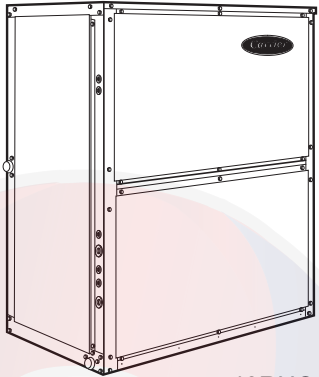


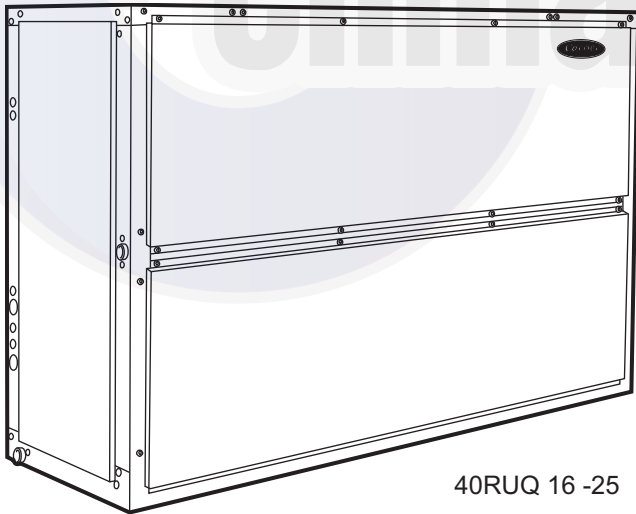
40RUQ07-25
Split System Heat Pump
Indoor Unit (Air-Handling Unit)
With Puron® Refrigerant
60 Hz



Product Data



40RUQ 07 - 12



40RUQ 16 -25

C10887

Carrier's versatile packaged heat pump air-handling units satisfy design requirements with:

- Multi-position design for horizontal or vertical installation without modification.
- Standard sloped drain pans and cleanable insulation treated with Environmental Protection Agency (EPA) registered antimicrobial agent improve indoor air quality.
- High-static design meets a wider range of applications than competitive packaged air handler lines.
- Economizer accessory provides ventilation air and "free" cooling.
- Cooling coils with mechanically bonded fins provide peak heat transfer.
- Hot water coil, steam coil, and electric heat accessories are available.
- Standard factory-installed thermo-static expansion valves (TXV) with removable power element on 40RUQ units.
- Die-formed galvanized steel casings provide durability and structural integrity. Optional paint is available.

FEATURES/BENEFITS

Easy-to-install and economical 40RU units provide reliable service.

The 40RUQ Series units with direct-expansion coils are the best choice for packaged heat pump air handlers. All models offer excellent fan performance, a unique combination of indoor air quality features, easy installation, and affordable prices. Their versatility and state-of-the-art features will provide economical performance now and in the future.

Indoor air quality features

The unique combination of features in the 40RUQ Series air handlers ensures that clean, fresh, conditioned air is delivered to the occupied space.

Cooling coils prevent the build-up of humidity in the room, even during part-load conditions.



FEATURES/BENEFITS (cont.)

Two-inch (51-mm) disposable filters remove dust and airborne particles from the occupied space.

Thermal insulation contains an immobilized anti-microbial agent to inhibit the growth of bacteria and fungi. The anti-microbial agent is registered with the U.S. Environmental Protection Agency (EPA).

Pitched drain pan can be adjusted for a right-hand or left-hand connection to provide positive drainage and prevent standing condensate. Each unit contains two separate drain pans which are provided for either vertical or horizontal fan coil positions.

Accessory economizer can provide ventilation air to improve indoor air quality. When used with CO₂ sensors, the economizer admits fresh outdoor air to replace stale, recirculated indoor air.

Accessory UV-C germicidal lamps can eliminate foul odors that result from the growth of mold and fungus on evaporator coil and condensate pan surfaces.

Economy

The 40RUQ Series packaged air handlers have low initial costs, and they continue to save money by providing reduced installation expense and energy-efficient performance.

Quick installation is ensured by the multi-position design. Units can be installed in either the horizontal or vertical (upflow) configuration without modifications. All units have drain-pan connections on both sides, and pans can be pitched for right-hand or left hand operation with a simple adjustment.

Fan motors and contactors are pre-wired and TXVs are factory-installed on 40RUQ models.

High-efficiency, precision balanced fans minimize air turbulence, surging, and unbalanced operation, thereby cutting operating expenses.

Economizer accessory precisely controls the blend of outdoor air and room air to achieve comfort levels. When the outside air enthalpy is suitable, outside air dampers can fully open to provide “free” cooling.

Rugged dependability

Die-formed galvanized steel panels ensure structural integrity under all operating conditions. Mechanically bonded coil fins provide improved heat transfer.

Galvanized steel fan housings are securely mounted to a die-formed galvanized steel deck.

Coil flexibility

Model 40RUQ air handling units have galvanized steel casings; inlet and outlet connections are on the same end.

Chilled water coils have 1/2-in. (12.7mm) diameter copper tubes mechanically bonded to aluminum sine wave fins. All chilled water coils have non-ferrous headers.

Direct expansion (DX) coils are designed for use with Puron® R-410A refrigerant and have copper tubes mechanically bonded to aluminum sine-wave fins.

Direct-expansion coils include matched, factory-installed thermostatic expansion valves (TXVs) with matching distributor nozzles.

Easier installation and service

The multi-position design and component layout allow for quick unit installation and operation. The DX coils have factory-installed TXVs with matching distributor nozzles. Units can be converted from horizontal to vertical operation by simply repositioning the unit.

Drain pan connections are duplicated on both sides of the unit. The filters, motor, drive, TXVs, and coil connections are easily accessed by removing a single side panel.

TABLE OF CONTENTS

	PAGE
FEATURES AND BENEFITS	1
MODEL NUMBER NOMENCLATURE	3
PHYSICAL DATA	4
OPTIONS AND ACCESSORIES	5
DIMENSIONS	6
PERFORMANCE DATA	15
ELECTRICAL DATA	19
TYPICAL PIPING AND WIRING	25
TYPICAL CONTROL WIRING SCHEMATIC	27
APPLICATION DATA	28
GUIDE SPECIFICATIONS	30

PHYSICAL DATA

40RUQ

UNIT 40RUQ	07	08	12	16	25
NOMINAL CAPACITY (Tons)	6	7 ¹ / ₂	10	15	20
FANS					
Qty...Diam. (in.)	1...15	1...15	1...15	2...15	2...15
Nominal Airflow (cfm)	2400	3000	4000	6000	8000
Airflow Range (cfm)	1800-3000	2250-3750	3000-5000	4500-7500	6000-10000
Nominal Motor Hp*					
208/230-1-60	2.4	2.4	—	—	—
208/230-3-60 and 460-3-60	2.4	2.4	2.4	3.7	5.0
575-3-60	2.0	2.0	2.0	3.0	5.0
Motor Speed (rpm)					
208/230-1-60	1725	1725	—	—	—
208/230-3-60 and 460-3-60	1725	1725	1725	1725	1745
575-3-60	1725	1725	1725	1725	1745
REFRIGERANT SYSTEM					
# Circuit Splits	1	1	2	2	2
Split typepercentage	—	—	Face50/50	Face50/50	Face50/50
Shipping holding charge A/B (lbs)	Nitrogen	Nitrogen	Nitrogen	Nitrogen	Nitrogen
Metering Device	TXV	TXV	TXV	TXV	TXV
DIRECT-EXPANSION COIL					
Enhanced Copper Tubes, Aluminum Sine-Wave Fins					
Max Working Pressure (psig)	650				
Material – tube / fin	Al / Cu	Al / Cu	Al / Cu	Al / Cu	Al / Cu
Coil Type	Round Tube / Plate Fin (RTPF)				
Face Area (sq ft)	8.3	8.3	10.0	19.9	19.9
No. of Splits	1	1	2	2	2
Split Type...Percentage	—	—	Face...50/50	Face...50/50	Face...50/50
No. of Circuits per Split	15	15	9	18	18
Rows...Fins/in.	3 / 15	4 / 15	4 / 15	4 / 15	4 / 15
STEAM COIL					
Max Working Pressure (psig at 260 F)	20				
Total Face Area (sq ft)	6.67	6.67	6.67	13.33	13.33
Rows...Fins/in.	1...9	1...9	1...9	1...10	1...10
HOT WATER COIL					
Max Working Pressure (psig)	150				
Total Face Area (sq ft)	6.67	6.67	6.67	13.33	13.33
Rows...Fins/in.	2...8.5	2...8.5	2...8.5	2...8.5	2...8.5
Water Volume					
(gal)	8.3			13.9	
(ft ³)	1.1			1.85	
PIPING CONNECTIONS					
Quantity...Size (in.)					
DX Coil — Suction (ODF)	1...1 ¹ / ₈	1...1 ¹ / ₈	2...1 ¹ / ₈	2...1 ¹ / ₈	2...1 ¹ / ₈
DX Coil — Liquid Refrigerant (ODF)	1...5 ⁵ / ₈	1...5 ⁵ / ₈	2...5 ⁵ / ₈	2...5 ⁵ / ₈	2...5 ⁵ / ₈
Steam Coil, In (MPT)	1...2 ¹ / ₂	1...2 ¹ / ₂	1...2 ¹ / ₂	1...2 ¹ / ₂	1...2 ¹ / ₂
Steam Coil, Out (MPT)	1...1 ¹ / ₂	1...1 ¹ / ₂	1...1 ¹ / ₂	1...1 ¹ / ₂	1...1 ¹ / ₂
Hot Water Coil, In (MPT)	1...1 ¹ / ₂	1...1 ¹ / ₂	1...1 ¹ / ₂	1...2	1...2
Hot Water Coil, Out (MPT)	1...1 ¹ / ₂	1...1 ¹ / ₂	1...1 ¹ / ₂	1...2	1...2
Condensate (PVC)	1...Accepts 1 – in nominal PVC pipe or 1 ¹ / ₄ – in nominal PVC pipe female fitting				
FILTERS					
Throwaway — Factory-Supplied					
Quantity...Size (in.)	4...16 x 24 x 2			4...16 x 20 x 2	
Access Location	Right or Left Side				

