



Q-Tec™ QC-Series Chilled Water Air Conditioner

**Cooling Capacities: 13,300 to 49,300 BTUH
(Based on EWT, GPM and CFM)**

The Q-Tec™ Series self-contained packaged chilled water air conditioner is designed to be installed inside a building structure against an exterior exposed wall when ventilation option is selected. When no ventilation option is used, the QC-Series units can be installed in any interior space accessible to water supply system and condensate drain.

Q-Tec's™ design provides "whisper" quiet operation with total comfort for the occupants. This design eliminates the need for roof-mounted equipment and outside condensing units and can meet your specific architectural requirements.

Q-Tec's™ "quiet technology" provides extremely low indoor sound levels by using special components and materials in the construction of the unit. By using special motors and sound insulation we have built a chilled water cooling system that is significantly quieter than competitive product available today.

Q-Tec™ is suitable for both new construction and renovation projects for schools, modular buildings and light commercial buildings. A variety of ventilation options are designed to address your project's indoor air quality.

The Q-Tec™ Series unique design allows all maintenance and service to be performed inside the building to facilitate multi-story installations. Access to air filters and controls is accomplished through a hinged front panel for easy accessibility. All Q-Tec™ Series models are built on heavy duty permanent rollers for easy installation and removal.

Q-Tec's™ durable, easy to clean cabinet is aesthetically pleasing and comes standard with side and bottom trim pieces. Two types of cabinet finish are available: a durable two tone (slate and platinum) vinyl covered steel, or gray pre-painted steel.

Product Features

Indoor Blower Motor

All models feature a variable speed (ECM) motor providing super high efficiency, low sound levels and soft start capabilities. The motor is self-adjusting to provide the proper airflow rate at high static pressure for ducted installations without user adjustment or wiring changes.

Copper Tube/Aluminum Fin Chilled Water Coil

Grooved copper tubing and enhanced aluminum fins provide maximum heat transfer and high energy efficiency. Evaporator coil constructed with hydrophilic fin stock that seals fin surface against aluminum oxide formation, is resistant to mold and mildew growth (tested to ASTM D3273, no growth) and reduces beading of condensate on the fin surface.

Stainless Steel Drain Pan

Provides extended life of the evaporator drain pan for maximum corrosion resistance.

Two Water Valve Choices

Either a 2 or 3-way valve may be selected to meet the piping system requirements of the building. Two valves are supplied for 2-stage control.

Cabinet

Constructed of 20 gauge pre-painted or vinyl laminated galvanized steel. Choice of either two tone vinyl finish with "slate" front panels and "platinum" cabinet for designer appearance, or gray painted steel. Vinyl finish is very resistant to scratching and marring and is very easy to clean. Tamper resistant fasteners are provided for access panels. Unit includes built-in rollers for easy installation into wall sleeve and removal for service if necessary. Hinged, lockable front panel for filter service and access to primary functional electrical controls.

Insulation

Cabinet is fully insulated with foil covered, high density fiberglass insulation with sealed edge treatment. All insulation is designed to resist mold and mildew growth and facilitate ease of cleaning.

Electrical Components

Are easily accessible for routine inspection and maintenance through front service panels. Circuit breaker standard on all models. Circuit breaker access is through lockable access panel. Lock and key provided as standard equipment.



Optional Hot Water Coil

A plenum mounted hot water coil is available for both free-blow and ducted applications.

Air Filters

One-inch disposable panel type air filters are standard. Optional two-inch pleated and two-inch fiberglass disposable air filters are available. Optional Energy Recovery Ventilator has a separate filter for exhaust air to keep ERV clean.

Side Trim Piece Extension

Provides cabinet extension between interior wall and unit when wall thickness is 14 inches. Standard feature shipped with all models. Optional trim kits for thinner walls available.

Optional Ventilation Packages

Optional energy recovery ventilator can provide up to 450 cfm of outside air and exhaust through the unit while maintaining indoor comfort and humidity levels. Other available options include commercial room ventilator with exhaust and barometric damper without exhaust. Outside wall and ventilation sleeve are required for installations with ventilation option.

Optional Ventilation Wall Sleeve

Required for ventilation options only. Constructed of 16 gauge galvanized steel, coated with epoxy primer and a baked on polyester enamel paint, which allows it to withstand 1000 hours of salt spray tests per ASTM B117-03. Ordered separately.



