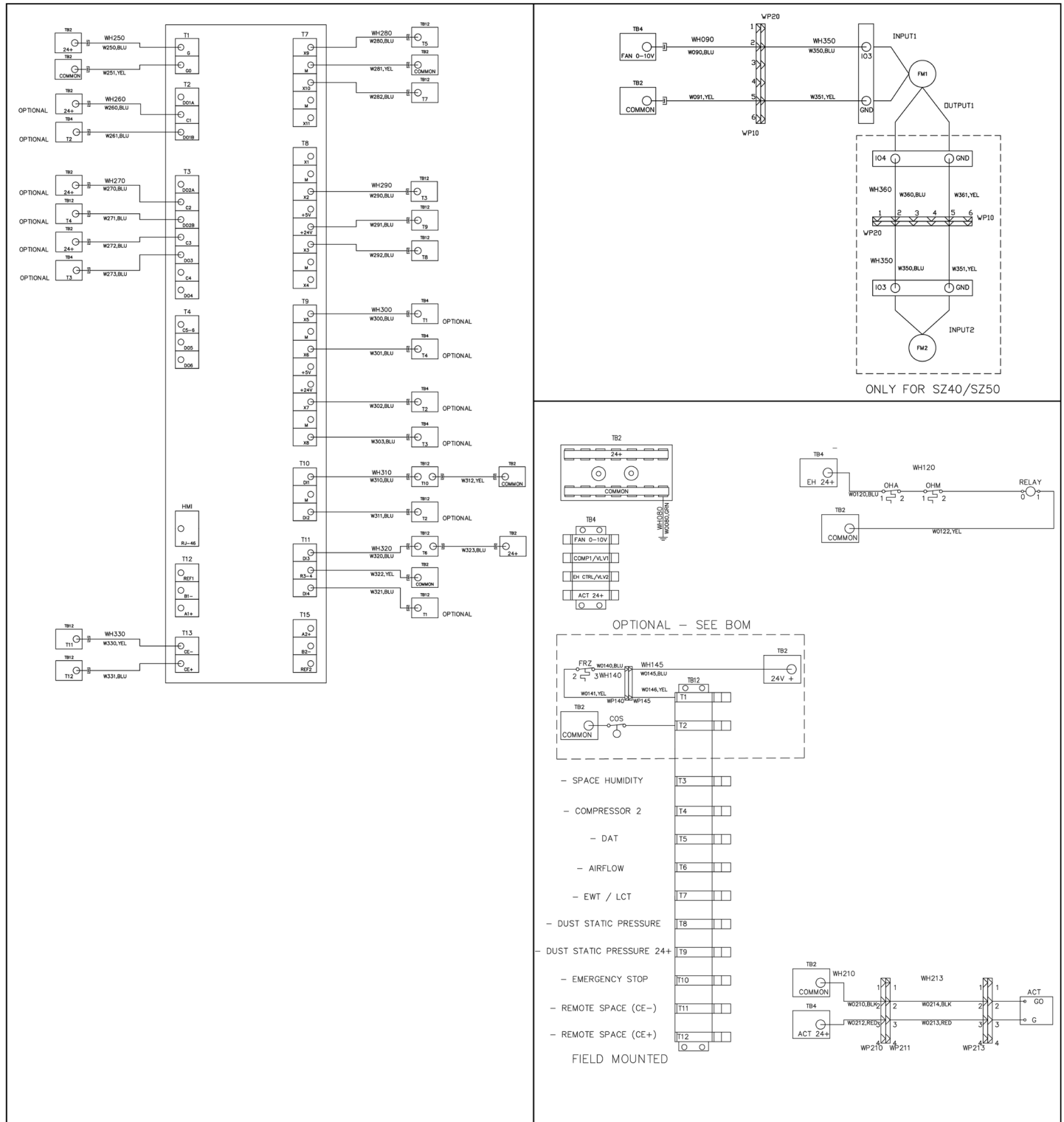


Figure 22: MicroTech Controller for Sizes 006-050

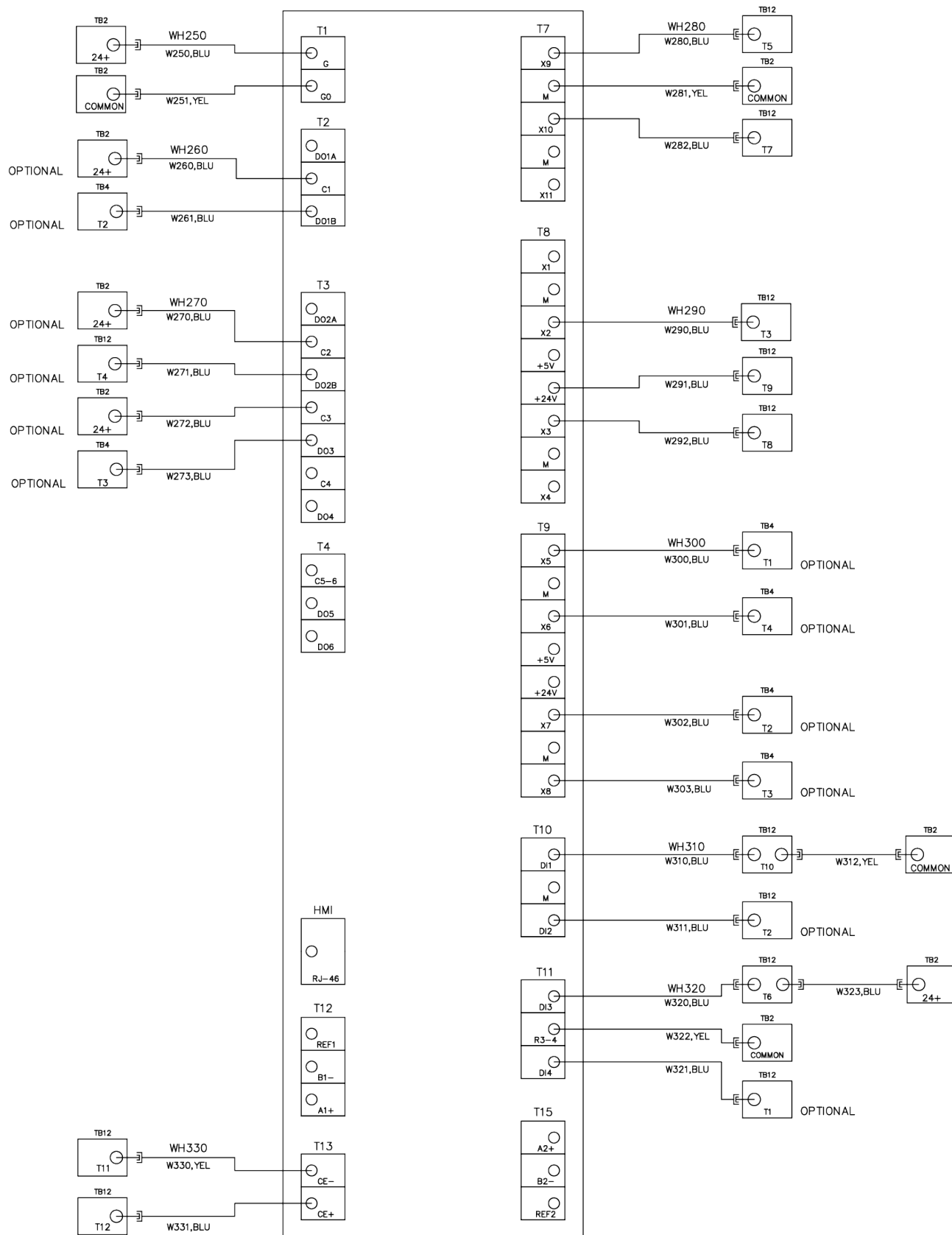


Figure 23: MicroTech Controller for Sizes 060-100 with Optional Energy Recovery Wheel

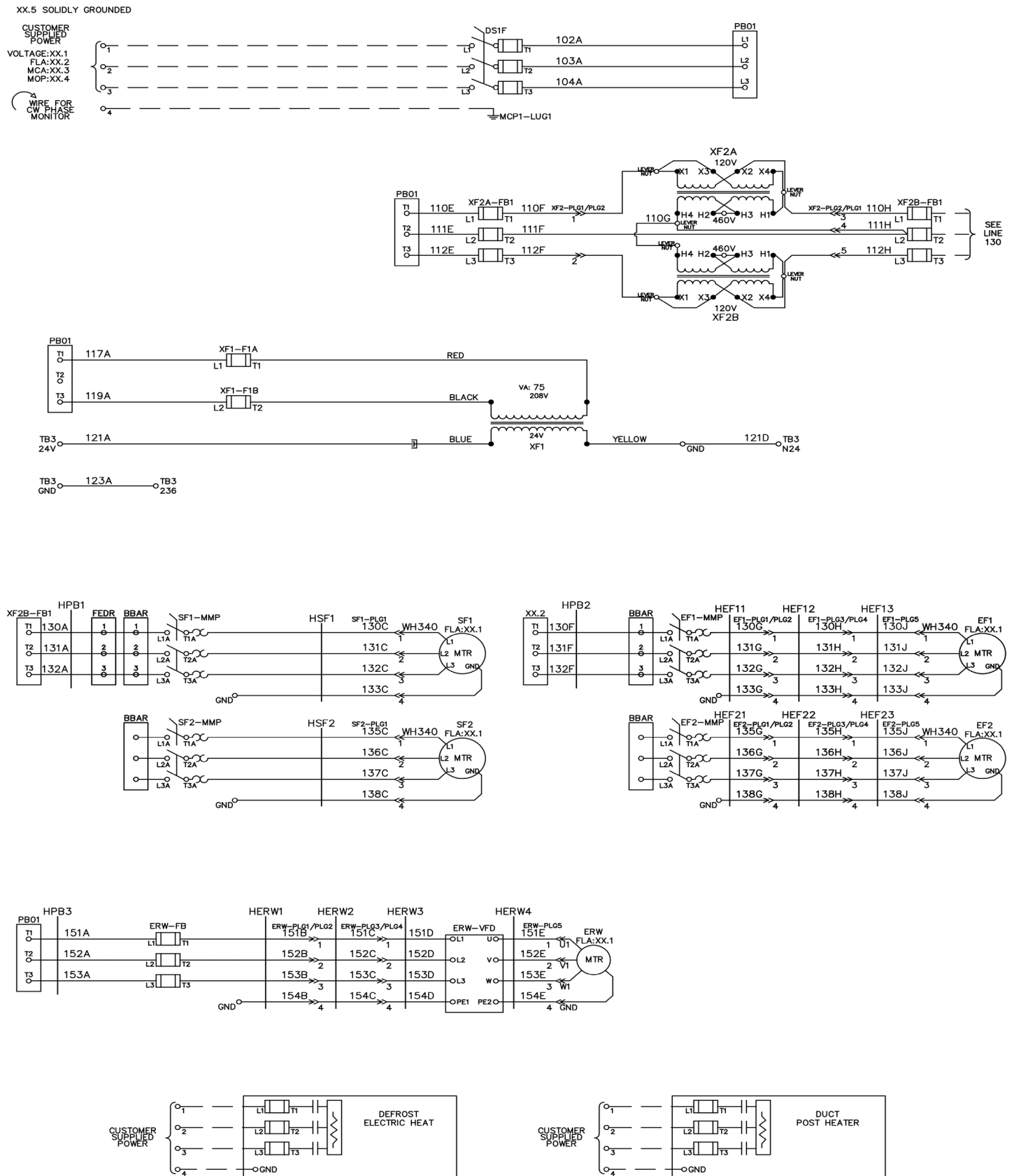


Figure 24: MicroTech Controller for Sizes 060-100 with Optional Energy Recovery Wheel

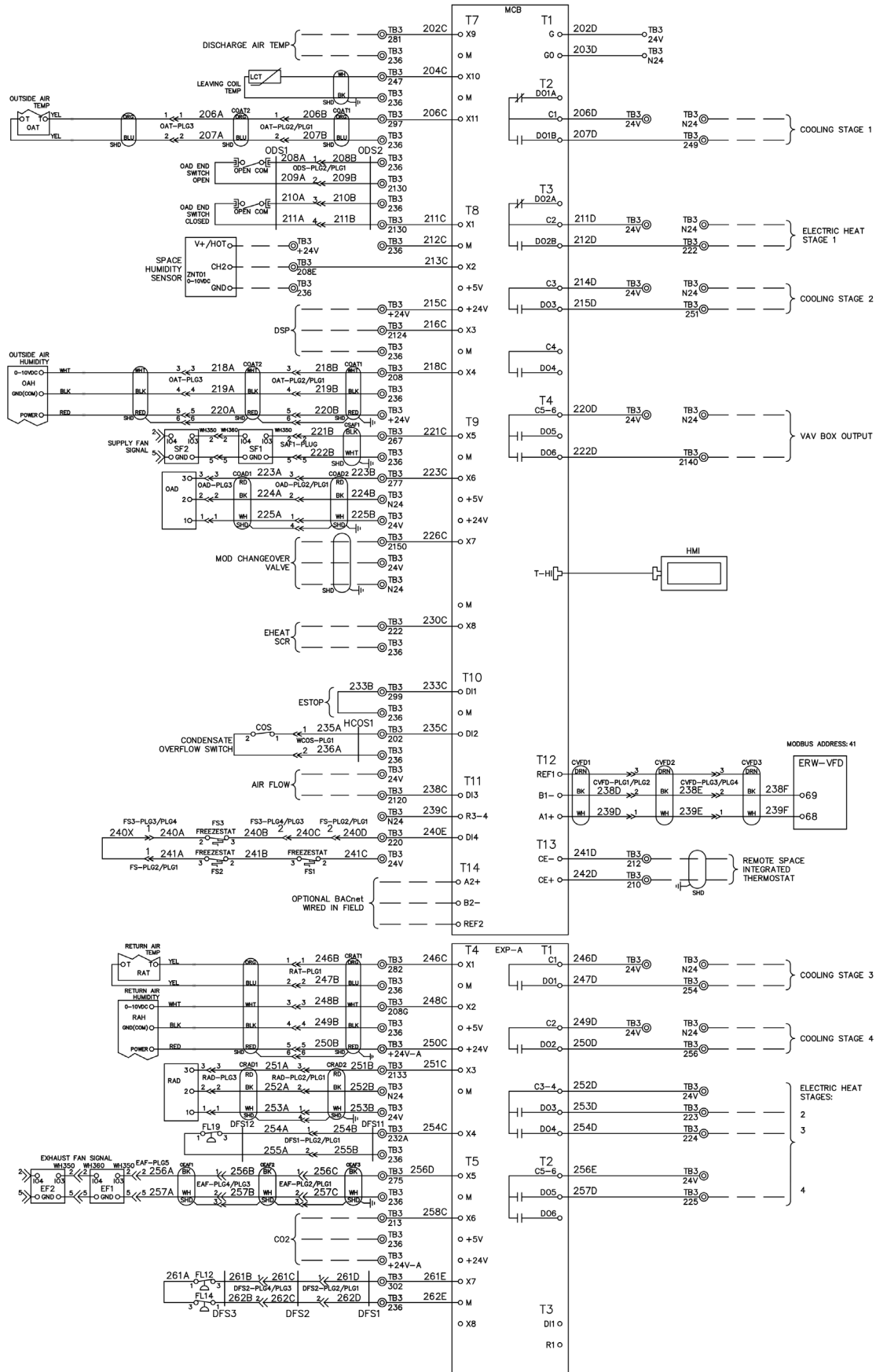
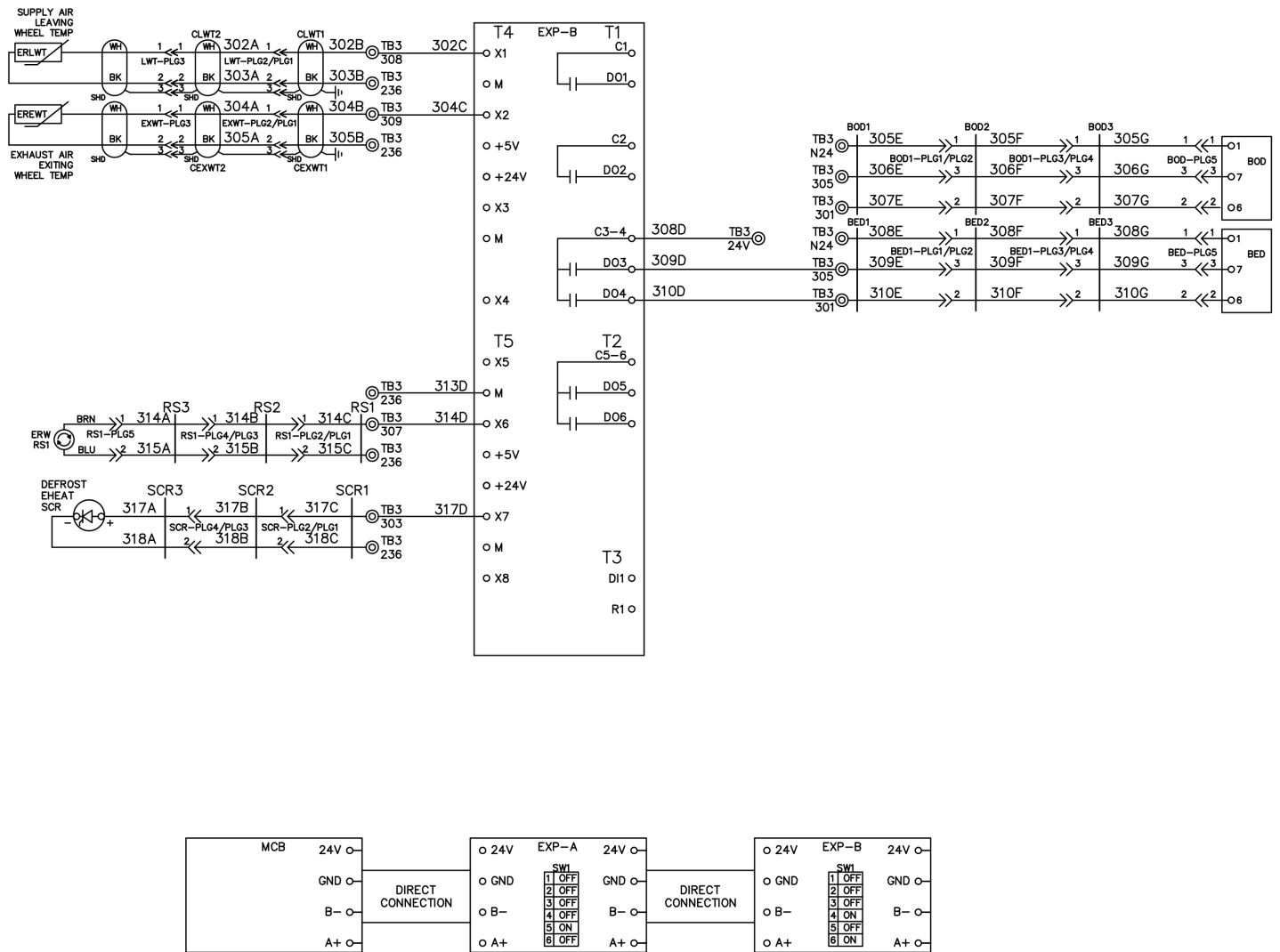


Figure 25: MicroTech Controller for Sizes 060-100 with Optional Energy Recovery Wheel



Wiring Schematics Legend for “Example Wiring Diagrams”

LEGEND			
ACT	Mixing Box Damper Actuator	PB1	Main Power Distribution Block
COS	Condensate Overflow Switch/Sensor	PB2	Electric Heat Power Distribution Block
DAT	Discharge Air Temperature Sensor	PB3	24VAC Power Distribution Block
DS	Disconnect Switch	TB4	EC Motor Control Terminal Block
EB	MicroTech III I/O Expansion Board	TB5	Intermediate Electric Heat Terminal Block
EWT	Entering Water Temperature	TB6	No Controls Terminal Block
FM1-2	Fan Motor	RAT	Return Air Temperature Sensor
FRZ	Freeze Alarm Switch	R1-2	Electric Heater Power Relay
FSW	Fan 3-Speed Switch	R3	Electric Heater Control Relay
G075	Quick Connect Splice	TS1-2	Thermal Switch (Intermediate Electric Heat)
HTR1-4	Electric Heater Elements	TS3	Thermal Switch (Automatic Change Over)
LVB	Low Voltage Control Board	TR	Control Transformer
MIII	MicroTech III Control Board	VSV1-2	Coil Valve Actuator (Primary or Secondary)
NCB	Network Communication Board	Wxxx	Wire
OAT	Outside Air Temperature Sensor	WHxxx	Wire Harness
OHA	Automatic High Temp Cutout Switch	WPxxx	Wire Plug
OHM	Manual High Temp Cutout Switch	WNxxx	Wire Nut

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

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

Hot Wire Colors

115V = WHT

208V = RED

240V = ORG

277V = BRN

480V = BLK/RED

575V = BLK

MMP/Fuse

575V = Fuse

208/240/480V = MMP

Physical Data Tables

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)
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)
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 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)
	080	CW	8	Single	101.7 (46.1)	113.4 (51.4)
		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)
	100	CW	8	Three Quarter	131.5 (59.6)	147.3 (66.8)
		CW	8	Single	132.8 (60.3)	148.6 (67.4)
		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)
Heating	060	CW	6	Single	146.1 (66.3)	161.0 (73.1)
		CW	8	Single	162.2 (73.6)	182.1 (82.6)
		CW	8	Single	162.2 (73.6)	182.1 (82.6)
	080	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)
	100	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)
Defrost	060	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)
	080	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)
	100	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)

Table 34: 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 35: Energy Recovery Weights

Component	Weight lbs (kg)
Electric Heat Defrost	180 (82)
Energy Recovery Wheel, 46 in	185 (84)
Energy Recovery Wheel, 52 in	220 (100)
Energy Recovery Wheel, 58 in	320 (145)

Fan and Motor Data

Table 36: 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 37: 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 38: 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 39: 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 40: 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 HP² HP is limited by VFD size**Table 41: 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 42: Horizontal Filter Data for Main Unit and Optional Mixing Box Sections

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

Table 43: 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	4	2	4	6	8	
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	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	
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	4	
Height	-	-	-	-	-	-	-	-	18	18	18	18	
Width	-	-	-	-	-	-	-	-	24	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 44: Filter Pressure Drop

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

Unit Selection

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

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

Basic Design Data

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

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

Unit Size

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

Coil Types

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

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

Four-Pipe Systems

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

Two-Pipe Systems

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

Four and Two-Pipe Performance Measurements

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

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

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

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

Electrical Data

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

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

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

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

NOTICE

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

$$\text{MCA} = 1.25 \times (\text{Heater Amps} + \text{all motor FLAs})$$

$$\text{Calculated MROPD} = 2.25 \times (\text{Largest Motor FLAs} + \text{Other Motor FLAs} + \text{Electric Heater Amps})$$

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

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

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

The temperature of the air leaving the unit (LAT) which is dependent on the entering air temperature (EAT), electric heat capacity (kW), and the air volume (CFM), must not exceed 125°F. The minimum allowable air volume for various combinations of EAT and kW are provided in [Table 14 on page 23](#) or may be calculated using the equation below.

$$\text{LAT} = (\text{kW} \times 3145.622 \div \text{CFM}) + \text{EAT}$$

Electric Heat Safety

Overcurrent Protection

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

Thermal (Over Temperature) Protection

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

Valve Package Selections

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

The optional factory-installed deluxe valve package includes a temperature control valve, a ball shut off valve with supply strainer, P/T port and clean out, and an automatic flow control valve with ball shut off and P/T ports. The temperature control valve is the Belimo B series characterized 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. The strainer and ball shut off valve assembly is the Nexus UltraY and the automatic flow control valve and shut off assembly is the Nexus UltraMatic model UM. The piping schematic examples are shown in [Figure 26](#) through [Figure 31](#).

On vertical units Size 06 and 08, the control valve is a Belimo Zonetight. These valves 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.