* Refer to Alternate Fan Motor Data table for alternate motor data.

OPTIONS AND ACCESSORIES

ITEM	OPTION*	ACCESSORY†
Alternate Fan Motors	X	
Alternate Drives	X	
Prepainted Units	X	
CO ₂ Sensors		X
Condensate Drain Trap		X
Discharge Plenum		X
Economizer		X
Electric Heat		X
Hot Water Heating Coils		X
Overhead Suspension Package		X
Programmable Thermostats		X
Return Air Grille		X
Steam Heating Coil		X
Subbase		X
UV-C Germicidal Lamp**		X

* Factory-installed option.

† Field-installed accessory

** Contact Application Engineer

Factory-installed options

Alternate fan motors and drives are available to provide the widest possible range of performance.

Prepainted steel units are available from the factory for applications that require painted units. Units are painted with American Sterling Gray color.

Field-installed accessories

CO₂ sensors can be used in conjunction with the economizer accessory to help meet indoor air quality requirements. The sensor signals the economizer to open when the CO₂ level in the space exceeds the set point. A Carrier Comfort System programmable thermostat can be used to override the sensor if the outside-air temperature is too high or too low.

Condensate drain trap includes an overflow shutoff switch that can be wired to turn off the unit if the trap becomes plugged. Kit also includes a wire harness that can be connected to an alarm if desired. The transparent trap is designed for easy service and maintenance.

Discharge plenum directs the air discharge directly into the occupied space; integral horizontal and vertical louvers enable redirection of airflow. Accessory is available unpainted or painted. Field assembly is required (only applicable for vertical application).

Economizer (enthalpy controlled) provides ventilation air and “free” cooling if outside ambient temperature and humidity are suitable. It can also be used with CO₂ sensors to help meet indoor air quality requirements.

Electric resistance heat coils have an open-wire design and are mounted in a rigid frame. Safety cutouts for high temperature conditions are standard. Terminal block for single-point power connection is included.

Two-row hot water coils have copper tubes mechanically bonded to aluminum plate fins and non-ferrous headers.

Overhead suspension package includes necessary brackets to support units in horizontal ceiling installations.

Carrier’s line of thermostats provide both programmable and non-programmable capability.

Return-air grille provides a protective barrier over the return-air opening and gives a finished appearance to units installed in the occupied space. Accessory is available unpainted or painted.

One-row steam coil has copper tubes and aluminum fins. The Inner Distributing Tube (IDT) design provides uniform temperatures across the coil face. The steam coil has a broad operating pressure range; up to 20 psi (138 kPag) at 260°F (126°C). The IDT steam coils are especially suited to applications where sub-freezing air enters the unit.

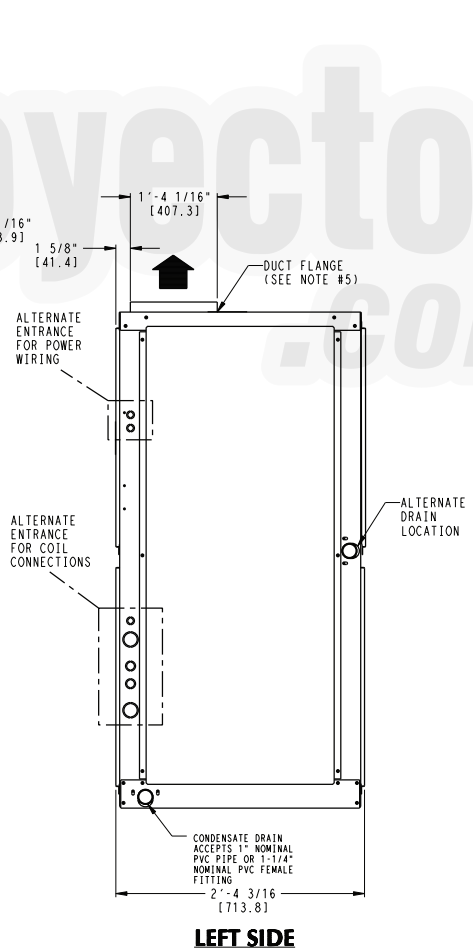
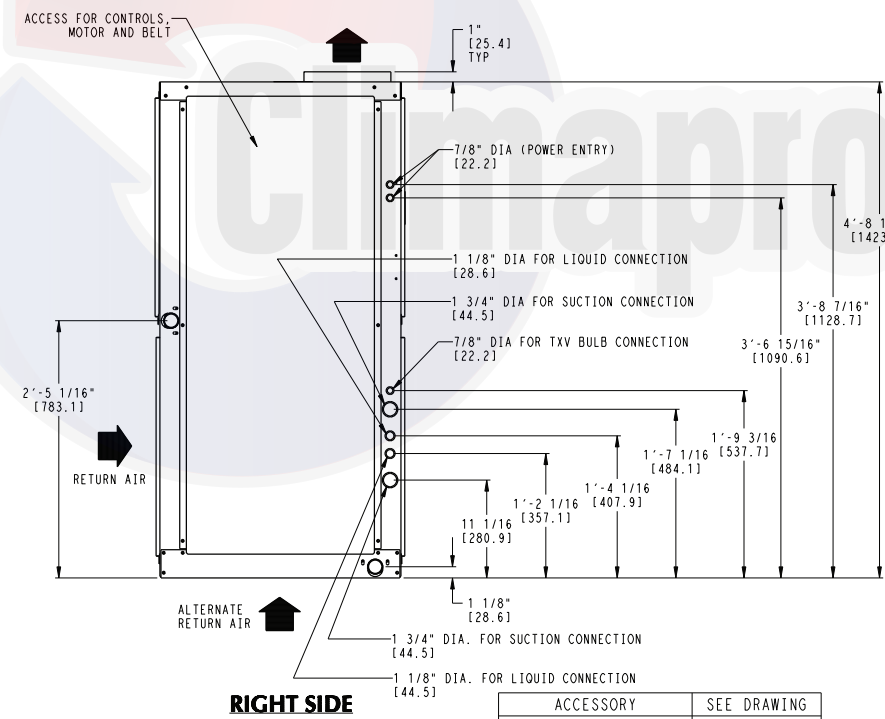
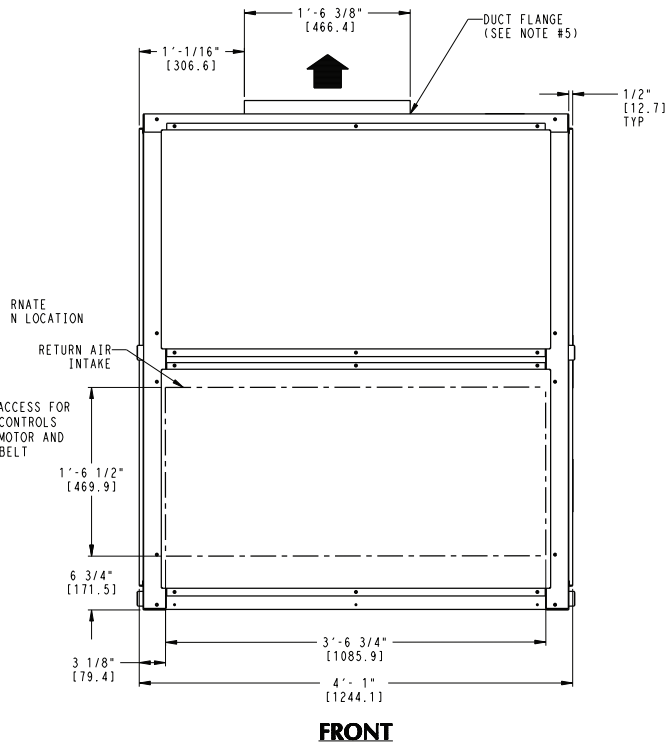
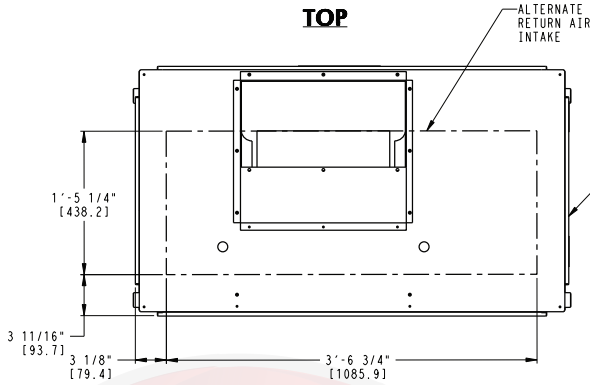
Subbase provides a stable, raised platform and room for condensate drain trap connection for vertical floor-mounted units. Accessory is available unpainted or painted.

