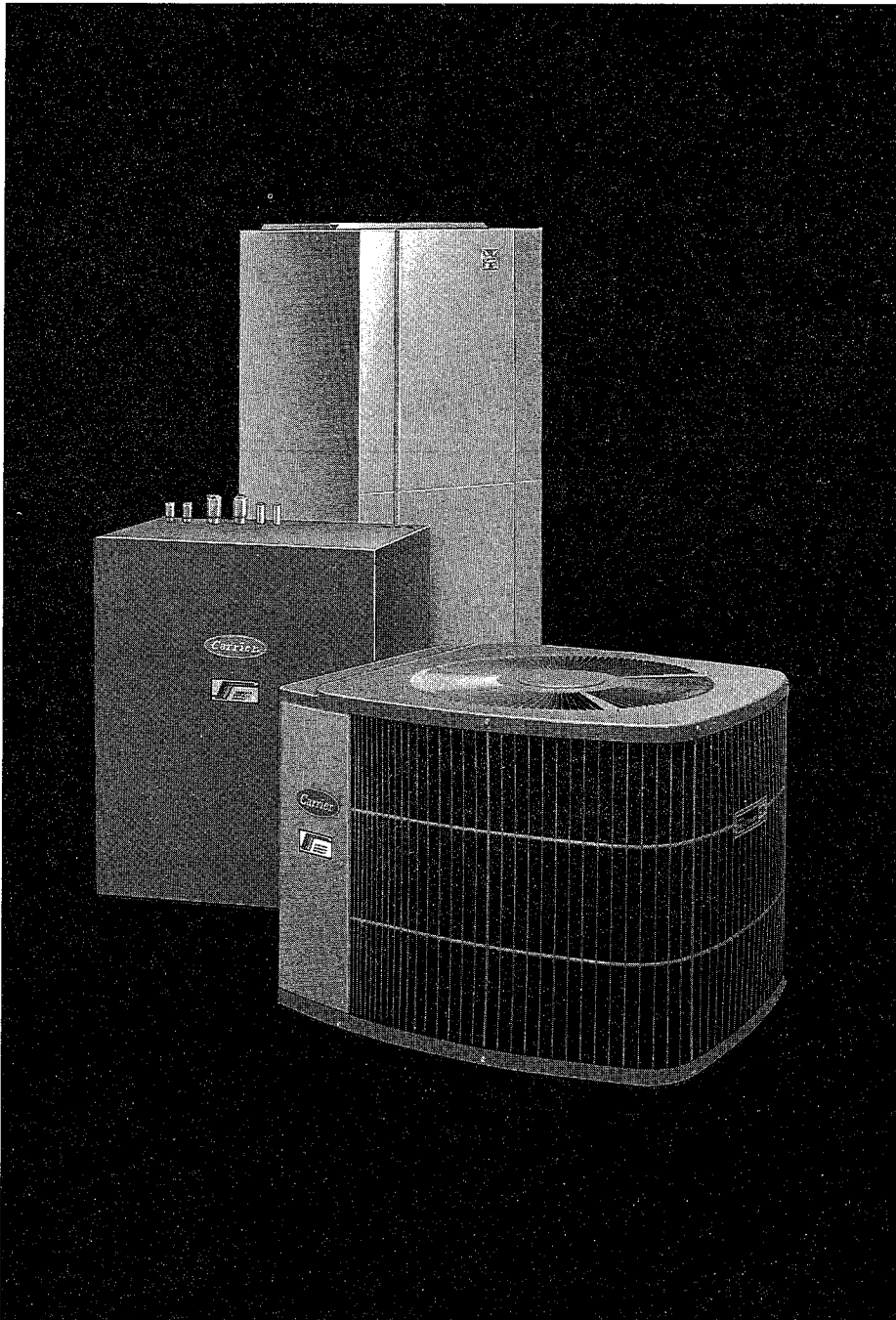




Product Data

38QE/40QE Advanced Technology Heat Pump System

Sizes 024 and 036



The HydroTech 2000 advanced variable speed heat pump system is designed to provide heating and cooling as well as provide a majority of the year round domestic hot water requirements. The system is composed of three main sections: indoor compressor section, outdoor fan coil section and the indoor fan coil section, which work with the existing hot water tank for unequalled home energy efficiency and comfort.

FEATURES/BENEFITS

ECM Variable Speed —

Electronically commutated motors for the compressor and indoor fan provide the most advanced technology for variable capacity control, the heat pump never overworks, giving optimum efficiency and comfort, HSPF up to 9.05, SEER up to 14.05.

Integrated Water Heating — Further savings are provided by the heat pump producing hot water for household use whenever it has excess heat to reject. That includes turning on just to heat water. This is accomplished with additional built-in controls, and all copper tube-in-tube, vented double wall heat exchanger, and a non-corrosive water pump, safe for potable water use.

Microcomputer Controlled —

Microprocessors within the indoor and compressor section communicate with the electronic thermostat to continuously tune the heat pump for comfortable and efficient performance. Proper equipment operation is also monitored with many automatic service diagnostics if there is a malfunction.

Quiet Operation — Outdoor section sound ratings are at exceptionally quiet levels of 7.0 BELS or less. Low operating speeds and cabinet insulation contribute to reduced noise from the indoor and compressor sections. The compressor is further shielded with its own two-layer sound barrier.

Total Comfort System — The thermostat features precise temperature control plus user adjustable heating set-back and cooling set-up. Special built-in system operation for dehumidification, humidification, and electronic air cleaning can be activated with optional accessories.

Multizone Versatility — Home-zone lets you choose different temperatures

to suit different areas of your house. Up to four zones can be created with the optional zone thermostats and electronically controlled dampers.