NOTICE

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

Figure 26: Basic 2-Way Valve Package

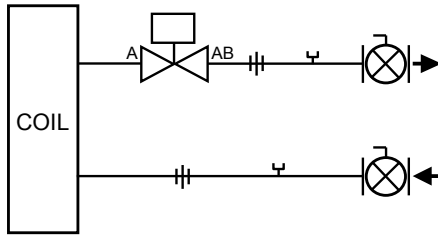


Figure 27: Basic 3-Way Valve Package

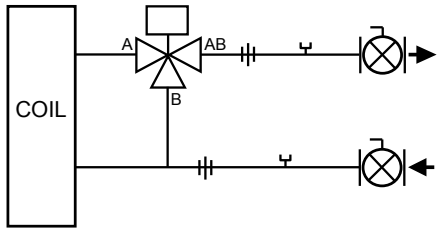


Figure 28: Deluxe 2-Way Valve Package (Auto CS)

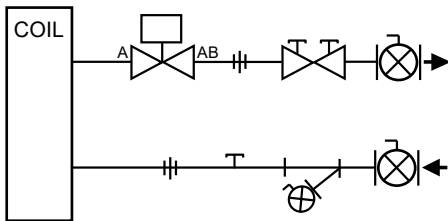


Figure 29: Deluxe 3-Way Valve Package (Auto CS)

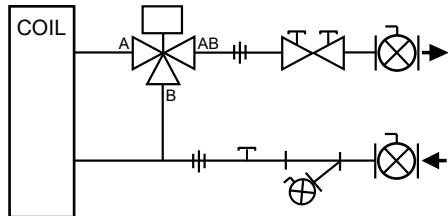


Figure 30: Deluxe 2-Way Valve Package (Manual CS)

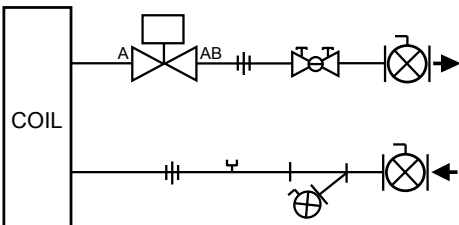
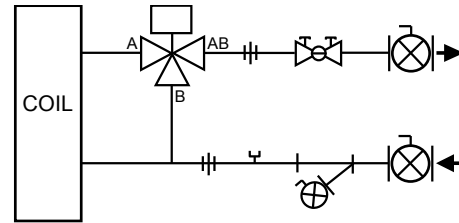


Figure 31: Deluxe 3-Way Valve Package (Manual CS)



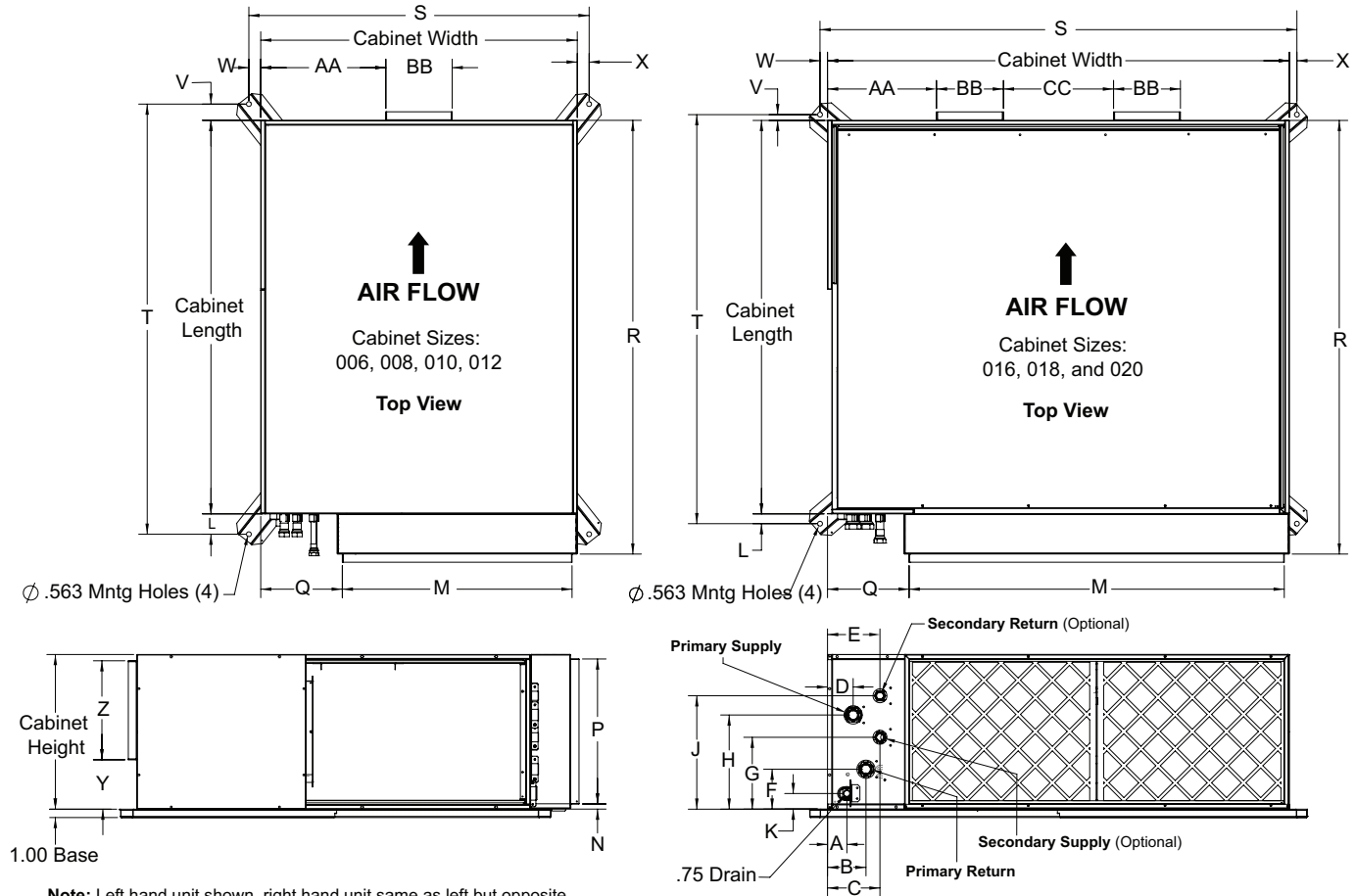
Components Key for Schematics	
	Manual Shutoff Ball Valve with Memory Stop: Used on return line for limiting water flow.
	2-Way, ON/OFF Valve: Turn ON or OFF water flow to the coil in response to 24V or line voltage signal.
	3-Way, ON/OFF Valve: Bypass water flow away from coil in response to 24V or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

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

Dimensional Drawings

Size 006-050 Horizontal Unit Dimensions

Figure 32: Left-Hand, Single and Dual Fan (Sizes 006-020)



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

Overall Cabinet Dimensions

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

Table 45: Dimension Letter Reference for Figure 32 on page 53

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

Figure 33: Left-Hand, Single Fan (Sizes 030-050)

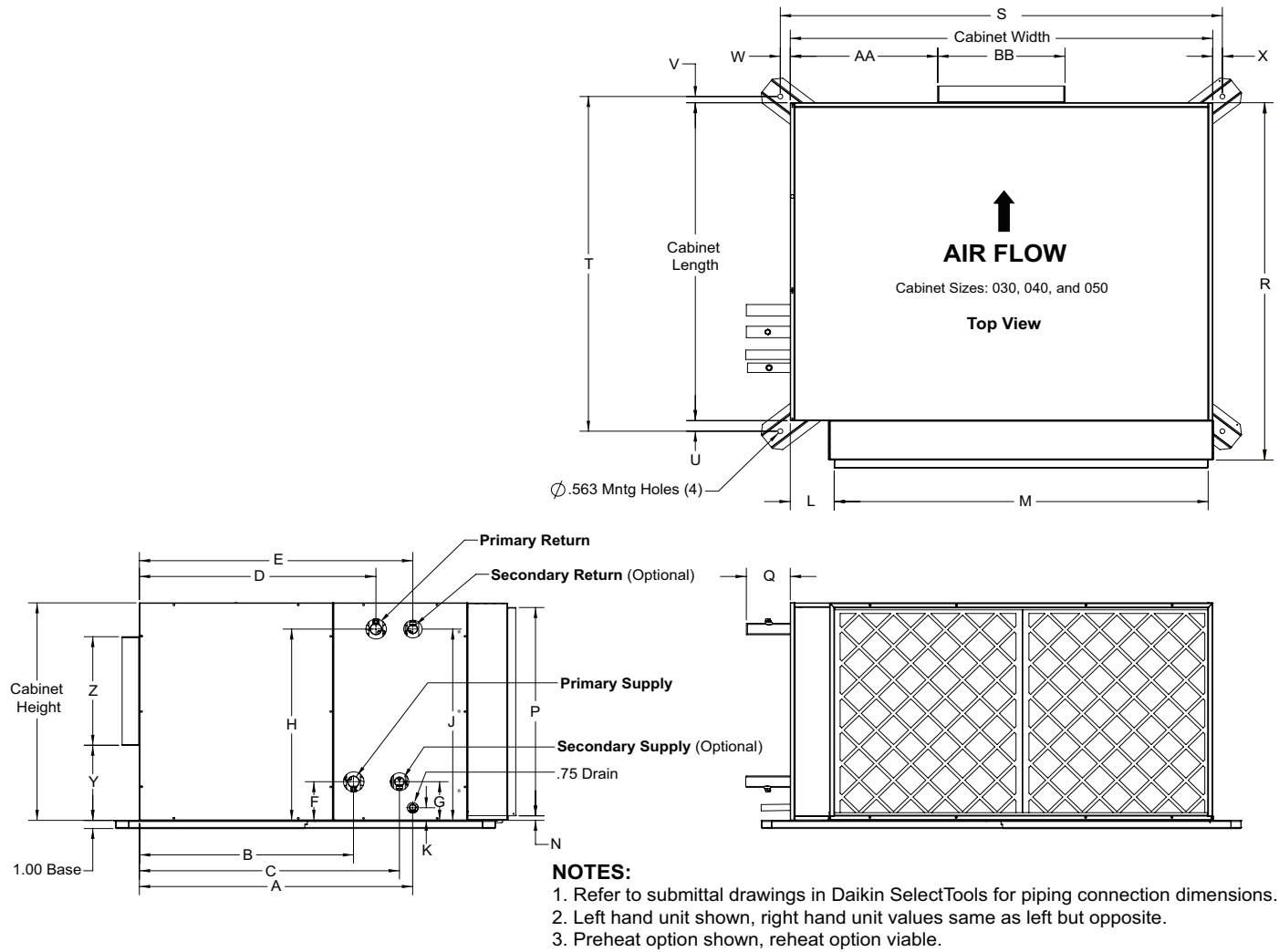


Table 46: Dimension Letter Reference for Hanger Brackets

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

Table 47: Hydronic Unit Dimensions - Dimension Letter Reference for Figure 33 on page 55

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	-
040	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	-
	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	-
050	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	-
	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
050	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	-

Table 48: Hydronic Unit Dimensions - Dimension Letter Reference for Figure 33 on page 55

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

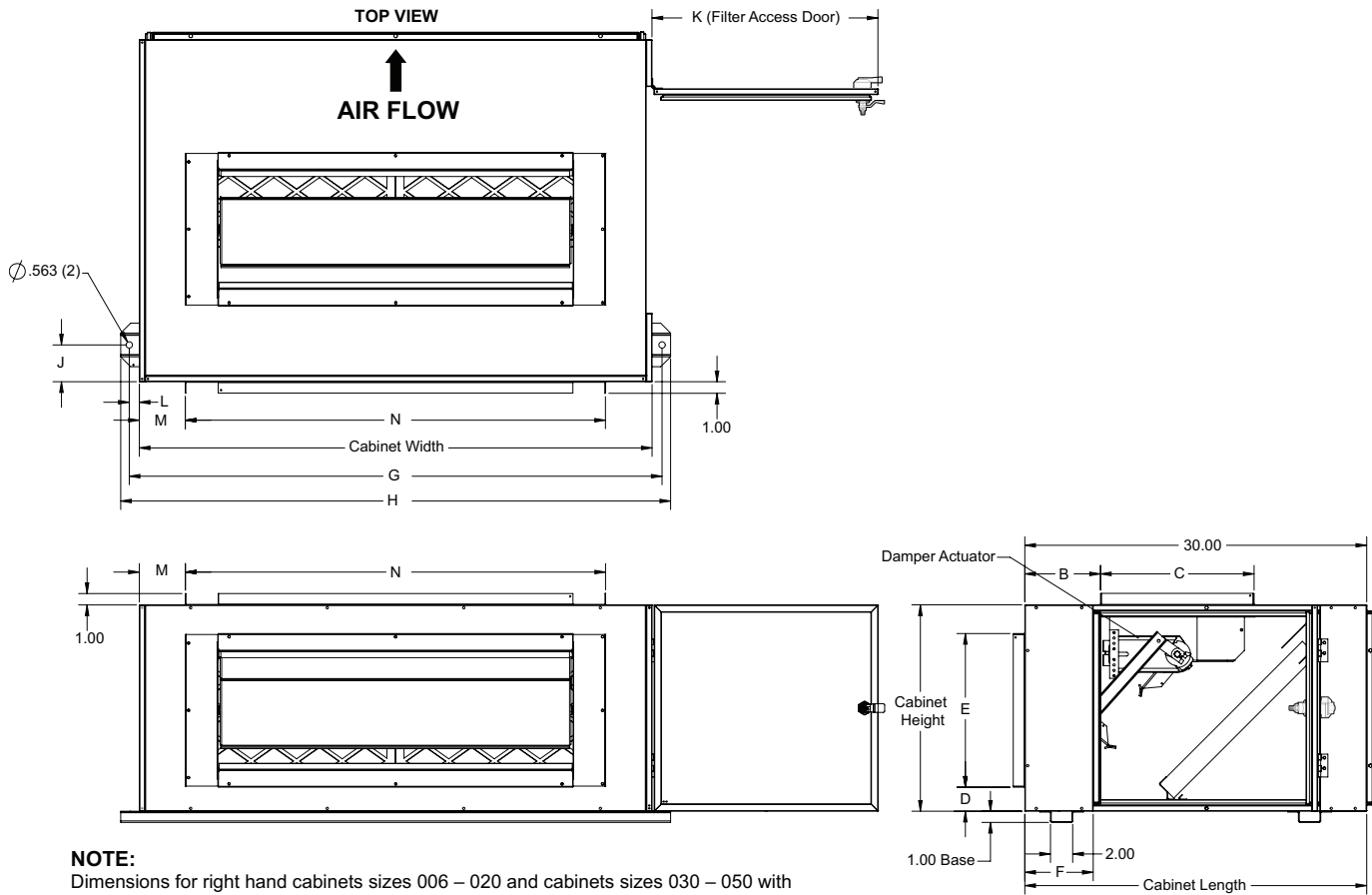
Table 49: DX Unit Dimensions - Dimension Letter Reference for Figure 33 on page 55

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

Table 50: DX Unit Dimensions - Dimension Letter Reference for Figure 33 on page 55

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

Figure 34: Horizontal Mixing Box – Top and End Damper, Left Hand Sizes 006–020 and Right Hand Sizes 030–050 – Side Filter Access



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

Table 51: 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

Figure 35: Horizontal Mixing Box – Bottom and End Damper, Left Hand Sizes 006–020 and Right Hand Sizes 030–050 – Side Filter Access

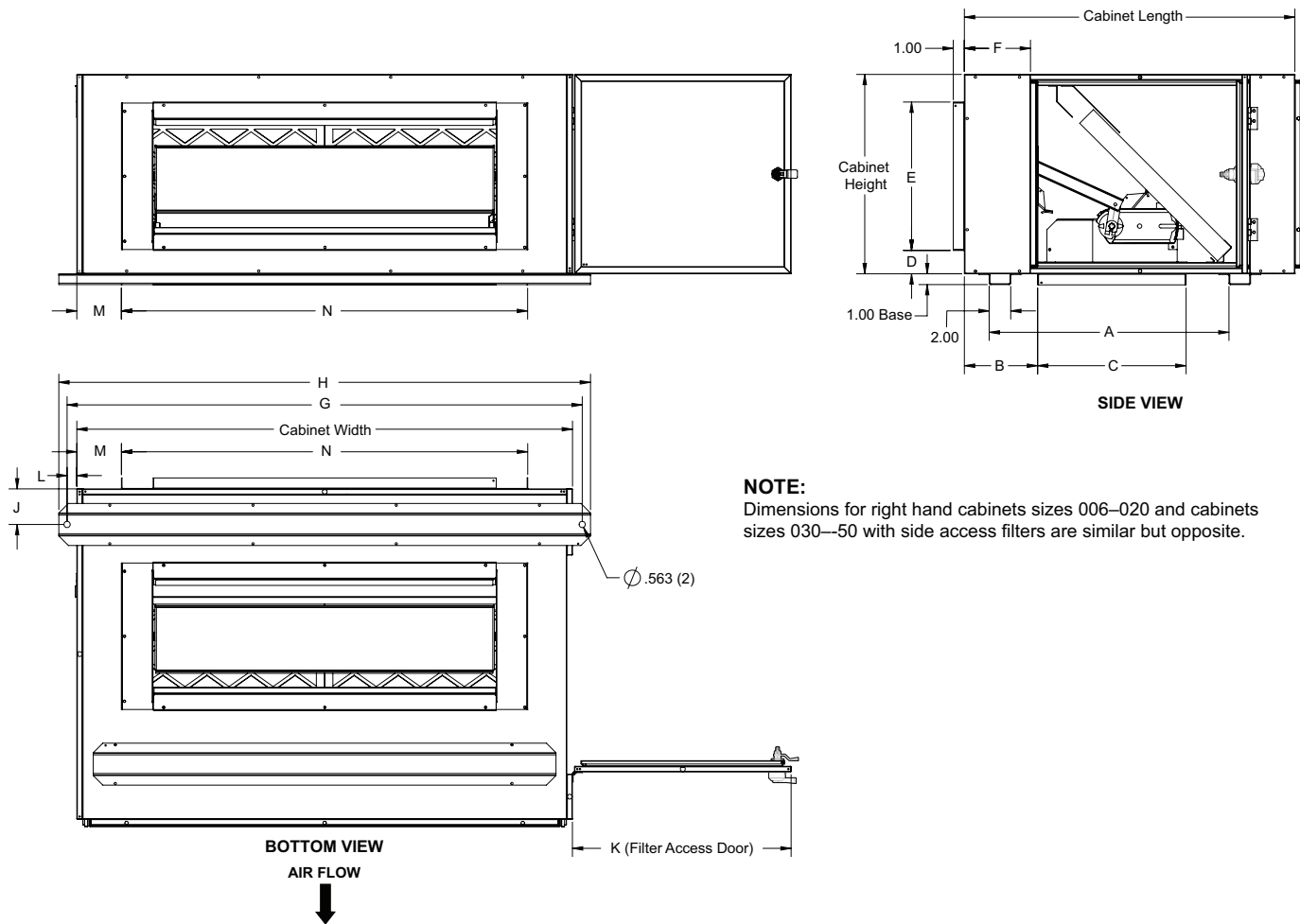


Table 52: Mixing Box Dimension Letter Reference

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

Figure 36: Horizontal Mixing Box Dimensions – Left Hand Sizes 006–020 and Right Hand Sizes 030–050 – Bottom Filter Access

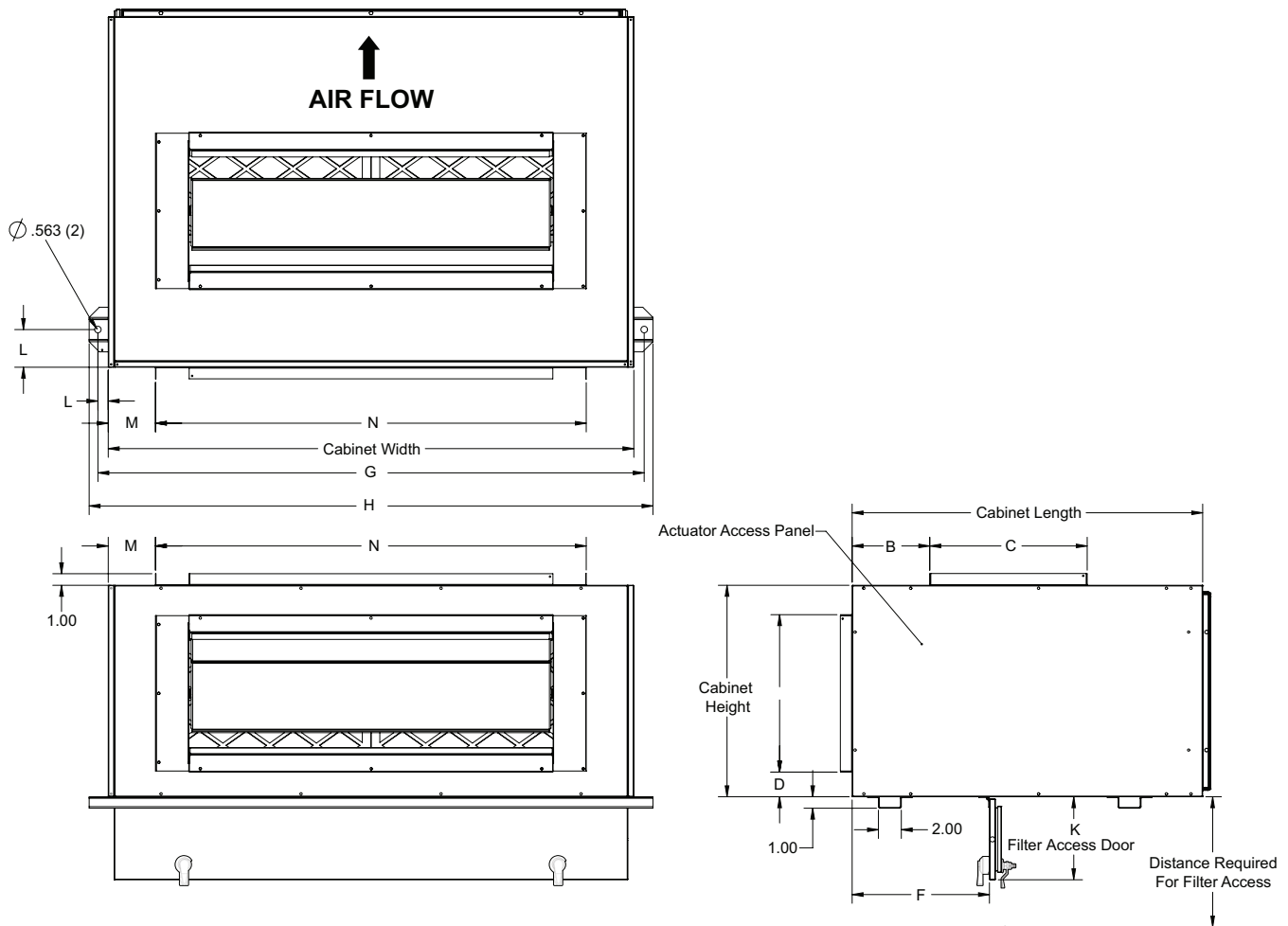


Table 53: Mixing Box Dimension Letter Reference

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

Figure 37: Horizontal Discharge Plenum (Sizes 006-050)

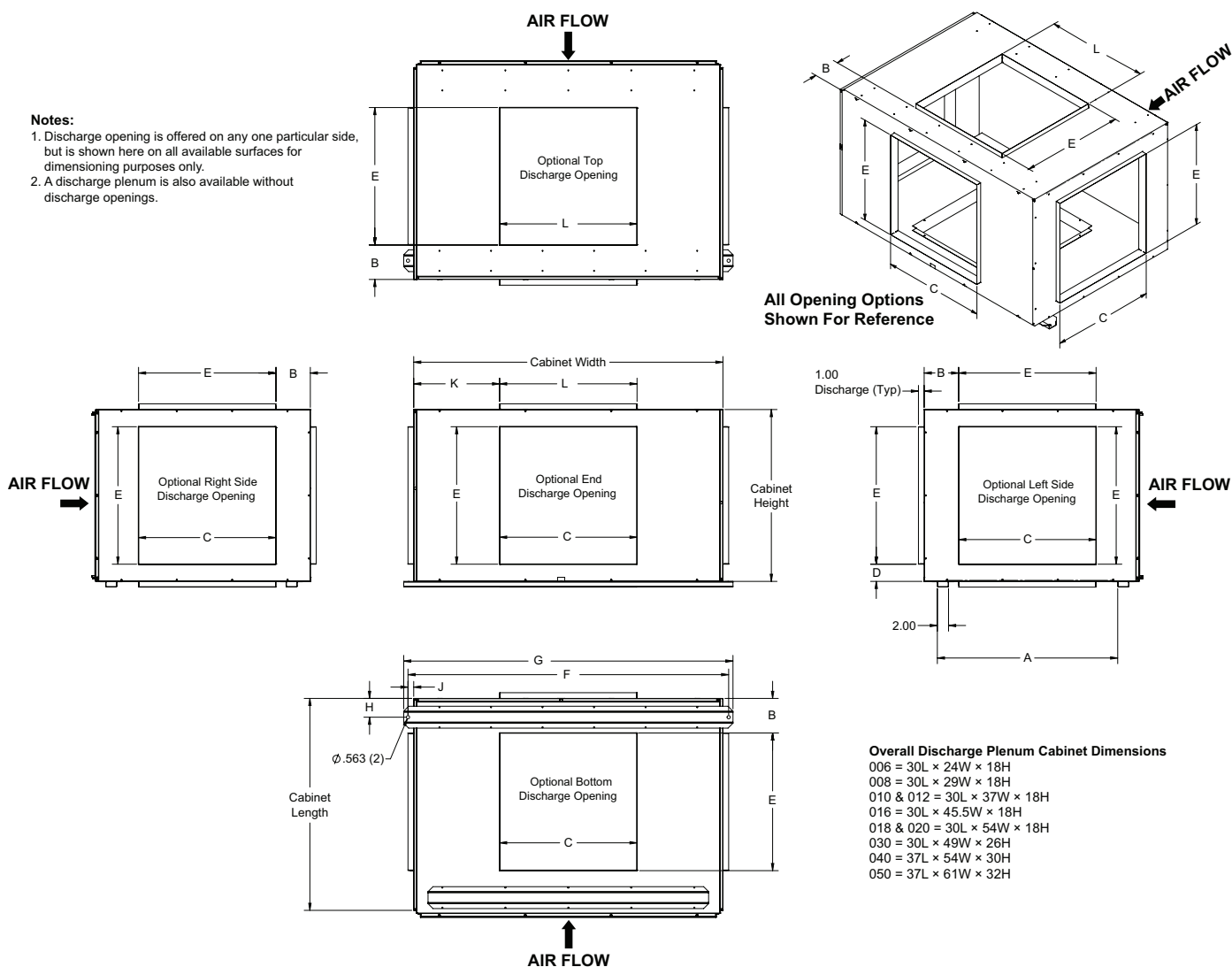


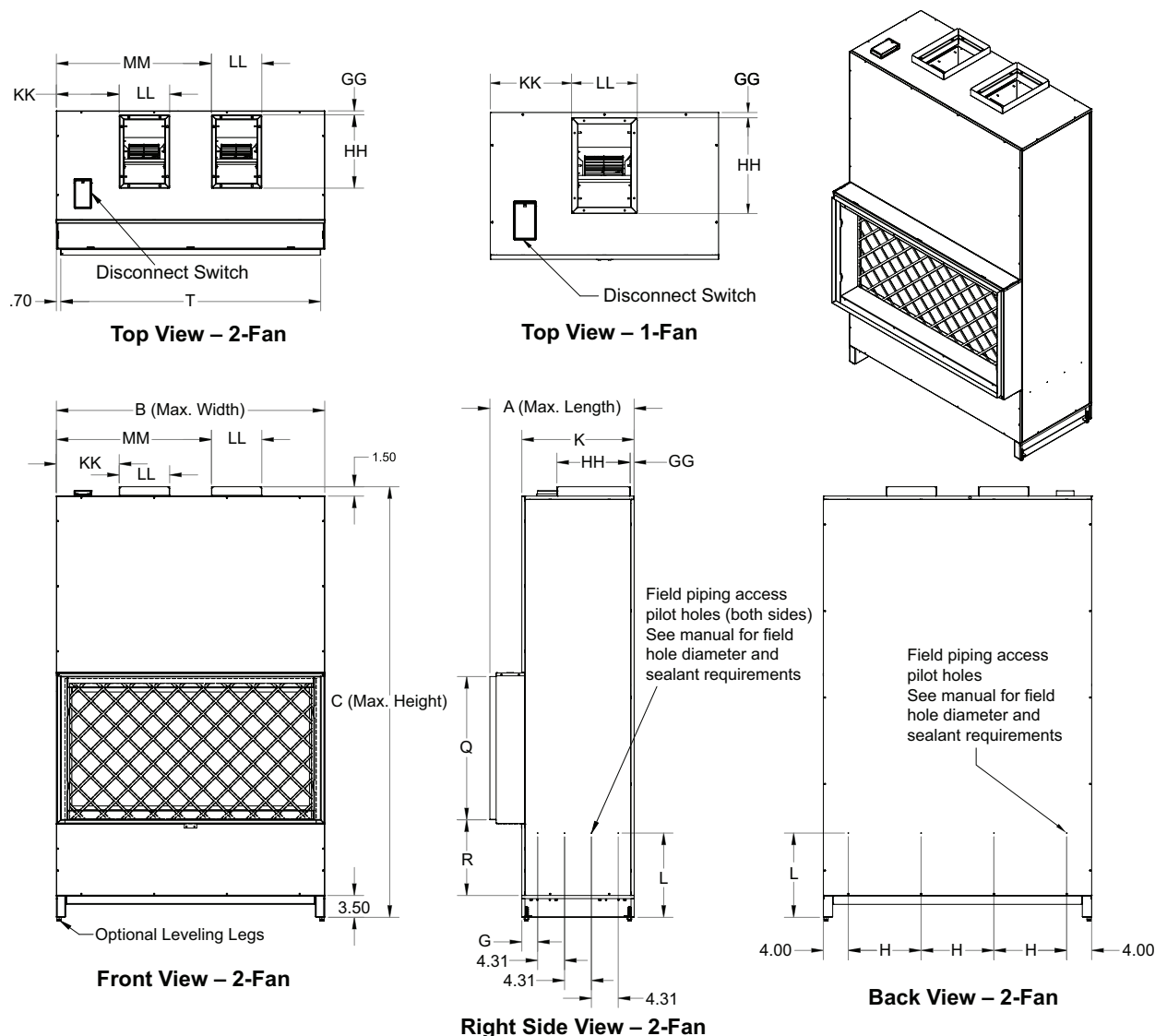
Table 54: Discharge Plenum Dimension Letter Reference