UV-C germicidal lamps inhibit the growth of mold and fungus, which may grow on evaporator coil and condensate pan surfaces. The use of UV-C germicidal lamps reduces the foul odors that may result from this growth of mold and fungus. It also provides a self-cleaning function for the evaporator coil and drain pan.

DIMENSIONS

- NOTES:
1. DIMENSIONS IN [] ARE IN MILLIMETERS.
 2. DIRECTIONS OF AIRFLOW.
 3. RECOMMENDED CLEARANCE:
 REAR: 3 IN. [76 mm]
 FRONT: 2 ft 6 in. [762 mm]
 RIGHT SIDE: 2 ft 6 in. [762 mm]
 LEFT SIDE: 2 ft 6 in. [762 mm]
 LOCAL CODES OR JURISDICTION MAY PREVAIL.
 4. LIQUID PIPING NOT SUPPLIED BY CARRIER.
 5. DUCT FLANGE IS FACTORY SUPPLIED AND FIELD INSTALLED.

40RUQ



UNIT	UNIT WEIGHT (W/TXV)	KG
40RUQ 07	381 lbs	173
40RUQ 08	385 lbs	175
40RUQ 12	427 lbs	194


ACCESSORY	SEE DRAWING
DISCHARGE PLENUM	40RM500996
ECONOMIZER	40RM500999
STEAM COIL	40RM500999
HOT WATER COIL	40RM500999
RETURN AIR GRILLE	40RM500996
OVERHEAD SUSPENSION	40RM500996
SUBBASE	40RM500996
ELECTRIC HEAT	40RM501002

UNRELEASED DATA


40RUQ*07, 08, 12

DIMENSIONS (cont.)

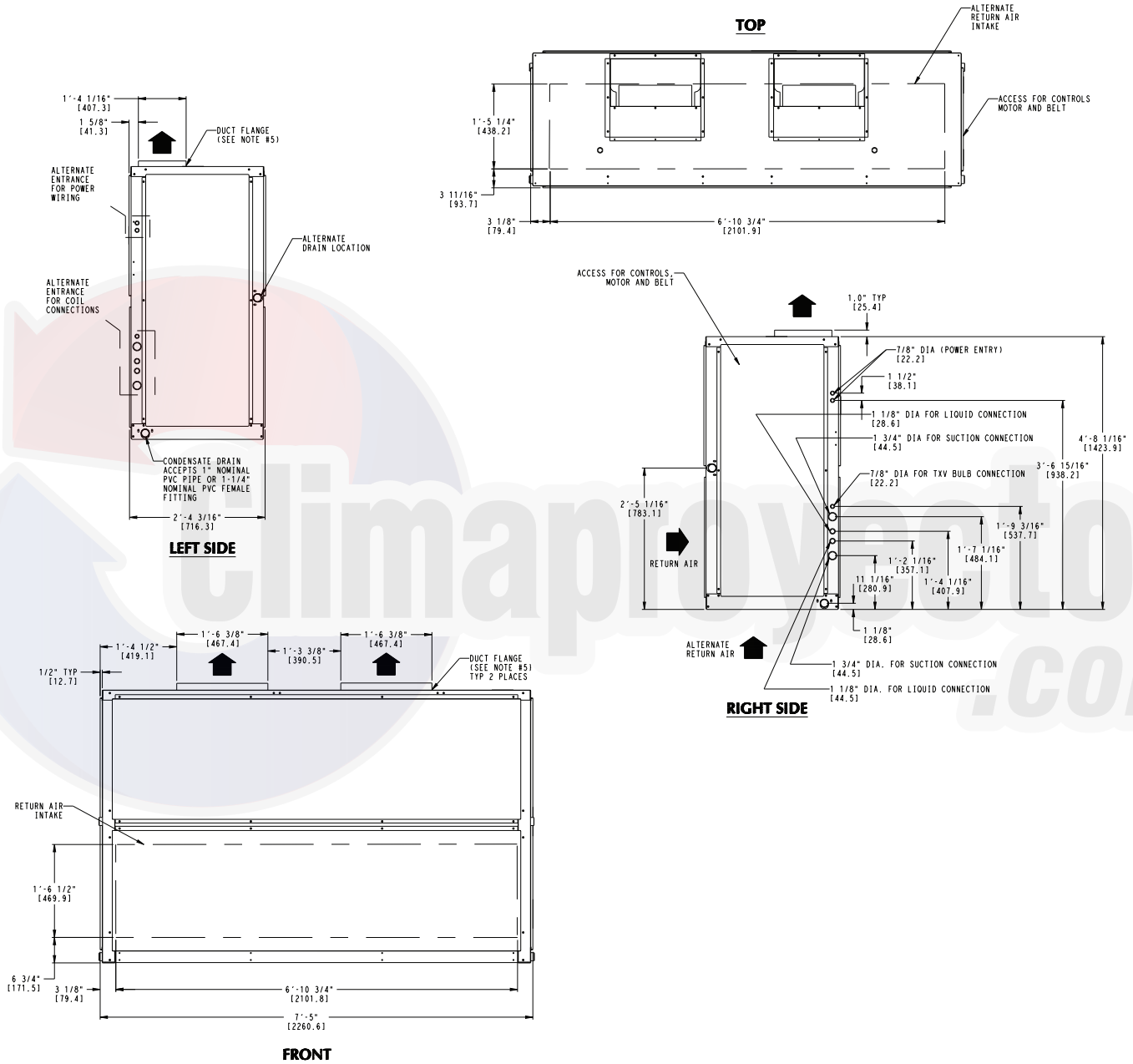
NOTES:

1. DIMENSIONS IN [] ARE IN MILLIMETERS.
2.  DIRECTIONS OF AIRFLOW.
3. RECOMMENDED CLEARANCE:
 REAR: 3 in. [76 mm]
 FRONT: 2 ft 6 in. [762 mm]
 RIGHT SIDE: 2 ft 6 in. [762 mm]
 LEFT SIDE: 2 ft 6 in. [762 mm]
 LOCAL CODES OR JURISDICTION MAY PREVAIL.
4. LIQUID PIPING NOT SUPPLIED BY CARRIER.
5. DUCT FLANGE IS FACTORY SUPPLIED AND FIELD INSTALLED.