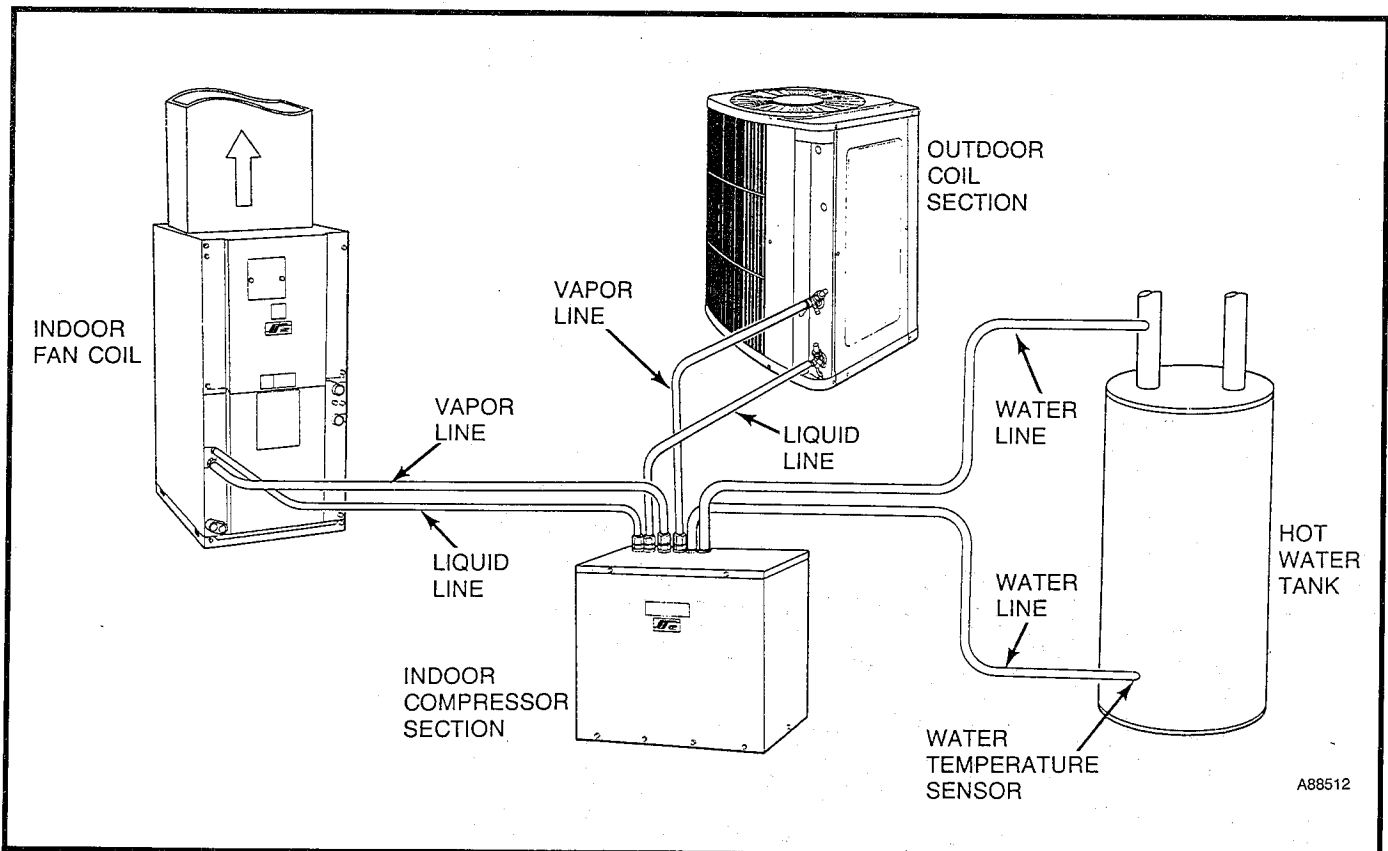
Demand Limit Interface — Where applicable, the homeowner can participate in incentive programs offered by utilities for peak load control. When signalled, the intelligent equipment controls can reduce power demand while still maintaining home comfort.

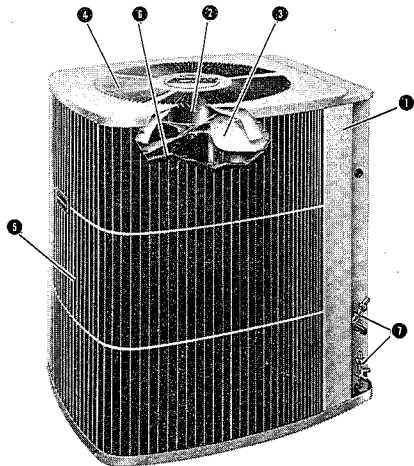
Reliability by Design — Checks and balances in the design and production process ensure that quality performance is built into every unit. Included are standard protection features such as low and high pressure switches, high temperature switches, accumulator and crankcase

heater. If service is needed, logical layout of access panels and components provides easy serviceability.

Unique Defrost — An extra circuit through the tube-in-tube heat exchanger provides a water-source defrost. The high temperature storage in the home's hot water tank is used as the heat source of a reverse cycle, hot gas defrost. The conventional shift to making cold air in the indoor fan coil is eliminated. In addition, demand type defrost control provides defrost when, and only when, it is required.

