

Q-TEC[™] Q24H3-Q60H3 Air-to-Air Heat Pump 10 EER Units

Heating Capacities: 23,600 to 45,000 Btuh Cooling Capacities: 25,000 to 54,500 Btuh

The Q-TEC Series self contained packaged heat pump is designed to be installed inside a building structure against an exterior exposed wall. 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 sound levels (both indoor and outdoor) by using special components and materials in the construction of the unit. By using special motors, sound insulation and other sound absorbing construction, we have built a heat pump system that is significantly quieter than typical product available today.

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

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 from the wall sleeve for additional service access.

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.

Engineered Features

Scroll Compressor – The Copeland scroll compressor has been designed for increased efficiency, quieter operation with reduced shutdown noise and improved reliability for longer life. Eliminates need for crankcase heater and suction line accumulator.

Compressor Sound Reduction – Compressor is mounted on full floating base with double grommets and is equipped with discharge muffler and sound cover.

Phase Rotation Monitor – Standard on all 3-phase scroll compressors. Protects against reverse rotation if power supply is not properly connected.

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. Optional dehumidification circuit (hot gas reheat) provides improved dehumidification when used with humidistat.

Outdoor Fan Motor – The PSC outdoor fan motor has double oil capacity sleeve bearings and is totally enclosed for extended life.

Copper Tube/Aluminum Fin Coils – Grooved copper tubing and enhanced aluminum fins provide maximum heat transfer and high energy efficiency. Optional phenolic coated coils are available.

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 or beige 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 and special sound deadening insulation material in the compressor section. 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 208/230V models and rotary disconnect standard on all 460V models. Circuit breaker/rotary disconnect access is through lockable access panel. Lock and key provided as standard equipment.

Electric Heat Strips – Backup electric heat strips feature automatic limit safety controls. Heater packages are factory installed for all models. See Electric Heat Table for available options.

GREEN REFRIGERANT R-410A



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.

Solid State Electronic Heat Pump Control – Provides efficient 30-minute defrost cycle. A thermistor sensor and speed up terminal for service along with a 10-minute defrost override are standard on the electronic heat pump control.

Refrigerant Service Ports – Located in filter compartment for easy access.

Liquid Filter Dryer – Standard on all models

High/Low Pressure Switch – Provides refrigerant circuit high pressure and loss of charge protection. Includes lockout circuit that is resettable from room thermostat.

Five Minute Compressor Time Delay – Provides short cycle protection for the compressor, which extends compressor life. Built into the electronic heat pump control as standard.

Ventilation Packages – Barometric fresh air damper standard on all units and allows up to 25% outside fresh air. 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. Commercial room ventilator and blank-off plate are also available.

Diagnostic Light – System service - indicates high or low pressure switch operation for compressor protection. Located inside control panel.

Stainless Steel Drain Pans – Provides extended life of the evaporator and condenser drain pans for maximum corrosion resistance.

Side Trim Piece Extension – Provides cabinet extension between interior wall and unit when wall thickness is between 12 inches to 14 inches. This is a space up to 4". Standard feature shipped with all models. Optional trim kits for thinner walls or longer wall sleeves available.

Wall Sleeve – 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. Required for all models. Ordered separately.

Bard is an ISO Certified Manufacturer



Form No S3535-517 Supersedes S3535-317 Page 1 of 12

- Certified to ANSI/ARI Standard 390-2003 for SPVU (Single Package Vertical Units).
- Complies with efficiency requirements of ASHRAE/IESNA 90.1-2013.
- Intertek ETL Listed to Standard for Safety Heating and Cooling Equipment ANSI/UL 1995/CSA 22.2 No. 236-05, Fourth Edition.
- Commercial Product Not intended for Residential application.

Capacity and Efficiency Ratings

MODELS	Q24H3	Q30H3	Q36H3	Q43H3	Q48H3	Q60H3
Cooling Capacity BTUH ①	25,000	29,800	34,400	39,000	46,500	54,500
EER ②	10.50	10.00	10.00	10.00	10.00	10.00
High Temp Heating (47F) BTUH ①	23,600	27,600	29,800	35,600	41,500	45,000
COP ②	3.00	3.00	3.00	3.00	3.00	3.00
Low Temp Heating (17F) BTUH ①	15,000	18,000	19,000	23,400	25,600	30,000
COP ②	2.10	2.10	2.20	2.10	2.20	2.00

① Capacity is certified in accordance with ANSI/ARI Standard 390-2003.

All ratings based on fresh air intake being 100% closed (no outside air introduction).

Specifications - 2	2, 2½ an	d 3 Ton								
MODELS	Q24H3-A	Q24H3-B	Q24H3-C	Q30H3-A	Q30H3-B	Q30H3-C	Q36H3-A	Q36H3-B	Q36H3-C	
ELECTRICAL RATING – 60 HZ	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3	
Operating Voltage Range	197	-253	414-506	197	-253	414-506	197	-253	414-506	
COMPRESSOR – CIRCUIT A										
Voltage	230	/208	460	230	/208	460	230	/208	460	
Rated Load Amps	10.3/11.4	6.7/7.4	4.6	11.4/13.0	7.2/8.2	3.9	12.7/14.5	8.0/9.1	5.1	
Branch Circuit Selection Current	12.9	8.4	5.2	16.1	10.0	4.8	16.7	10.5	5.8	
Lock Rotor Amps	64	58	28	77	71	38	79	73/73	38	
FAN MOTOR & CONDENSER										
Fan MotorHP-RPM-SPD		1/5 - 1075 - 1		1/5 - 1075 - 1				1/5 - 1075 - 1		
Fan Motor Volts-Amps	230/20	08 - 1.6	4608	230/20	08 - 1.6	4608	230/20	08 - 1.9	460 - 1.0	
FanDIA-CFM		20" - 1600			20" - 1600			20" - 1800		
MOTOR & EVAPORATOR							-0			
Blower Motor HP-SPD		1/2 - Variable			1/2 - Variable		1/2 - Variable			
Blower MotorVolts-Amps		230/208 - 1.8	1		230/208 - 2.7			230/208 - 3.7		
CFM Cooling & E.S.P. w/Filter (Rated-Wet Coil)	8	800 @ .10 ESP		1	1000 @ .15 ESP		1200 @ .15 ESP		Р	
Filter Sizes (inches) STD.	1 - 16	x20x1 & 1 - 16	6x16x1	1 - 16x20x1 & 1 - 16x16x1		1 - 16x20x1 & 1 - 16x16x1		5x16x1		
SHIPPING WEIGHT – LBS.		535			540			560		