UNIT	UNIT WEIGHT (W/TXV)
40RUQ-16	713 lbs [323 kg]
40RUQ-25	720 lbs [327 kg]

ACCESSORY	SEE DRAWING
DISCHARGE PLENUM	40RM500997
ECONOMIZER	40RM501000
STEAM COIL	40RM501000
HOT WATER COIL	40RM501000
RETURN AIR GRILLE	40RM500997
OVERHEAD SUSPENSION	40RM500997
SUBBASE	40RM500997
ELECTRIC HEAT 	40RM501002

 UNRELEASED DATA



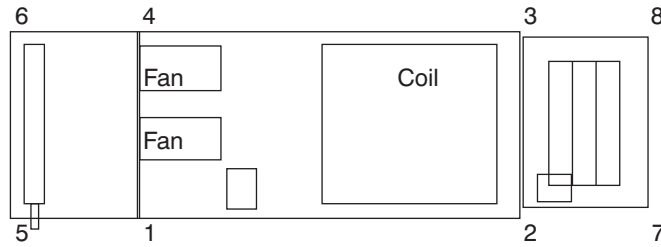
40RUQ

40RUQ*16 & 25

C10876

DIMENSIONS (cont.)

CORNER WEIGHTS HORIZONTAL POSITION



Steam Coil or
Hot Water Coil

Base Unit Fan Coil

Economizer

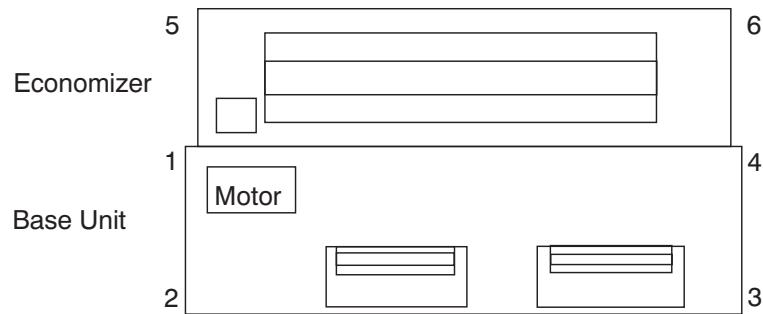
C09039

40RUQ UNIT SIZE	UNIT OR ACCESSORY NAME		UNIT OR ACCESSORY WEIGHT lb (kg)	CORNER NUMBER (WEIGHT IN LB)							
				1	2	3	4	5	6	7	8
07, 08, 12	FAN COIL BASE UNIT		394 (178.7)	108.0	104.7	89.4	92.2	—	—	—	—
	STEAM COIL	ADD	137 (62.1)	25.6	0.0	0.0	25.9	42.4	43.0	0.0	0.0
	HOT WATER COIL	ADD	143 (64.9)	26.3	0.0	0.0	26.9	44.3	45.5	0.0	0.0
	ECONOMIZER	ADD	128 (58.5)	0.0	25.5	24.7	0.0	0.0	0.0	39.3	38.1
	ECO + STEAM COIL	ADD	264 (115.2)	25.6	25.5	24.7	25.9	42.4	43.0	39.3	38.1
	ECO + HW COIL	ADD	271 (122.9)	26.3	25.5	24.7	26.9	44.3	45.5	39.3	38.1
16, 25	FAN COIL BASE UNIT		684 (310.3)	220.5	174.9	127.8	161.1	—	—	—	—
	STEAM COIL	ADD	239 (108.4)	43.2	0.0	0.0	43.6	75.8	76.5	0.0	0.0
	HOT WATER COIL	ADD	245 (111.1)	44.5	0.0	0.0	44.1	78.7	77.9	0.0	0.0
	ECONOMIZER	ADD	217 (98.4)	0.0	42.7	39.6	0.0	0.0	0.0	70.1	65.1
	ECO + STEAM COIL	ADD	456 (206.8)	43.2	42.7	39.6	43.6	75.8	76.5	70.1	65.1
	ECO + HW COIL	ADD	463 (210.0)	44.5	42.7	39.6	44.1	78.7	77.9	70.1	65.1

40RUQ

DIMENSIONS (cont.)

CORNER WEIGHTS VERTICAL POSITION



NOTE: Steam, Hot Water & Plenum on top of positions 1,2,3,4

C09040

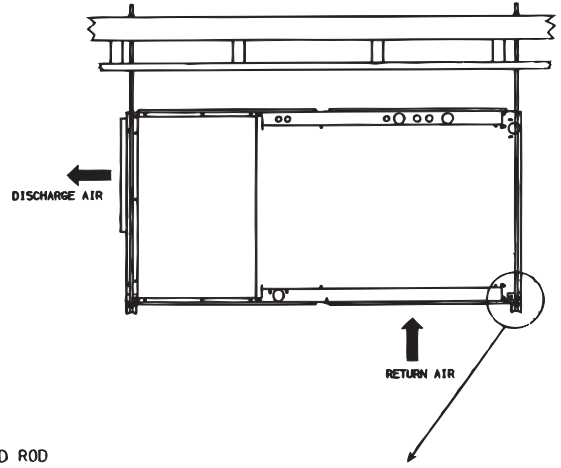
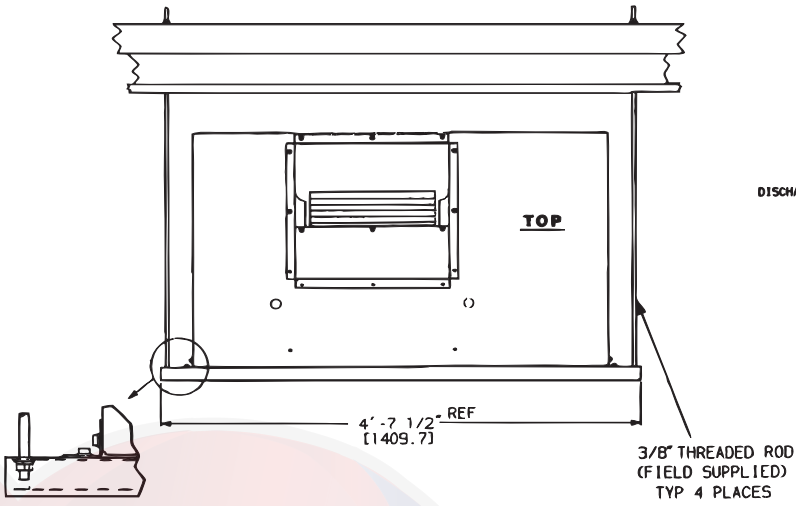
40RUQ

40RUQ UNIT SIZE	UNIT OR ACCESSORY NAME		UNIT OR ACCESSORY WEIGHT lb (kg)	CORNER NUMBER (WEIGHT IN LB)					
				1	2	3	4	5	6
07, 08, 12	FAN COIL BASE UNIT		394 (178.7)	99.3	113.5	96.8	84.7	—	—
	STEAM COIL	ADD	137 (62.1)	34.5	34.5	34.0	34.0	0.0	0.0
	HOT WATER COIL	ADD	143 (64.9)	36.2	36.2	35.3	35.3	0.0	0.0
	PLENUM	ADD	175 (79.4)	50.8	36.7	36.7	50.8	0.0	0.0
	ECONOMIZER	ADD	128 (58.1)	25.5	0.0	0.0	24.7	39.3	38.1
	ECO + STEAM COIL	ADD	264 (119.7)	59.9	34.5	34.0	58.7	39.3	38.1
	ECO + HW COIL	ADD	271 (122.9)	61.7	36.2	35.3	60.0	39.3	38.1
16, 25	FAN COIL BASE UNIT		684 (310.3)	188.2	207.2	151.4	137.3	—	—
	STEAM COIL	ADD	239 (108.4)	60.0	60.0	59.5	59.5	0.0	0.0
	HOT WATER COIL	ADD	245 (111.1)	61.0	61.0	61.6	61.6	0.0	0.0
	PLENUM	ADD	225 (102.1)	72.5	40.0	40.0	72.5	0.0	0.0
	ECONOMIZER	ADD	217 (98.4)	42.7	0.0	0.0	39.6	70.1	65.1
	ECO + STEAM COIL	ADD	456 (206.8)	102.7	60.0	59.5	99.1	70.1	65.1
	ECO + HW COIL	ADD	463 (210.0)	103.7	61.0	61.6	101.2	70.1	65.1