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: 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 38: Left-Hand, Single and Dual Fan (Sizes 006-020)



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

Table 55: Dimension Letter Reference

Internal Filter																				
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																				
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 39: Vertical Unit Dimensions (Sizes 030-050)

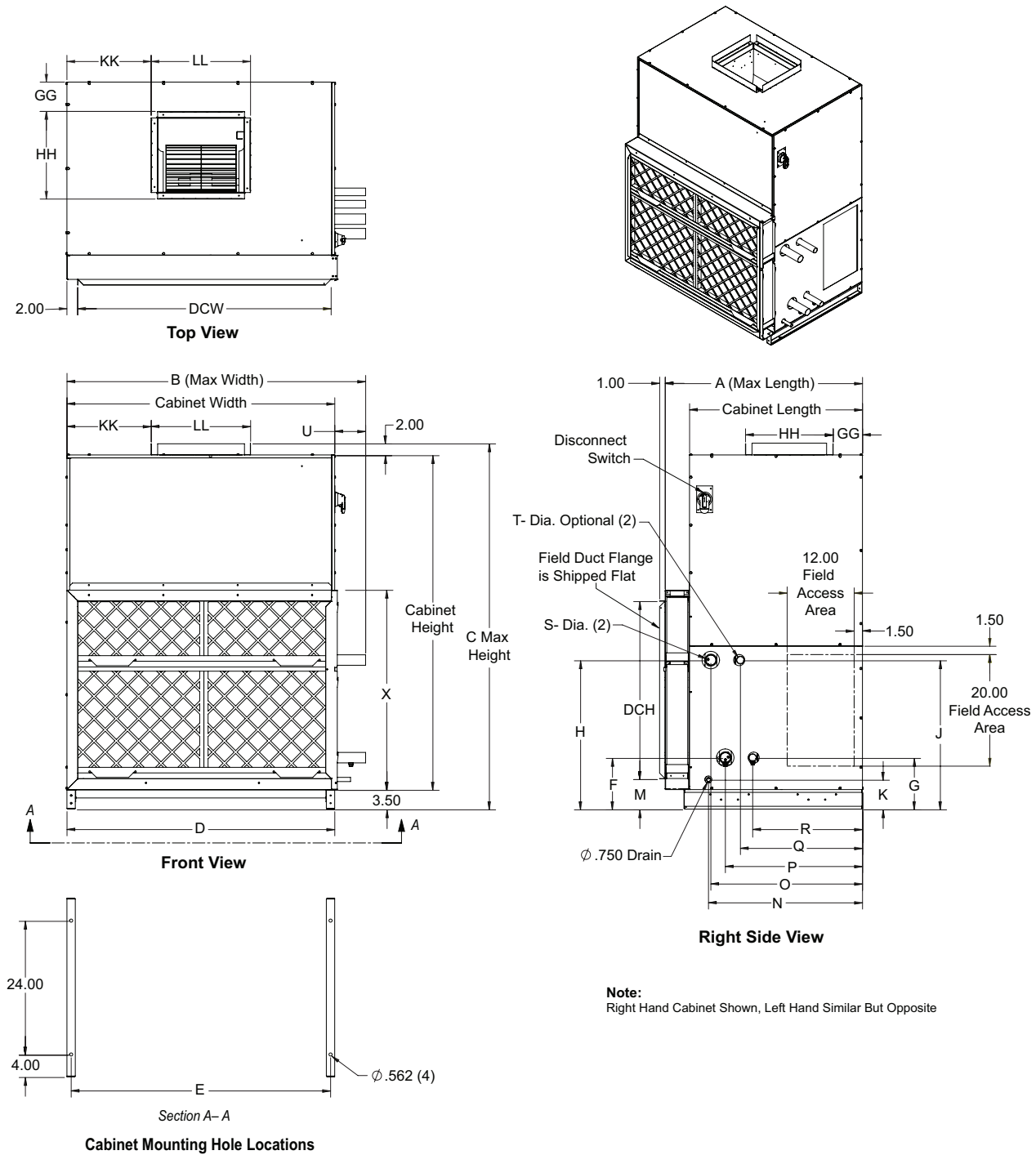


Table 56: General Vertical Unit Dimensions for Figure 39 on page 63

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

Table 57: Vertical Coil Dimensions for Figure 39 on page 63

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

Table 58: Vertical Coil Dimensions for Figure 39 on page 63 (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	-

Table 59: Vertical Coil Dimensions for Figure 39 on page 63 (continued)

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

Figure 40: Vertical Mixing Box - Top and End Damper, Sizes 030-050 - Side Filter Access

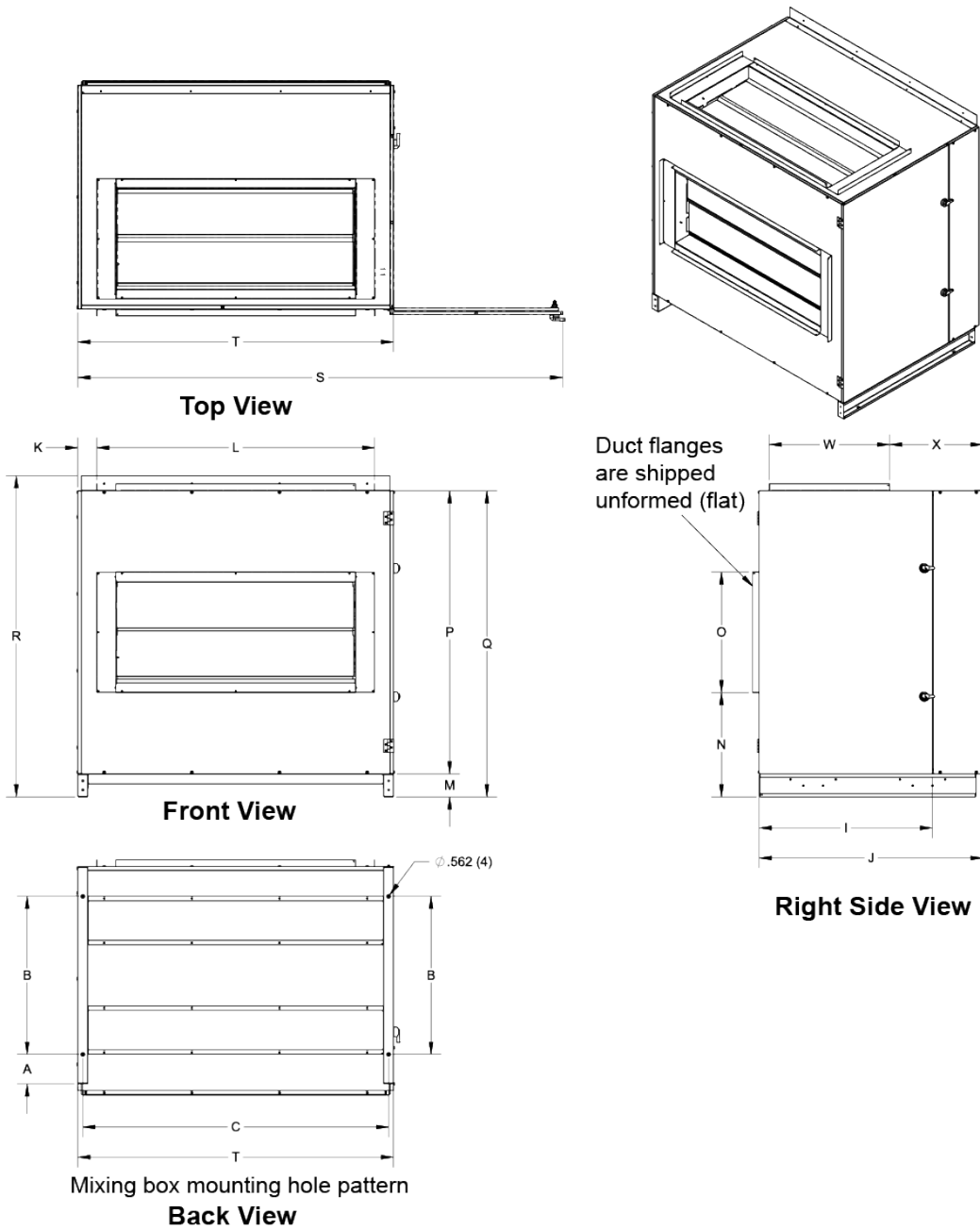


Table 60: Mixing Box Dimension Letter Reference

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

Figure 41: Vertical Discharge Plenum (Sizes 006-050)

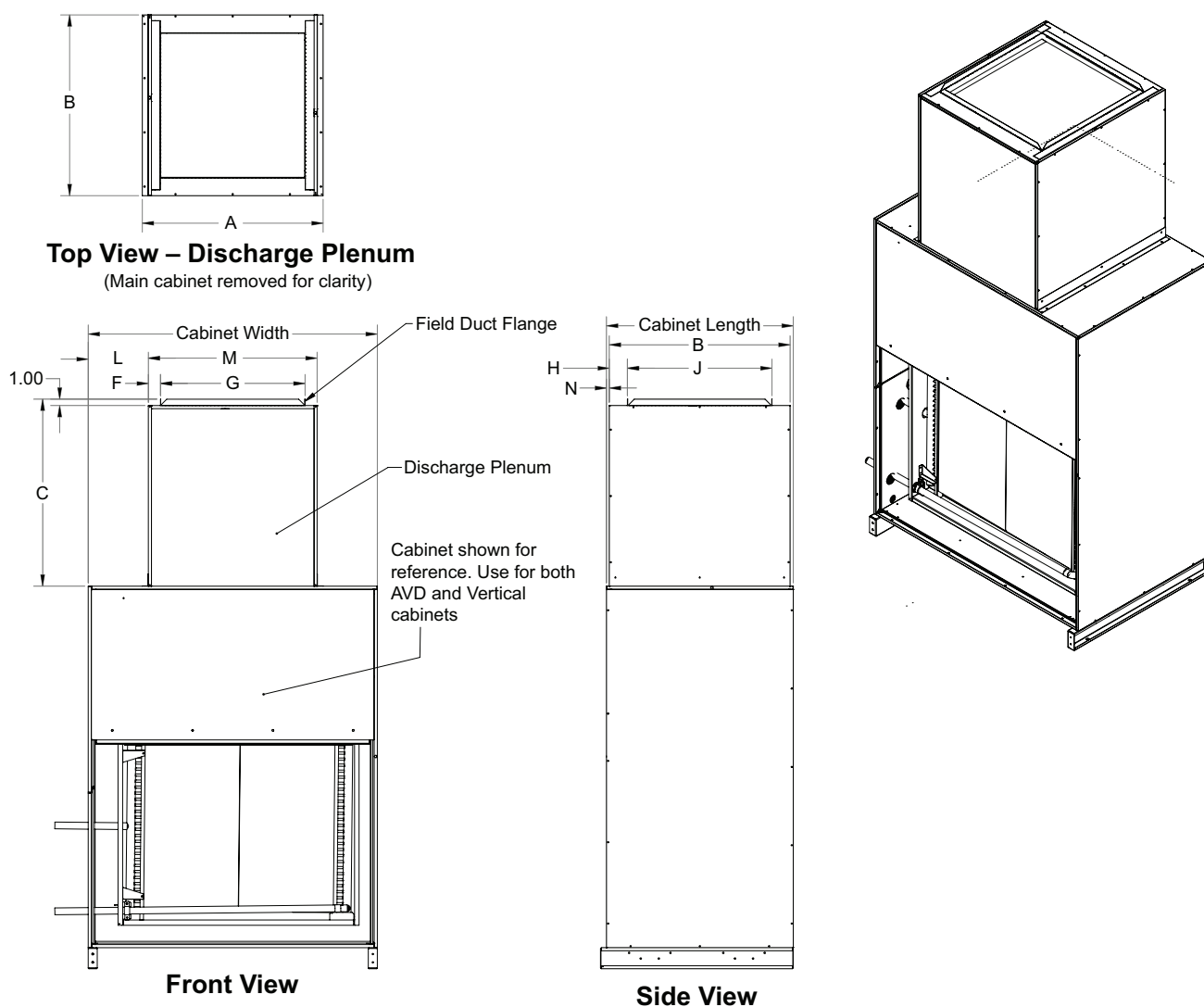


Table 61: Discharge Plenum Dimension Letter Reference

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

Size 060-100 Unit Dimensions

Figure 42: Horizontal Unit Coil Section Dimensions (Sizes 060-100)

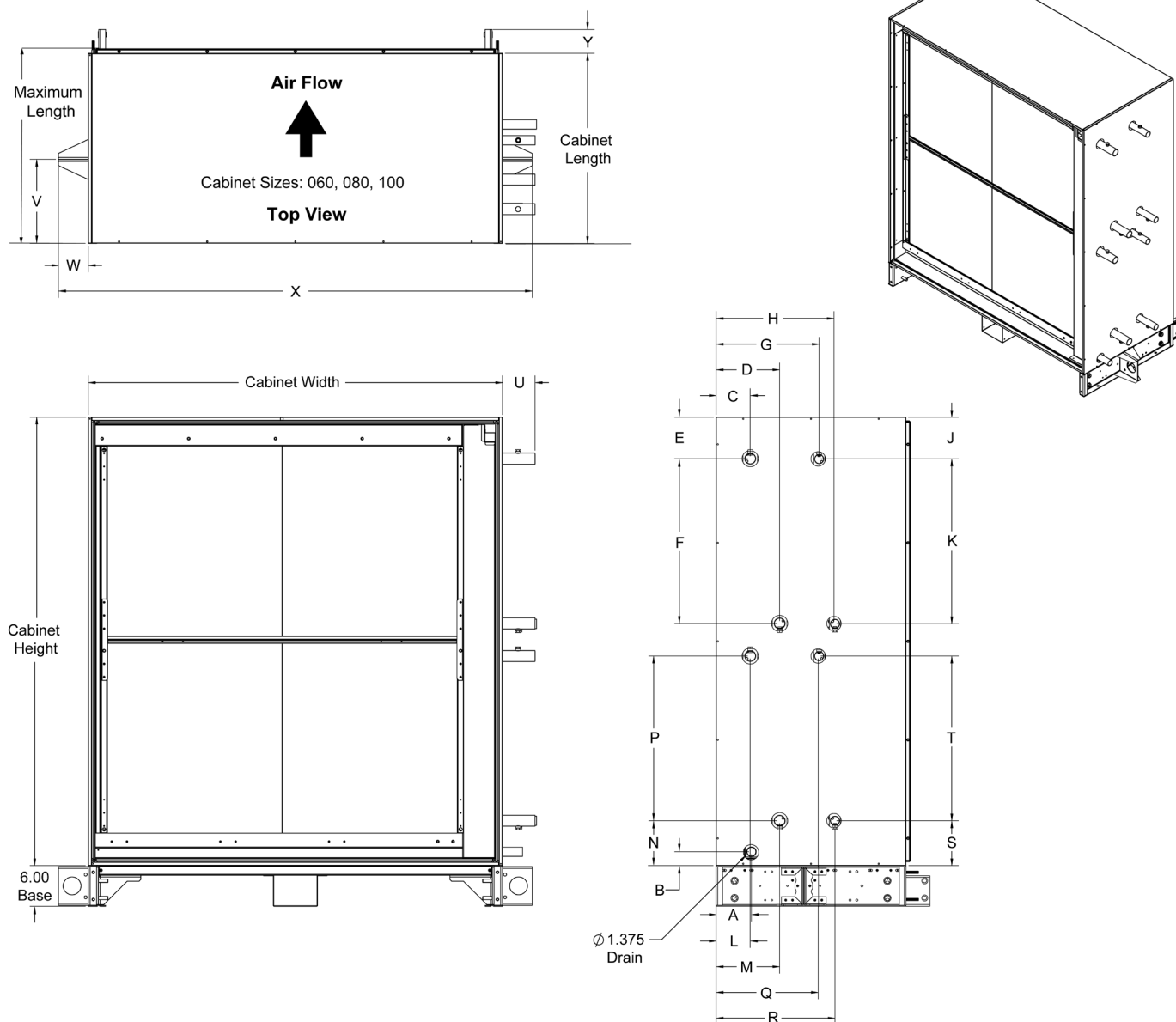


Table 62: General Unit Dimensions (Sizes 060-100)

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

Table 63: Hydronic Coil Unit Dimensions (Sizes 060-100) for Figure 42 on page 69

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	-	-	-	-

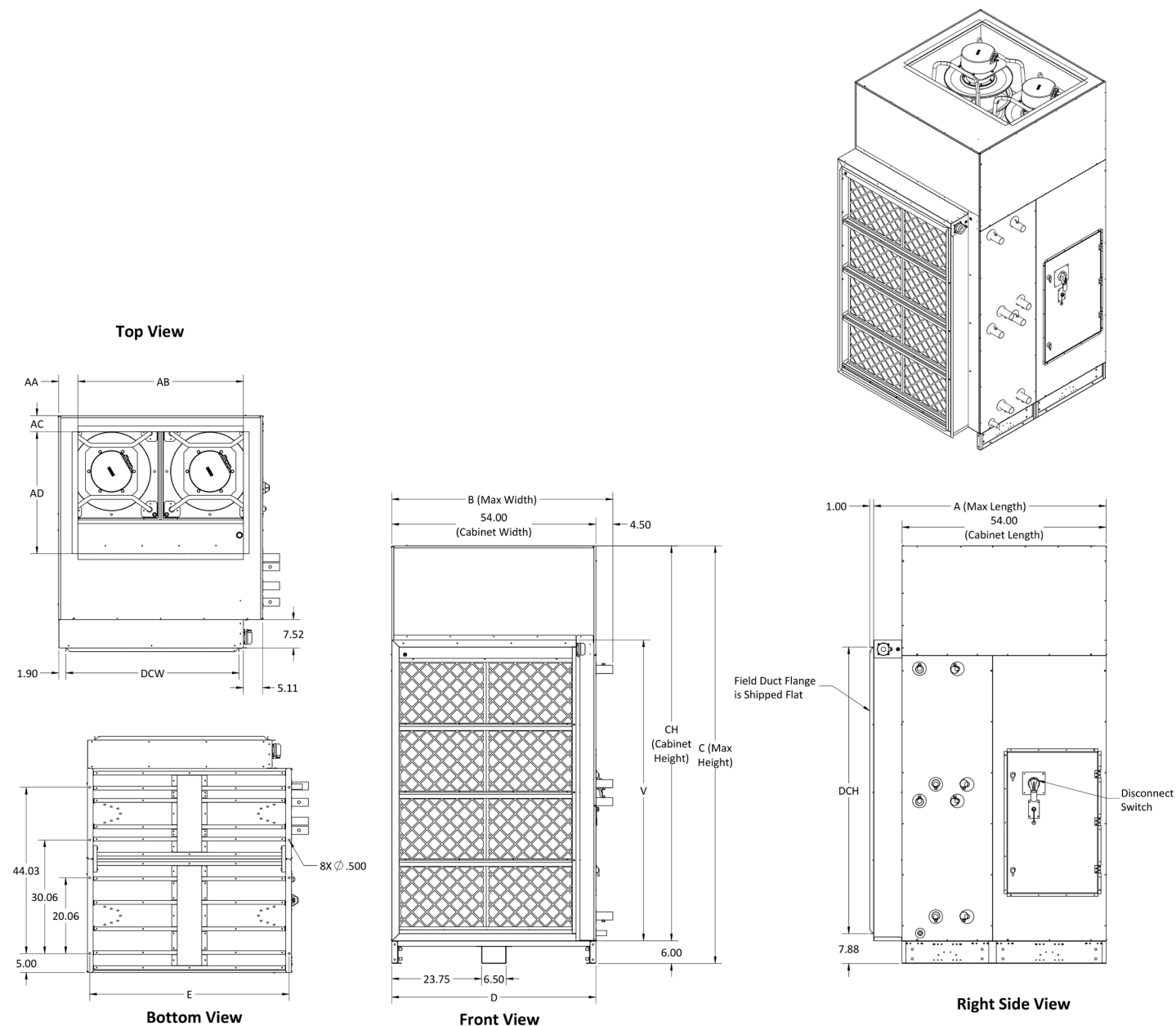
Table 64: DX Unit Dimensions (Sizes 060-100) for Figure 42 on page 69

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	-	-	-	-

Table 65: Steam Unit Dimensions (Sizes 060-100) for Figure 42 on page 69

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

Figure 43: Vertical Unit Dimensions - Two Fans (Sizes 060-100)



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

Table 66: 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

Table 67: 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

Figure 44: Vertical Unit Dimensions - One Fan (Sizes 060-100)

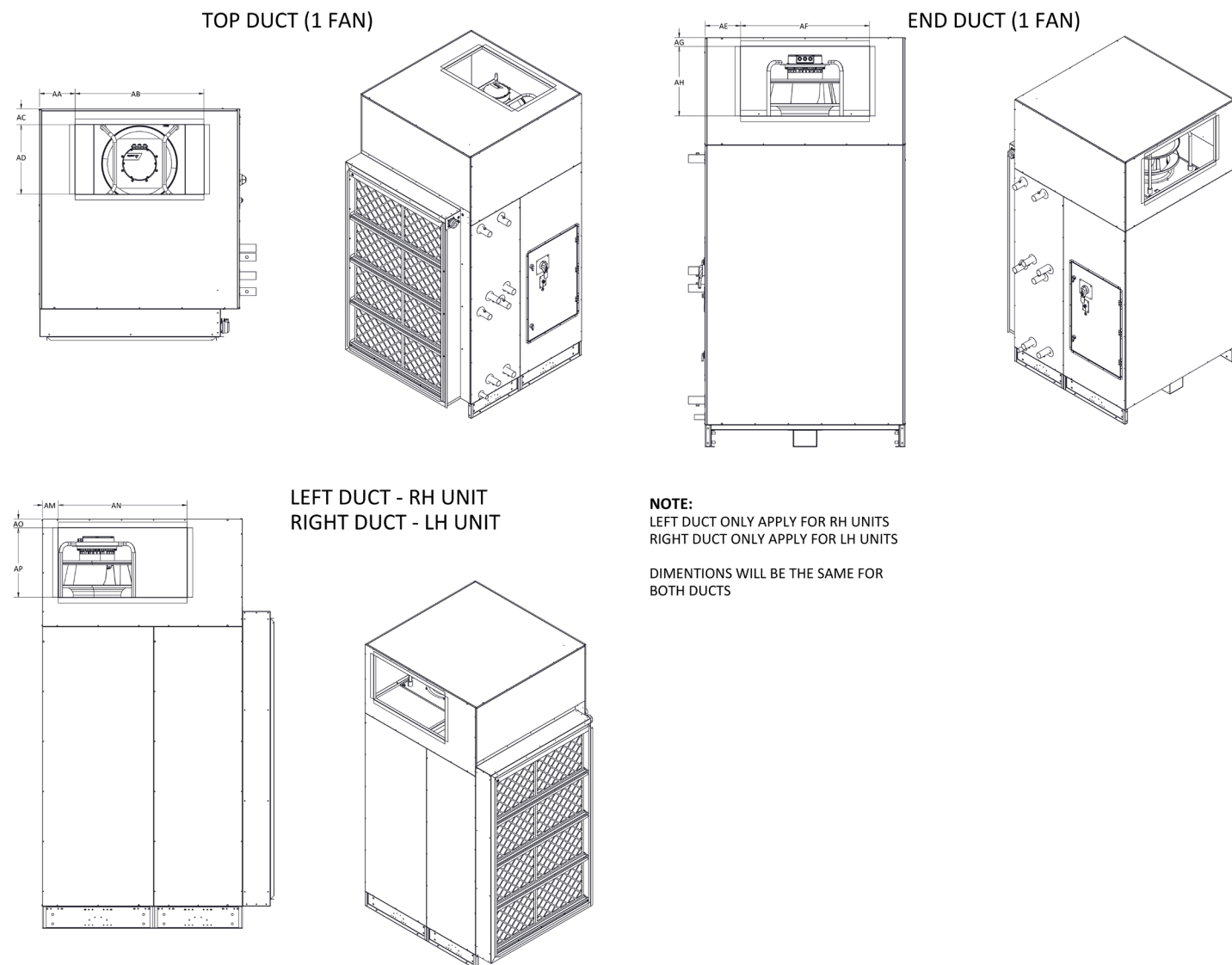


Table 68: Vertical Unit Dimensions - One Fan (Sizes 060-100)