• Intertek ETL Listed to Standard for Safety Heating and Cooling Equipment ANSI/UL 1995/CSA 22.2 No. 236-05, Third Edition.

Indoor Blower Performance

Model	Voltage	HP/SPD	Motor AMPS	Rated ESP.	Max. ESP ^①	Rated CFM ^②	Optional CFM ^③	Continuous CFM ^④	CFM @ Max ESP
QC501-A	230/208-1	1/2 variable	3.7	0.15	0.8	1200	1000	1000	1175
QC501-K	115-1	1/2 variable	7.4	0.15	0.8	1200	1000	1000	1175

Note: These units are equipped with a variable speed (ECM) indoor motor that automatically adjusts itself to maintain approximately the same rate of indoor airflow in both heating and cooling, dry and wet coil conditions.

① Max ESP (inches WC) shown is with 1" thick disposable filter (reduced by .2 for 2" filter)

② Rated CFM (based on ducted application) for heating and cooling operation.

③ Reduced indoor air flow option to provide lowest possible indoor air sound level. Reduces system capacity performance by approx. 2%.

④ Continuous fan CFM is the total air being circulated during continuous fan mode.

Electrical Specifications

Models	Single Circuit						Dual Circuit							
	Rated Volts & Phases 60HZ	No. Field Power Circuits	③	①	②	②	③		①		②		②	
			Minimum Circuit Ampacity	Maximum External Fuse or Circuit Breaker	Field Power Wire Size	Ground Wire Size	Minimum Circuit Ampacity	Maximum External Fuse or Circuit Breaker	Field Power Wire Size		Ground wire Size			
CKT A	CKT B	CKT A	CKT B	CKT A	CKT B	CKT A	CKT B	CKT A	CKT B	CKT A	CKT B			
QC501-A0Z	230/208-1	1	7	15	14	14	-	-	-	-	-	-	-	-
-A05		1	33	35	8	10	-	-	-	-	-	-	-	-
-A10		1	58	60	6	10	-	-	-	-	-	-	-	-
-A15		1 or 2	83	90	4	8	50	33	50	40	8	8	10	10
QC501-K0Z	115-1	1	10	15	14	14	-	-	-	-	-	-	-	-

① Maximum size of the time delay fuse or HACR type circuit breaker for protection of field wiring conductors.

② Based on 75°C copper wire. All wiring must conform to the National Electrical Code and all local codes.

③ These "Minimum Circuit Ampacity" values are to be used for sizing the field power conductors. Refer to the National Electrical Code (latest revision), article 310 for power conductor sizing.

CAUTION: When more than one field power conductor circuit is run through one conduit, the conductors must be derated. Pay special attention to Note 8 of Table 310 regarding Ampacity Adjustment Factors when more than three conductors are in a raceway.

Electric Heat Table

- Refer to Electrical Specifications for Availability by Unit Model

Nominal KW	At 240V (1)				At 208V (1)			
	KW	1-Ph Amps	3-Ph Amps	Btuh	KW	1-Ph Amps	3-Ph Amps	Btuh
5.0	5.0	20.8		17,065	3.75	18.0		12,799
10.0	10.0	41.7		34,130	7.50	36.1		25,598
15.0	15.0	62.5	36.1	51,195	11.25	54.1	31.2	38,396

(1) These electric heaters are available in 230/208V units only.

Shipping Weight

400 lbs.