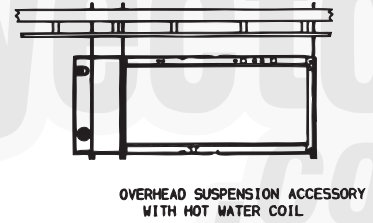
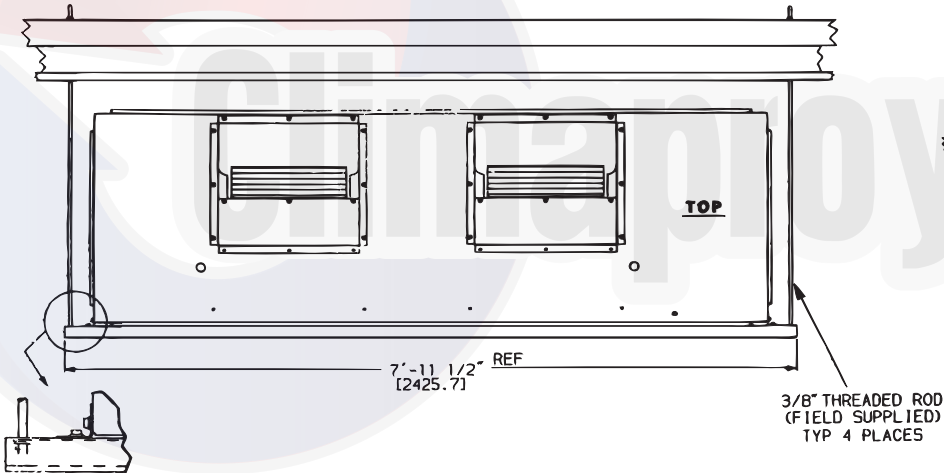
DIMENSIONS (cont.)

OVERHEAD SUSPENSION ACCESSORY

UNIT SIZES 07-12
(FRONT)



UNIT SIZES 16 & 25
(FRONT)

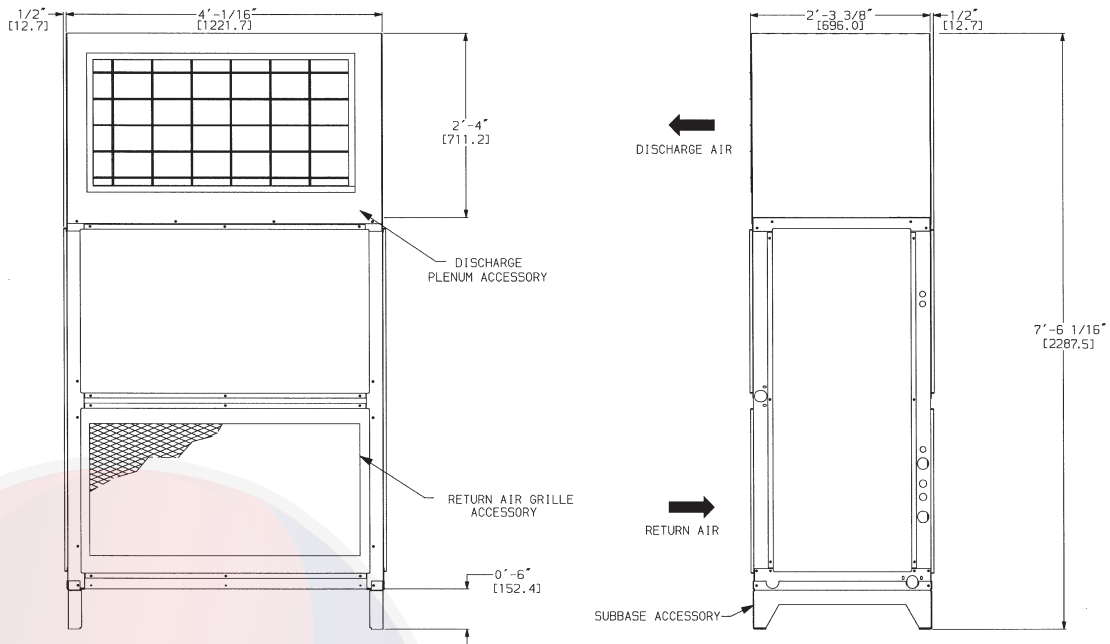


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DIMENSIONS (cont.)

PLENUM, RETURN-AIR GRILLE, AND SUBBASE ACCESSORIES

UNIT SIZES 07-12

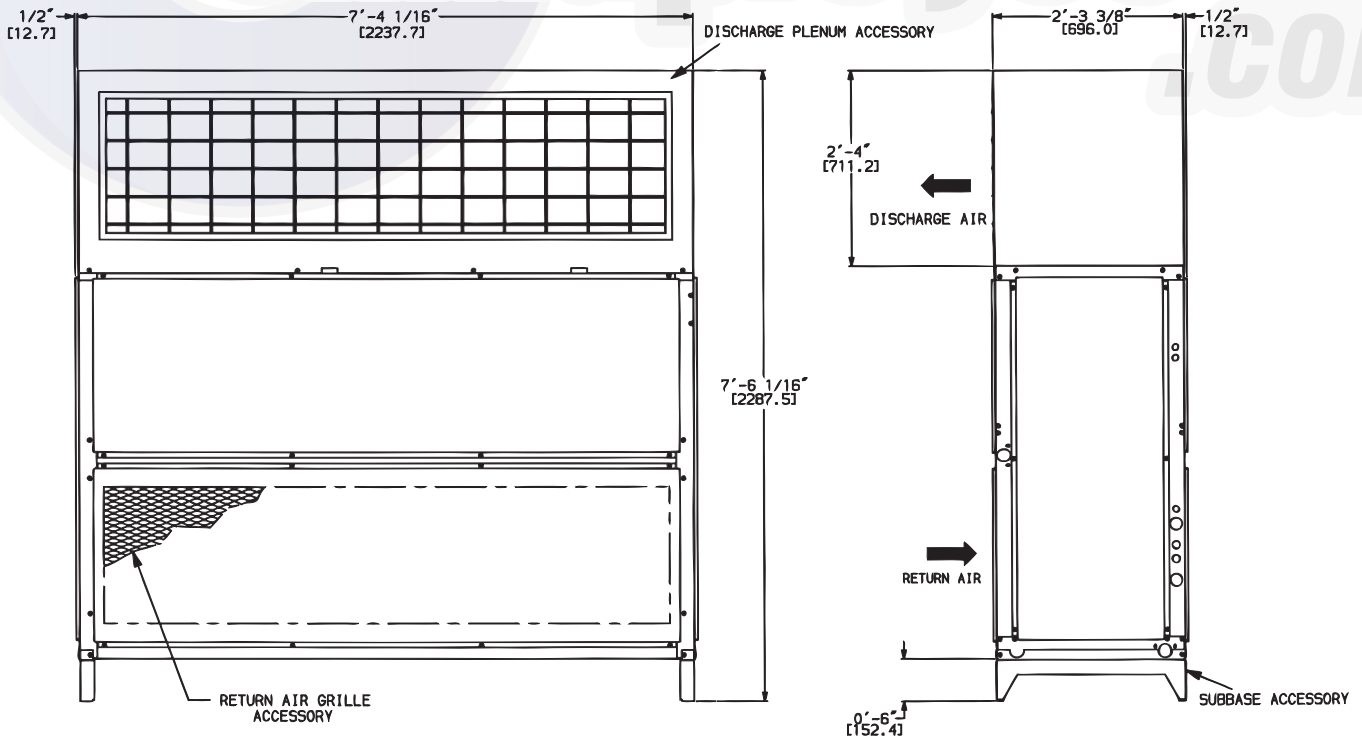


NOTE: Dimensions in [] are millimeters.