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

Figure 45: Vertical Unit Coil Dimensions (Sizes 060-100)

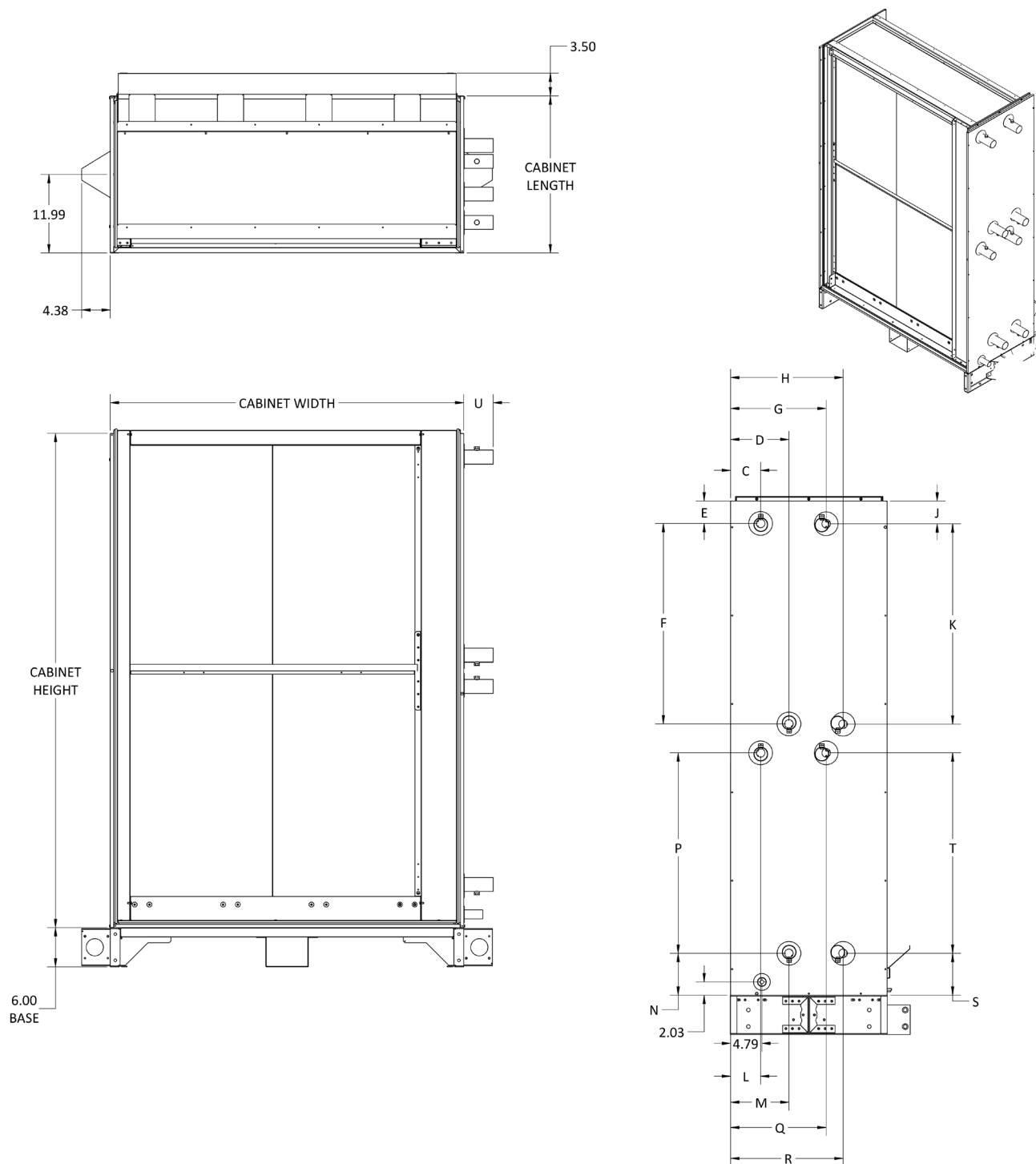


Table 69: Vertical Unit Coil Dimensions (Sizes 060-100)

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

*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.

Table 70: Hydronic Coil Unit Dimensions (Sizes 060-100) for Figure 45 on page 76

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	-	-	-	-	5.83	8.43	6.34	23.75	-	-	-	-
						22.75							7.34	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	8.32	6.30	16.75	-	-	-	-	5.94	8.32	6.34	16.75	-	-	-	-
			4.97	9.30		15.75					4.97	9.30	7.34	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	8.44	3.36	30.75	-	-	-	-	5.83	8.44	6.34	30.75	-	-	-	-
			4.96	9.30							4.96	9.30						
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	6.30	16.75	5.84	8.42	6.34	16.75	13.68	16.48	6.34	16.75
080	4.76	2.03	5.84	8.42	4.36	22.75	13.68	16.37	4.36	22.75	5.84	8.42	6.34	23.75	13.68	16.37	6.34	22.75
100	4.76	2.03	5.84	8.42	3.36	30.75	13.68	16.48	3.36	30.75	5.84	8.42	6.34	30.75	13.68	16.48	6.34	30.75
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	16.37	6.30	16.75	5.84	8.42	6.34	16.75	13.95	16.37	6.34	16.75
							13.68								13.68			
080	4.76	2.03	5.84	8.42	4.36	22.75	13.95	16.37	3.36	23.75	5.84	8.42	6.34	22.75	13.95	16.37	6.34	23.75
							13.68		4.36	22.75					13.68			22.75
100	4.76	2.03	5.84	8.42	3.36	30.75	13.95	16.37	3.36	30.75	5.84	8.42	6.34	30.75	13.95	16.37	6.34	30.75
							13.68								13.68			

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	6.30	16.75	5.83	8.43	6.34	16.75	13.68	16.48	6.34	16.75
080	4.76	2.03	5.83	8.43	3.36	22.75	13.68	16.37	4.36	22.75	5.83	8.43	7.34	22.75	13.68	16.37	6.34	22.75
						23.75							6.34	23.75				
100	4.76	2.03	5.83	8.43	3.36	30.75	13.68	16.48	3.36	30.75	5.83	8.42	6.34	30.75	13.68	16.48	6.34	30.75
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	16.37	6.3	16.75	5.83	8.43	6.34	16.75	13.95	16.37	6.34	16.75
						13.68	13.68											
080	4.76	2.03	5.83	8.43	3.36	23.75	13.95	16.37	3.36	23.75	5.83	8.43	6.34	23.75	13.95	16.37	6.34	23.75
						22.75	13.68		4.36	22.75			7.34	22.75	13.68			22.75
100	4.76	2.03	5.83	8.43	3.36	30.75	13.95	16.37	3.36	30.75	5.83	8.43	6.34	30.75	13.95	16.37	6.34	30.75
						13.68	13.68											
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	8.32	6.30	16.75	13.95	16.37	6.30	16.75	5.94	8.32	6.34	16.75	13.95	16.37	6.34	16.75
			4.97	9.30		15.75	13.68				4.97	9.30	7.34	15.75	13.68			
080	4.76	2.03	5.83	8.43	3.36	23.75	13.95	16.37	3.36	23.75	5.83	8.43	6.34	23.75	13.95	16.37	6.34	23.75
							13.68		4.36	22.75					13.68			22.75
100	4.76	2.03	5.83	8.44	3.36	30.75	13.95	16.37	3.36	30.75	5.83	8.44	6.34	30.75	13.95	16.37	6.34	30.75
			4.96	9.30			13.68				4.96	9.30			13.68			
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	9.30	6.30	15.75	13.68	16.48	6.30	16.75	4.97	9.30	7.34	15.75	13.68	16.48	6.34	16.75
			5.94	8.32		16.75					5.94	8.32	6.34	16.75				
080	4.76	2.03	5.83	8.43	3.36	23.75	13.68	16.37	4.36	22.75	5.83	8.43	6.34	23.75	13.68	16.37	6.34	22.75
100	4.76	2.03	5.83	8.44	3.36	30.75	13.68	16.48	3.36	30.75	5.83	8.44	6.34	30.75	13.68	16.48	6.34	30.75
			4.96	9.30							4.96	9.30						
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	6.30	16.75	4.62	8.95	6.34	16.75	13.68	16.48	6.34	16.75
080	4.76	2.03	4.62	8.95	3.36	23.75	13.68	16.37	4.36	22.75	4.62	8.95	6.34	23.75	13.68	16.37	6.34	22.75
100	4.76	2.03	4.62	8.95	3.36	30.75	13.68	16.48	3.36	30.75	4.62	8.95	6.34	30.75	13.68	16.48	6.34	30.75
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	16.37	6.30	16.75	4.62	8.95	6.34	16.75	13.95	16.37	6.34	16.75
							13.68								13.68			
080	4.76	2.03	4.62	8.95	3.36	23.75	13.95	16.37	3.36	23.75	4.62	8.95	6.34	23.75	13.95	16.37	6.34	23.75
							13.68		4.36	22.75					13.68			22.75
100	4.76	2.03	4.62	8.95	3.36	30.75	13.95	16.37	3.36	30.75	4.62	8.95	6.34	30.75	13.95	16.37	6.34	30.75
							13.68								13.68			

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	6.30	16.75	13.09	15.67	6.30	16.75	5.43	8.23	6.34	16.75	13.09	15.67	6.34	16.75
080	4.76	2.03	5.43	8.12	4.36	22.75	13.09	15.67	4.36	22.75	5.43	8.12	6.34	22.75	13.09	15.67	6.34	22.75
100	4.76	2.03	5.43	8.23	3.36	30.75	13.09	15.67	3.36	30.75	5.43	8.23	6.34	30.75	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	6.30	16.75	13.08	15.68	6.30	16.75	5.43	8.23	6.34	16.75	13.08	15.68	6.34	16.75
080	4.76	2.03	5.43	8.12	4.36	22.75	13.08	15.68	3.36	23.75	5.43	8.12	6.34	22.75	13.08	15.68	6.34	23.75
																	7.34	22.75
100	4.76	2.03	5.43	8.23	3.36	30.75	13.08	15.68	3.36	30.75	5.43	8.23	6.34	30.75	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	6.30	16.75	13.19	15.57	6.30	16.75	5.43	8.23	6.34	16.75	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	4.36	22.75	13.08	15.68	3.36	23.75	5.43	8.12	6.34	22.75	13.08	15.68	6.34	23.75
100	4.76	2.03	5.43	8.23	3.36	30.75	13.08	15.68	3.36	30.75	5.43	8.23	6.34	30.75	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	6.30	16.75	11.87	16.20	6.30	16.75	5.43	8.23	6.34	16.75	11.87	16.20	6.34	16.75
080	4.76	2.03	5.43	8.12	4.36	22.75	11.87	16.20	3.36	23.75	5.43	8.12	6.34	22.75	11.87	16.20	6.34	23.75
100	4.76	2.03	5.43	8.23	3.36	30.75	11.87	16.20	3.36	30.75	5.43	8.23	6.34	30.75	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								5.43							
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				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								5.43							

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				12.21	16.55			5.43				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								5.43							

LEGEND	
Std	Standard Circuiting Flow
Low	Low Circuiting Flow

Figure 46: Horizontal Mixing Box Dimensions (Sizes 060-100)

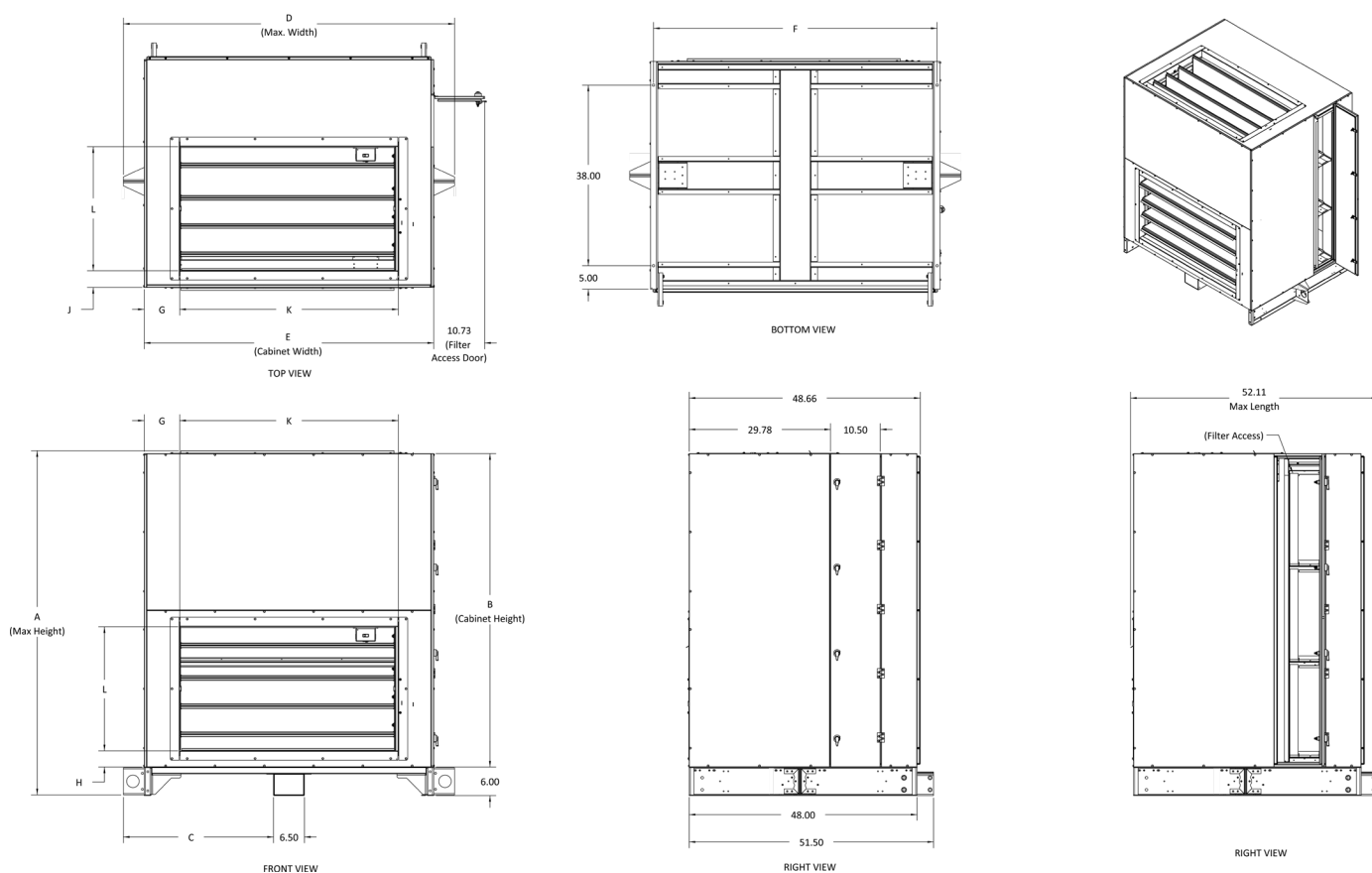


Table 71: Mixing Box Dimension Letter Reference

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

Figure 47: Vertical Mixing Box Dimensions (Sizes 060-100)

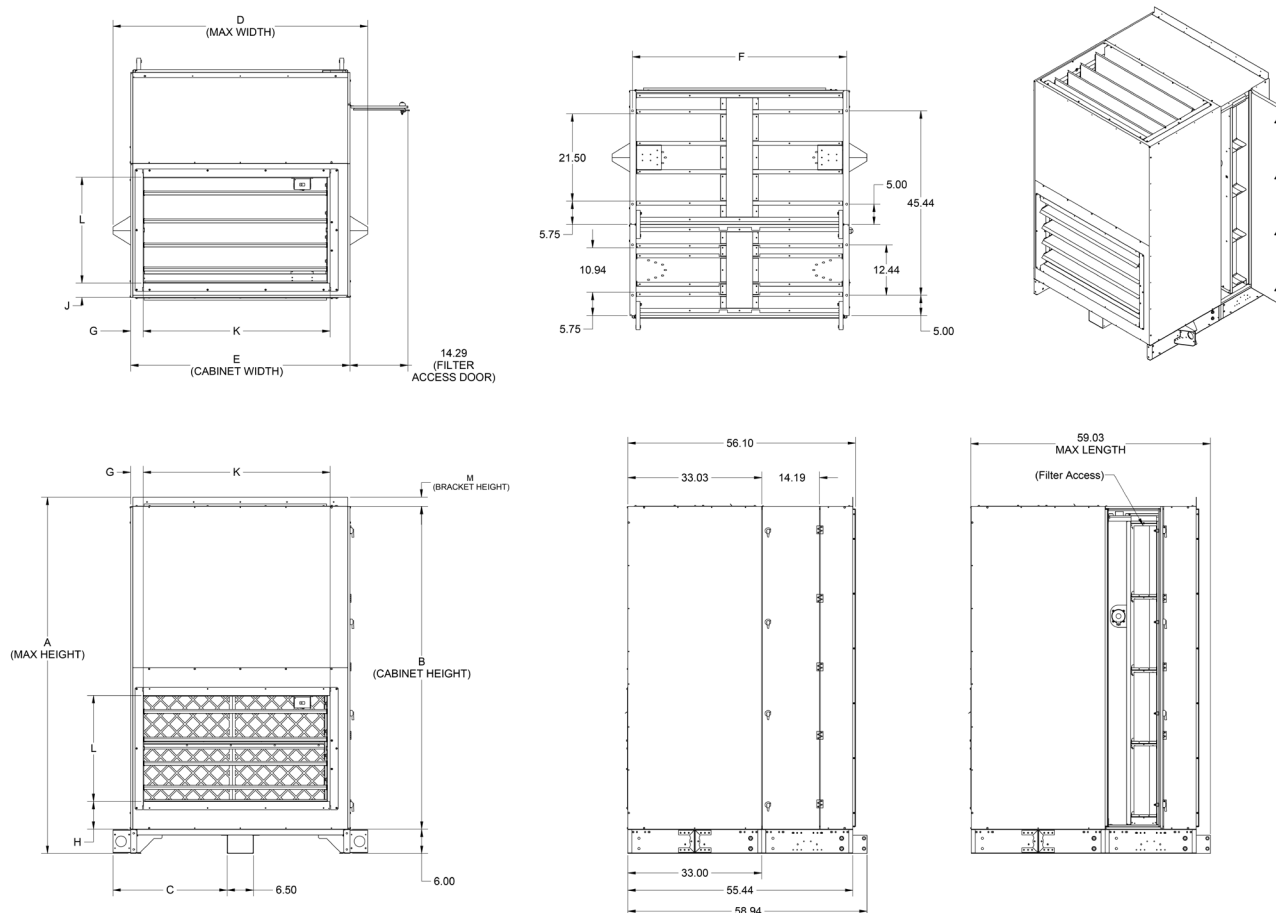


Table 72: Mixing Box Dimension Letter Reference

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

Figure 48: Horizontal Discharge Plenum Without Filter (Sizes 060-100)

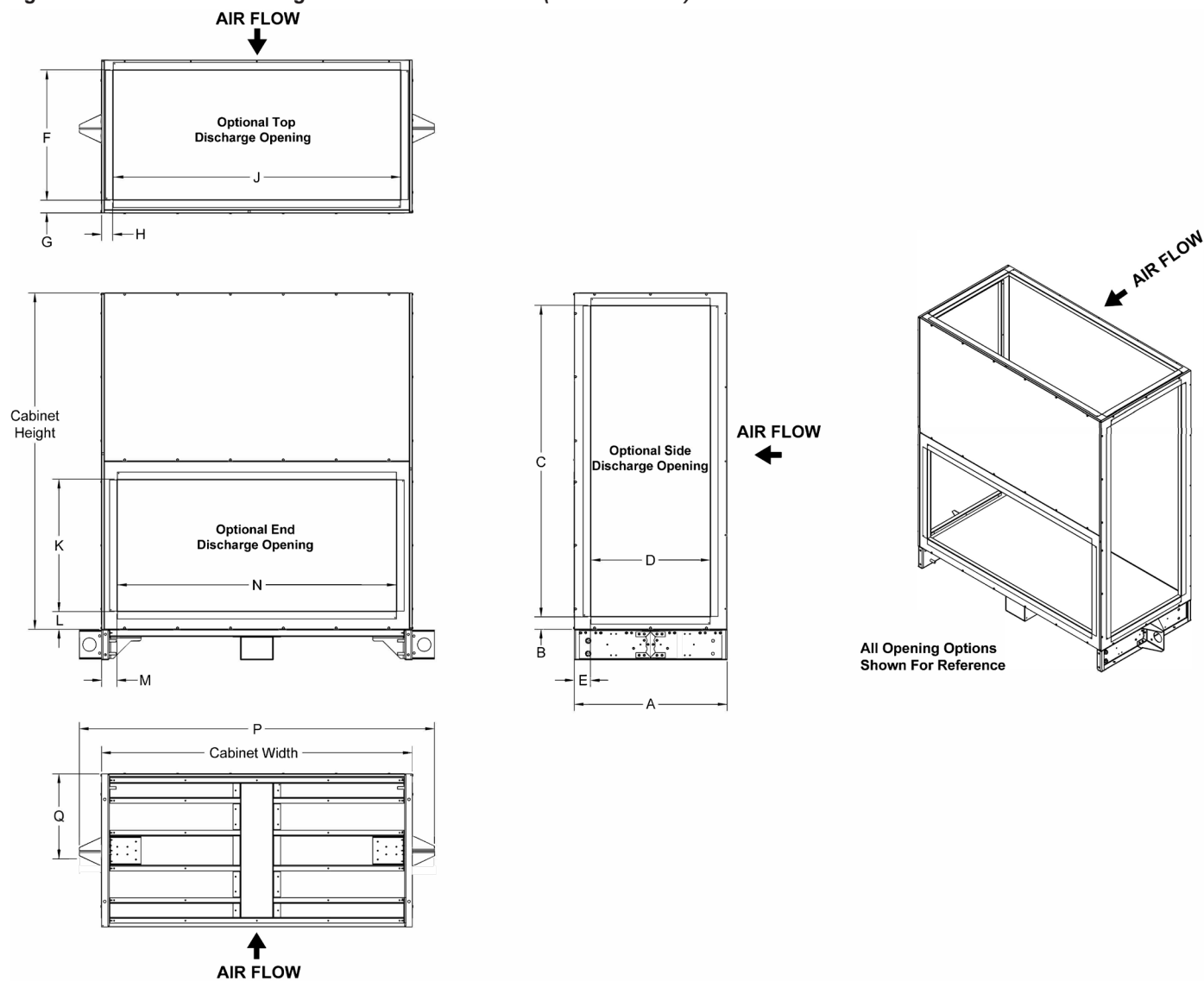


Table 73: Horizontal Discharge Plenum Without Filter Dimension Letter Reference

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

Figure 49: Horizontal Discharge Plenum With Filter (Sizes 060-100)

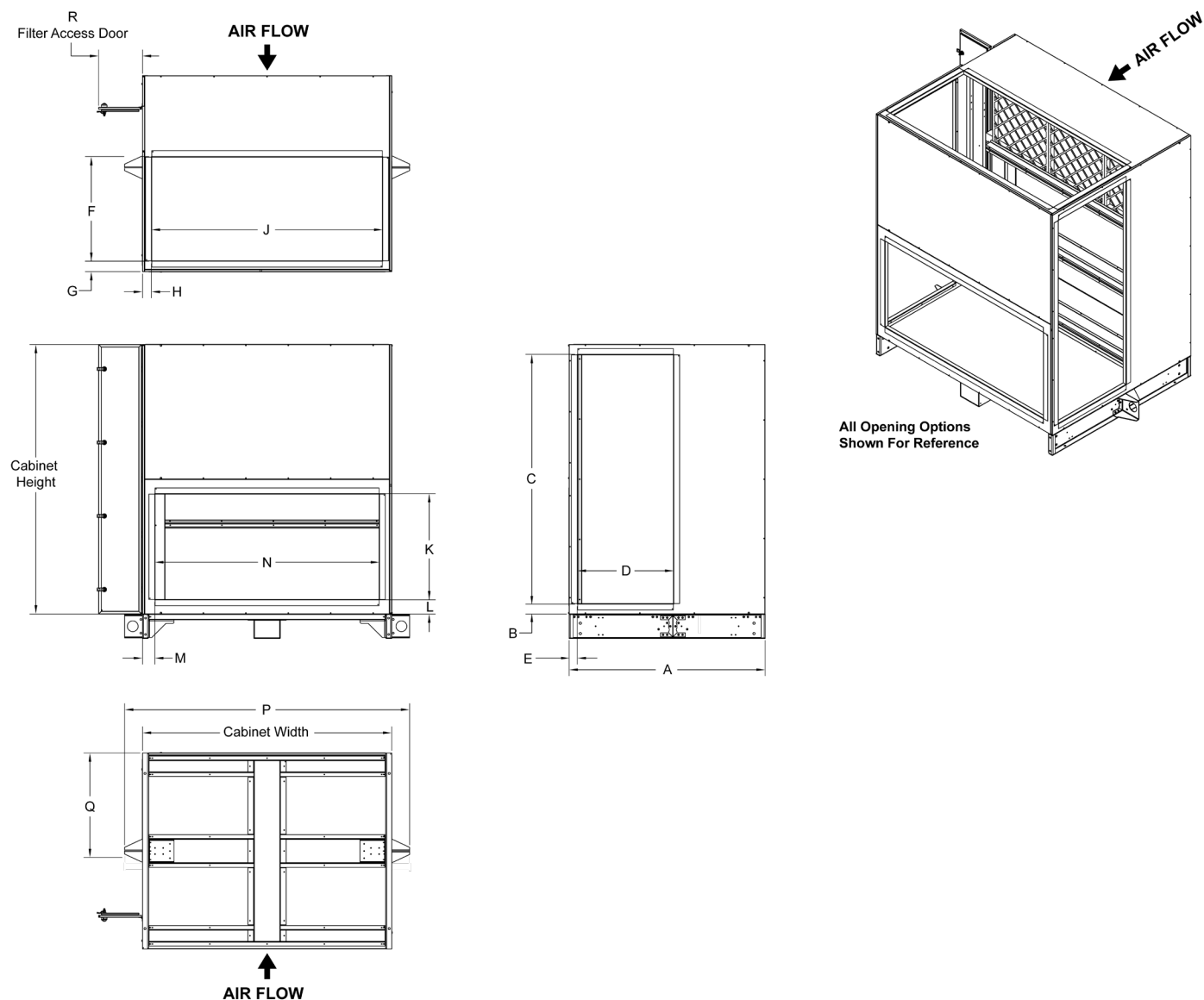


Table 74: Horizontal Discharge Plenum With Filter Dimension Letter Reference

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

Figure 50: Horizontal Exhaust Air / Outdoor Air Dimensions (Sizes 060-100)