Filter Size - Inches

1 - 16 x 25 and 1 - 16 x 16

* Standard - 1" Fiberglass

* Optional - 2" Fiberglass

* Optional - 2" Pleated

Chilled Water Coil Performance - Cooling Capacity

MODEL QC501

GPM	EWT	CFM	BTUH Capacity (1000) ④			BTUH Capacity (1000) ④			Water Coil	
			Stage 1			Stage 1 and 2			Pressure Drop	
			Total	Sensible	Latent	Total	Sensible	Latent	PSIG	Ft. Hd.
6	42	1000	15.1	10.5	4.6	38.5	25.3	13.2	1.9	4.4
8			16.4	11.1	5.3	41.5	26.8	14.7	3.3	7.5
10			17.4	11.7	5.7	43.2	27.4	15.8	4.9	11.3
6	44	1000	13.9	10.0	3.9	35.8	24.2	11.6	1.9	4.4
8			15.1	10.6	4.5	38.4	25.4	13.0	3.3	7.5
10			16.0	11.1	4.9	40.0	26.0	14.0	4.9	11.3
6	46	1000	12.8	9.6	3.2	33.0	23.0	10.0	1.9	4.4
8			13.9	10.1	3.8	35.3	24.0	11.3	3.3	7.5
10			14.7	10.6	4.1	36.9	24.6	12.3	4.9	11.3
6	48	1000	11.6	9.1	2.5	30.3	21.9	8.4	1.9	4.4
8			12.6	9.6	3.0	32.2	22.6	9.6	3.3	7.5
10			13.3	10.0	3.3	33.7	23.2	10.5	4.9	11.3
6	42	1200	15.9	11.5	4.4	42.1	29.0	13.1	1.9	4.4
8			17.4	12.2	5.2	46.0	30.6	15.4	3.3	7.5
10			18.8	12.8	6.0	49.3	31.9	17.4	4.9	11.3
6	44	1200	14.8	11.1	3.7	39.3	27.7	11.6	1.9	4.4
8			16.2	11.7	4.5	42.7	29.2	13.5	3.3	7.5
10			17.4	12.3	5.1	45.6	30.4	15.2	4.9	11.3
6	46	1200	13.6	10.7	2.9	36.4	26.5	9.9	1.9	4.4
8			14.9	11.3	3.6	39.5	27.9	11.6	3.3	7.5
10			16.1	11.7	4.4	42.0	29.0	13.0	4.9	11.3
6	48	1200	12.5	10.3	2.2	33.6	25.2	8.4	1.9	4.4
8			13.7	10.8	2.9	36.2	26.5	9.7	3.3	7.5
10			14.7	11.2	3.5	38.3	27.5	10.8	4.9	11.3

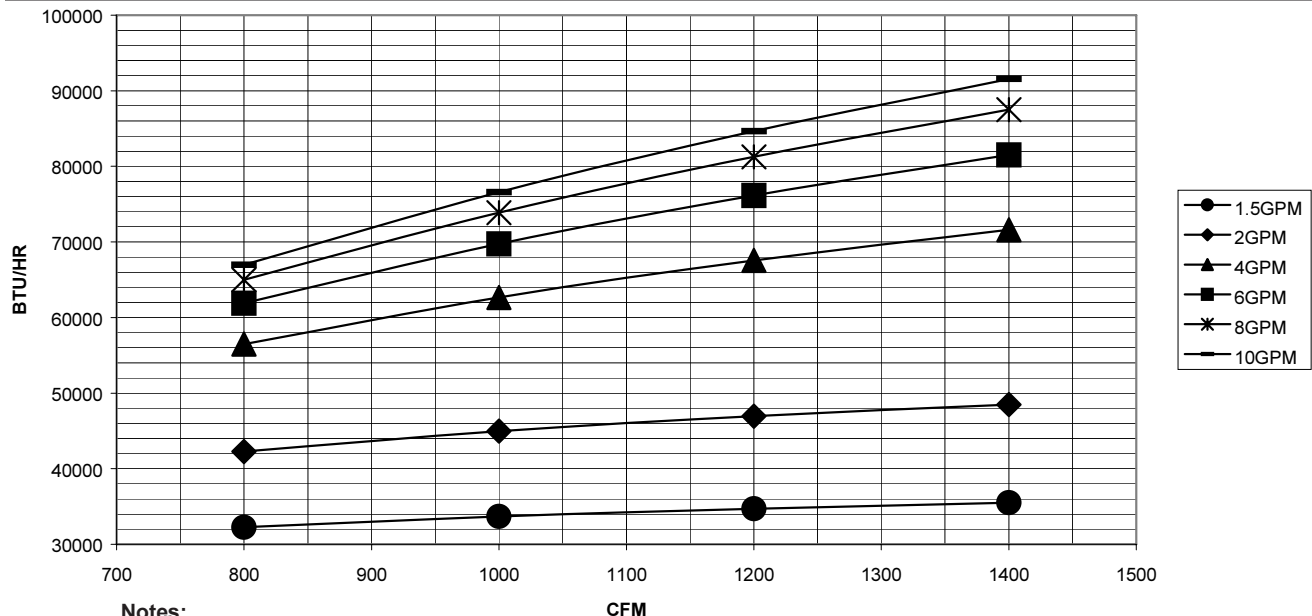
① Stages 1 and 2 water valves (2 are supplied) afford 2-stage control when connected to 2-stage cooling thermostat.