Specifications - 3	3½, 4 an	d 5 Ton								
MODELS	Q43H3-A	Q43H3-B	Q43H3-C	Q48H3-A	Q48H3-B	Q48H3-C	Q60H3-A	Q60H3-B	Q60H3-C	
ELECTRICAL RATING – 60 HZ	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3	230/208 - 1	230/208 - 3	460 - 3	
Operating Voltage Range	197	-253	414-506	197	-253	414-506	197	-253	414-506	
COMPRESSOR – CIRCUIT A										
Voltage	230	/208	460	230	/208	460	230	/208	460	
Rated Load Amps	17.4/17.2	13.2/13.0	5.8	18.8/20.9	14.1/15.7	7.7	24.0/28.2	15.8/18.5	9.1	
Branch Circuit Selection Current	18.0	13.6	6.0	21.5	16.0	7.8	28.2	18.5	9.1	
Lock Rotor Amps	112	88	44	135	110	52	144	110	52	
FAN MOTOR & CONDENSER										
Fan MotorHP-RPM-SPD		1/5 - 1075 - 1		1/5 - 1200 - 1				1/5 - 1200 - 1		
Fan Motor Volts-Amps	230/20	08 - 1.9	460 - 1.0	230/20	08 - 2.1	460 - 1.0	230/20	8 - 2.1	460 - 1.0	
FanDIA-CFM		20" - 1800			20" - 2000			20" - 2100		
MOTOR & EVAPORATOR										
Blower Motor HP-SPD		1/2 - Variable			1/2 - Variable			3/4 - Variable		
Blower MotorVolts-Amps		230/208 - 3.7			230/208 - 4.6			230/208 - 4.9		
CFM Cooling & E.S.P. w/Filter (Rated-Wet Coil)	1200 @ .15 ESP		1	1400 @ .20 ESP		1550 @ .20 ESP		Р		
Filter Sizes (inches) STD.	1 - 16	x20x1 & 1 - 16	6x16x1	1 - 16:	1 - 16x16x1 & 1 - 16x25x1		1 - 16x16x1 & 1 - 16x25x1		5x25x1	
SHIPPING WEIGHT – LBS.		615			620			625		

Facto	Factory Built-in Electric Heat Table													
Nominal		At 24	40V ①			At 208V ①			At 480V ②				At 460V ②	
KW	KW	1-Ph Amps	3-Ph. Amps	втин	KW	1-Ph Amps	3-Ph. Amps	втин	KW	3-Ph. Amps	втин	KW	3-Ph. Amps	втин
5.0	5.0	20.8		17,065	3.75	18.0		12,799						
6.0	6.0		14.4	20,478	4.50		12.5	15,359	6.0	7.2	20,478	5.52	6.9	18,840
9.0	9.0		21.7	30,717	6.75		18.7	23,038	9.0	10.8	30,717	8.28	10.4	28,260
10.0	10.0	41.7		34,130	7.50	36.1		25,598						
12.0	12.0		28.9	40,956	9.00		25.0	30,717	12.0	14.4	40,956	11.04	13.9	37,680
15.0	15.0	62.5	36.1	51,195	11.25	54.1	31.2	38,396	15.0	18.0	51,195	13.80	17.3	47,099

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

Supersedes S3535-317 Page 2 of 12

 $[\]textcircled{2}$ EER = Énergy Efficiency Ratio and is certified in accordance with ANSI/ARI Standard 390-2003.

② These electric heaters are available in 480V units only. Form No S3535-517

Indoor Blower Performance

Model	Rated ESP	① Max. ESP	② Rated CFM	③ Optional CFM	④ Continuous CFM	© Dehumidification CFM	CFM @ Max. ESP
Q24H ®	0.10	0.5	800	N/A	800	800	700
Q30H	0.15	8.0	1000	N/A	1000	1000	910
Q36H	0.15	0.8	1200	1000	1000	1000	1175
Q43H	0.15	0.8	1200	1000	1000	1000	1175
Q48H	0.20	0.8	1400	1250	1100	1250	1175
Q60H	0.20	0.8	1550	1250	1100	1250	1400

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 and at both 230/208 or 460 volts.

- 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. To obtain full rated CFM on models Q36H, Q42H, Q48H and Q60H, refer to Installation Instruction supplied with unit.
- 3 Reduced indoor airflow option to provide lowest possible indoor air sound level. Reduces system capacity performance by approximately 2%.
- ① Continuous fan CFM is the total air being circulated during continuous fan mode.
- S Applies to Dehumidification models only. Indoor airflow during periods of high humidity when system is operating under control of optional humidistat for maximum humidity reduction.
- 6 Model Q24H -- when operating on 2nd stage heating the indoor air will increase to 1000 CFM.

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 units are equipped with a barometric fresh air damper as the standard ventilation package. All ventilation packages are factory installed.

If there is 1st stage heat call during dehumidification operation heat pump mode is inhibited, the electric heat normally controlled by 2nd stage heat moves up to 1st stage control point, and the airflow will automatically go to the Rated CFM.

BAROMETRIC FRESH AIR DAMPER

STANDARD

The barometric fresh air damper is a standard feature on all models. It allows outside ventilation air, up to 25% of the total airflow rating of the unit, to be introduced through the air inlet openings 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.

BLANK OFF PLATE OPTIONAL

A blank off plate covers the air inlet openings which restricts any outside air from entering the unit. The blank off plate should be utilized in applications where outside air is not required to be mixed with the conditioned air.

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 air inlet openings. It includes a built-in exhaust air damper. 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 ANSI/ASHRAE Standard 62.1 "Ventilation for Acceptable Indoor Air Quality".