Typical installation

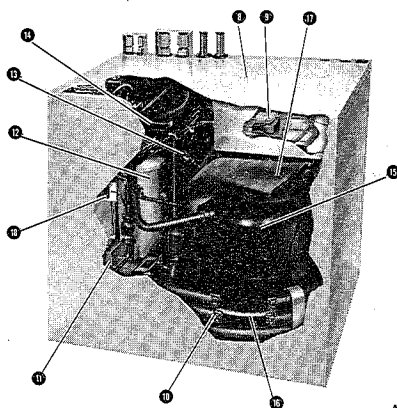




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OUTDOOR SECTION

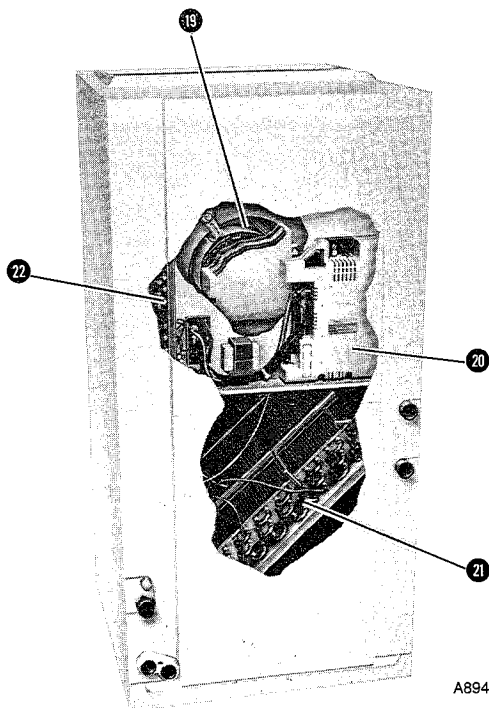
- 1 Weather Armor™ II Cabinet
- 2 High-Efficiency Fan Motor
- 3 Precision Matched Fan
- 4 Vertical Exhaust
- 5 Heavy Gauge Protective Grille
- 6 Copper Tube/Aluminum Fin Coil
- 7 Solid Brass Service Valves



A89422

INDOOR COMPRESSOR/ CONTROL SECTION

- 8 Silence Sealed Cabinet
- 9 HydroTech 2000 Microprocessor
- 10 Water Heating Heat Exchanger
- 11 Stainless Steel Water Pump
- 12 Accumulator
- 13 Pressure and Temperature Switch Protection
- 14 High Precision Reversing Valve
- 15 Carrier Variable Speed Compressor
- 16 Compressor Crankcase Heater
- 17 Compressor Sound Blanket
- 18 Carrier Exclusive Bi-Flow Pulsing Expansion Valve

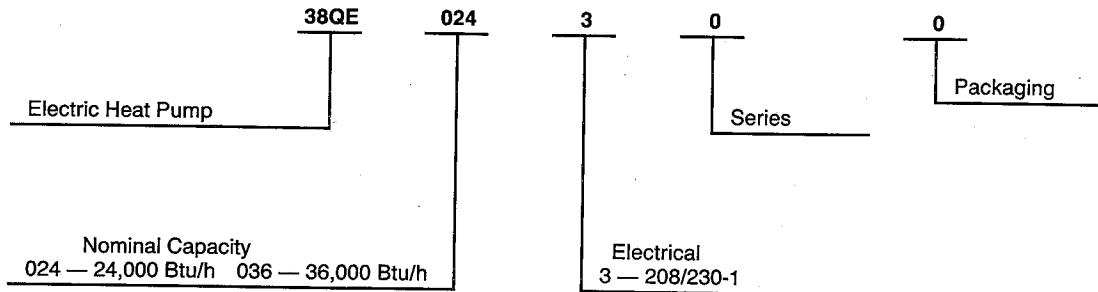


A89423

INDOOR FAN-COIL SECTION

- 19 Electronically Commutated, Variable Speed Blower Motor
- 20 Exclusive Carrier Microprocessor
- 21 Carrier Internally Enhanced Coil
- 22 Convenient Accessory Terminals

Model number nomenclature



Physical data

OUTDOOR COIL SECTION

MODEL 38QE	924	936
OPER. WT. (lbs)	125	175
REFRIGERANT Charge (lbs)	9.6	12.0
COIL Face Area (sq ft)	Copper Tube, Aluminum Fin 15.0 20.5	
CONNECTIONS (in. OD)	Sweat	
Vapor	3/4	
Liquid	3/8	
REFRIG TUBES (in. OD)		
Vapor	3/4	
Liquid	3/8	

INDOOR COMPRESSOR SECTION

MODEL 38QE	024-30	036-30
OPER. WT. (lbs)	230	240
REFRIGERANT Control	22 Bi-Flow Pulsing EXV	
COMPRESSOR	Variable Speed-ECM	
WATER PUMP Nominal Flow (GPM)	In-Line, Stainless Steel 3	
HEAT EXCHANGER Tubes	Tube-In-Tube double wall, vented	
CONNECTIONS (in. OD)		
Vapor-Compatible	3/4	
Liquid-Compatible	3/8	
Water-Stub	3/4 Nom. (7/8 O.D.)	
REFRIG TUBES (in. OD)		
Vapor	3/4	
Liquid	3/8	
Water Pipes* (in.)	1/2 or 3/4 Nom. (5/8 or 7/8 OD)	