② If factory mounted thermostat is selected, it is 2-stage design.

③ If field supplied thermostat is used and it is only a 1-stage design, then the TOTAL CAPACITY STAGE 1 and 2 would cycle as one.

④ Based on 80F DB / 67F WB (50% RH).

Optional Hot Water Coil Performance - Heating Capacity @ 180°F Water and 70°F Return Air



Notes:

- ① Water connections are 7/8" O.D. copper.
- ② 3-way flow valve is factory installed.
- ③ Control wiring included, and can be operated as either 1st or 2nd stage.

Ventilation System Packages

Q-Tec models are designed to provide optional ventilation packages to meet all of your ventilation and indoor air quality requirements. All ventilation packages are factory installed.

NOTE: A ventilation wall sleeve QWVS42 with outdoor louver grille is required for all installations that intend to utilize one of the built-in ventilation options of the QC-Series models. If a ventilation option is not to be utilized, do not order ventilation wall sleeve.

BAROMETRIC FRESH AIR DAMPER

OPTIONAL

The barometric fresh air damper allows outside ventilation air, up to 25% of the total airflow rating of the unit, to be introduced through the ventilation louver grille and to be mixed with the conditioned air. The damper opens during blower operation and closes when the blower is off. Adjustable blade stops allow different amounts of outside air to be introduced into the building and can be easily locked closed if required.

NOTE: The above vent systems are intake only without built-in exhaust capability. Building will likely require separate field installed barometric relief or mechanical exhaust elsewhere within the conditioned space. Balancing dampers in the return air grille may be required to achieve specified amount of outdoor air intake.

COMMERCIAL ROOM VENTILATOR

OPTIONAL

The built-in commercial room ventilator is internally mounted and allows outside ventilation air, up to 50% of the total airflow rating of the unit, to be introduced through the ventilation louver grille. It includes a built-in exhaust air damper. Spring return on power loss or deactivation. The commercial room ventilator (CRV) is a simple and innovative approach to improving the indoor air quality by providing fresh air intake and exhaust capability through the CRV. The damper can be easily adjusted to control the amount of fresh air supplied into the building. The CRV can be controlled by indoor blower operation or field controlled based on room occupancy. Complies with ASHRAE Standard 62.1 "Ventilation for Acceptable Indoor Air Quality."

Two Models Available:

- Spring return on power loss or deactivation
- Power return (will not close on power loss)

ENERGY RECOVERY VENTILATOR (*Used only on QC501-A models*)

OPTIONAL

The energy recovery ventilator (ERV) is a highly innovative approach to meeting indoor air quality ventilation requirements as established by ASHRAE Standard 62.1. The ERV is internally mounted and allows up to 450 CFM (depending upon speed setting) of fresh air and exhaust through the unit while maintaining superior indoor comfort and humidity levels. In most cases, this can be accomplished without increasing equipment sizing or operating costs. Heat transfer efficiency is up to 64% during summer and 79% during winter conditions.

The ERV consists of a unique "rotary energy recovery cassette" that provides effective sensible and latent heat transfer capabilities during summer and winter conditions. Various control schemes are addressed – including limiting ventilation during building occupancy only. The ERV has a filter for the exhaust air to keep the rotary wheels clean and free of any debris introduced through the room return air grille. The intake and exhaust rates can be independently selected. Factory set on medium intake and low exhaust.