Two Models Available:

Spring return on power loss or deactivation - Vent Option V Power return (will not close on power loss) - Vent Option P

ENERGY RECOVERY VENTILATOR

OPTIONAL

The energy recovery ventilator (ERV) is a highly innovative approach to meeting indoor air quality ventilation requirements as established by ANSI/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.

Form No S3535-517 Supersedes S3535-317 Page 3 of 12

Commercial Room Ventilator Performance Tables

TABLE 1

Q24H VENTILATION MODE CFM								
Damper	Duct	S	tatic Pressu	re				
Position	Free	0.1 0.3 0.5						
Α	125	120	100	75				
В	135	130	115	100				
С	165	160	160	140				
D	255	255	235	195				
E	375	320	290	265				

TABLE 2

Q2	Q24H COOLING & HEATING MODE CFM							
Damper	Duct	S	tatic Pressu	re				
Position	Free	Free 0.1 0.3 0.5						
Α	220	215	200	175				
В	245	235	210	185				
С	255	260	245	225				
D	335	335	330	290				
E	385	385	360	320				

TABLE 3

Q30H Ventilation Mode CFM Q36H Ventilation Mode CFM Q43H Ventilation Mode CFM Q48H Ventilation Mode CFM								
Damper	Duct	S	tatic Pressu	re				
Position	Free	0.1	0.3	0.5				
Α	140	135	125	120				
В	180	170	160	160				
С	220	210	205	195				
D	315	315	315	290				
E	410	400	385	380				

TABLE 4 **Q30H COOLING & HEATING MODE CFM**

Q36H LOW SPEED COOLING & HEATING MODE CFM Q43H LOW SPEED COOLING & HEATING MODE CFM Q48H LOW SPEED COOLING & HEATING MODE CFM							
Damper	Damper Duct Static Pressure						
Position	Free	0.1	0.3	0.5			
Α	235	230	225	220			
В	265	250	245	240			
С	325	315	300	290			
D	400	400	390	380			
E	465	460	445	430			

TABLE 5 Q36H HIGH SPEED COOLING & HEATING MODE CFM

Q43H HIGH SPEED COOLING & HEATING MODE CFM Q48H HIGH SPEED COOLING & HEATING MODE CFM							
Damper	Duct	S	tatic Pressu	re			
Position	Free	0.1	0.3	0.5			
Α	255	250	250	230			
В	285	280	280	280			
С	360	360	350	345			
D	445	445	445	440			
E	500	500	500	490			

TABLE 6

Q60H VENTILATION MODE CFM								
Damper	Duct	St	tatic Pressu	re				
Position	Free	0.1 0.3 0.5						
Α	185	185	180	180				
В	215	215	210	200				
С	290	290	280	275				
D	370	370	365	350				
E	465	465	455	445				

TABLE 7

Q60H COOLING & HEATING MODE CFM								
Damper	Duct	S	tatic Pressu	re				
Position	Free	0.1	0.3	0.5				
Α	235	230	230	215				
В	265	260	255	255				
С	350	350	345	340				
D	470	470	455	450				
Е	580	570	565	560				

NOTE: Ventilation airflow will increase up to 50 CFM during backup or emergency heat operation due to increased total airflow.

S3535-517 Form No Supersedes S3535-317 Page 4 of 12

Energy Recovery Ventilator Performance Tables

SUMMER COOLING PERFORMANCE (INDOOR DESIGN CONDITIONS 75° DB / 62° WB)

Ambier O.D.	nt			ATION R							ATE – 3						ATE – 3		
DB/WB	F	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL	VLT	VLS	VLL	HRT	HRS	HRL
	75	21465	14580	6884	13952	9477	4475	17887	12150	5737	11805	8018	3786	14310	9720	4590	9587	6512	3075
105	70	14580	14580	0	9477	9477	0	12150	12150	0	8018	8018	0	9720	9720	0	6512	6512	0
	65	14580	14580	0	9477	9477	0	12150	12150	0	8018	8018	0	9720	9720	0	6512	6512	0
	80	31590	12150	19440	20533	7897	12635	26325	10125	16200	17374	6682	10692	21060	8100	12960	14110	5427	8683
	75	21465	12150	9314	13952	7897	6054	17887	10125	7762	11805	6682	5123	14310	8100	6210	9587	5427	4160
100	70	12352	12150	202	8029	7897	131	10293	10125	168	6793	6682	111	8235	8100	135	5517	5427	90
	65	12150	12150	0	7897	7897	0	10125	10125	0	6682	6682	0	8100	8100	0	5427	5427	0
	60	12150	12150	0	7897	7897	0	10125	10125	0	6682	6682	0	8100	8100	0	5427	5427	0
	80	31590	9720	21870	20533	6318	14215	26325	8100	18225	17374	5345	12028	21060	6480	14580	14110	4341	9768
	75	21465	9720	11744	13952	6318	7634	17887	8100	9787	11805	5345	6459	14310	6480	7830	9587	4341	5246
95	70	12352	9720	2632	8029	6318	1711	10293	8100	2193	6793	5345	1447	8235	6480	1755	5517	4341	1175
	65	9720	9720	0	6318	6318	0	8100	8100	0	5345	5345	0	6480	6480	0	4341	4341	0
	60	9720	9720	0	6318	6318	0	8100	8100	0	5345	5345	0	6480	6480	0	4341	4341	0
	80	31590	7290	24300	20533	4738	15794	26325	6075	20250	17374	4009	13365	21060	4860	16200	14110	3256	10854
	75	21465	7290	14175	13952	4738	9213	17887	6075	11812	11805	4009	7796	14310	4860	9450	9587	3256	6331
90	70	12352	7290	5062	8029	4738	3290	10293	6075	4218	6793	4009	2784	8235	4860	3375	5517	3256	2261
	65	7290	7290	0	4738	4738	0	6075	6075	0	4009	4009	0	4860	4860	0	3256	3256	0
	60	7290	7290	0	4738	4738	0	6075	6075	0	4009	4009	0	4860	4860	0	3256	3256	0
	80	31590	4860	26730	20533	3159	17374	26325	4050	22275	17374	2672	14701	21060	3240	17820	14110	2170	11939
	75	21465	4860	16605	13952	3159	10793	17887	4050	13837	11805	2672	9132	14310	3240	11070	9587	2170	7416
85	70	12352	4860	7492	8029	3159	4870	10293	4050	6243	6793	2672	4120	8235	3240	4995	5517	2170	3346
	65	4860	4860	0	3159	3159	0	4050	4050	0	2672	2672	0	3240	3240	0	2170	2170	0
	60	4860	4860	0	3159	3159	0	4050	4050	0	2672	2672	0	3240	3240	0	2170	2170	0
	75	21465	2430	19035	13952	1579	12372	17887	2025	15862	11805	1336	10469	14310	1620	12690	9587	1085	8502
80	70	12352	2430	9922	8029	1579	6449	10293	2025	8268	6793	1336	5457	8235	1620	6615	5517	1085	4432
	65	4252	2430	1822	2764	1579	1184	3543	2025	1518	2338	1336	1002	2835	1620	1215	1899	1085	814
	60	2430	2430	0	1579	1579	0	2025	2025	0	1336	1336	0	1620	1620	0	1085	1085	0
	70	12352	0	12352	8029	0	8029	10293	0	10293	6793	0	6793	8235	0	8235	5517	0	5517
75	65	4252	0	4252	2764	0	2764	3543	0	3543	2338	0	2338	2835	0	2835	1899	0	1899
LECEND	60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