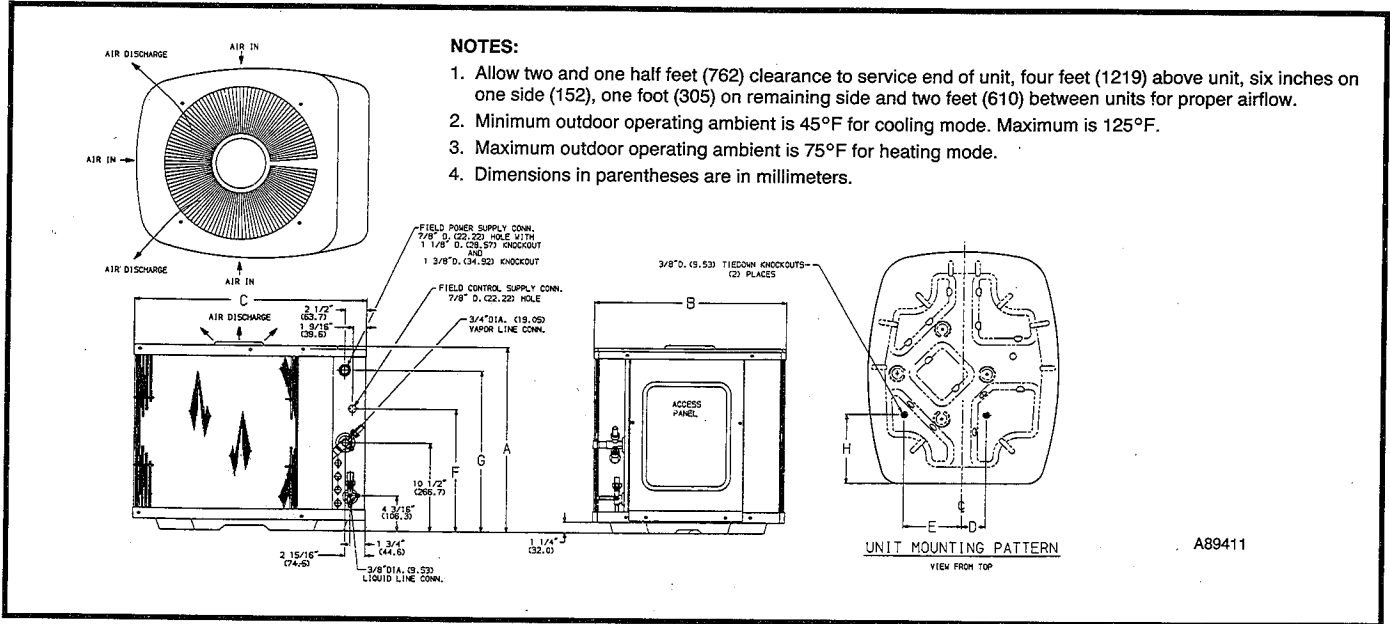
*See Installation Instructions for proper line sizing.

INDOOR COIL FAN SECTION

MODEL 40QE	024	036	036H
OPER. WT. (lbs)	122	183	183
FAN MOTOR	Variable Speed — ICM		
COIL Face Area (sq ft)	Copper Tube, Aluminum Fin 3.16 5.0 5.0		
CONNECTIONS (in. OD)			
Vapor-Compatible	3/4		
Liquid-Flare	3/8		
REFRIG TUBES (in. OD)			
Vapor	3/4		
Liquid	3/8		
FILTER	Factory equipped with cleanable filter.		