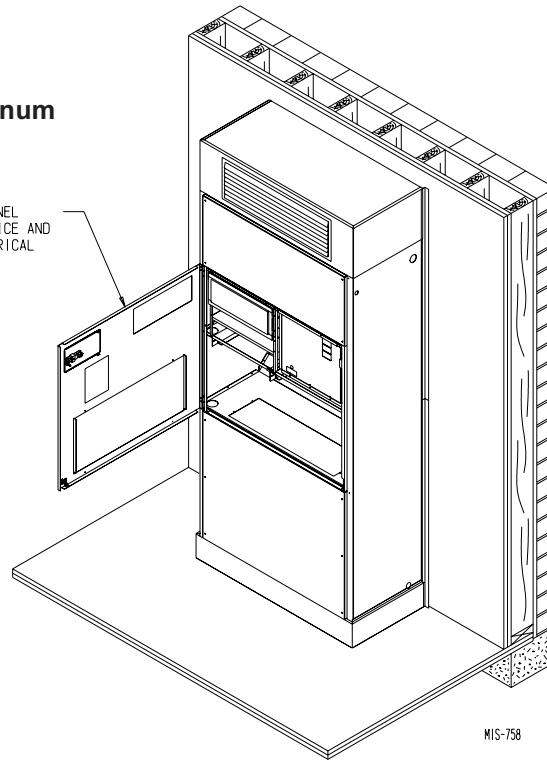
Commercial Room Ventilator Performance Tables

QC501 Ventilation Mode				
Damper Position	Free Blow	Static Pressure		
		0.1	0.3	0.5
A	140	135	125	120
B	180	170	160	160
C	220	210	205	195
D	315	315	315	290
E	410	400	385	380