LEGEND

WINTER HEATING PERFORMANCE (INDOOR DESIGN CONDITIONS 70°F DB)

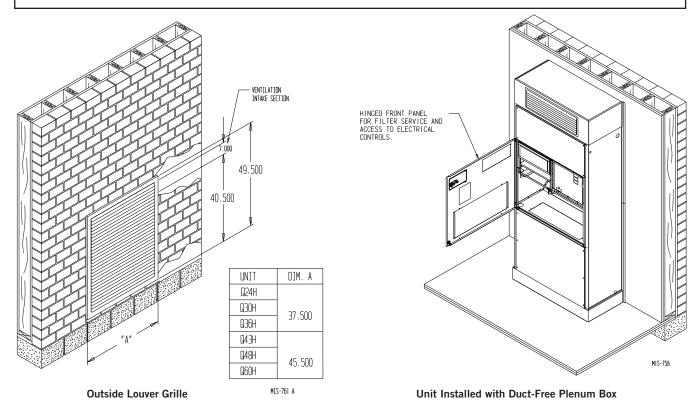
	•						
Amahiama			VENTILAT	ION RATE			
Ambient O.D.		CFM FICIENCY		CFM FICIENCY	300 CFM 82% EFFICIENCY		
DB/°F	VLT	VLS	VLT	VLS	VLT	VLS	
65	2430	1944	2025	1640	1620	1328	
60	4860	3888	4050	3280	3240	2656	
55	7290	5832	6075	4920	4860	3985	
50	9720	7776	8100	6561	6480	5313	
45	12150	9720	10125	8201	8100	6642	
40	14580	11664	12150	9841	9720	7970	
35	17010	13608	14175	11481	11340	9298	
30	19440	15552	16200	13122	12960	10627	
25	21870	17496	18225	14762	14580	11955	
20	24300	19440	20250	16402	16200	13284	
15	26730	21384	22275	18042	17820	14612	

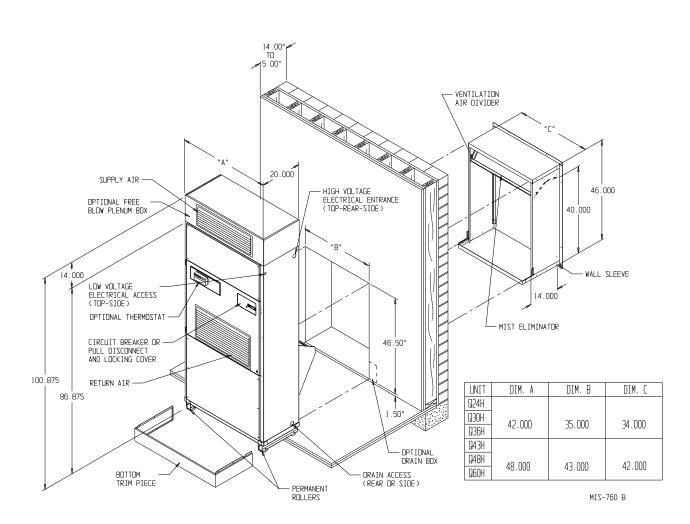
NOTE: Sensible performance only is shown for winter application.