40RUQ

C10116

**UNIT SIZES 16 & 25
(FRONT)**



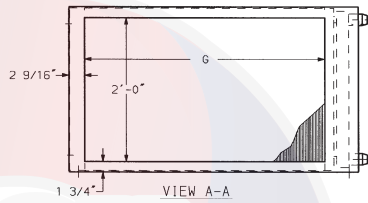
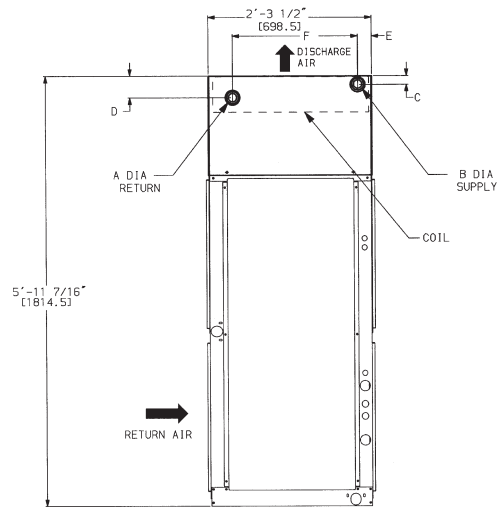
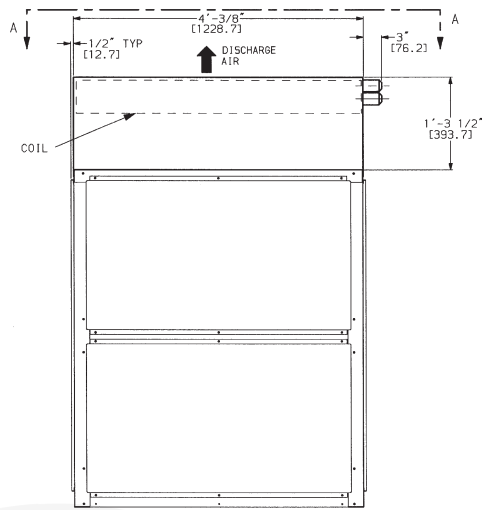
C10878

DIMENSIONS (cont.)

HOT WATER AND STEAM COIL ACCESSORIES

UNIT SIZES 07 - 12

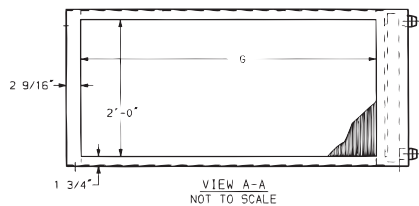
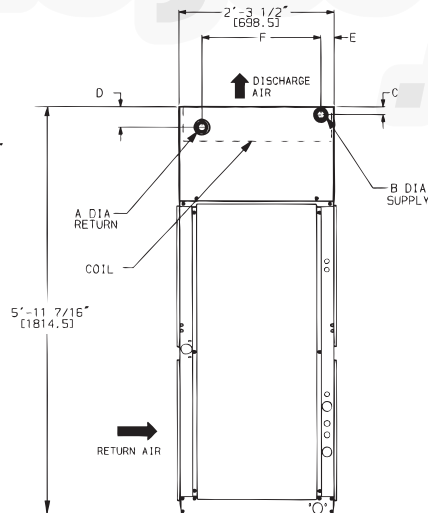
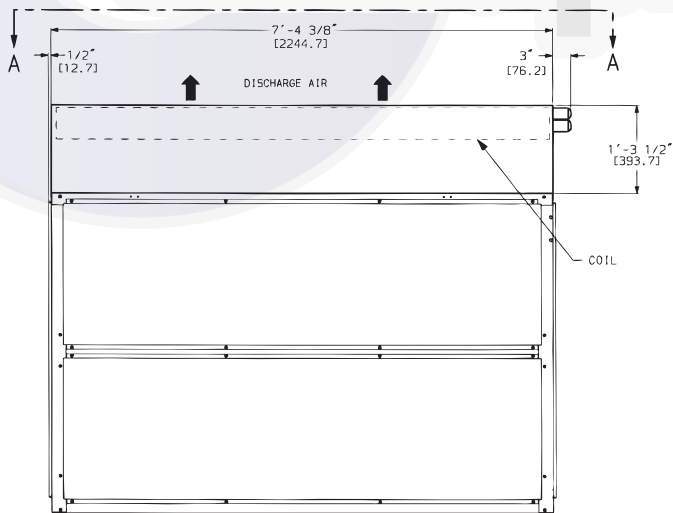
40RUQ



DIMENSION	HOT WATER COIL	STEAM COIL
A	1 1/2" MPT [38.1]	1 1/2" MPT [38.1]
B	1 1/2" MPT [38.1]	2 1/2" MPT [63.5]
C	2 3/8" [60.3]	3 1/8" [79.4]
D	4 7/8" [123.8]	3 1/8" [79.4]
E	2 1/8" [54.0]	4 9/16" [115.8]
F	1'-11 1/4" [590.6]	1'-9" [584.2]
G	3'-4" [1016.0]	3'-4" [1016.0]

NOTE: Dimensions in [] are millimeters.

UNIT SIZES 16 & 25



DIMENSION	HOT WATER COIL	STEAM COIL
A	2" MPT [50.8]	1 1/2" MPT [38.1]
B	2" MPT [50.8]	2 1/2" MPT [63.5]
C	2 3/8" [60.3]	3 1/8" [79.4]
D	4 7/8" [123.8]	3 1/8" [79.4]
E	2 1/8" [54.0]	4 9/16" [115.8]
F	1'-11 1/4" [590.6]	1'-9" [584.2]
G	6'-8" [2032.0]	6'-8" [2032.0]

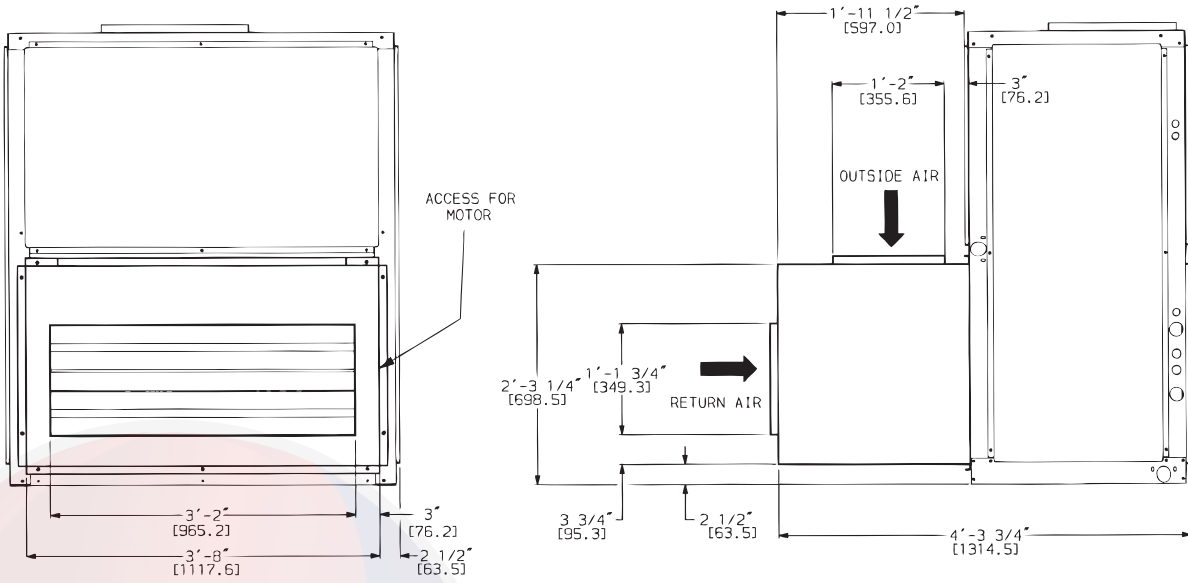
C10117

C10879

DIMENSIONS (cont.)