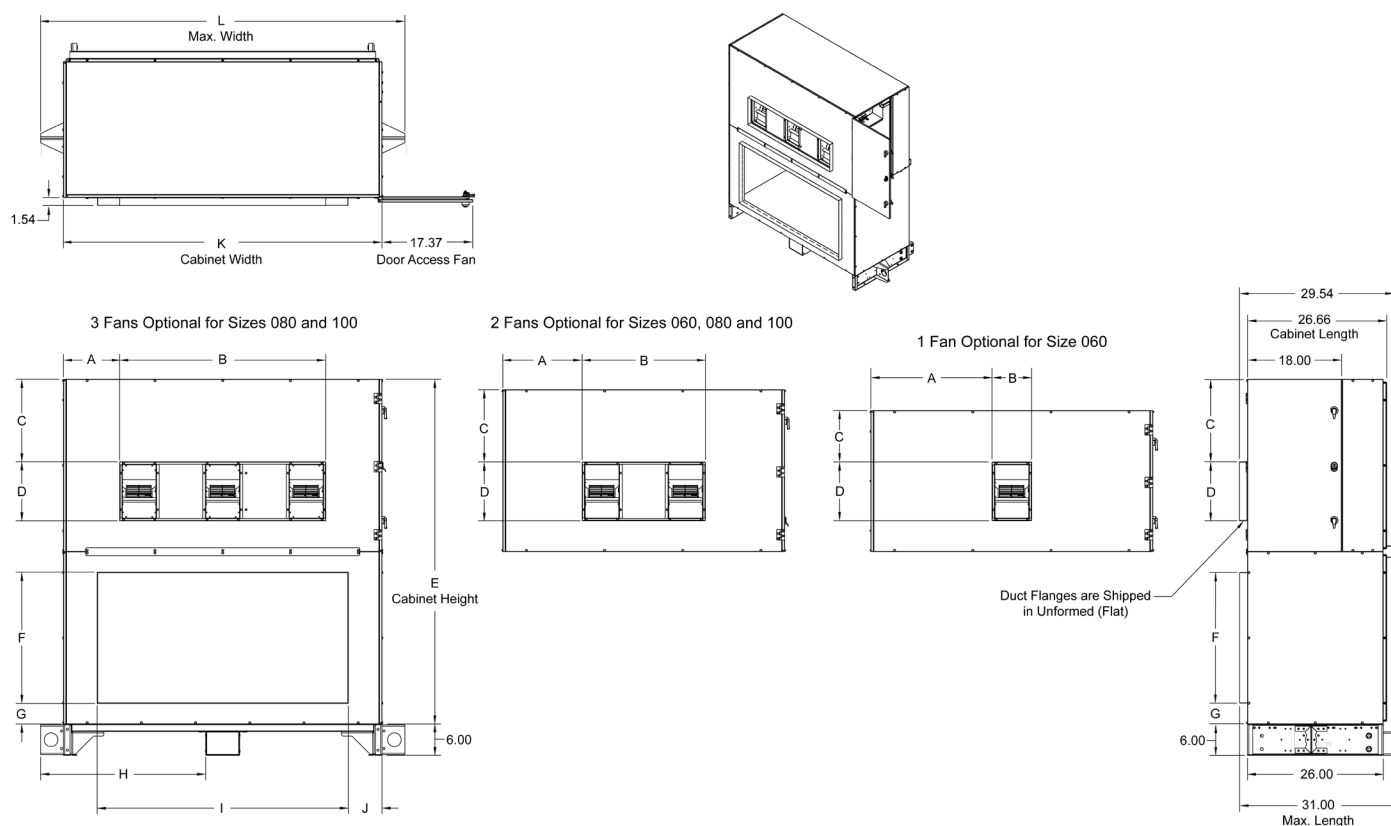


Table 75: Exhaust Air / Outdoor Air Section Dimension Letter Reference

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	

Figure 51: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans (Sizes 060-100)

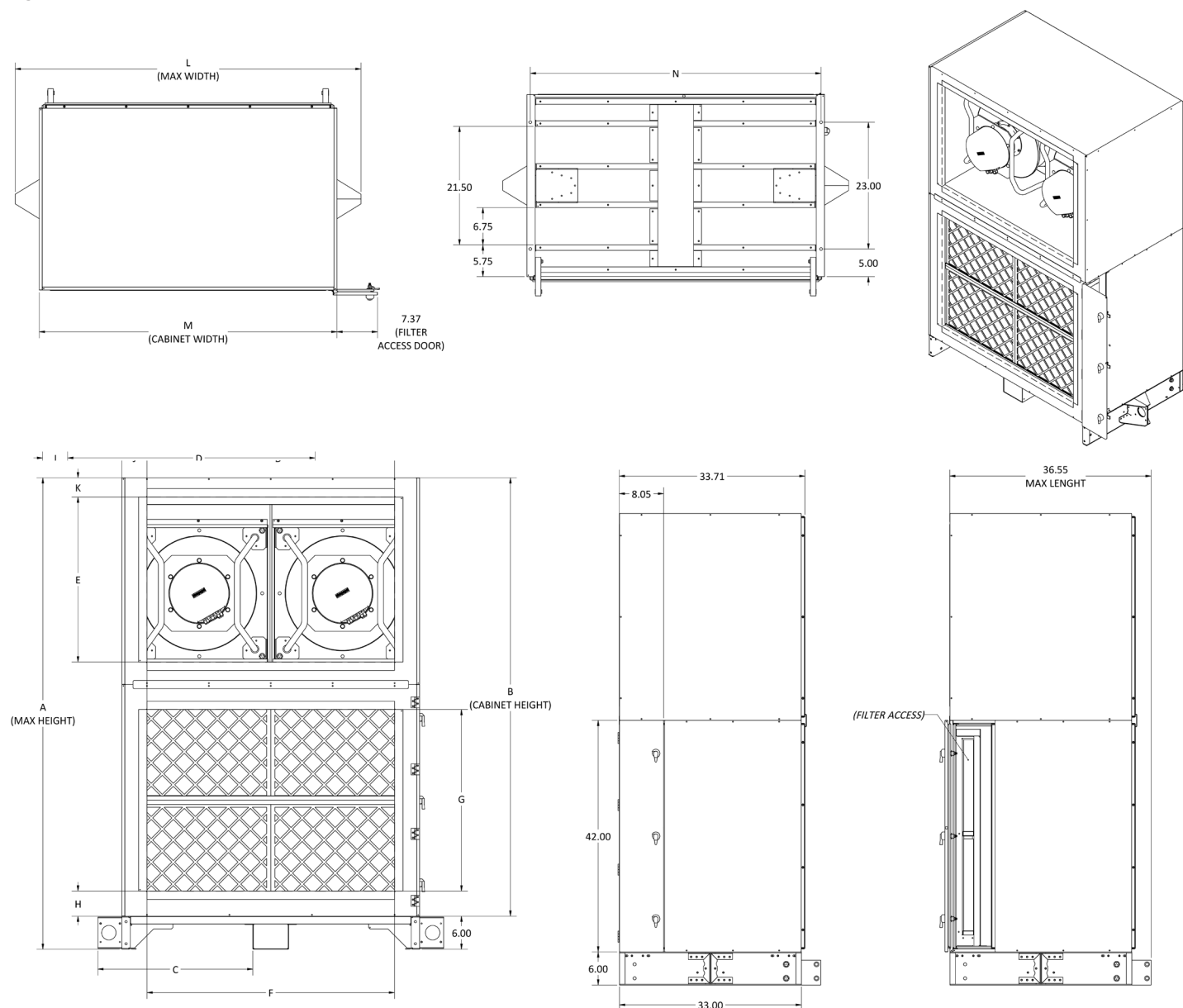


Table 76: Exhaust Air / Outdoor Air Section - Two Fans Dimension Letter Reference

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
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

Figure 52: Vertical Exhaust Air / Outdoor Air Dimensions - One Fan (Sizes 060-100)

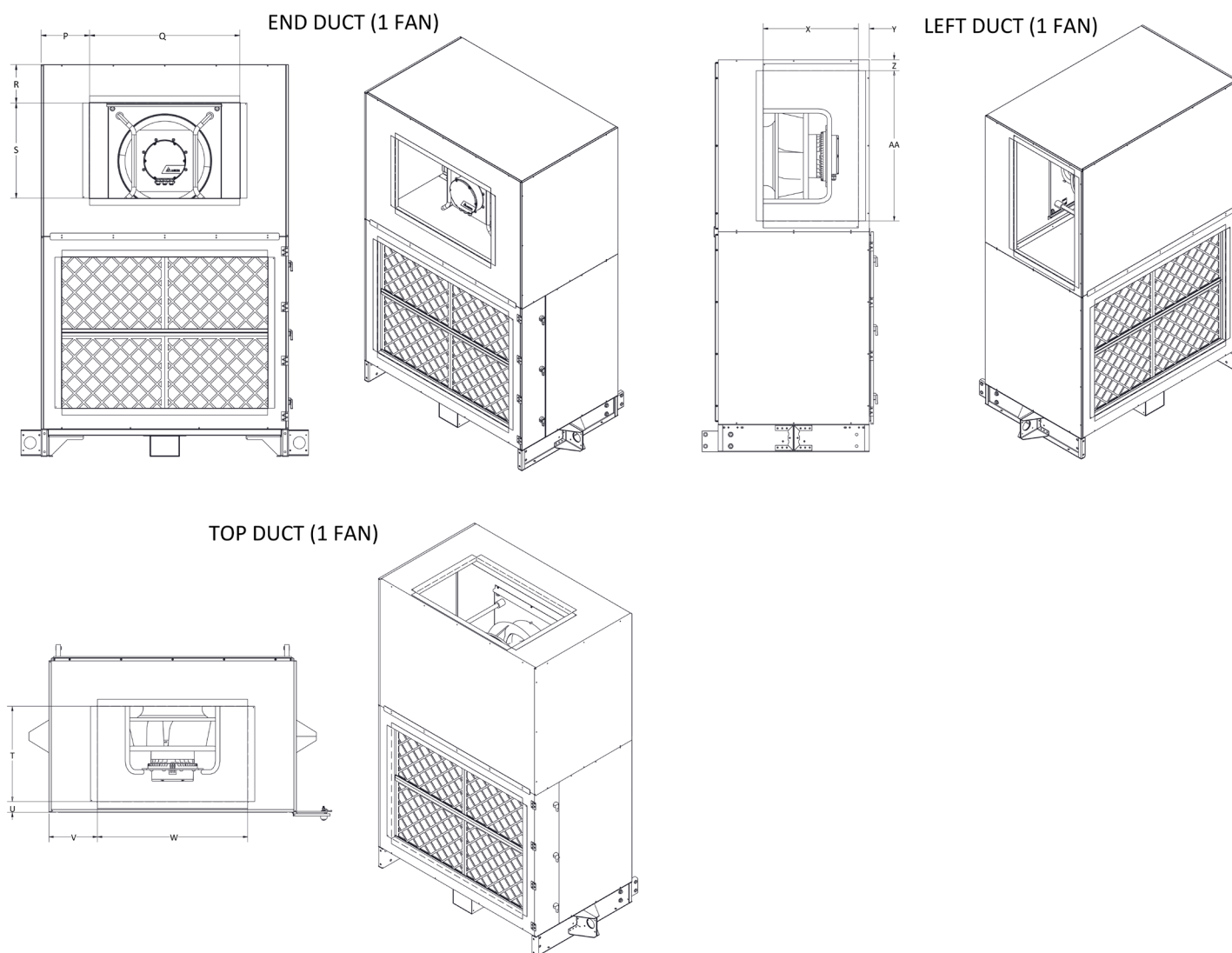


Table 77: Exhaust Air / Outdoor Air Section - One Fan Dimension Letter Reference

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

Figure 53: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans / Electric Heat (Sizes 060-100)

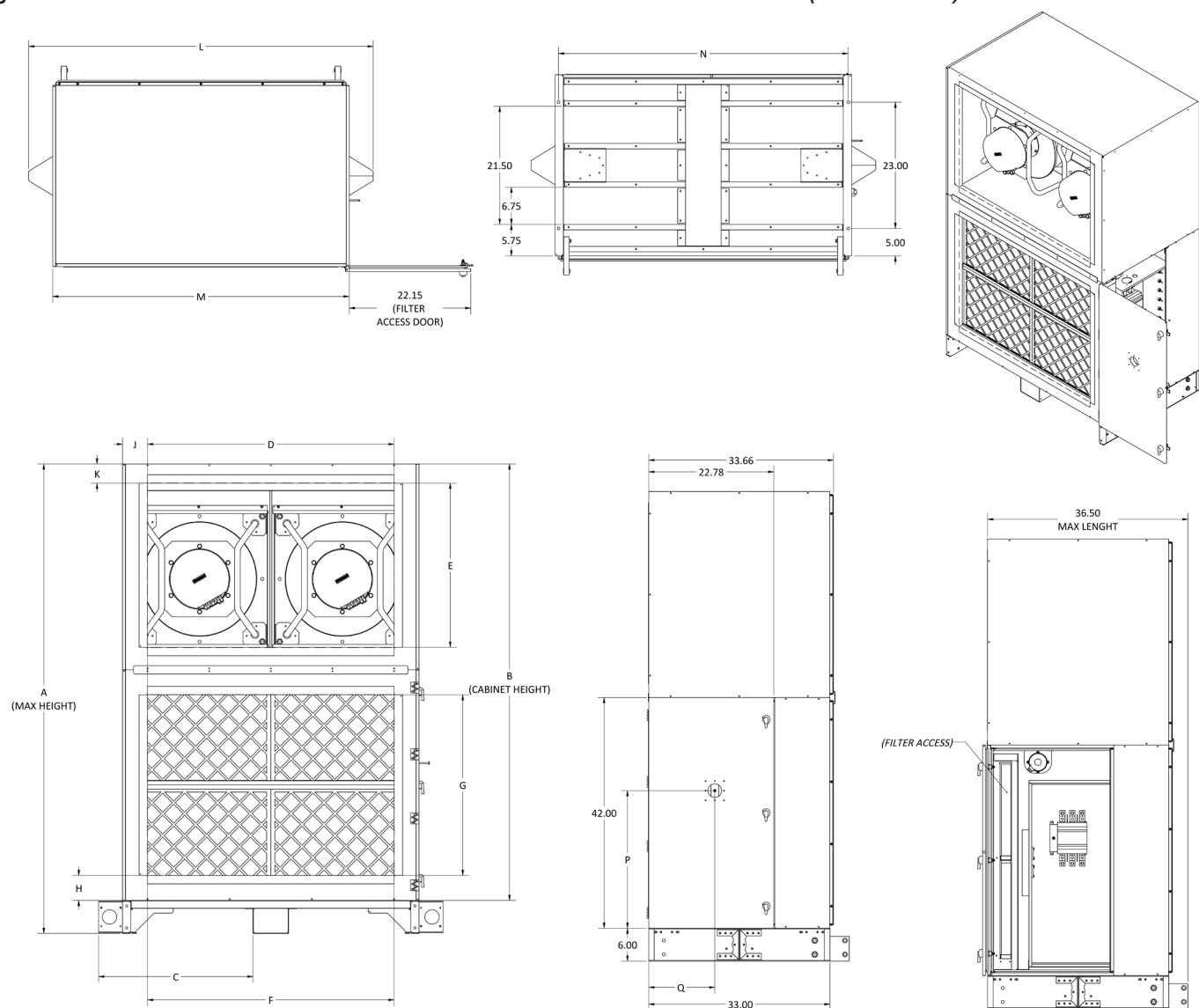


Table 78: Exhaust Air / Outdoor Air Section - Two Fans / Electric Heat Dimension Letter Reference

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
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

Figure 54: Vertical Exhaust Air / Outdoor Air Dimensions - Two Fans / Hot Water (Sizes 060-100)

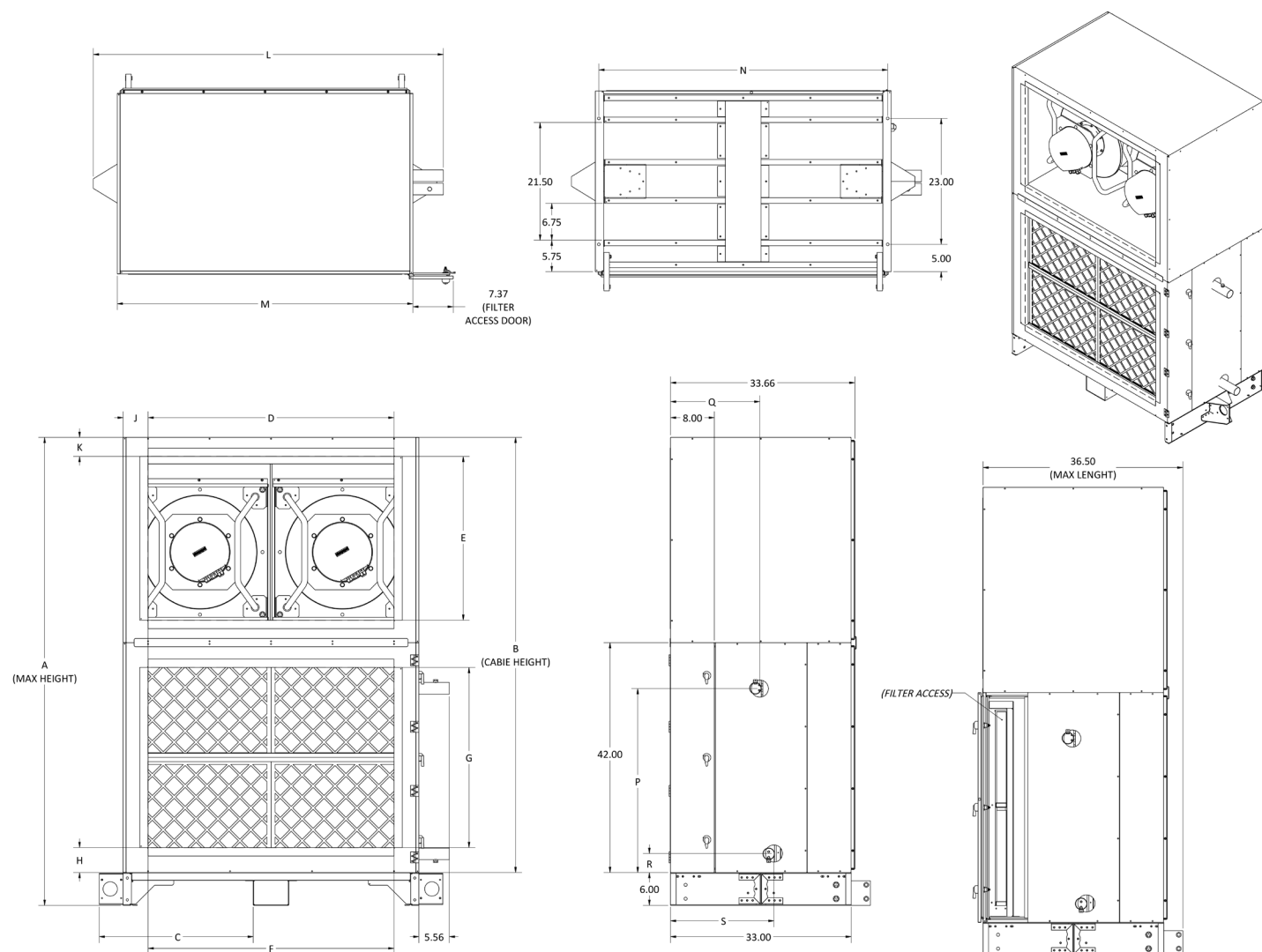


Table 79: Exhaust Air / Outdoor Air Section - Two Fans / Hot Water Dimension Letter Reference

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	
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

Figure 55: Horizontal Economizer Dimensions (Sizes 060-100)

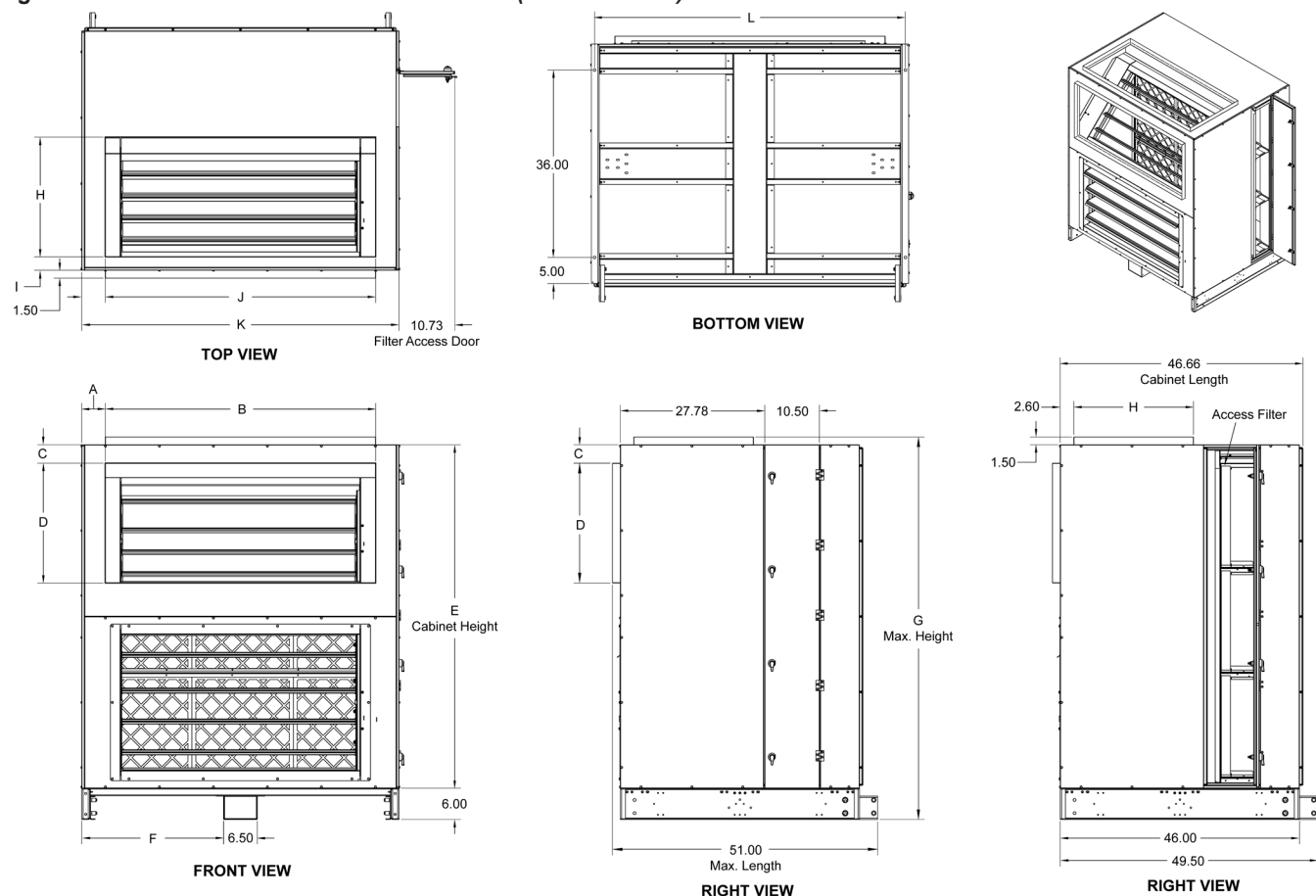


Table 80: Economizer Section Dimension Letter Reference

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

Figure 56: Vertical Economizer End Section Dimensions (Sizes 060-100)