LEGEND

WVL = Winter Ventilation Load WHR = Winter Heat Recovery

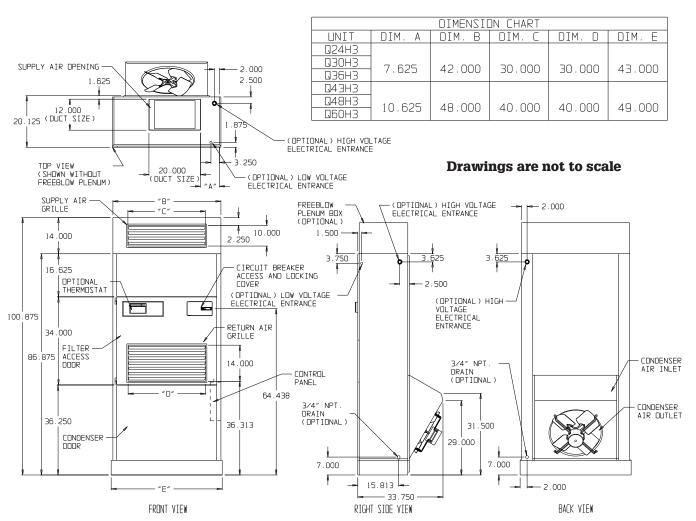
Installation Overview





Form No S3535-517 Supersedes S3535-317 Page 6 of 12

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



MIS-1572 B

Optional Ho	Optional Hot Water Coil Performance-Heating Capacity @ 180°F Water & 70° Return Air										
GPM					CF	М					
GPW	800	900	1000	1100	1200	1300	1400	1500	1600	1700	
1.5	32,000	32,667	33,333	34,000	34,500	35,000	35,500	36,000	36,400	36,750	
2	42,000	43,200	44,400	45,600	46,400	47,200	48,000	48,500	49,000	49,500	
3	49,000	51,667	53,750	57,000	59,400	61,750	64,000	65,200	66,000	67,000	
4	56,000	59,000	62,000	65,000	69,000	73,000	77,000	79,500	82,000	84,000	
5	59,000	62,583	66,167	69,750	72,833	75,917	79,000	81,000	83,000	85,000	
6	62,000	66,167	70,333	74,500	77,000	79,500	82,000	83,500	85,000	86,500	
7	63,500	67,708	71,917	76,125	78,917	81,708	84,500	86,500	88,000	89,200	
8	65,000	69,250	73,500	77,750	80,833	83,917	87,000	88,900	90,500	91,750	
9	66,000	70,525	75,050	79,575	82,883	86,192	89,500	91,500	93,000	94,500	
10	67,000	71,800	76,600	81,400	84,933	88,467	92,000	94,500	96,000	97,500	

Form No S3535-517 Supersedes S3535-317 Page 7 of 12

Electri	ical Sp	ecifica	tions -	Standa	rd Mod	lels								
				Single Cir						Dual (Circuit			
		No. Field	3	1	2			nimum		ximum	(2		2
MODEL	Rated Volts	Power	Minimum	Maximum	Field	2		cuit		I Fuse or		Power		und
	& Phase	Circuits	Circuit	External Fuse	Power Wire	Ground	Amp	acity	Ckt. E	Breaker	Wire	Size	Wire	Size
			Ampacity	or Ckt. Brkr.	Size	Wire	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
Q24H3-A0Z		1	22	30	10	10								
A05	230/208-1	1	47	50	8	10								
A10		1 or 2	72	80	4	8	22	50	30	50	10	8	10	10
Q24H3-B0Z B06	230/208-3	1 1	17 35	20 35	12 8	12 10								
B09	230/200-3	1	44	45	8	10								
Q24H3-C0Z		1	10	15	14	14								
C06	460-3	1	19	20	12	12								
C09		1	23	25	10	10								
Q30H3-A0Z	220/200 1	1 1	27 52	35 60	8	10								
A05 A10	230/208-1	1 or 2	52 77	80	4	10 8	27	50	30	60	10	8	10	10
Q30H3-B0Z		1	19	25	10	10		30	30	- 00	10	0	10	10
B06	020/000 2	1	37	40	8	10								
B09	230/208-3	1	46	50	8	10								
B12		1	55	60	6	10								
Q30H3-C0Z		1	13	15	14	14								
C06 C09	460-3	1 1	22 26	25 30	10 10	10 10								
C12		1	31	35	8	10								
Q36H3-A0Z		1	27	40	8	10								
A05	220/200 1	1	52	60	6	10								
A10	230/208-1	1 or 2	77	80	4	8	27	50	40	50	8	8	10	10
④ A15		1 or 2	81	90	4	8	31	50	40	50	8	8	10	10
Q36H3-B0Z		1	20	30	10	10								
B06 B09	230/208-3	1 1	38 47	40 50	8 8	10 10								
© B15		1	51	60	6	10								
Q36H3-C0Z		1	14	15	14	14								
C06	460-3	1	23	25	10	10								
C09	400-3	1	28	30	10	10								
© C15		1	28	30	10	10								
Q43H3-A0Z		1	31 57	45	8	10								
A05 A10	230/208-1	1 1 or 2	81	60 90	4	10 8	31	50	45	50	8	8	10	10
4 A15		1 or 2	83	90	4	8	33	50	45	50	8	8	10	10
Q43H3-B0Z		1	26	35	8	10	30	- 55	.0	- 55		J		10
B06	230/208-3	1	44	50	8	10								
B09	230/200-3	1	53	60	6	10								
⑤ B15		1	53	60	6	10								
Q43H3-C0Z		1	13 22	15 25	14	14								
C06 C09	460-3	1 1	27	30	10 10	10 10								
© C15		1	27	30	10	10								
Q48H3-A0Z		1	35	50	8	10								
A05	230/208-1	1 or 2	60	70	6	8	35	25	50	25	8	10	10	10
A10	230/200-1	1 or 2	85	90	4	8	35	50	50	50	8	8	10	10
④ A15		1 or 2	85	90	4	8	35	50	50	50	8	8	10	10
Q48H3-B0Z B06		1 1	28 47	40 50	8 8	10 10								
B09	230/208-3	1	56	60	6	10								
© B15		1	56	60	6	10								
Q48H3-C0Z		1	15	20	12	12								
C06	460-3	1	24	25	10	10								
C09	.55.5	1	28	30	10	10								
© C15 Q60H3-A0Z		1	28 46	30 60	10 8	10 10								
A05		1 or 2	71	90	4	8	46	25	60	25	8	10	10	10
A10	230/208-1	1 or 2	96	100	3	8	46	50	60	50	8	8	10	10
© A15		1 or 2	96	100	3	8	46	50	60	50	8	8	10	10
Q60H3-B0Z		1	34	45	8	10								
B09	230/208-3	1	60	60	6	10								
⑤ B15		1	60	60	6	10								
Q60H3-C0Z C09	460-3	1 1	17 31	25 35	10 8	10 10								
© C15	400-3	1	31	35	8	10								
@ C13		1	JI	33	U	10								

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

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.

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 Electric Code (latest revision), article 310 for power conductor sizing.

⁽⁴⁾ Maximum KW that can operate with heat pump on is 10KW. Other 5KW energizes during emergency heat only.

[®] Maximum KW that can operate with heat pump on is 9KW. Other 6KW energizes during emergency heat only.