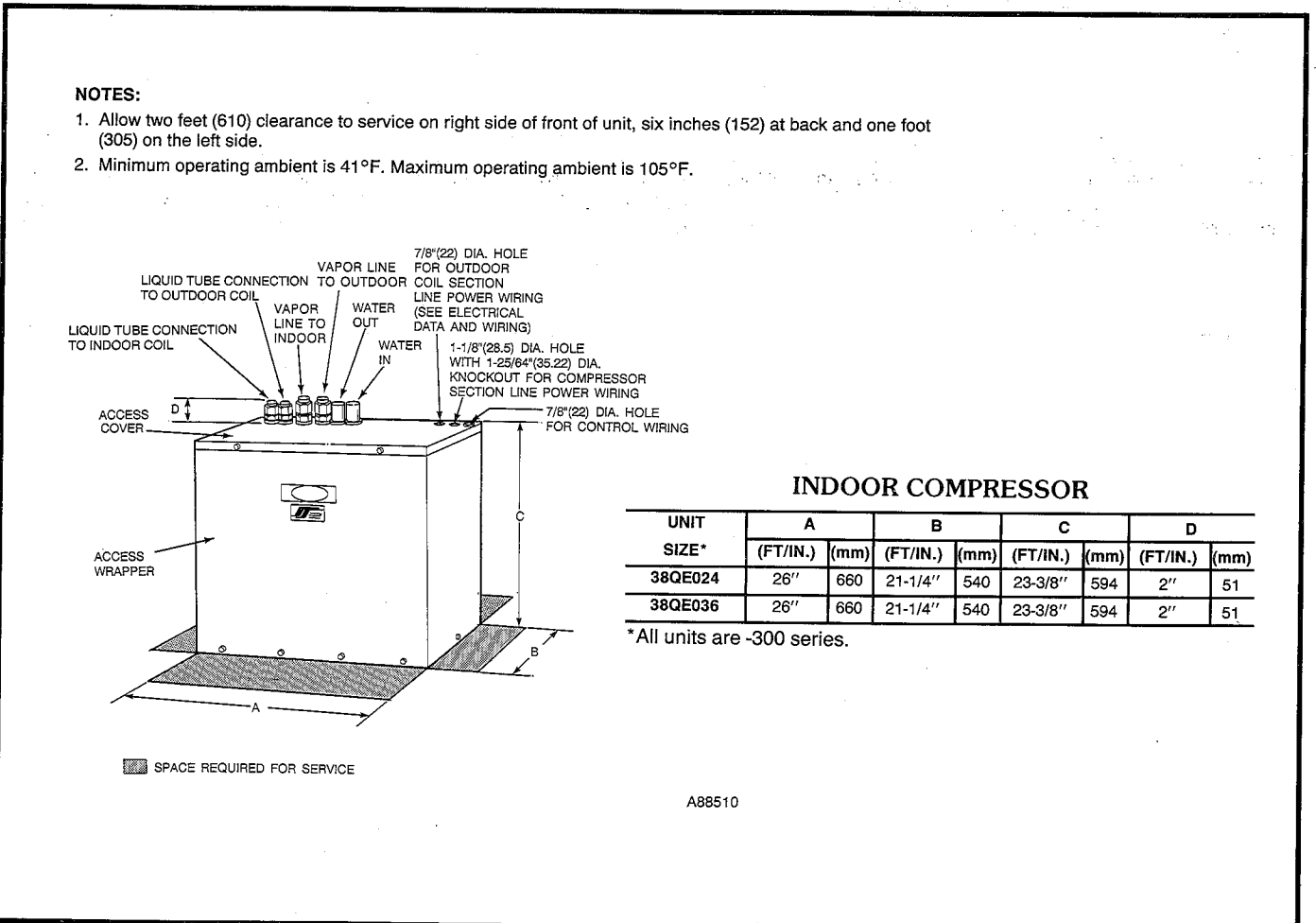


Dimensions



UNIT SIZE*	A		B		C		D		E		F		G		H	
	(IN.)	(mm)	(IN.)	(mm)	(IN.)	(mm)	(IN.)	(mm)	(IN.)	(mm)	(IN.)	(mm)	(IN.)	(mm)	(IN.)	(mm)
38QE924	31-7/8"	809.6	30"	762.0	34-15/16"	887.4	4"	101.6	9-3/4"	247.6	21-1/2"	546.1	27-7/8"	708.0	8-3/16"	207.9
38QE936	31-7/8"	809.6	38-5/8"	979.9	45"	1143.0	5-15/16"	150.8	11-13/16"	300.0	21-1/2"	546.1	27-7/8"	708.0	8-9/16"	217.4

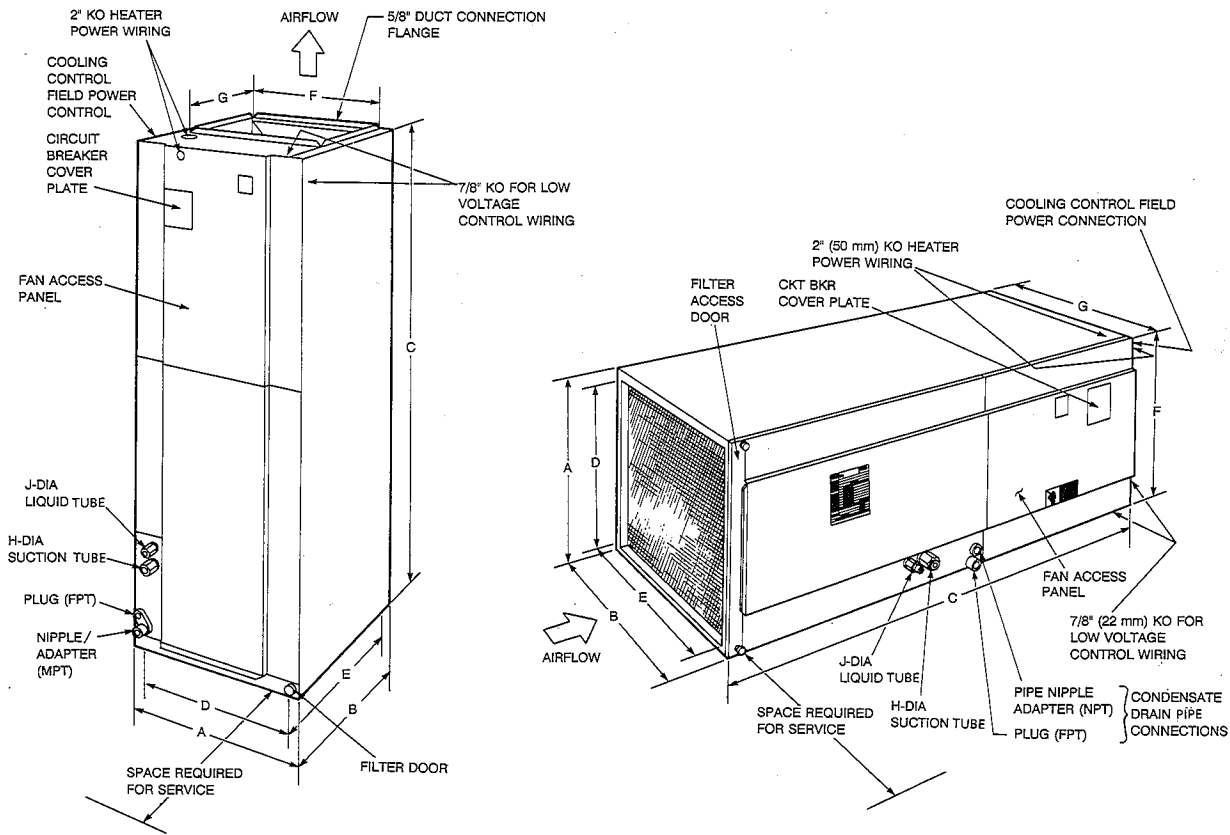
*All units are -300 Series.