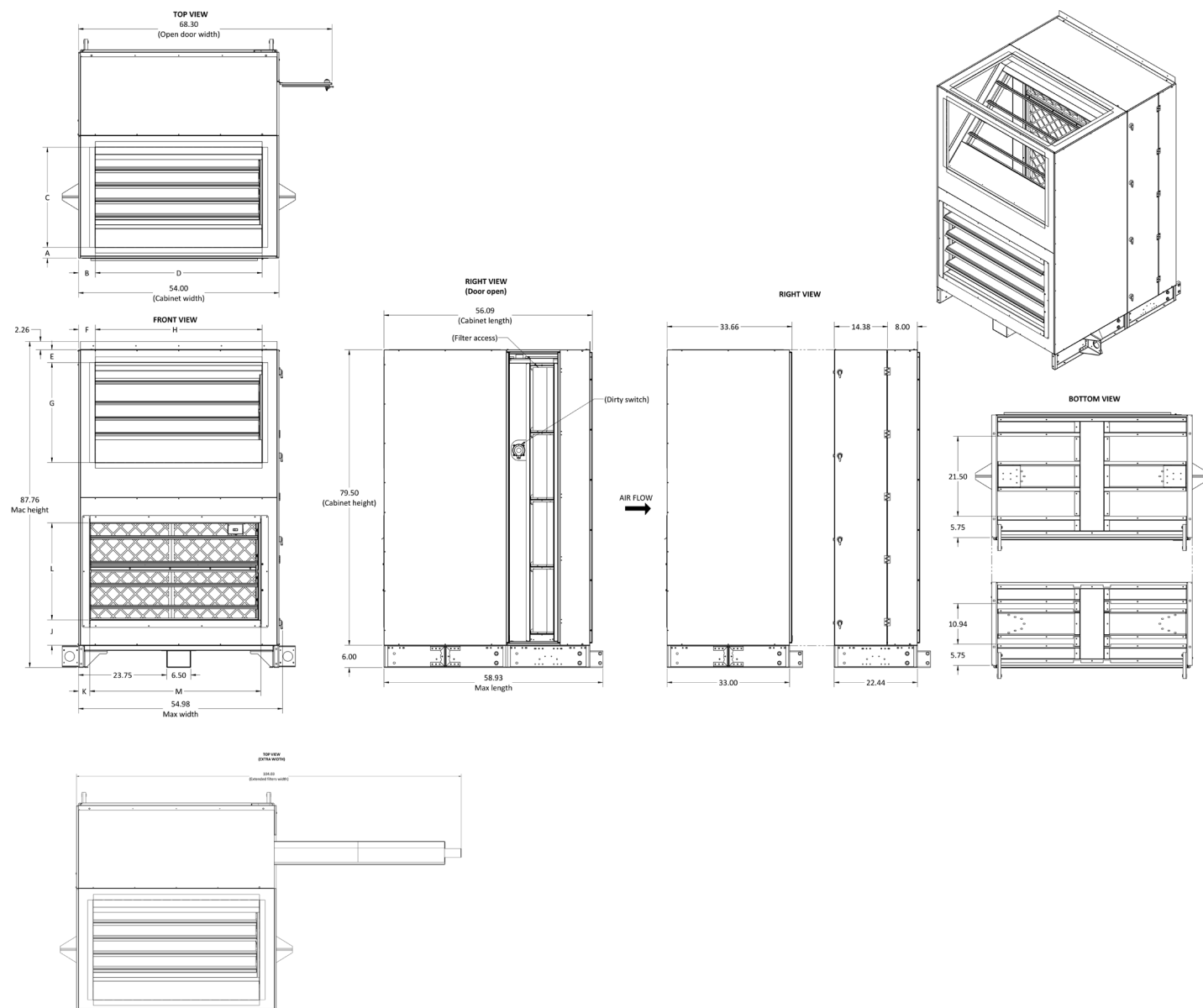


Table 81: Economizer End Section Dimension Letter Reference

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
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

Figure 57: Vertical Economizer Dimensions (Sizes 060-100)

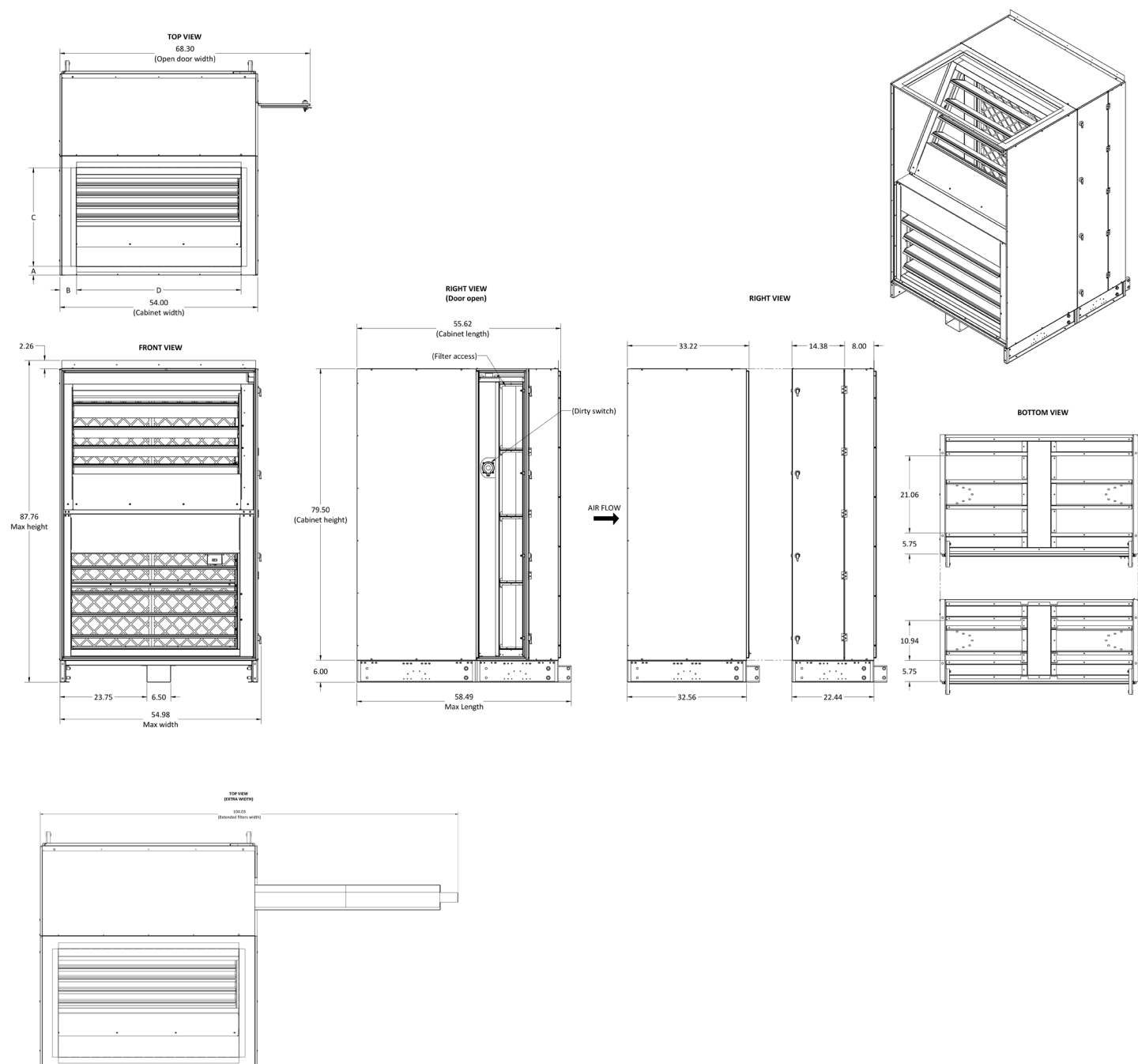


Table 82: Economizer Section Dimension Letter Reference

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

Figure 58: Horizontal Return Filter Dimensions (Sizes 060-100)

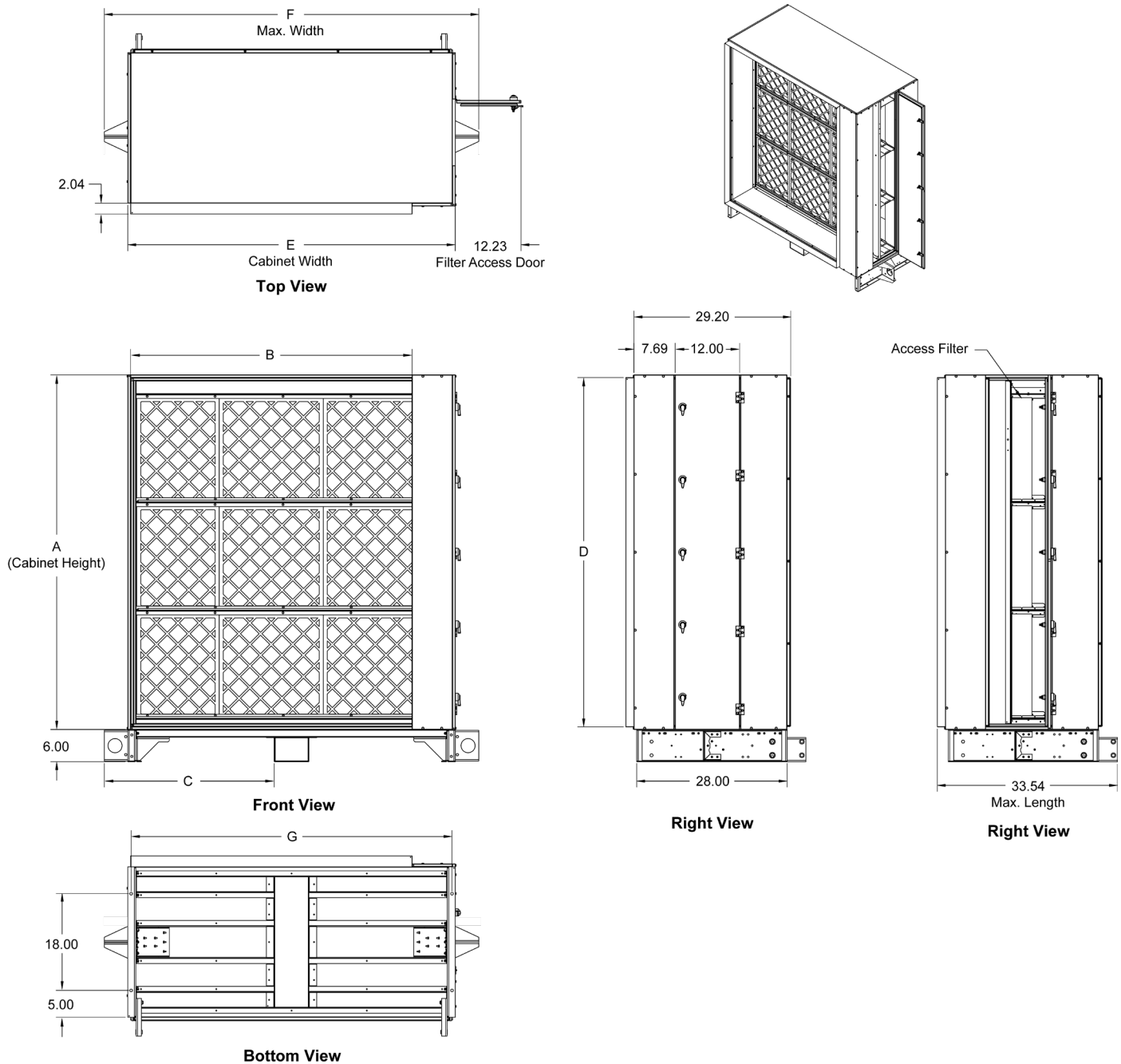


Table 83: Horizontal Return Filter Section Dimension Letter Reference

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

Figure 59: Horizontal Electric Heat Section Dimensions (Sizes 060-100)

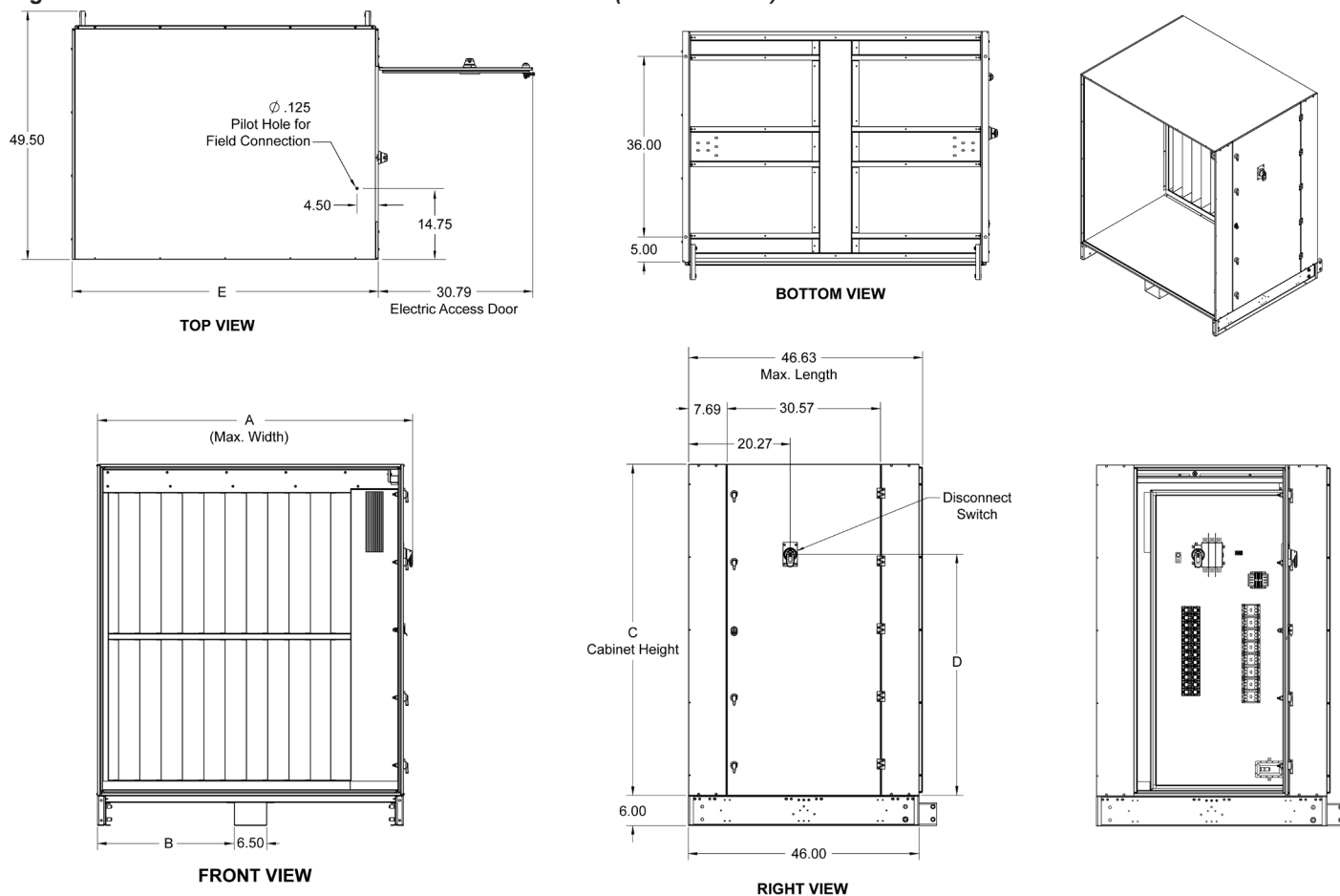


Table 84: Horizontal Electric Heat Section Dimension Letter Reference

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

Figure 60: Horizontal Supply Air Fan Section Dimensions (Sizes 060-100)

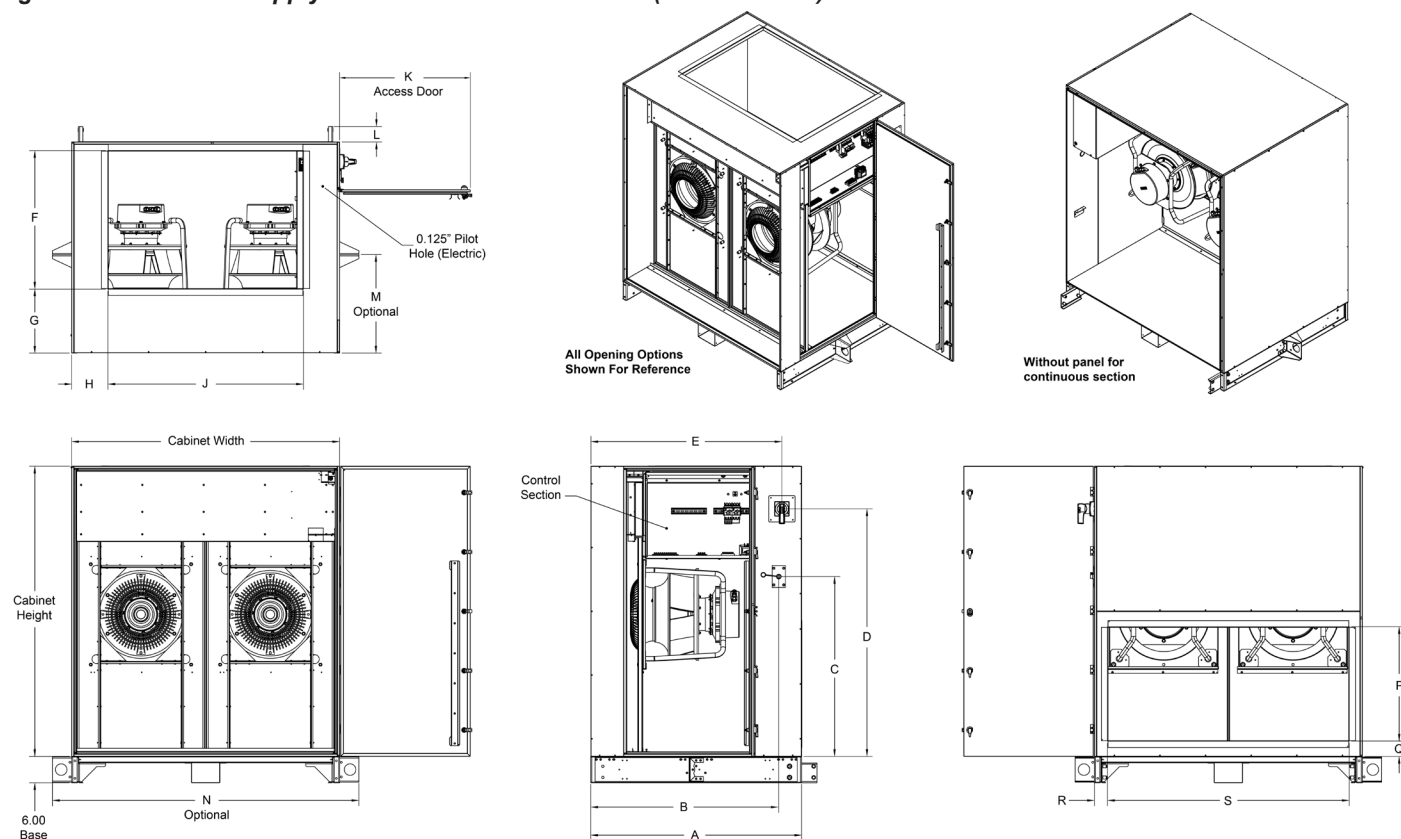


Table 85: Supply Air Fan Section Dimension Letter Reference

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

Figure 61: Vertical Energy Recovery Wheel - 46 in (Sizes 060-100)

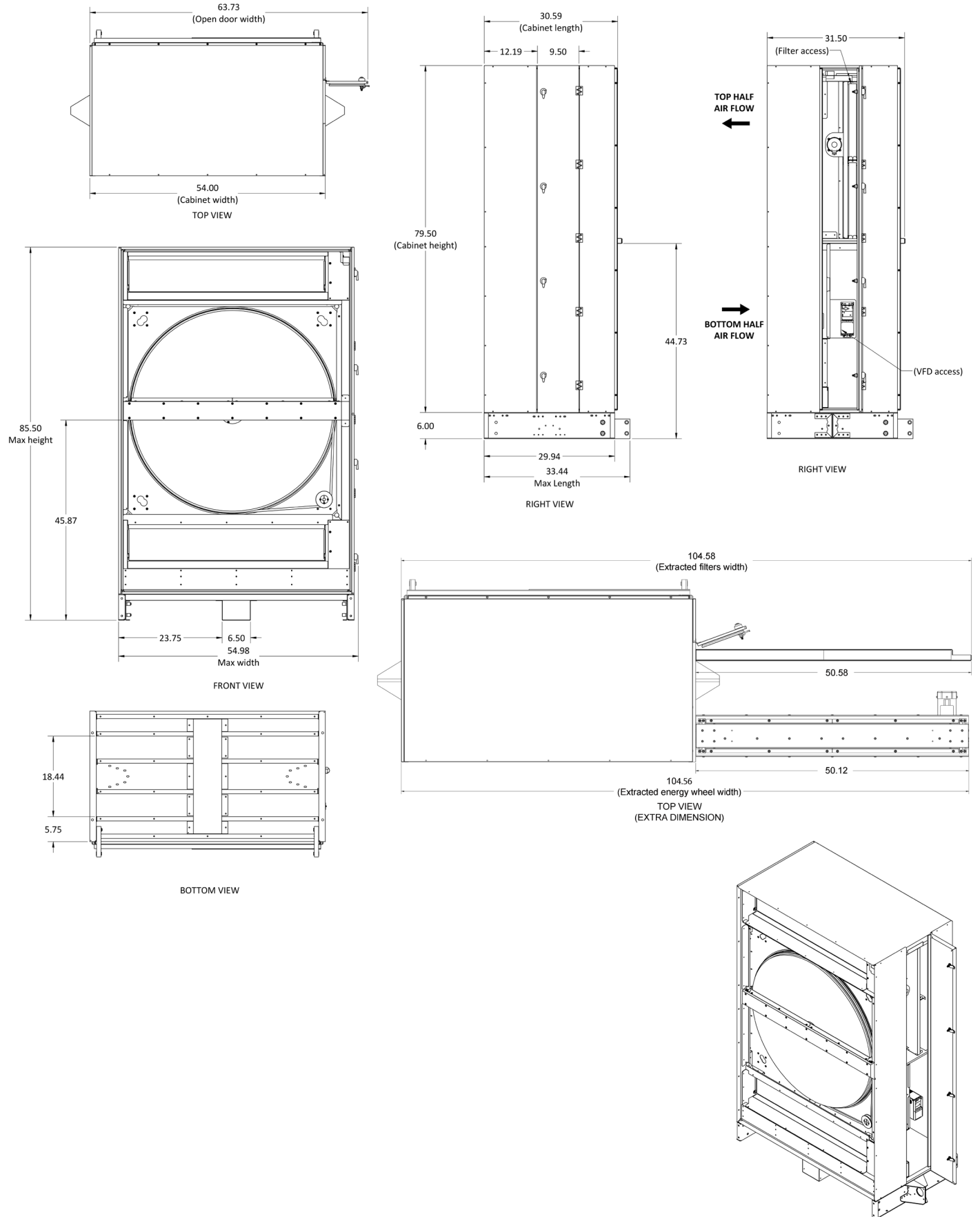


Figure 62: Vertical Energy Recovery Wheel - 52 in (Sizes 060-100)

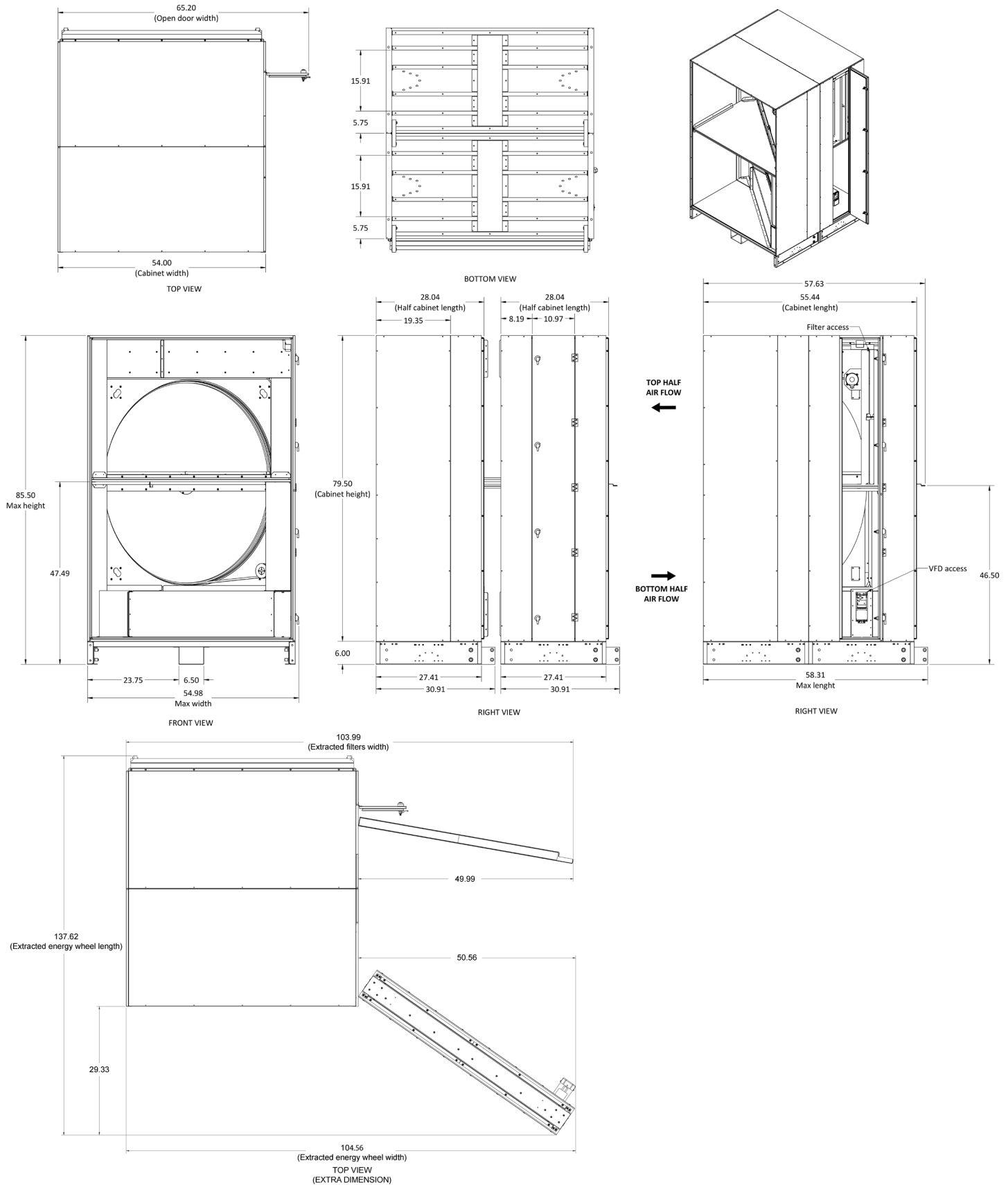
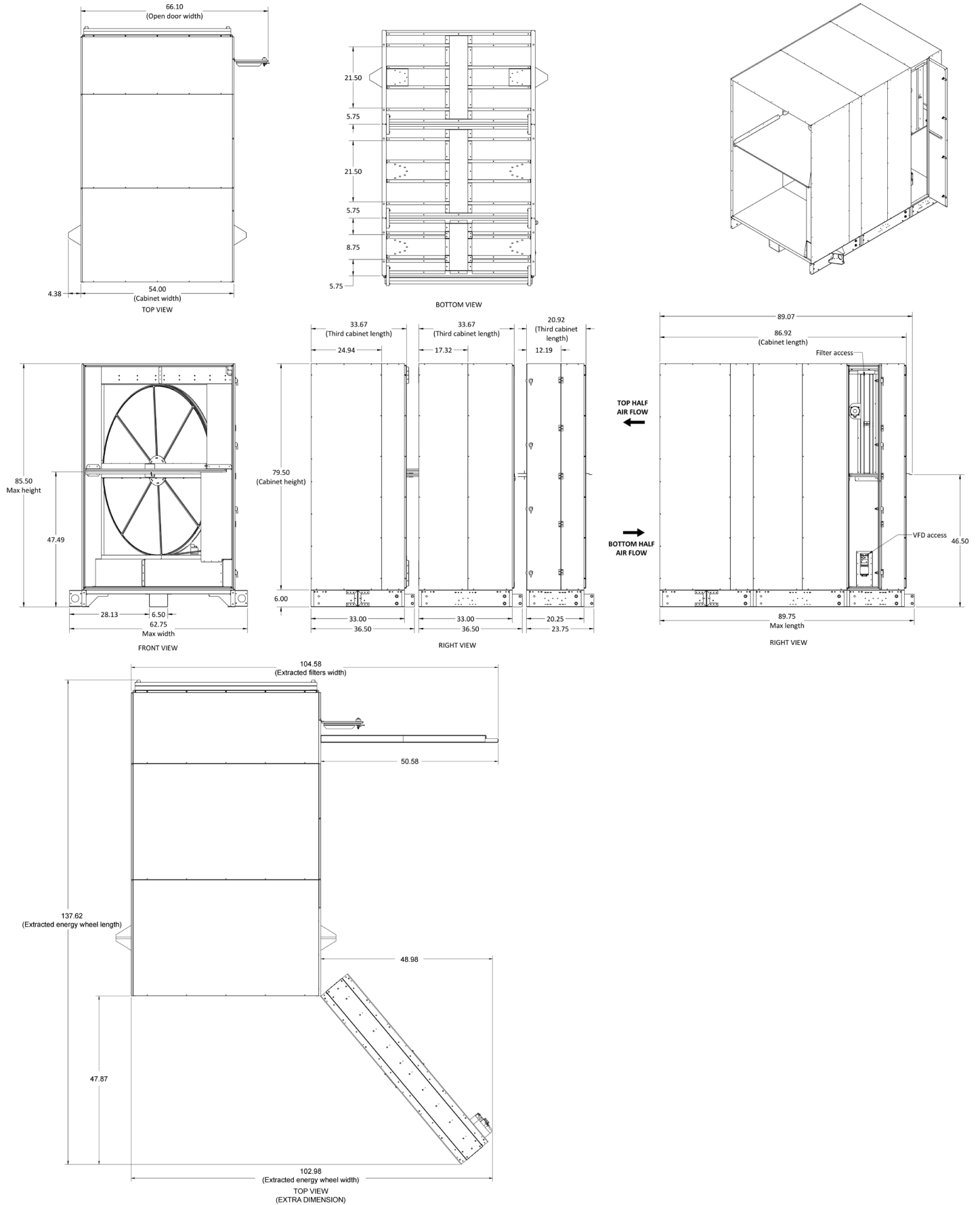


Figure 63: Vertical Energy Recovery Wheel - 58 in (Sizes 060-100)



System Considerations

Operation Limitations

Leaving Air Temperature

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

Entering Air Temperatures

The coils used in PreciseLine are not suitable for exposure to freezing temperatures. Proper consideration must be taken to

keep the air temperature seen by the coil above the freezing point of the coil's working fluid. Units with a mixing box must be especially careful because large temperature differences between return air and outdoor air can leave the coil vulnerable through air stratification.