Electri	ical Sp	ecifica	tions -	Dehum	idifica	tion N	/Iode	ls						
				Single Ci	rcuit					-	Circuit			
MODEL	Rated Volts & Phase	No. Field Power Circuits	③ Minimum Circuit	① Maximum External Fuse	© Field Power Wire	② Ground	Cir	nimum cuit pacity	Externa	iximum I Fuse or Breaker	Field	② Power Size	Gro	② ound · Size
		Circuits	Ampacity	or Ckt. Brkr.	Size	Wire	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B	Ckt. A	Ckt. B
Q24H3DA0Z		1	22	30	10	10								
A05	230/208-1	1	47	50	8	10	20		20		10		10	1.0
A10 Q24H3DB0Z		1 or 2 1	72 17	80 20	4 12	8 12	22	50	30	50	10	8	10	10
B06	230/208-3	1	35	35	8	10								
B09		1	44	45	8	10								
Q24H3DC0Z		1	10	15	14	14								
C06	460-3	1	19	20	12	12								
C09 Q30H3DA0Z		1	23 27	25 35	10	10 10								
A05	230/208-1	1	52	60	6	10								
A10	200/2001	1 or 2	77	80	4	8	27	50	30	50	10	8	10	10
Q30H3DB0Z		1	19	25	10	10								
B06	230/208-3	1	38	40	8	10								
B09		1	47	50	8	10								
Q30H3DC0Z		1	56 13	60 15	6 14	10 14	-							
C06		1	22	25	10	10								
C09	460-3	1	26	30	10	10								
C12		1	31	35	8	10								
Q36H3DA0Z		1	29	40	8	10								
A05	230/208-1	1	55	60	6	10	20		4.5				10	10
A10 ④ A15		1 or 2 1 or 2	79 82	80 90	4	8 8	29 32	50 50	45 45	50 50	8 8	8	10 10	10 10
Q36H3DB0Z		1	21	30	10	10	32	30	43	30			10	10
B06	020/000 2	1	39	45	8	10								
B09	230/208-3	1	48	50	8	10								
© B15		1	52	60	6	10								
Q36H3DC0Z		1	13	15	14	14								
C06 C09	460-3	1 1	22 27	25 30	10 10	10 10								
© C15		1	27	30	10	10								
Q43H3DA0Z		1	31	45	8	10								
A05	230/208-1	1	57	60	6	10								
A10	230/200-1	1 or 2	81	90	4	8	31	50	45	50	8	8	10	10
④ A15		1 or 2	81	90	4	8	33	50	45	50	8	8	10	10
Q43H3DB0Z B06		1 1	26 44	35 50	8 8	10 10								
B09	230/208-3	1	53	60	6	10								
© B15		1	53	60	6	10								
Q43H3DC0Z		1	13	15	14	14								
C06	460-3	1	22	25	10	10								
C09 © C15		1 1	27 27	30 30	10 10	10 10								
Q48H3DA0Z		1	37	50	8	10								
A05	220/202 1	1 or 2	62	70	6	8	37	25	50	25	8	10	10	10
A10		1 or 2	87	90	3	8	37	50	50	50	8	8	10	10
④ A15		1 or 2	87	90	3	8	37	50	50	50	8	8	10	10
Q48H3DB0Z		1	28	40	8	10								
B06 B09	230/208-3	1 1	47 56	50 60	8 6	10 10								
© B15		1	56	60	6	10								
Q48H3DC0Z		1	16	20	12	12								
C06	460-3	1	25	25	10	10								
C09	100.5	1	29	30	10	10								
© C15 Q60H3DA0Z		1	29 42	30 60	10	10 10								
A05		1 or 2	42 67	80	4	8	42	25	60	25	8	10	10	10
A10		1 or 2	92	100	3	8	42	50	60	50	8	8	10	10
© A15		1 or 2	92	100	3	8	42	50	60	50	8	8	10	10
Q60H3DB0Z		1	32	45	8	10								
	230/208-3	1	59	60	6	10								
© B15 Q60H3DC0Z		1	59 16	60 20	6 12	10 12								
CO9	460-3	1	31	35	8	10								
© C15		1	31	35	8	10								

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

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.

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

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⁽⁴⁾ Maximum KW that can operate with heat pump on is 10KW. Other 5KW energizes during emergency heat only.

[®] Maximum KW that can operate with heat pump on is 9KW. Other 6KW energizes during emergency heat only.

Model	(DB/WB)	Cooling Capacity	75°F	80°F	85°F	90°F	95°F	100°F	105°F	110°F	115°
Model	3	0 1 7									
	75/62	Total Cooling Sensible Cooling	25,300 18,500	24,400 18,300	23,400 18,000	22,600 17,700	21,800 17,500	21,100 17,100	20,500 16,800	19,800 16,400	19,30 16,00
Q24H3	80/67	Total Cooling Sensible Cooling	27,000 17,900	26,500 17,900	26,000 17,800	25,500 17,700	25,000 17,600	24,600 17,400	24,100 17,200	23,600 16,900	23,2 16,6
	85/72	Total Cooling Sensible Cooling	32,200 18,400	31,000 18,200	29,900 17,900	28,800 17,600	27,800 17,300	26,900 16,900	26,000 16,400	25,100 15,900	24,4 15,3
	75/62	Total Cooling Sensible Cooling	30,800 23,000	29,700 22,700	28,500 22,300	27,300 21,800	26,000 21,300	24,700 20,700	23,400 19,900	22,100 19,100	20,7 18,2
Q30H3	80/67	Total Cooling Sensible Cooling	32,900 22,300	32,300 22,200	31,600 22,100	30,800 21,800	29,800 21,500	28,800 21,000	27,600 20,400	26,300 19,700	24,9 18,9
	85/72	Total Cooling Sensible Cooling	39,200 22,900	37,800 22,600	36,300 22,200	34,800 21,700	33,100 21,100	31,500 20,300	29,800 19,500	28,000 18,500	26,2 17,4
	75/62	Total Cooling Sensible Cooling	35,300 27,000	34,000 26,600	32,700 26,000	31,300 25,300	30,000 24,700	28,700 24,100	27,300 23,400	26,000 22,800	24,7 22,1
Q36H3	80/67	Total Cooling Sensible Cooling	37,700 26,200	37,000 26,000	36,300 25,700	35,400 25,300	34,400 24,900	33,400 24,500	32,200 24,000	31,000 23,500	29,7 23,0
	85/72	Total Cooling Sensible Cooling	44,900 26,900	43,300 26,400	41,700 25,800	40,000 25,200	38,200 24,500	36,600 23,700	34,700 22,900	33,000 22,100	31,2 21,2
	75/62	Total Cooling Sensible Cooling	39,600 30,000	38,100 29,500	36,800 28,900	35,300 28,300	34,000 27,800	32,700 27,200	31,500 26,600	30,200 26,000	28,9 25,5
Q43H3	80/67	Total Cooling Sensible Cooling	42,300 29,100	41,500 28,900	40,800 28,600	39,900 28,300	39,000 28,000	38,100 27,700	37,100 27,300	36,000 26,900	34,8 26,5
	85/72	Total Cooling Sensible Cooling	50,400 29,800	48,500 29,400	46,900 28,800	45,100 28,100	43,300 27,500	41,700 26,800	40,000 26,000	38,300 25,200	36,6 24,4
	75/62	Total Cooling Sensible Cooling	48,500 35,400	46,400 34,500	44,400 33,600	42,400 32,800	40,500 31,900	38,700 31,100	37,000 30,200	35,300 29,400	33,7 28,6
Q48H3	80/67	Total Cooling Sensible Cooling	51,800 34,300	50,500 33,800	49,300 33,300	47,900 32,800	46,500 32,200	45,100 31,600	43,600 31,000	42,100 30,400	40,5 29,7
	85/72	Total Cooling Sensible Cooling	61,700 35,100	59,100 34,300	56,600 33,500	54,100 32,600	51,700 31,600	49,300 30,600	47,000 29,600	44,800 28,500	42,6 27,4
	75/62	Total Cooling Sensible Cooling	57,200 40,100	54,600 39,200	52,100 38,400	49,800 37,400	47,500 36,500	45,300 35,600	43,200 34,600	41,300 33,700	39,4 32,7
Q60H3	80/67	Total Cooling Sensible Cooling	61,100 38,900	59,500 38,400	57,900 38,000	56,300 37,400	54,500 36,800	52,800 36,200	51,000 35,500	49,200 34,800	47,4 34,0
	85/72	Total Cooling Sensible Cooling	72,800 39,900	69,600 39,000	66,500 38,200	63,600 37,200	60,500 36,100	57,800 35,000	55,000 33,800	52,400 32,600	49,8 31,3