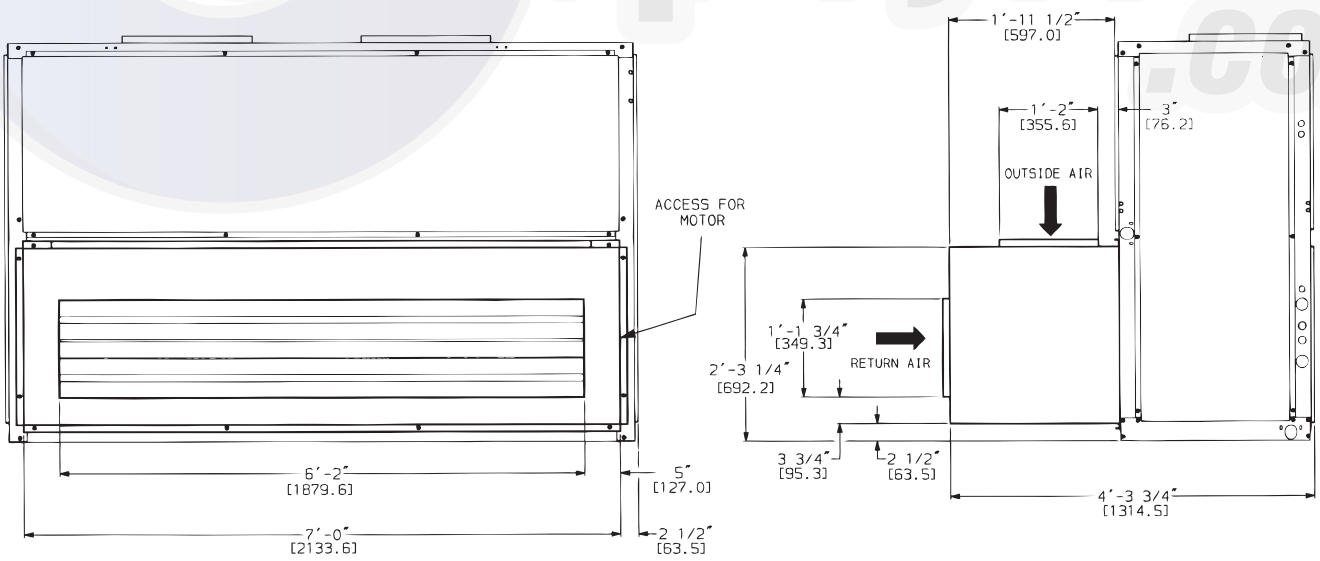
ECONOMIZER ACCESSORY

UNIT SIZES 07-12



40RUQ

UNIT SIZES 16 & 25



NOTE:

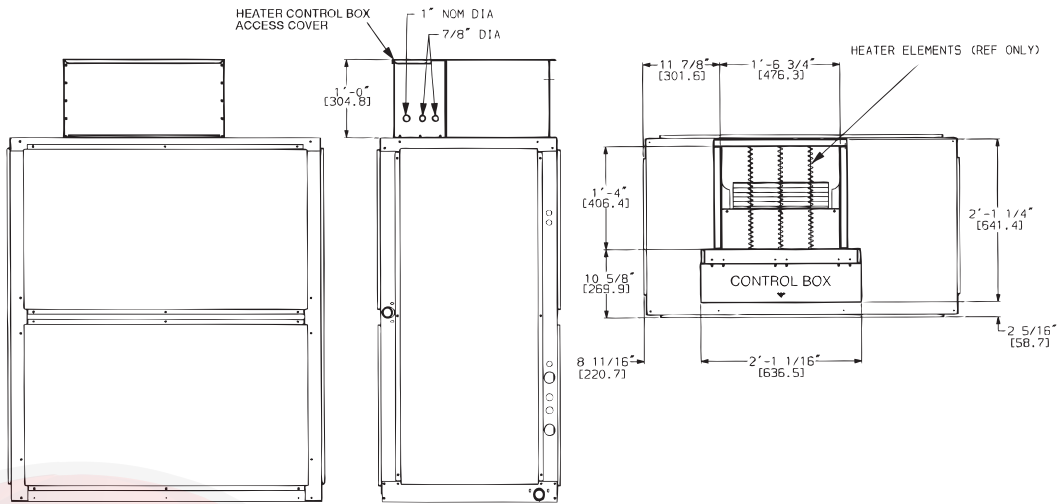
1. For horizontal unit applications, economizer can be attached to end of unit opposite duct connections.
2. Dimensions in [] are millimeters.

DIMENSIONS (cont.)

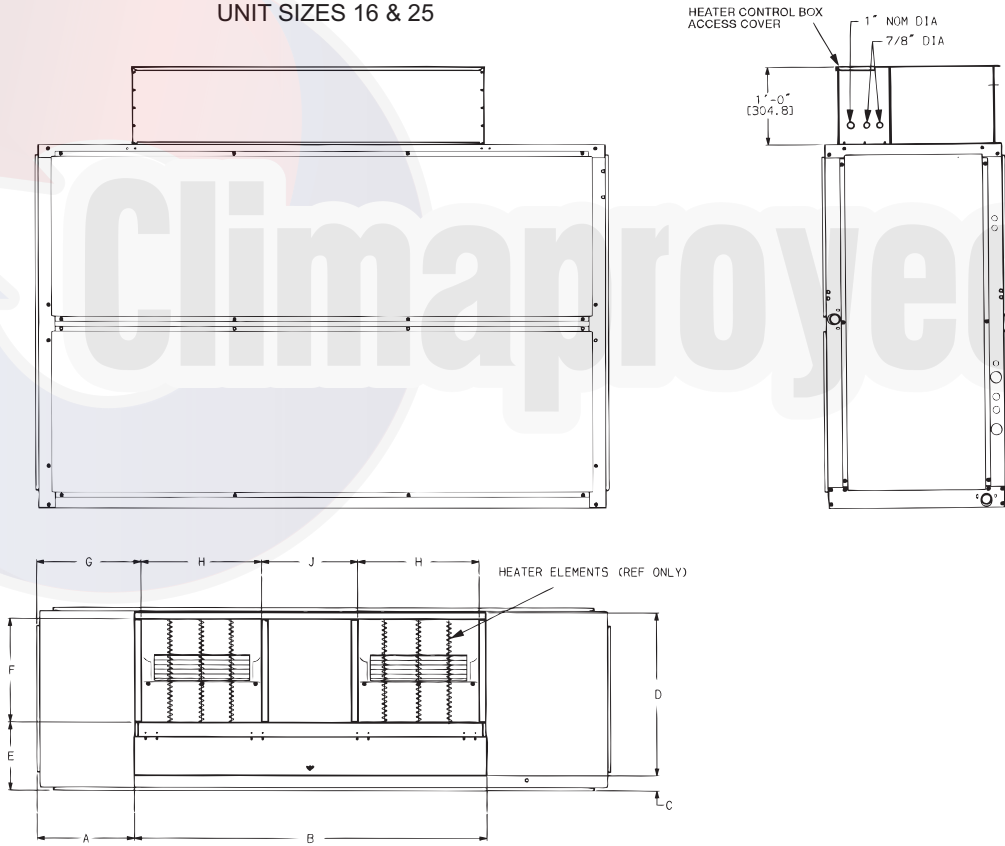
ELECTRIC HEAT ACCESSORY

UNIT SIZES 07-12

40RUQ



UNIT SIZES 16 & 25



UNIT SIZE	A	B	C	D	E	F	G	H	J
16-25	1'-3 1/4"	4'-6 3/8"	2 5/16"	2'-1 1/4"	10 5/8"	1'-4"	1'-4 5/16"	1'-6 3/4"	1'-7/8"
	[387.4]	[1381.1]	[58.7]	[641.4]	[269.9]	[406.4]	[414.3]	[476.3]	[327.0]