Installation Overview

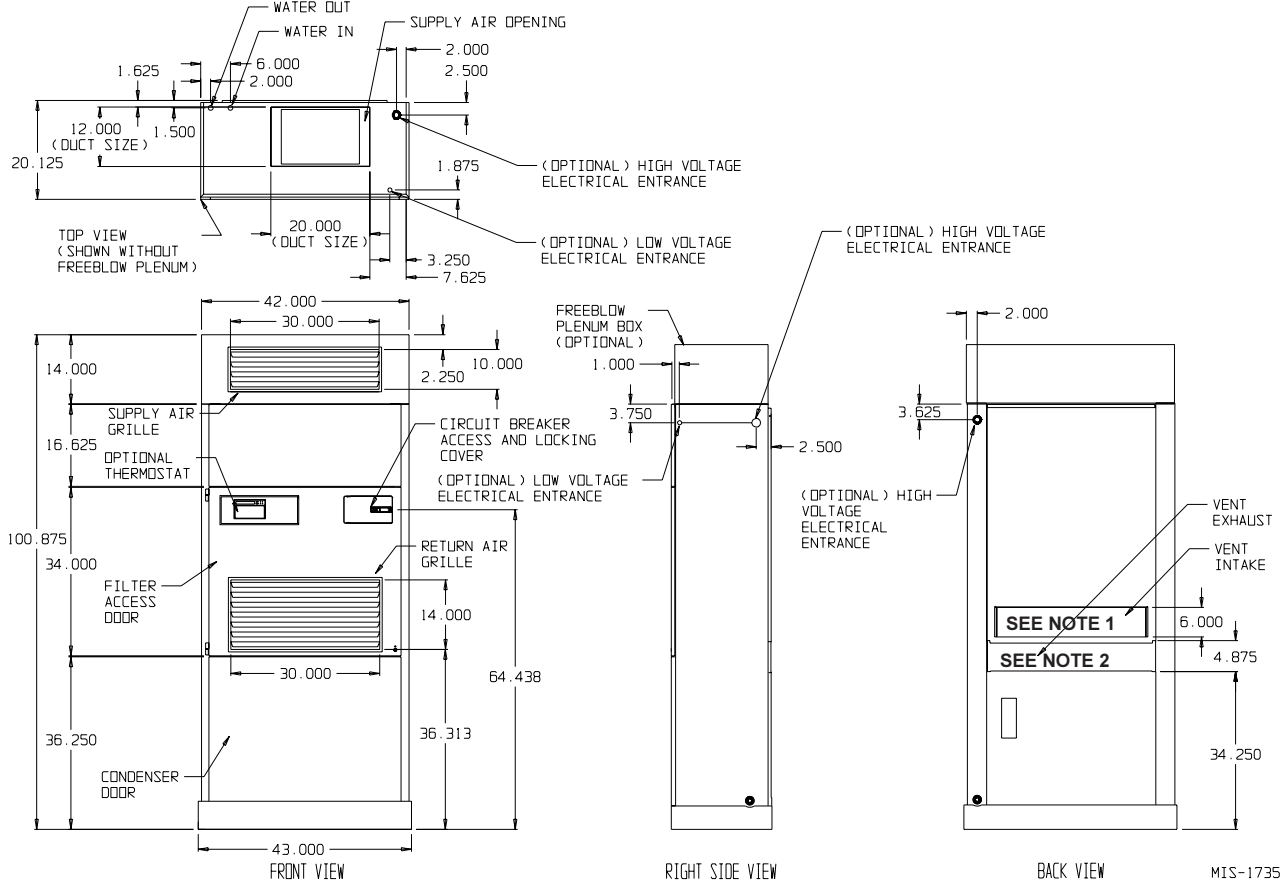
Unit installed with free blow plenum

HINGED FRONT PANEL FOR FILTER SERVICE AND ACCESS TO ELECTRICAL CONTROLS.



MIS-758

Dimensions of Basic Unit for Architectural and Installation Requirements (Nominal)



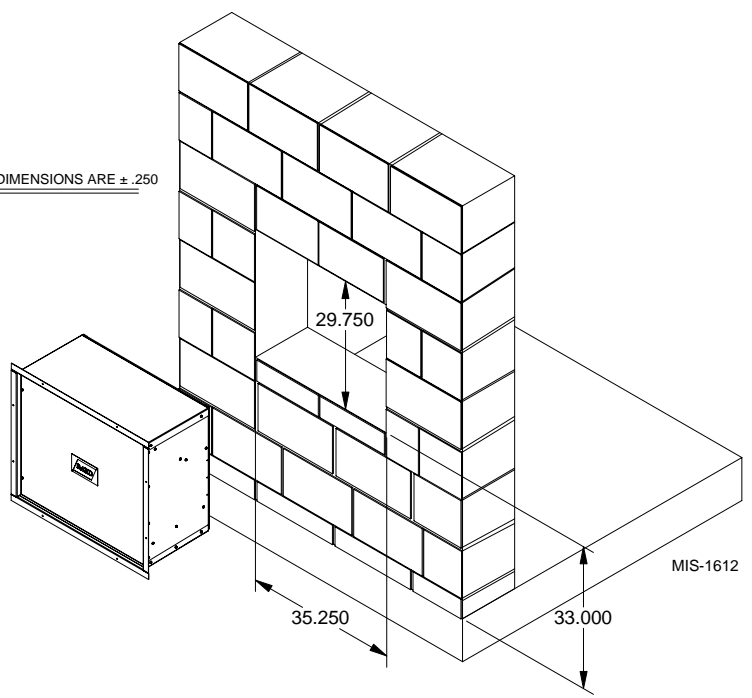
NOTE 1: Ventilation intake opening for barometric fresh air damper, commercial room ventilator (CRV) or energy recovery ventilator (ERV). Opening is sealed if no vent option.

NOTE 2: Ventilation exhaust opening for CRV and ERV vent options. Opening is sealed for no vent option and for barometric fresh air damper.