Dimensions

NOTE:

1. Allow two feet (610) clearance to service front of unit.



A88555

UNIT SIZE*	A		B		C		D		E		F		G		H		J	
	(FT./IN.)	(mm)	(FT./IN.)	(mm)	(FT./IN.)	(mm)	(FT./IN.)	(mm)	(FT./IN.)	(mm)	(FT./IN.)	(mm)	(FT./IN.)	(mm)	(IN.)	(mm)	(IN.)	(mm)
40QE024	1'-9"	533.4	1'-9-1/2"	561.1	3'-6"	1066.8	1'-6-3/8"	466.7	1'-6-3/4"	476.3	1'-6-5/8"	625.5	9'-11/16"	246.1	3/4"	19.1	3/8"	9.5
40QE036, 036H	1'-9"	533.4	2'-2-1/2"	673.1	4'-8"	1422.4	1'-7"	482.6	2'-1/2"	622.3	1'-8"	457.2	1'-5-1/2"	444.5	3/4"	19.1	3/8"	9.5

Electric data (60 Hz)

MODEL 38QE		V/PH 60 HZ	OPER VOLTAGE*		COMPR		FAN FLA	MCA	MAX FUSE† OR HACR TYPE CKT BKR AMPS
INDOOR COMPRESSOR SECTION	OUTDOOR COIL		MAX	MIN	LRA	RLA			
024	924	208-230/1	254	187	35.0	20.3	0.5	25.9	40
036	936	208-230/1			35.0	25.3	0.7	32.4	50

FLA —Full Load Amps
HACR—Heating, Air Conditioning, Refrigeration
MCA —Minimum Circuit Amps
RLA —Rated Load Amps
LRA —Locked Rotor Amps

*Permissible limits of the voltage range at which unit will operate satisfactorily.

†Time-delay fuse.

NOTE: Includes service to matched outdoor unit.

MODEL 40QE		OPER VOLTS*				FAN FLA	MCA	MAX FUSE† OR HACR TYPE CKT BKR AMPS
INDOOR UNIT 40QE	V/PH	MAX	MIN	FLA	MCA			
024	208-230/1	254	187	3.5	4.4	15		
036				3.5	4.4	15		

FLA —Full Load Amps
HACR—Heating, Air Conditioning, Refrigeration
MCA —Minimum Circuit Amps

*Permissible limits of the voltage range at which unit will operate satisfactorily.

†Time-delay fuse.

NOTE: With accessory cooling control package.

FAN COIL ELECTRIC HEATERS/ELECTRICAL DATA (208/240 -v, 1-Ph, 60-Hz)

40QE024																						
HEATER 40AQ	kW		HEATER AMPS				MOTOR FLA	AMPACITIES			MIN WIRE SIZE (AWG)*			MAX CIRCUIT PROTECTION			MAX WIRE LENGTH (ft)			MIN CFM (L/S)		
	Nom	208-v	SINGLE	DUAL				SINGLE	DUAL		SINGLE	DUAL		SINGLE	DUAL		SINGLE	DUAL				
			L1, L2	L3, L4			L1, L2	L3, L4		L1, L2	L3, L4		L1, L2	L3, L4		L1, L2	L3, L4		L1, L2	L3, L4		
901190	7.5	5.6	27.1/30.0	—	—	3.5	37.4/41.0	—	—	8/8	—	—	40/45	—	—	85/85	—	—	—	—	—	
901200	10	7.5	36.1/39.9	—	—	3.5	48.6/53.4	—	—	8/8	—	—	50/60	—	—	100/100	—	—	—	—	—	
903100	12	9.0	—	25.2/27.9	18.1/20.0	3.5	—	35.0/38.4	22.6/25.0	—	8.8	10/10	—	40/40	25/25	—	90/90	90/90	—	—	850 (401)	
903060	15	11.3	—	36.1/39.9	18.1/20.0	3.5	—	48.6/53.4	22.6/25.0	—	6/6†	10/10	—	50/60	25/25	—	100/100	90/90	—	—	—	
903080	20	15.0	—	36.1/39.9	36.1/39.9	3.5	—	48.6/53.4	45.1/49.9	—	6/6†	6/6	—	50/60	50/50	—	100/100	105/105	—	—	—	
40QE036, 40QE036																						
HEATER 40QB																						
			SINGLE	DUAL			SINGLE	DUAL			L1, L2	L3, L4		L1, L2	L3, L4		L1, L2	L3, L4		L1, L2	L3, L4	
900010	7.5	5.6	27.1/30.0	—	—	3.5	37.4/41.0	—	—	8/8	—	—	40/45	—	—	80/80	—	—	—	—	—	—
900020	10	7.5	36.1/39.9	—	—	3.5	48.6/53.4	—	—	6/6†	—	—	50/60	—	—	95/95	—	—	—	—	—	—
901060	15	11.3	—	36.1/39.9	18.1/20.0	3.5	—	48.6/53.4	22.6/25.0	—	6/6	10/10	—	50/60	25/25	—	95/95	90/90	—	—	1200 (566)	
901100	20	15.0	—	36.1/39.9	36.1/39.9	3.5	—	48.6/53.4	45.1/49.9	—	6/6†	6/6	—	50/60	50/50	—	95/95	105/105	—	—	—	

*40QB heaters minimum wire size based on using copper wire with a minimum 90°C insulation rating. Use copper wire only. 40AQ heaters minimum wire size based on using copper wire with a minimum 75°C insulation rating.

†If used in a raceway or cable or earth (directly buried), must use a 4 AWG wire at 230-v operation per NEC 1984 Standard, Table 310-16.

NOTE: Motor FLA peak at 208-v operation with a severely restricted duct system. Nominal amp draws range from 0% to 90% of FLA.