Entering Water Temperatures

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

Voltage Variance

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

Table 86: Horizontal Hydronic Coil Size and Connection Type

Unit Size	006	008	010	012	016	018	020	030	040	050	060	080	100
Connection Type	FPT (Nominal)					F-SWT (OD)							
2-Row Cooling	0.625	0.625	0.625	0.625	0.875	0.875	0.875	1.125	1.125	1.375	1.125	1.125	1.375
4-Row Cooling	0.625	0.625	0.875	0.875	0.875	1.125	1.125	1.375	1.625	1.625	1.375	1.625	1.625
6-Row Cooling	0.625	0.875	0.875	0.875	1.125	1.125	1.125	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	0.625	0.625	0.625	0.625	0.625	0.625	0.625	0.875	1.125	0.625	0.875	1.125
2-Row Preheat/Reheat	0.625	0.625	0.625	0.625	0.875	0.875	0.875	1.125	1.125	1.375	1.125	1.125	1.375

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

Table 87: Vertical Hydronic Coil Size and Connection Type

Unit Size	006	008	012	016	020	030	040	050	060	080	100
Connection Type	FPT (Nominal)					F-SWT (OD)					
2-Row Cooling	0.625	0.625	0.625	0.875	0.875	1.125	1.375	1.375	1.625	1.625	1.625
4-Row Cooling	0.625	0.625	0.875	0.875	1.125	1.375	1.625	1.625	1.625	1.625	1.625
6-Row Cooling	0.625	0.875	0.875	1.125	1.125	1.625	1.625	2.125	1.625	1.625	1.625
8-Row Cooling	—	—	—	—	—	1.625	2.125	2.125	1.625	1.625	2.125
1-Row Preheat/Reheat	0.625	0.625	0.625	0.625	0.625	0.625	0.875	1.125	1.625	1.625	1.625
2-Row Preheat/Reheat	0.625	0.625	0.625	0.875	0.875	1.125	1.375	1.375	1.625	2.125	2.125

Table 88: Hydronic Coil Size and Type with No Piping Option

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

Table 89: Vertical Steam Coil Size and Type

Unit Size	006	008	012	016	020	030	040	050
Connection Type	M-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

Table 90: 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)							M-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: Number of connections in unit sizes 060-100 are doubled (stacked).

Table 91: 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: FPI of 10 may be selected.

Table 92: VRV Coil Size and Type (Horizontal)

Unit Size	Rows	Fin Height	Fin Length	FPI	Connection Size (M-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.

Table 93: DX Coil Size and Type

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

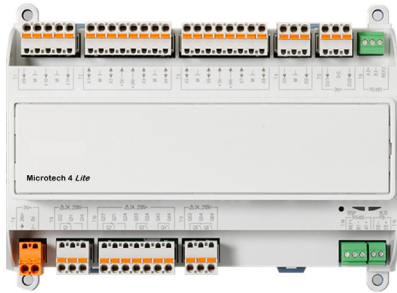
¹ FPI of 12 or 16 may be selected. FPI of 14 is also available on vertical unit sizes 006-050.

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

³ 6 row DX coils are only available on vertical units.

Application Considerations

MicroTech 4 Lite Factory-Integrated Controller



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

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

Table 94: Controller Accessories Available

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

Controller Components

Portable Interface



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

Each portable interface offers the following functionalities:

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

Integrated Thermostat



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

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

Controller Functions

Fan Speed Control

Supply fan control to meet your building needs.

Supply Fan Control Methods

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

Cooling and Heating Control

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

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

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

Electric Heat

- Staged or SCR modulation

Dehumidification Control

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

Strategy 1: Active Dehumidification

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

Strategy 2: Passive Dehumidification (low fan speed)

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

Economizer Control

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

- Outdoor Dry Bulb
- Outdoor Enthalpy
- Comparative Dry Bulb
- Comparative Enthalpy
- Demand-controlled ventilation

Energy Recovery Wheel

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

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

Scheduling

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

Split DX / Compressor Control

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

Timed Occupant Override

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

Auto/Manual Operation Selection

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

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

Additional Features and End Devices

Run-time Monitoring

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

Startup System Check (Portable Interface Only)

Verify unit operation with two available startup overrides:

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

Alarm History

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

Duct Static Pressure Control

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

Internal Time Clock

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

Digital-Ready Features (for field-installed controllers)

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

Fan Speed Control

0-10 VDC Analog Control

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

3-Speed Discrete Control (Sizes 006-020 only)

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

Valve Control

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

0-10 VDC Analog Control

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

Open/Closed 24 VAC Control

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

Electric Heat Control

Electric heat control may be binary (on-off) or modulating. With binary the full capacity of the electric heating element turns on with a 24 VAC signal from the controller and stays on until the set point is reached. Modulating control which requires a 0-10 VDC signal from the thermostat or controller uses an SCR switching module to vary the heat output of the electric element. Matching the heat output to space load increases comfort and reduces noise and energy consumption. It is the responsibility of the controls contractor or the customer to ensure that the electric heating elements never operate without the minimum airflow as

listed starting on [page 23](#). Factory provided safety limits built in to the electric heat assembly and the SCR module prevent overheating should a fan failure occur. "[Electric Heat Safety](#)" on [page 51](#) for more information on the operation of the safety limits.

Condensate Overflow

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

Coil Freeze Protection

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

Damper Control

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

Mixing Box (Optional) – Field Provided Damper Actuator

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

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

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

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

Optional Mixing Box Damper or Discharge Plenum Loss

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

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

V = velocity through the opening

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

Example:

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

Intake loss is $(1000 \times 1/4005)^2 = 0.062''$

Discharge loss is $(1000 \times 1.5/4005)^2 = 0.140''$

Mounting and Access

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

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

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

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

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

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

Factory ordered spring isolators are recommended on unit sizes 030, 040, and 050.

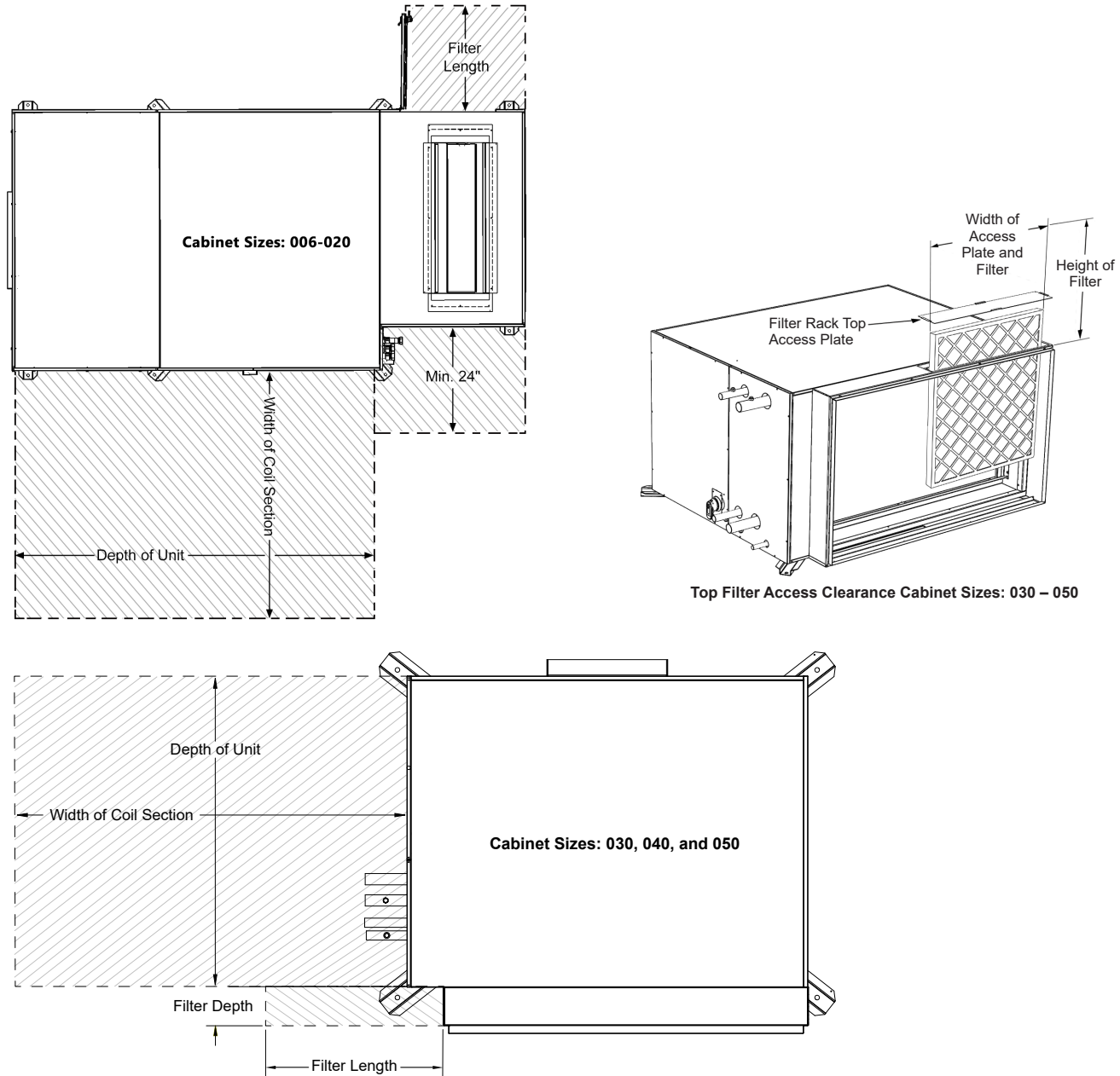
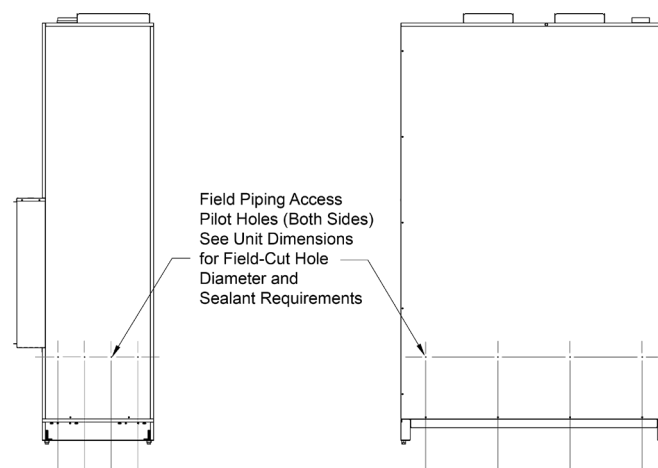
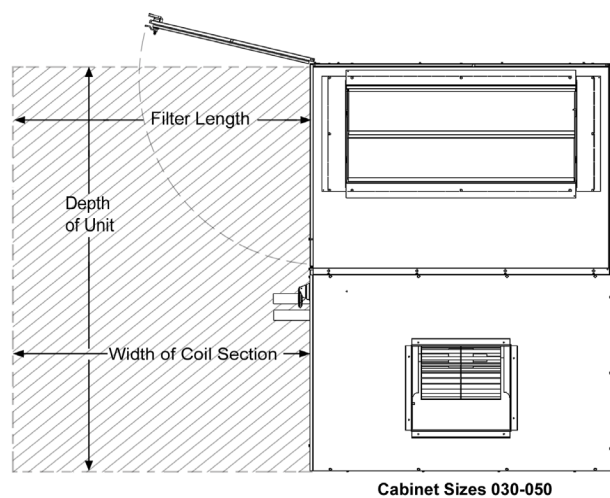
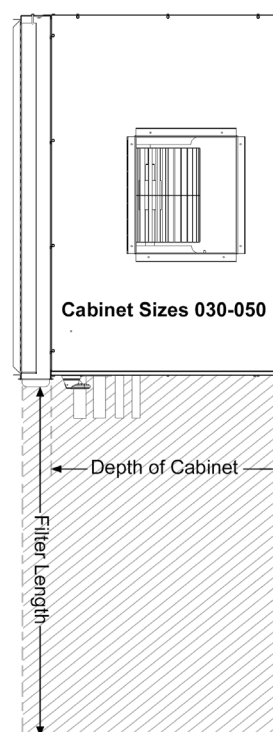
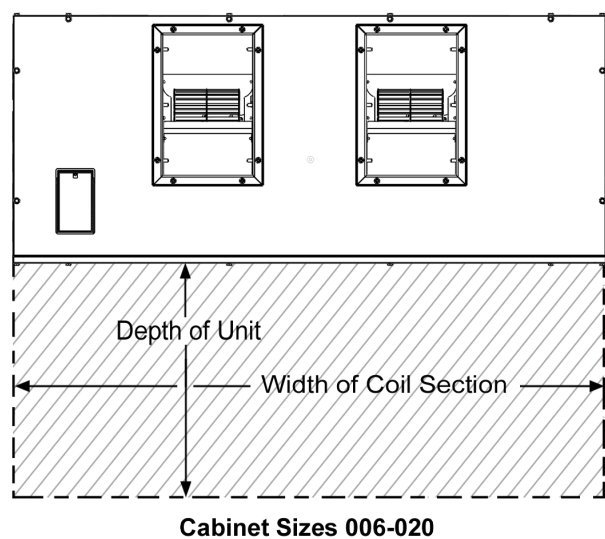
Figure 64: Clearance and Access Requirements for Horizontal Units (Sizes 006-050)

Figure 65: Clearance and Access Requirements for Vertical Units

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

Figure 66: Horizontal Clearance and Access Requirements for Unit Sizes 060-100

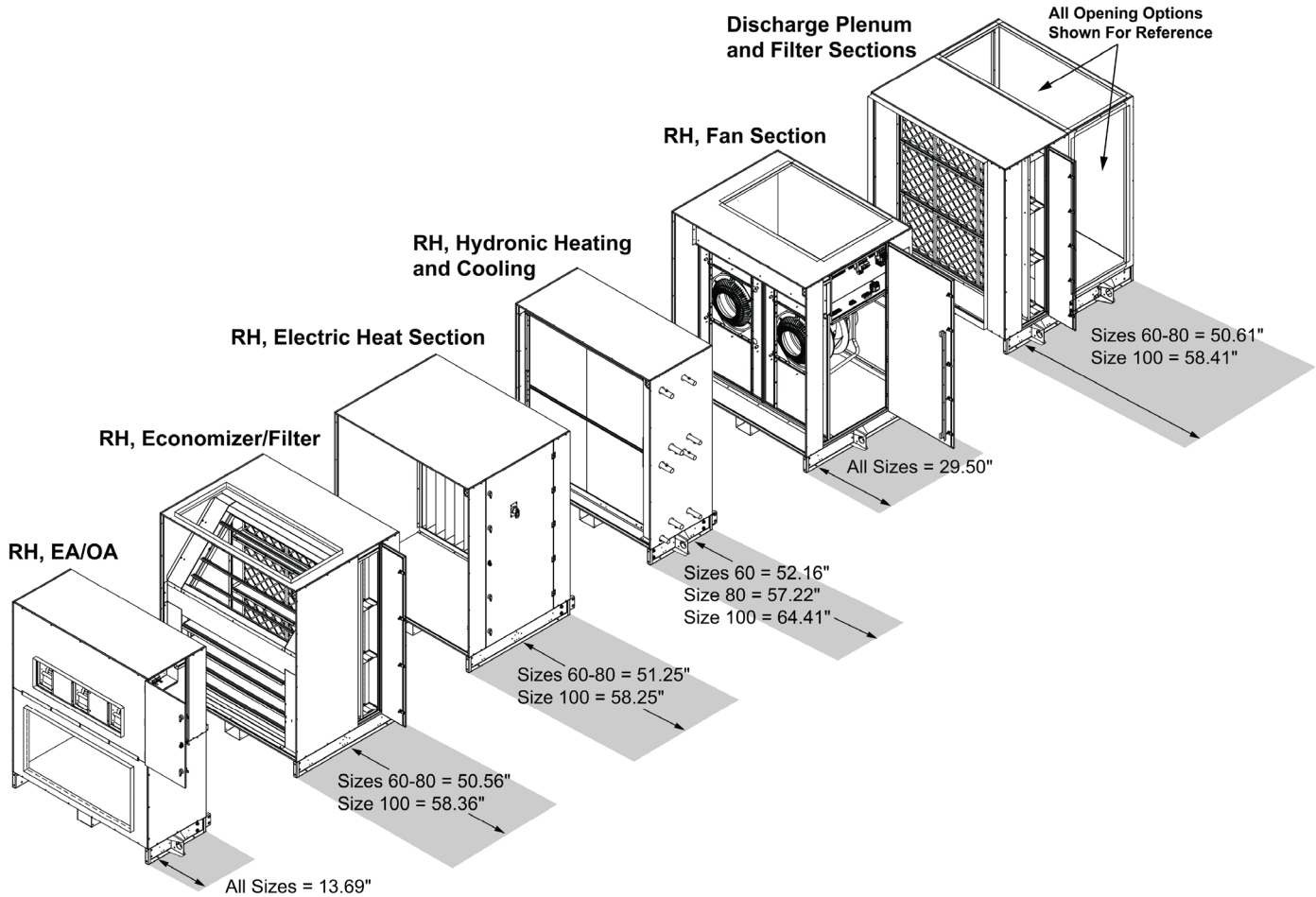


Figure 67: Clearance for Filter Access from Top - Unit Size 030-050

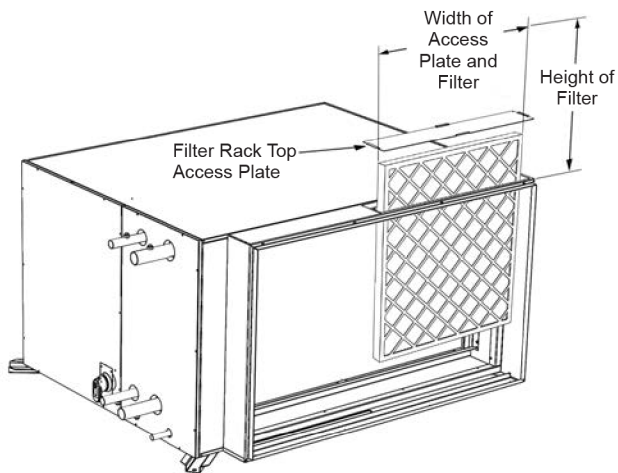
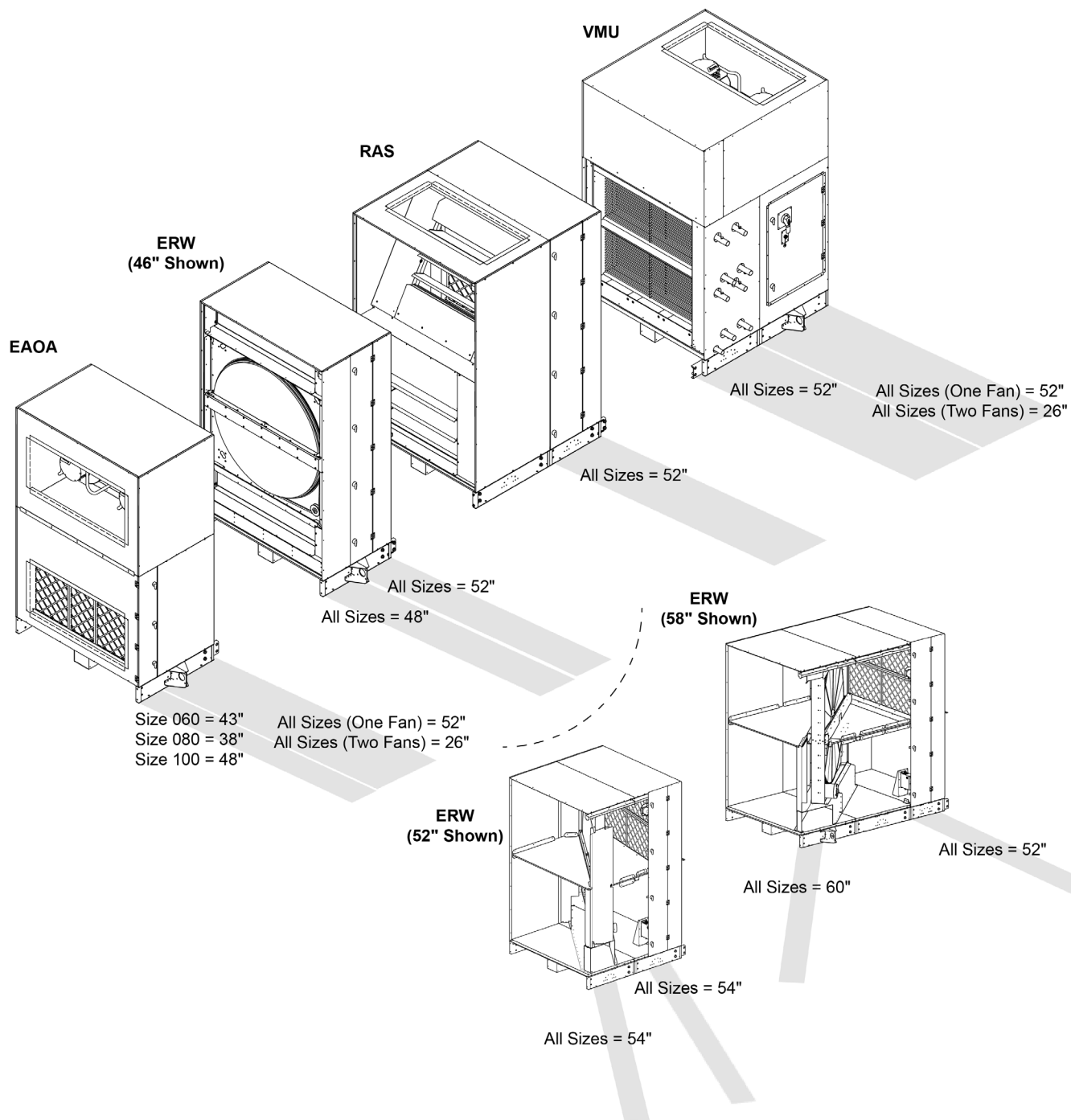
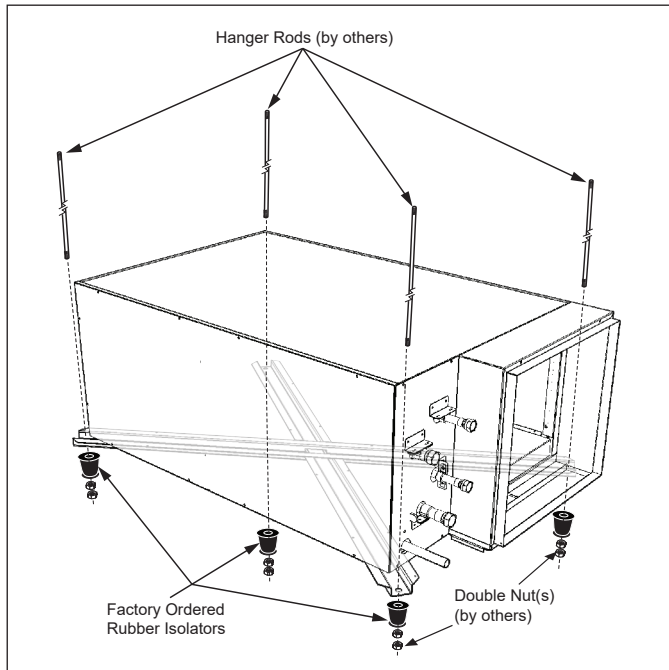


Figure 68: Vertical Clearance and Access Requirements for Unit Sizes 060-100



Horizontal Unit Mounting Isolation

Figure 69: Ceiling Hung with Rubber Isolators - Unit Sizes 030-050



Spring Mount—Sizes 030, 040, 050

Factory ordered spring isolators are recommended on unit sizes 030, 040 and 050. The isolators should all be at the same height opening.