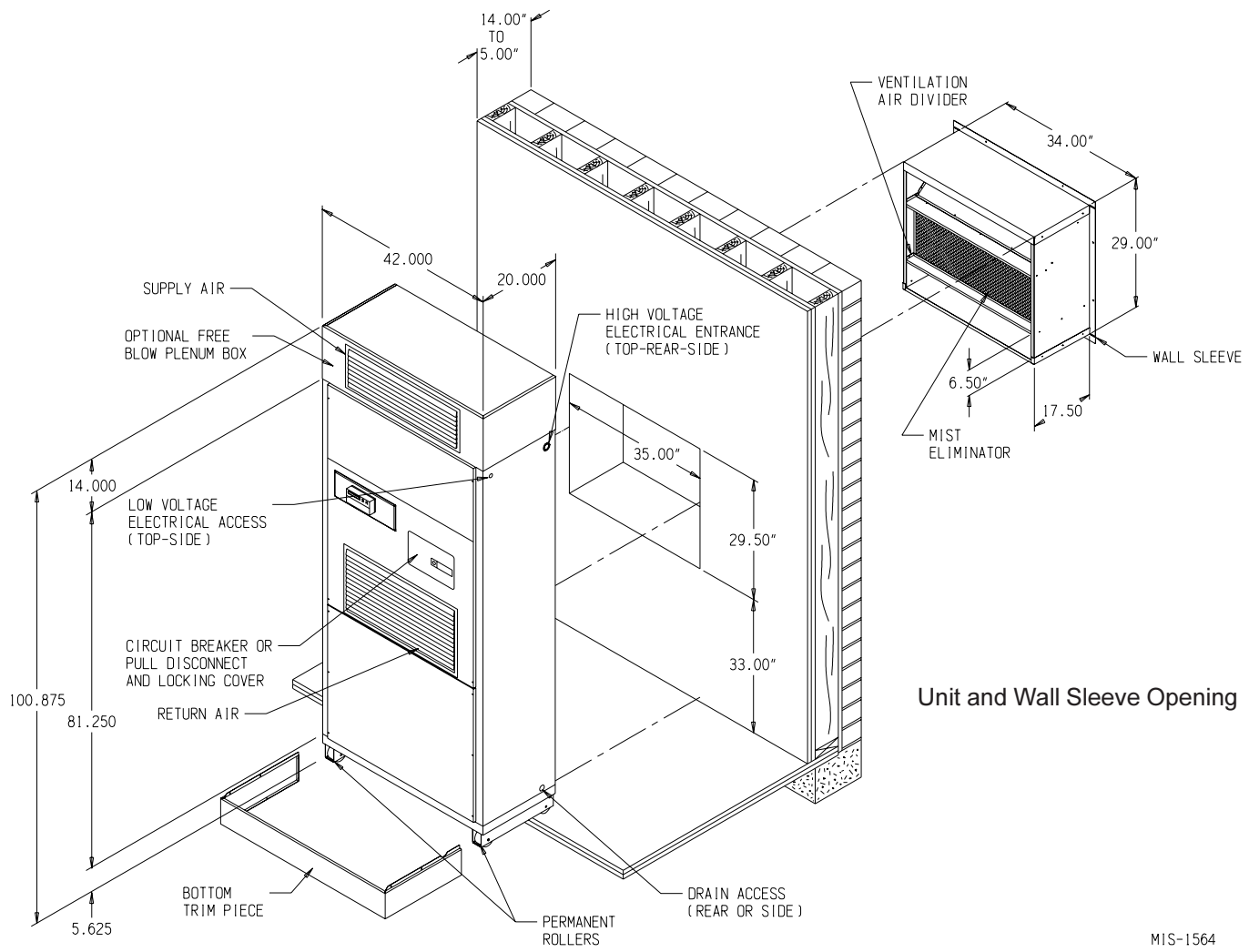
Installation Overview When Ventilation Package With Ventilation Sleeve Is Used

Exterior Wall View

NOTE: OPENING DIMENSIONS ARE ± .250



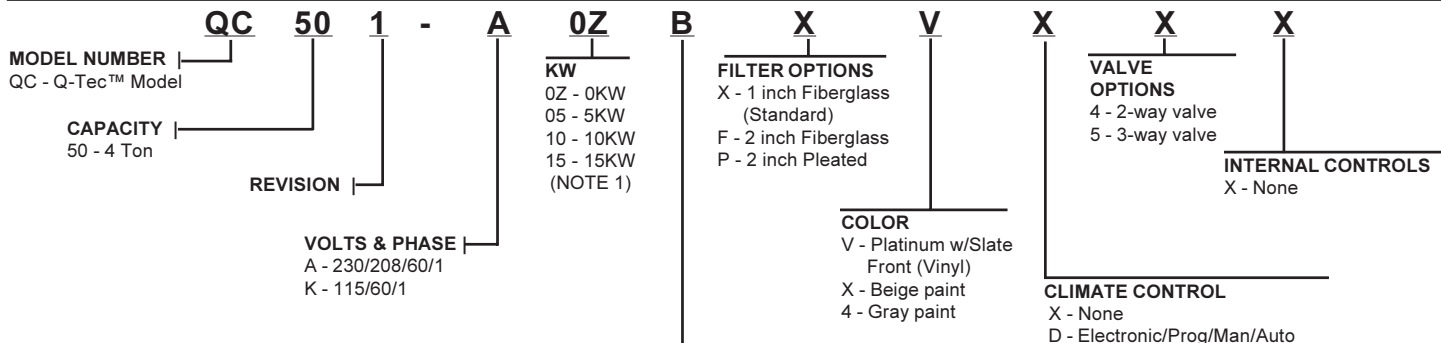
NOTE: Wall opening and wall sleeve required only when one of the ventilation options is utilized. Installations not utilizing any ventilation option can be made in any interior space accessible to electrical supply, water supply system and condensate drain.