Performance data

Compressor Section	Outdoor Section	Indoor Unit	CFM		Standard Performance Ratings				Sound Rating (bels)
					Cooling Performance		Heating Performance		
			Max	Min	Btu/h	SEER*	Btu/h	HSPF*	
38QE024	38QE924	40QE024	960	515	24,000	13.35	25,800	8.75	6.6
38QE036	38QE936	40QE036	1310	800	36,800	14.05	35,400	9.05	7.0

*Does not include benefits from Domestic Water Heating.
 Tested in accordance with DOE test procedures for variable speed heat pumps.
SEER—Seasonal Energy Efficiency Ratio, Btu/wh
HSPF—Heating Seasonal Performance Factor, Btu/wh

38QE024 COOLING PERFORMANCE TABLE

		Outdoor Entering Air Temperature °F									
		65	70	75	80	85	90	95	100	105	110
Low Speed	CCAP	17.86	17.47	17.08	16.69	16.30	15.91	15.52	15.13	14.74	14.34
	POW	0.94	0.99	1.05	1.10	1.15	1.21	1.26	1.31	1.37	1.42
	EER	19.00	17.59	16.32	15.17	14.13	13.19	12.32	11.52	10.78	10.10
Intermediate Speed	CCAP	20.92	20.53	20.14	19.75	19.36	18.97	18.58	18.19	17.80	17.41
	POW	1.29	1.34	1.40	1.45	1.50	1.56	1.61	1.66	1.72	1.77
	EER	16.20	15.27	14.41	13.61	12.87	12.18	11.53	10.93	10.36	9.83
High Speed	CCAP	28.09	27.40	26.71	26.02	25.34	24.65	23.96	23.27	22.58	21.89
	POW	1.85	1.92	1.98	2.05	2.11	2.18	2.24	2.31	2.37	2.44
	EER	15.15	14.28	13.47	12.70	11.99	11.21	10.68	10.08	9.52	8.98
Cooling & Water Heating	CCAP	7.20	9.78	12.37	14.96	17.55	20.13	22.72	22.72	22.72	22.72
	WCAP	6.86	6.95	7.04	7.12	7.21	7.30	7.39	7.39	7.39	7.39
	POW	1.39	1.53	1.68	1.82	1.97	2.11	2.26	2.26	2.26	2.26
Domestic Water Heating	EER	10.13	10.92	11.57	12.12	12.59	12.99	13.35	13.35	13.35	13.35
	WCAP	15.40	16.67	17.93	19.20	20.47	21.73	23.00	—	—	—
	POW	1.69	1.73	1.76	1.80	1.84	1.88	1.91	—	—	—
	EER	9.11	9.65	10.17	10.66	11.13	11.59	12.03	—	—	—

38QE036 COOLING PERFORMANCE TABLE

		Outdoor Entering Air Temperature °F									
		65	70	75	80	85	90	95	100	105	110
Low Speed	CCAP	19.86	19.31	18.77	18.23	17.69	17.15	16.61	16.07	15.53	14.99
	POW	0.88	0.95	1.03	1.11	1.18	1.26	1.34	1.42	1.49	1.57
	EER	22.63	20.24	18.21	16.46	14.93	13.60	12.41	11.36	10.41	9.55
Intermediate Speed	CCAP	29.20	28.66	28.12	27.58	27.04	26.50	25.96	25.42	24.88	24.34
	POW	1.59	1.67	1.75	1.82	1.90	1.98	2.05	2.13	2.21	2.28
	EER	18.33	17.16	16.10	15.12	14.23	13.40	12.64	11.93	11.27	10.65
High Speed	CCAP	43.28	42.21	41.15	40.09	39.02	37.96	36.90	35.84	34.77	33.71
	POW	3.22	3.33	3.44	3.54	3.65	3.76	3.87	3.98	4.09	4.20
	EER	13.46	12.69	11.98	11.31	10.68	10.09	9.53	9.00	8.50	8.02
Cooling & Water Heating	CCAP	6.51	11.09	15.66	20.23	24.81	29.38	33.96	33.96	33.96	33.96
	WCAP	4.55	5.77	6.99	8.21	9.43	10.66	11.88	11.88	11.88	11.88
	POW	1.30	1.70	2.10	2.51	2.91	3.32	3.72	3.72	3.72	3.72
Domestic Water Heating	EER	8.53	9.91	10.76	11.34	11.76	12.07	12.32	12.32	12.32	12.32
	WCAP	14.58	16.02	17.46	18.90	20.33	21.77	23.21	—	—	—
	POW	1.66	1.71	1.76	1.82	1.87	1.92	1.98	—	—	—
	EER	8.78	9.35	9.89	10.40	10.87	11.32	11.75	—	—	—

CCAP —Space Cooling Capacity (1000 Btu/h)
 WCAP—Water Heating Capacity (1000 Btu/h)
 POW —Power (Kw)
 EER —Energy Efficient Ratio (Btu/w-h)

NOTES: Representative performance only. Not all speeds and modes shown. 80°F dry bulb, 67°F wet bulb, indoor entering air temperatures. 108°F, 3 gpm entering water.

38QE024 HEATING PERFORMANCE TABLE

		Outdoor Entering Air Temperature °F						
		0	10	20	30	40	50	60
Low Speed	HCAP	4.97	6.96	8.94	10.93	12.92	14.90	16.89
	POW	0.86	0.93	1.01	1.08	1.15	1.23	1.30
	COP	1.69	2.18	2.60	2.96	3.28	3.56	3.80
Intermediate Speed	HCAP	6.79	8.77	10.76	12.75	14.73	16.72	18.71
	POW	1.11	1.18	1.25	1.33	1.40	1.47	1.55
	COP	1.80	2.18	2.51	2.81	3.08	3.32	3.54
High Speed	HCAP	—	—	16.50	19.08	21.66	28.38	32.22
	POW	—	—	2.00	2.16	2.31	2.52	2.69
	COP	—	—	2.41	2.59	2.75	3.30	3.51
Heating & Water Heating	HCAP	—	—	13.95	15.33	17.25	18.73	20.21
	WCAP	—	—	2.60	3.91	5.38	6.74	8.10
	POW	—	—	2.10	2.24	2.38	2.52	2.66
	COP	—	—	2.31	2.52	2.79	2.96	3.12
Domestic Water Heating	WCAP	—	—	6.75	11.11	15.95	18.63	17.03
	POW	—	—	2.03	2.24	2.46	2.47	2.02
	COP	—	—	0.98	1.45	1.90	2.21	2.47