① Below 65°F, unit requires a factory or field installed low ambient control.

³ Return air temperature °F.

Hea	Heating Application Rating & Outdoor Temperature °F $*$ $@$																
Model		0°	5°	10°	15°	17°	20°	25°	30°	35°	40°	45°	47°	50°	55°	60°	65°
Q24H3	BTUH WATTS COP	10,200 1,970 1.52	11,600 2,000 1.70	13,000 2,040 1.87	14,500 2,080 2.05	15,000 2,100 2.10	15,500 2,100 2.17	16,300 2,110 2.27	,	,	20,200 2,210 2.68	22,700 2,290 2.91	23,600 2,320 3.00	24,500 2,340 3.07	25,900 2,380 3.19	27,400 2,420 3.32	28,800 2,460 3.44
Q30H3	BTUH WATTS COP	11,900 2,330 1.50	13,700 2,390 1.68	15,500 2,440 1.87	17,300 2,500 2.03	18,000 2,520 2.10	18,200 2,550 2.10	18,600 2,590 2.11	,	,	23,200 2,750 2.48	27,200 2,830 2.82	27,600 2,860 3.00	29,900 2,890 3.04	31,700 2,950 3.15	33,500 3,000 3.28	35,300 3,060 3.39
Q36H3	BTUH WATTS COP	12,800 2,530 1.49	14,600 2,560 1.68	16,500 2,580 1.88	18,300 2,610 2.06	19,000 2,620 2.13	19,600 2,620 2.20	20,500 2,620 2.30	21,300 2,620 2.39	22,200 2,620 2.49	25,500 2,690 2.78	28,700 2,760 3.05	29,800 2,790 3.10	31,100 2,810 3.25	33,000 2,830 3.42	34,800 2,860 3.57	36,600 2,890 3.72
Q43H3	BTUH WATTS COP	20,000 2,820 2.08	21,600 2,860 2.22	23,300 2,910 2.35	25,000 2,960 2.48	25,600 2,980 2.52	25,900 2,990 2.54	26,300 3,000 2.57	,	,	30,700 3,130 2.88	34,200 3,220 3.12	35,600 3,260 3.10	,	38,300 3,340 3.36	40,000 3,380 3.47	41,600 3,430 3.56
Q48H3	BTUH WATTS COP	16,600 3,190 1.53	19,300 3,250 1.74	21,900 3,320 1.94	24,600 3,390 2.13	25,600 3,420 2.20	26,100 3,440 2.23	27,000 3,460 2.29	27,800 3,490 2.34	28,600 3,520 2.39	34,000 3,650 2.73	39,400 3,780 3.06	41,500 3,830 3.00	43,100 3,880 3.26	45,800 3,940 3.41	48,400 4,010 3.54	51,100 4,080 3.67
Q60H3	BTUH WATTS COP	21,500 3,820 1.65	24,000 3,870 1.82	26,500 3,930 1.98	29,000 3,990 2.13	30,000 4,010 2.20	31,100 4,030 2.27	32,900 4,070 2.37	,	,	40,100 4,230 2.78	43,600 4,310 2.97	45,000 4,340 3.00	- ,	49,000 4,430 3.25	51,500 4,490 3.37	54,000 4,550 3.48

 $^{^{\}star}$ 70°F DB indoor return air at rated CFM includes defrost operation below 45°.

Form No S3535-517 Supersedes S3535-317 Page 10 of 12

② Outdoor temperatures shown are measured at the condenser section air inlet.

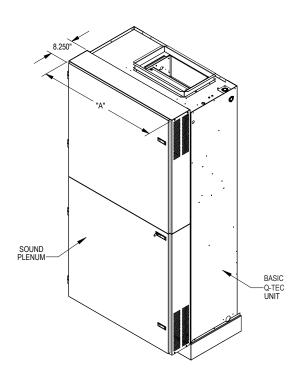
 $[\]ensuremath{@}$ Outdoor temperatures shown are measured at the condenser section air inlet.