Unit and Wall Sleeve Opening

MIS-1564

Q-Tec™ Model Nomenclature



NOTE 1: Electric heat available for -A models only

VENTILATION OPTIONS

- B - Blank Off Plate (no ventilation)
- X - Barometric Fresh Air Damper (no exhaust)
- V - Commercial Ventilator - (w/Exhaust) Motorized, Spring Return
- P - Commercial Ventilator - (w/Exhaust) Motorized, Power Return
- R - Energy Recovery Ventilator (w/Independent Intake/Exhaust Control) - 230/208-60-1 version only

Optional Field Installed Accessories - Must Be Used For Each Installation w/Ventilation Options

Ventilation Wall Sleeves:

QWVS42 Ventilation wall sleeve for walls up to 14 inches thick. **NOTE:** Actual depth of QWVS42 sleeve is 17" with 3" allocation for water piping. Standard side trim kit packaged with the QC unit will cover the space behind the unit if wall is 14 inches. For walls less than 14 inches also order side trim extension kit QSTX42A-V or -4. See below.

Ventilation Outdoor Louver Grilles:

QLG-11 Clear Anodized Aluminum for vent option
 QLG-21 Medium Bronze Anodized Aluminum for vent option
 QLG-31 Dark Bronze Anodized Aluminum for vent option

Optional Field Installed Accessories - Additional Items As Determined By Job Specifications

NOTE: The following accessory items must be selected so that the finish (color) is matched to the QC-model that they will be used with.

Side Trim Extension Kits: Required when wall thickness is less than 10½ inches and works for walls down to 6 inches thick. Used in place of standard trim kit supplied with unit to cover the space between unit and wall.

QSTX42A-V	Platinum vinyl	QSTX42A-4	Gray paint	QSTX42A-X	Beige paint	Unit Compatibility All models
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Free-Blow Plenum Boxes:

QPB42-V	Platinum vinyl	QPB42-4	Gray paint	QPB42-X	Beige paint	Front supply, 4-way deflection grille	Unit Compatibility All models
QPBS42-V	Platinum vinyl	QPBS42-4	Gray paint	QPBS42-X	Beige paint	Same as QPB42, plus 2-way deflection grille on each side	All models

Top Fill Systems for Finishing Plenum Boxes to Ceilings:

QPBX42-9-V	Platinum vinyl	QPBX42-9-4	Gray paint	QPBX42-9-X	Beige paint	Use with QPB42 or QPBS42 (adjusts to ceilings up to 9' 6")	Unit Compatibility All models
QPBX42-10-V	Platinum vinyl	QPBX42-10-4	Gray paint	QPBX42-10-X	Beige paint	Use with QPB42 or QPBS42 (adjusts to ceilings up to 10' 2")	All models

Cabinet Extensions for Ducted Applications:

QCX10A-V	Platinum vinyl	QCX10A-4	Gray paint	QCX10A-X	Beige paint	20" height (adjusts for ceilings up to 9' 4"; add QPBX42-9 (-V or -4) for 9'4" to 10' finished ceiling heights)	Unit Compatibility All models
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Hot Water Coils with Plenum Boxes:

QPBHW42-F-V	Platinum vinyl	QPBHW42-F-4	Gray paint	QPBHW42-F-X	Beige paint	Free-Blow plenum box	Unit Compatibility All models
QPBHW42-D-V	Platinum vinyl	QPBHW42-D-4	Gray paint	QPBHW42-D-X	Beige paint	Ducted plenum box	All models

See page 3 for heating capacity performance

NOTE: The same top fill system and cabinet extensions can be used with hot water coil plenum boxes as with standard plenum boxes.



Bard Manufacturing Company, Inc.
 Bryan, Ohio 43306
 www.bardhvac.com

Due to our continuous product improvement policy, all specifications subject to change without notice.

Before purchasing this appliance, read important energy cost and efficiency information available from your retailer.

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