38QE036 HEATING PERFORMANCE TABLE

		Outdoor Entering Air Temperature °F						
		0	10	20	30	40	50	60
Low Speed	HCAP	5.04	7.30	9.55	11.81	14.06	16.32	18.57
	POW	1.28	1.27	1.26	1.24	1.23	1.21	1.20
	COP	1.15	1.68	2.23	2.79	3.36	3.94	4.54
Intermediate Speed	HCAP	9.50	11.76	14.01	16.27	18.52	20.78	23.03
	POW	1.74	1.73	1.72	1.70	1.69	1.67	1.66
	COP	1.60	1.99	2.39	2.80	3.22	3.64	4.07
High Speed	HCAP	—	—	22.05	25.19	28.33	36.92	41.71
	POW	—	—	2.73	2.91	3.10	3.36	3.57
	COP	—	—	2.36	2.53	2.68	3.22	3.42
Heating & Water Heating	HCAP	—	—	19.14	21.40	24.43	26.83	29.24
	WCAP	—	—	2.51	3.42	4.47	5.41	6.36
	POW	—	—	2.77	2.91	3.06	3.21	3.35
	COP	—	—	2.29	2.50	2.77	2.95	3.11
Domestic Water Heating	WCAP	—	—	6.52	11.04	16.03	18.68	16.60
	POW	—	—	2.15	2.36	2.57	2.56	2.04
	COP	—	—	0.89	1.37	1.83	2.14	2.38

HCAP —Space Heating Capacity (1000 Btu/h)

WCAP—Water Heating Capacity (1000 Btu/h)

POW —Power (Kw)

COP —Coefficient of Performance (Kw/Kw)

NOTES: Representative performance only. Not all speeds and modes shown. Capacity values shown are net integrated values which include the effect of defrost. 70°F dry bulb indoor entering air temperature. 108°F, 3 gpm entering water.

For supplement electric heaters, add the Btu/h for total system capacity and add the Kw for total system power consumption.

Accessories

ACCESSORIES SUPPLIED WITH COMPRESSOR SECTION			
ORDERING NUMBER	DESCRIPTION		
313204-701	Water Heater Control Box		
313288-710	Water Temperature Sensor Assembly		
313243-201	Comp. Section Base Pad		
ACCESSORIES REQUIRED OR RECOMMENDED			
ORDERING NUMBER	DESCRIPTION	Zones	
		Single	Multiple
*920261 (HZMTE Version 3.2 or higher)	HomeZone Monitor Stat w/clock	RQ	RQ
*HZME (Version 3.2 or higher)	HomeZone Montior Stat w/o clock	OP	OP
*HZE (Version 2.7 or higher)	HomeZone Slave Stat		RQ
*ZD-06,08,10,12,14,16	Round Dampers 6" thru 16"		RQ
*RD0810,0814,0818,0824	Rectangular Damper 8x10 thru 24		RQ
*BCE	Bypass Controller		RQ
*TSR01	Relay Pack-Power Supply	RQ	
*PS02/PS01	Duct Pressure Sensor		RQ
*PSP00	Static Pressure Pick-up		RQ
*RDS	Remote Duct Sensor	OP	OP
*RRS	Remote Room Sensor	OP	OP
*PCA-223	Plenum Cable—22 AWG, 3 conduc	RC	RC
*PCA-225	Plenum Cable—22 AWG, 5 conduc	RC	RC
HL38MG026	Humidistat	RC	RC
—	Humidifier (49BF/FH/WS)	RC	RC
—	Electronic Air Cleaner (31MP/SX)	RC	RC
38TH900011	Outdoor Support Foot Kit, 4 in.	OP	OP
38YH900011	Outdoor Snow Rack, 18 in. (024)	OP	OP
38YH900021	Outdoor Snow Rack, 18 in. (036)	OP	OP
P504-8083S	Bi-flow Filter-Drier	RQ	RQ
HT01AX220	Transformer 40va	—	RQ

RQ— Required for installations.

OP —Optional for installations.

RC— Recommended for installations.

*—Parker Electronics order number.

APPLICATION LIMITATIONS:

1. The 38QE compressor section and outdoor section are to be matched to the specifically designed 40QE indoor fan coil section. No mismatches allowed.
2. The 38QE can only be used with Carrier Parker HomeZone thermostats. All thermostats must be properly configured and programmed in order to obtain normal system operation.
3. The 38QE should not be used with HomeZone systems containing more than four (4) independently dampered zones. Use of the bypass controller accessory is required for all zone applications.
4. The system will not operate in the cool mode at outdoor temperatures below 45°F, and is not compatible with the Carrier Motormaster Low Ambient Control accessory.
5. The system will not operate in the heat mode at outdoor temperatures above 75°F.
6. The compressor section must be located in a nonfreezing area because of water containing components. Maximum air temperature surrounding the compressor section must not exceed 105°F because of cooling required for electronic controls.
7. Refrigerant line lengths are limited to 50 ft. total maximum, with 25 ft. maximum vertical rise between indoor and outdoor units.
8. For improved domestic water heating, locating the compressor section within 15 ft. of the domestic water tank is desirable.
9. System is designed to work with conventional residential sized electric water heating tanks only. For installation with a gas water heater, a water preheat tank must be installed.