QSP-Series Sound Plenum

The QSP3 - QSP5 Series Sound Plenum has been designed for use with ALL Bard Q-TEC Series units, both Generation I and Generation II systems. Installation is quick and easy with removal/replacement of six (6) existing screws from the unit cabinet. Once installed the sound plenum enhances the current quiet operation of the Q-TEC Series units, and the hinged door with cam locks provides easy access to the basic Q-TEC system. Model selection is based on equipment cabinet size and finish.

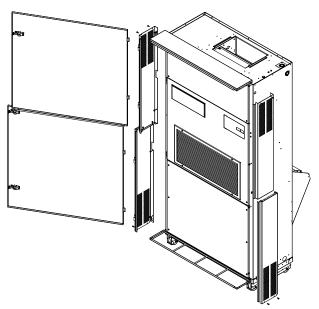
Sound Plenum	Cabinet	Equipment
Part Number	Finish	Selection
QSP3-4	Painted Steel - Buckeye Gray	Q24H-36H
QSP3-V	Texture Vinyl ①	Q24H-36H
QSP5-4	Painted Steel - Buckeye Gray	Q43H-60H
QSP5-V	Texture Vinyl ①	Q43H-60H

⑤ Front Panels Slate Finish, Side Panels Platinum Gray matching Q-TEC™ vinyl cabinet finishes.



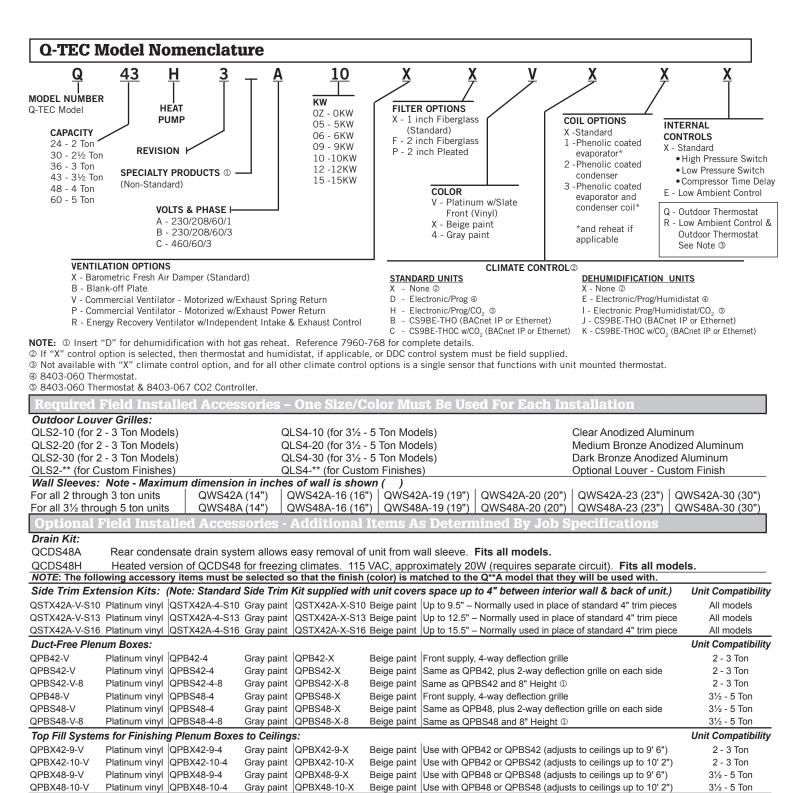
Features:

- Two Plenum Finishes To Match Unit Cabinets
 - Vinyl or Painted Steel
- Compatible With New or Existing Units
- Removable Cam Lock Hinge Doors
- Easy Unit Service Access
- · Sound Absorbing Insulation
- Reduces Equipment dBA Operating Levels
 - · Up to 5 dBA with Energy Recovery Ventilator option.
 - Provides general muffling of basic unit operation.
 Actual sound reduction may vary depending on system operating conditions and other site variables.



MIS-2267

Unit Charge Rates									
UNIT	Std. Unit - Lbs.	Dehum. Units - Lbs.							
Q24H3 - 10 EER Heat Pump, 60 Hz	8.0625	7.9375							
Q30H3 - 10 EER Heat Pump, 60 Hz	7.5625	7.875							
Q36H3 - 10 EER Heat Pump, 60 Hz	8.125	8.125							
Q43H3 - 10 EER Heat Pump, 60 Hz	10.25	10.3125							
Q48H3 - 10 EER Heat Pump, 60 Hz	9.6875	9.6875							
Q60H3 - 10 EER Heat Pump, 60 Hz	10.125	10.125							



QCX15A-V Platinum vinyl QCX15A-4 Hot Water Coils with Plenum Boxes:

Cabinet Extensions for Ducted Applications:

Platinum vinyl QCX10A-4

Gray paint QCX15A-X QPBHW42-F-V Platinum vinyl QPBHW42-F-4

Gray paint QPBHW42-F-X Gray paint Platinum vinyl QPBHW48-F-4 QPBHW42-D-V Platinum vinyl QPBHW42-D-4

QPBHW48-F-X Gray paint |QPBHW42-D-X QPBHW48-D-V Platinum vinyl QPBHW48-D-4 Gray paint QPBHW48-D-X

Gray paint QCX10A-X

Beige paint Beige paint | Duct-Free plenum box

Beige paint

Beige paint | Duct-Free plenum box

Beige paint Ducted plenum box

Beige paint | Ducted plenum box

9'4" to 10' finished ceiling heights) 9'4" to 10' finished ceiling heights)

20" height (adjusts for ceilings up to 9' 4"; add QPBX42-9 for 20" height (adjusts for ceilings up to 9' 4"; add QPBX48-9 for

Unit Compatibility 2 - 3 Ton

3½ - 5 Ton

Unit Compatibility 2 - 3 Ton

3½ - 5 Ton 2 - 3 Ton 3½ - 5 Ton

NOTE: The same top fill system and cabinet extensions can be used with hot water coil plenum boxes as with standard plenum boxes. ① 8" Plenum Box height may affect sound level of supply air and unit.

Bard Manufacturing Company, Inc. Bryan, Ohio 43506 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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Supersedes: S3535-317

QPBX48-10-V

QPBHW48-F-V

QCX10A-V