Figure 70: Floor Mounted Spring Isolation - Unit Sizes 030, 040, 050

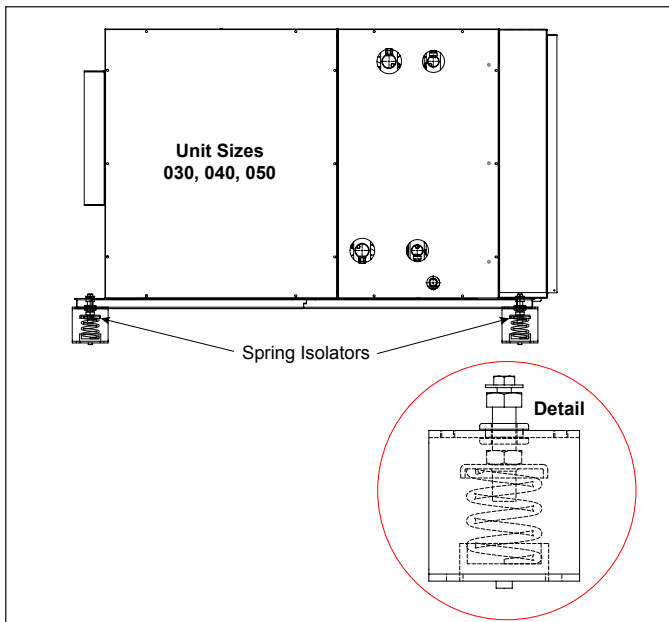
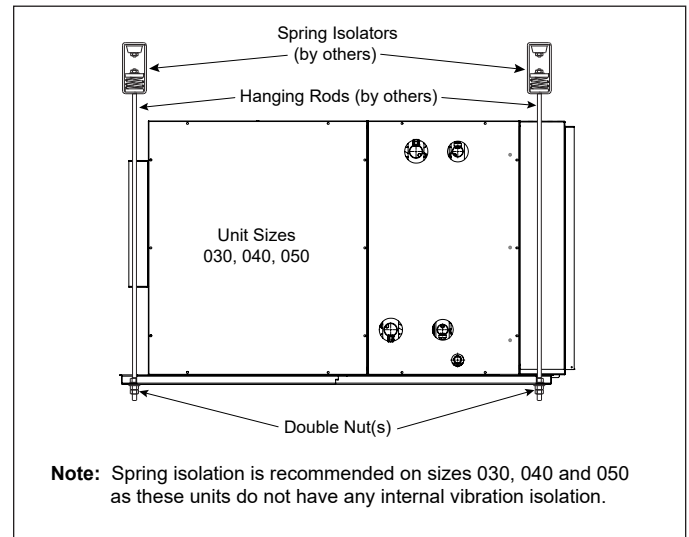


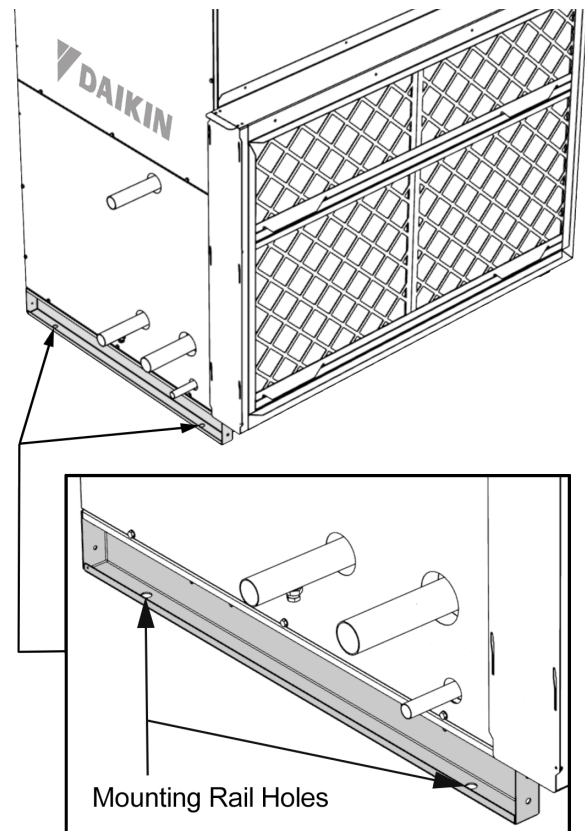
Figure 71: Ceiling Hung Spring Isolation - Unit Sizes 030, 040, 050



Vertical Unit Mounting Isolation

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

Figure 72: Unit Size 040 Mounting Rail Holes Detail



Access Panels and Doors

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

Figure 73: Panel Removal

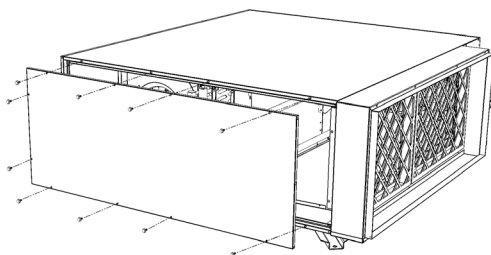


Figure 74: Filter Access Doors

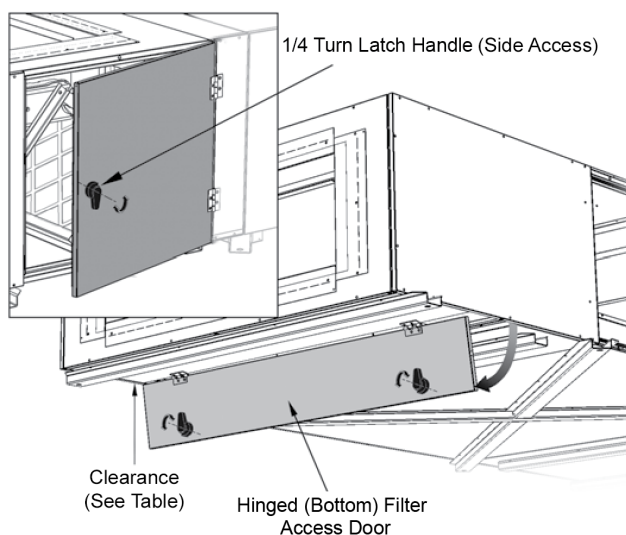
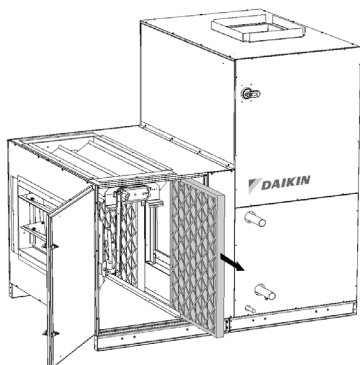


Table 95: Bottom Filter Access Clearance

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

Figure 75: Filter Access Doors



Piping and Coils

Follow applicable piping design, sizing, and installation information presented in ASHRAE Handbooks in the design and installation of piping. Observe all local codes and industry standards. Piping field connection locations are the same for units with and without the optional factory-installed valve package. Refer to [page 99](#) through [page 101](#) for the connection size and type. Refer to dimensional drawings beginning on [page 53](#) for connection locations and dimensions.

Hydronic Coil Connections

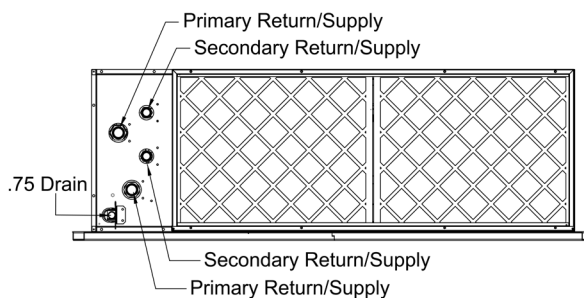
For all units Sizes 30-50; hydronic supply, return, and drain stubs extend through the end panel of the cabinet, with field connections made outside the cabinet. All stubs are labeled on the end panel. A “No Piping” option is available with internal coil stubs. Chilled water supply, return, and drain stubs may terminate inside or outside the cabinet on compact horizontal units, and necessarily terminate in a central location inside the cabinet on AVD units. Stub outs are labeled individually and/or on the end panel.

Hydronic supply and return connections are copper FPT on sizes 006 through 020 and copper sweat on sizes 030 through 050. Refer to [page 99](#) for connection sizes and type.

Hydronic heating coil guidelines are listed below.

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

Figure 76: Coil Connections, Unit Sizes 006-020



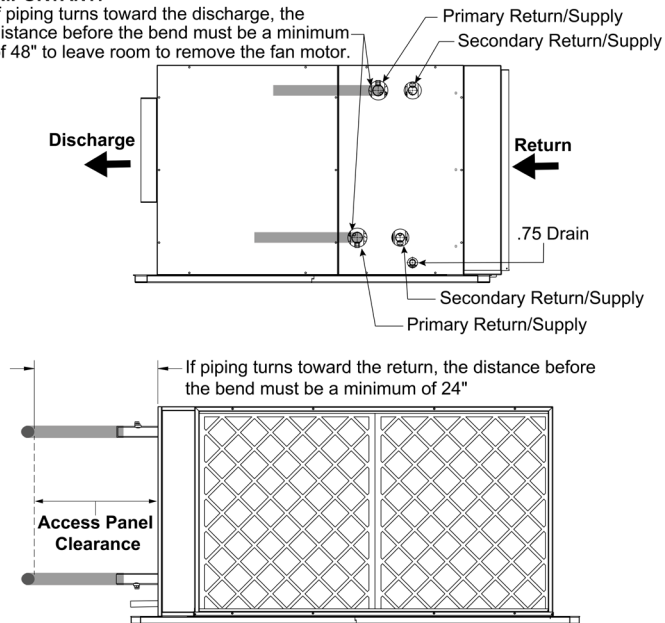
Note:

Left hand unit shown, right hand unit connections same as left but opposite.

Figure 77: Field Pipe Connections, Unit Sizes 030, 040, 050 (preheat coil option shown)

IMPORTANT!

If piping turns toward the discharge, the distance before the bend must be a minimum of 48" to leave room to remove the fan motor.



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

Figure 78: Coil Connections, Unit Sizes 030-050

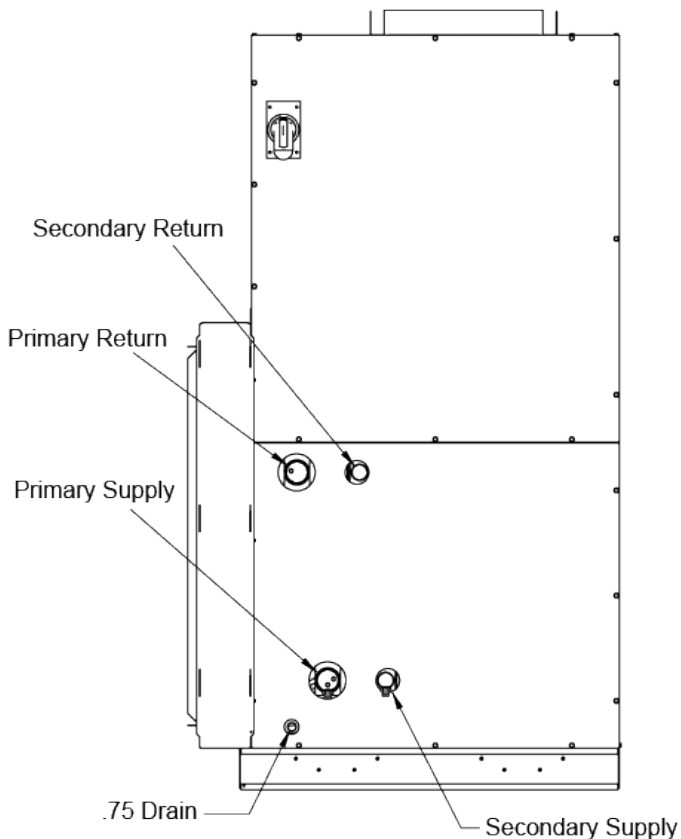


Figure 79: DX Interlaced Coil, Unit Sizes 030-050

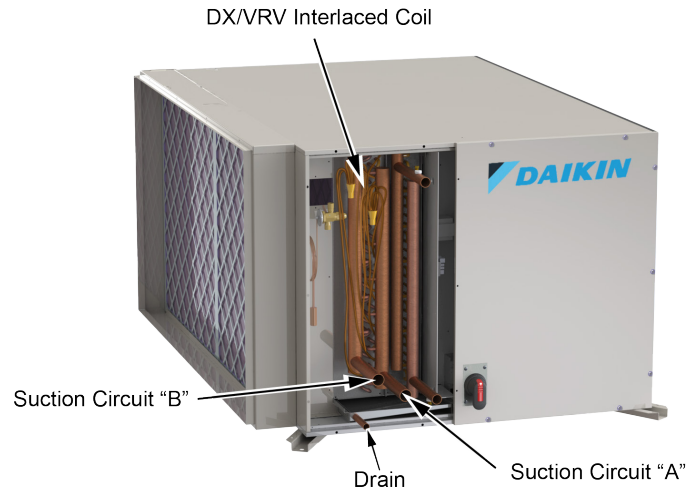
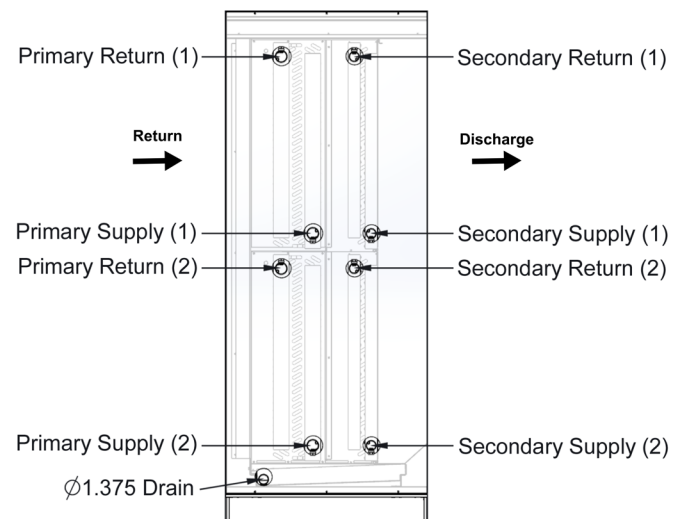


Figure 80: Coil Connections, Unit Sizes 060-100



Condensate Drain Pan Traps

Condensate drain stub is .75 O.D. for sizes 006-050 and 1.375 O.D. for sizes 060-100. Drain lines and traps should run full size from the drain pan stub. Drain pans should have traps to allow condensate from coils to drain freely. The trap depth and distance between the trap outlet and the drain pan outlet should be twice the static pressure in the drain pan section under normal operation for the trap to remain sealed. Refer to [Figure 81](#).

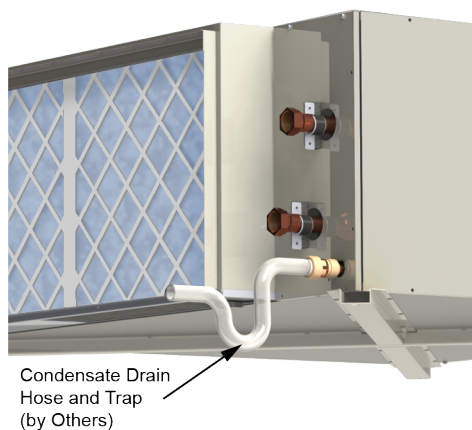
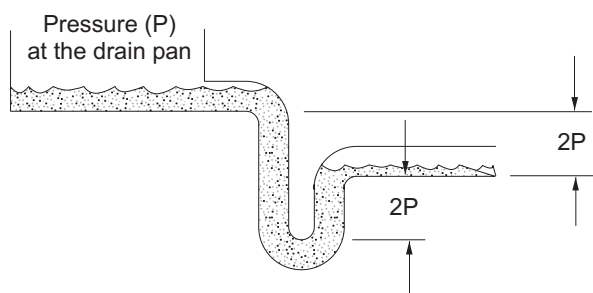


Figure 81: Allow Adequate Distance Between Trap Outlet and Drain Outlet



Engineering Specifications

PRECISELINE AIR HANDLERS

PART 1--GENERAL

1.01 SECTION INCLUDES

- A. Horizontal Air Handler
- B. Vertical Air Handler

1.02 REFERENCES

- A. Load ratings and fatigue life for ball bearings.
- B. Standards handbook.
- C. Laboratory methods of testing fans for rating purposes.
- D. Test code for sound rating air moving devices.
- E. Test methods for louver, dampers, and shutters.
- F. Room fan coil unit.
- G. Standard practice for operating salt spray apparatus.
- H. Motors and generators.
- I. National electrical code.
- J. HVAC duct construction standards - metal and flexible.
- K. Test for surface burning characteristics of building materials.
- L. Test performance of air filter units.
- M. Standard for heating and cooling equipment.
- N. Test for flammability of plastic materials for parts in devices and appliances.

1.03 SUBMITTALS

- A. Shop Drawings: Indicate assembly, unit dimensions, weight loading, required clearances, construction details, field connection details, and electrical characteristics and connection requirements.
- B. Product Data:
 - 1. Provide literature that indicates dimensions, weights, capacities, ratings, fan performance, gauges and finishes of materials, and electrical characteristics and connection requirements.

1.04 OPERATION AND MAINTENANCE DATA

- A. Maintenance Data: Include instructions for filter replacement.

1.05 QUALIFICATIONS

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

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect, and handle products to site.
- B. Accept products on site wrapped in protective (cardboard wrap OR weather-resistant wrap). Inspect for damage.
- C. Store in a clean dry place and protect from weather and construction traffic. Handle carefully to avoid damage.

1.07 ENVIRONMENTAL REQUIREMENTS

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

PART 2--PRODUCTS

2.01 MANUFACTURERS

- A. The following manufacturers are approved for use. No substitutions will be permitted.
 - 1. Daikin Applied – “PreciseLine” air handler is the basis of design, including standard product features and all special features required per plans and specifications.

2.02 FAN COIL TYPE AND ARRANGEMENT

- A. The unit shall be furnished as a draw-through style air handler.
- B. [OPTIONAL] A Primary hydronic cooling coil shall be furnished and factory-installed. OR
[OPTIONAL] (DX OR VRV) cooling coils shall be factory-installed.
- C. A Secondary electric-resistive heater shall be factory-furnished (upstream OR downstream) of the primary coil. Automatic and manual-style thermal cut-out switches shall be furnished and installed by the manufacturer. The switches will disconnect the electric heater at air temperatures unsafe for the unit's continued operation. OR
[OPTIONAL] A Secondary (preheat OR reheat) hydronic coil located (upstream OR downstream) of the primary coil shall be factory-furnished. Entering water conditions are not to exceed 200°F. OR
[OPTIONAL] A Secondary preheat steam coil located upstream of the primary coil shall be factory-furnished. Operating pressure should not exceed 25 psig (172 kPa).

2.03 GENERAL CONSTRUCTION

- A. The air handling unit shall include a blower, fan housing, coil, and drain-pan enclosed within and mounted to a rigid cabinet. Steel parts exposed to moisture shall be galvanized and insulated to prevent condensation. The complete fan assembly shall be wired via quick connect electrical contacts and easily removable for service and maintenance.

B. Cabinet

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

- a. ASTM C1071 (including C665)
- b. UL 181 for erosion
- c. 25/50 rating for flame spread/smoke developed per ASTM E-84, UL 723 and NFPA 90A

2.04 SUPPLY FAN(S)

- A. Supply fans shall be a (DWDI forward-curved type OR welded aluminum airfoil plenum type) fan. Fan assemblies shall be balance tested dynamically by the manufacturer. Manufacturer must ensure maximum fan RPM is below the first critical speed.
- B. The complete fan assembly, including motor and main drain pan shall be easily removable.
- C. Fan motor(s) assembly shall be direct-drive style and not include belts, pulleys, or sheaves.
- D. Fan motor(s) shall be of Direct Current Brushless type or minimum motor efficiency of 85 percent when rated in accordance of NEMA Standard MG 1-2016 at full load conditions.
- E. Manufacturer's supply fan motor must have means to adjust motor speed for field balancing.
- F. Units shall be certified in accordance with the Central Station Air Handler certification program that is based on AHRI Standard 430.
- G. [For forward-curved fan] Must be capable of delivering 1.5" w.g. external static pressure and 3.0" w.g. total static pressure at nominal cabinet CFM.

OR

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

2.05 EXHAUST FAN(S)

- A. (1 OR 2 OR 3) exhaust fans shall be a (DWDI forward-curved OR backwards curved plenum) type. Fan assemblies shall be balance tested dynamically by the manufacturer. Manufacturer must ensure maximum fan RPM is below the first critical speed.
- B. The complete fan assembly, including motor, shall be easily removable.
- C. Fan motor(s) assembly shall be direct-drive style and not include belts, pulleys, or sheaves.
- D. Fan motor(s) shall be of Direct Current Brushless type or minimum motor efficiency of 85 percent when rated in

accordance of NEMA Standard MG 1-2016 at full load conditions.

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

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

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

2.06 FILTERS

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

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

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

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

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

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

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

2.07 ELECTRICAL

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

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

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

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

2.08 COOLING AND HEATING

A. Cooling Coil

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

B. [OPTIONAL] Heating Coil

1. Heating performance shall be as specified on the unit schedule.
2. (Hot water coil OR Steam coil) fins shall have full drawn collars to provide a continuous surface cover over the entire tube for maximum heat transfer. Seamless copper tubes shall be mechanically expanded into the fins to provide a continuous primary-to-secondary compression bond over the entire finned length for maximum heat transfer rates. Bare copper tubes shall not be visible between fins.
3. Coils shall be provided with headers of seamless copper tubing with intruded tube holes to permit expansion and contraction without creating

undue stress or strain. Coil connections shall be (female pipe thread OR sweat) connections with connection size to be determined by manufacturer based upon the most efficient coil circuiting. Vent and drain connections shall be furnished on the coil connection, external to the cabinet. Vent connections shall be provided at the highest point to ensure proper venting. Drain connections shall be provided at the lowest point.

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

- A. A factory-installed discharge plenum is to be furnished attached to the main unit. This component must be constructed of a similar cabinet paneling to the main unit.
- B. [For vertical unit sizes 030-100] A factory-provided discharge plenum is to be furnished for attachment to the main unit. This component must be constructed of a similar cabinet paneling to the main unit.
- C. Sound-absorbing material will be affixed to the internal walls of the discharge plenum.

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

- A. A factory-installed mixing box for mixing two separate airstreams is to be furnished attached to the main unit. This component must be constructed of a similar cabinet that the main unit is constructed of.
- B. [For unit sizes 060-100] An economizer section shall be provided, controlling return, exhaust, and outdoor air.
- C. Dampers intended for modulating each airstream are to be furnished to cover the openings of the supplied mixing box.
 1. [For unit sizes 060-100] Return and outdoor air dampers shall be controlled independently.
- D. [For unit sizes 060-100] Damper blades shall be of airfoil construction. Dampers shall be AMCA Class 1-A leakage rated.
- E. Damper blades shall be interoperable via linkage shaft. Gear linkage dampers shall not be acceptable.
- F. Damper actuators are to be furnished factory-installed on the mixing box. These actuators are to be controlled via (24 VAC ON/OFF signal OR 0-10V modulating signal) and factory-wired back to the control area within the main cabinet.

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

A. Coils

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

the piping package shall be 300 psig (2100 kPa).

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

B. Type and Components

1. The valve package(s) shall be (Basic OR Deluxe) type and provided with:
 - a. Interconnecting copper piping and shut-off ball valves.
 - b. Connecting supply and return lines to the unit.
 - c. [OPTIONAL] Four-pipe packages shall include a venting valve for the secondary coil.
 - d. [For deluxe package only] An automatic circuit setter. The circuit setter includes a cartridge within the valve body that is sized to allow a specific flow rate through the coil. This valve sets flow through the coil without any action required by a system piping balancer.
 - e. P/T ports to measure the temperature or pressure drop across the valve. This pressure drop can be compared to factory-supplied curves that relate the pressure drop to a specific flow rate.
 - f. Unions on the valve package that allow the coil and valve package to be separated and removed from the unit.
 - g. [For deluxe package only] A 20 mesh strainer on the supply side that is easily removed for cleaning, with a blow-off valve. The strainer shall have a pressure rating of up to 400 psig (2,700 kPa).
 - h. Isolating ball valve on the supply side.
 - i. Two-Way valve body(s) positioned on the return side of the coil. A method to relieve pump head pressure to be employed when two-way systems are selected. OR
Three-Way, mixing-style valve body(s) to be positioned on the return side of the coil.

C. [For deluxe package only] Control

1. The valve package is to be furnished with (two-position On/Off valve actuators OR proportional modulating actuators).
2. The furnished actuators are to be controlled via (24 VAC OR 0-10 VDC) control signal.

2.12 CONTROLS

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

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

as three speed. These three speeds are field adjustable for precise air flow scheduling.

OR

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

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

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

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

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

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

B. Hot Water Defrost

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

OR

Electric Heat Defrost

1. An electric preheat coil with (1-Stage OR SCR) control shall be provided to prevent frost on the (energy recovery device OR coils).

2. Electric heating coils shall be UL listed, open-wire resistance heaters. Heating coils shall be constructed of high nickel-chromium alloy resistance wire (80% Ni/20% Cr).
3. A separate power connection shall be used for the electric heater.

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

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

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

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

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

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

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

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

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

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

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

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

A. Post electric heat shall require field assembly.

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

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

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

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