C10881A

PERFORMANCE DATA

COOLING ONLY PERFORMANCE

UNIT 40RUQ	EVAPORATOR AIR		COIL REFRIGERANT TEMP °F (°C)									
	AIR FLOW (CFM)	EWB °F (°C)	30 (-1.1)		35 (1.7)		40 (4.4)		45 (7.2)		50 (10)	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
07	1800	72 (22.2)	146.4	71.0	132.1	64.3	116.7	57.3	100.0	49.7	81.8	42.0
		67 (19.4)	121.8	74.0	107.6	66.4	92.4	58.9	76.0	51.2	58.3	43.6
		62 (16.7)	99.3	75.5	85.3	67.9	70.2	60.2	54.9	52.4	44.2	44.2
	2400	72 (22.2)	179.3	87.1	161.7	79.1	142.6	70.4	122.0	61.2	99.5	51.8
		67 (19.4)	149.5	91.5	132.2	82.4	113.3	73.2	93.0	63.8	71.0	54.4
		62 (16.7)	122.3	94.2	105.0	84.9	86.2	75.5	67.6	65.7	55.2	55.2
	3000	72 (22.2)	207.4	101.3	186.8	92.0	164.6	81.7	140.6	71.2	114.6	60.4
		67 (19.4)	173.3	106.7	153.1	96.4	131.2	85.8	107.5	75.1	81.9	64.3
		62 (16.7)	142.1	110.8	122.0	100.2	100.0	89.3	78.2	78.2	65.2	65.2
08	2250	72 (22.2)	182.6	88.6	165.5	132.0	146.7	95.2	126.3	64.2	104.0	104.0
		67 (19.4)	152.4	92.7	135.4	83.7	116.9	74.6	96.6	65.2	74.6	55.7
		62 (16.7)	124.9	95.2	107.8	86.0	89.3	76.6	70.2	67.0	56.7	56.7
	3000	72 (22.2)	221.4	107.7	200.6	98.2	177.7	87.8	152.8	76.8	125.7	65.6
		67 (19.4)	185.4	113.8	164.7	103.1	142.1	92.1	117.4	80.9	90.5	69.5
		62 (16.7)	152.4	118.1	131.6	107.2	109.0	95.8	86.2	83.9	70.9	70.9
	3750	72 (22.2)	253.9	124.2	229.9	113.3	203.8	101.4	175.1	89.0	143.9	76.3
		67 (19.4)	213.4	132.1	189.5	120.1	163.4	107.7	135.0	95.0	104.0	82.0
		62 (16.7)	175.8	138.6	151.9	126.1	125.8	113.1	99.4	99.4	83.3	83.3
12	3000	72 (22.2)	221.4	107.7	200.6	163.3	177.7	117.8	152.8	79.1	125.7	125.7
		67 (19.4)	185.4	113.8	164.7	103.1	142.1	92.1	117.4	80.9	90.5	69.5
		62 (16.7)	152.4	118.1	131.6	107.2	109.0	95.8	86.2	83.9	70.9	70.9
	4000	72 (22.2)	263.7	129.4	238.7	117.9	211.6	105.6	181.9	92.8	149.4	79.6
		67 (19.4)	221.7	137.8	197.0	125.4	169.9	112.6	140.3	99.4	108.1	85.9
		62 (16.7)	182.9	144.9	158.0	132.1	130.8	118.5	104.0	104.0	87.2	87.2
	5000	72 (22.2)	298.3	147.4	270.2	134.4	239.6	120.8	205.9	106.6	169.0	91.9
		67 (19.4)	251.7	158.5	223.7	144.8	193.0	130.6	159.4	115.9	122.9	100.7
		62 (16.7)	208.3	168.6	180.1	154.3	149.1	138.5	120.4	120.4	101.5	101.5
16	4500	72 (22.2)	360.1	174.8	326.2	260.8	289.1	187.9	248.7	126.7	204.7	204.7
		67 (19.4)	300.7	183.1	267.0	165.3	230.4	147.2	190.2	128.6	146.8	109.9
		62 (16.7)	246.5	188.2	212.7	170.0	176.0	151.4	138.3	132.3	111.9	111.9
	6000	72 (22.2)	435.7	212.1	394.7	193.6	349.4	172.9	300.3	151.3	246.8	129.2
		67 (19.4)	365.2	224.3	324.1	203.3	279.5	181.6	230.8	159.5	177.6	136.9
		62 (16.7)	300.2	233.1	259.1	211.5	214.3	189.0	169.6	165.5	139.7	139.7
	7500	72 (22.2)	499.1	244.5	451.7	222.9	400.1	199.4	343.7	175.1	282.2	150.0
		67 (19.4)	419.5	260.2	372.5	236.6	321.1	212.2	265.0	187.0	203.9	161.3
		62 (16.7)	345.9	273.1	298.6	248.6	247.0	222.8	195.7	195.7	164.0	164.0
25	6000	72 (22.2)	443.7	215.8	406.1	329.5	363.8	240.8	317.1	164.0	265.2	265.2
		67 (19.4)	374.1	229.7	335.9	210.2	293.5	189.7	246.5	168.3	194.4	146.0
		62 (16.7)	309.8	240.3	271.0	219.9	227.9	198.4	182.4	175.5	149.2	149.2
	8000	72 (22.2)	523.5	257.1	479.7	236.8	430.7	214.8	375.8	191.3	314.5	166.4
		67 (19.4)	443.7	276.5	399.2	254.6	349.3	231.1	293.7	206.4	232.0	180.5
		62 (16.7)	369.1	293.6	323.5	270.3	272.6	245.2	220.6	217.2	184.8	184.8
	10000	72 (22.2)	586.4	289.8	538.6	268.1	484.6	244.5	423.1	218.9	354.4	191.6
		67 (19.4)	499.5	316.4	450.2	292.8	394.6	267.3	332.3	240.1	262.8	211.4
		62 (16.7)	417.2	340.3	366.3	314.9	309.4	286.4	253.1	253.1	215.4	215.4

LEGEND

TC – Total Capacity Gross (Mbtuh)

SHC – Sensible Heat Gross (Mbtuh)

40RUQ

S
m

PERFORMANCE DATA (cont.)

HYDRONIC HEATING CAPACITIES

UNIT	AIRFLOW (Cfm)	1-ROW STEAM*		2-ROW HOT WATER COIL†			
		Cap.	Ldb	Cap.	Ldb	Water Flow (Gpm)	PD
40RUQ07	1,800	146	134	156.0	140	15.6	3.4
	2,400	173	126	183.0	131	18.3	4.3
	3,000	209	123	206.0	124	20.6	5.2
40RUQ08	2,250	168	129	174.0	133	17.4	4.0
	3,000	209	123	206.0	124	20.6	5.2
	3,750	240	117	238.0	118	23.8	6.5
40RUQ12	3,000	209	123	299.0	152	29.9	5.0
	4,000	243	115	275.0	124	27.5	6.6
	5,000	279	111	316.0	119	31.6	8.2
40RUQ16	4,500	402	141	412.0	145	41.2	4.5
	6,000	458	129	471.0	133	47.1	5.5
	7,500	479	118	529.0	125	52.9	6.6
40RUQ25	6,000	458	129	506.0	138	50.6	5.1
	8,000	487	115	584.0	128	58.4	6.3
	10,000	499	105	652.0	120	65.2	7.5

40RUQ

LEGEND:

Cap. – Capacity (Btuh in thousands)

Ldb – Leaving Air Dry Bulb Temp (°F)

PD – Pressure Drop (ft water)

* Based on 5 psig steam, 60° F entering-air temperature. All steam coils are non-freeze type.

† Based on 200° F entering water, 20° F water temperature drop, 60° F entering-air temperature.

NOTES:

1. Maximum operating limits for heating coils: 20 psig at 260°F.

2. Leaving db = ent db (°F) + $\frac{\text{Capacity (Btuh)}}{1.1 \times \text{cfm}}$

3. See Heating Correction Factors table.

HEATING CORRECTION FACTORS

HOT WATER COIL						
Water Temp Drop °F (°C)	Ent Water Temp °F (°C)	Entering-Air Temp °F (°C)				
		40 (4.4)	50 (10)	60 (15.6)	70 (21.1)	80 (26.7)
10 (-12.2)	140 (60)	0.72	0.64	0.57	0.49	0.41
	160 (71)	0.89	0.81	0.74	0.66	0.58
	180 (82)	1.06	0.98	0.90	0.83	0.75
	200 (93)	1.22	1.15	1.07	1.00	0.92
	220 (104)	1.39	1.32	1.24	1.17	1.09
20 (-6.7)	140 (60)	0.64	0.57	0.49	0.41	0.33
	160 (71)	0.81	0.74	0.66	0.58	0.51
	180 (82)	0.98	0.91	0.83	0.75	0.68
	200 (93)	1.15	1.08	1.00	0.93	0.85
	220 (104)	1.32	1.25	1.17	1.10	1.02
30 (-1.1)	140 (60)	0.56	0.49	0.41	0.33	0.24
	160 (71)	0.74	0.66	0.58	0.51	0.43
	180 (82)	0.91	0.83	0.76	0.68	0.60
	200 (93)	1.08	1.00	0.93	0.85	0.78
	220 (104)	1.25	1.18	1.10	1.03	0.95

STEAM COIL					
Steam Pressure (psig)	Entering-Air Temp °F (°C)				
	40 (4.4)	50 (10)	60 (15.6)	70 (21.1)	80 (26.7)
0	1.06	0.98	0.91	0.85	0.78
2	1.09	1.02	0.95	0.89	0.82
5	1.13	1.06	1.00	0.93	0.87

NOTE: Multiply capacity given in the Hydronic Heating Capacities table by the correction factor for conditions at which unit is actually operating. Correct leaving-air temperature using formula in Note 2 of Hydronic Heating Capacities table.

PERFORMANCE DATA (cont.)

FAN PERFORMANCE DATA — 40RUQ 0.0-1.2 in. wg ESP — 60 Hz

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in. wg)													
		0.0		0.2		0.4		0.6		0.8		1.0		1.2	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
40RUQ 07	1,800	399	0.19	454	0.24	548	0.35	634	0.47	<u>713</u>	<u>0.60</u>	<u>785</u>	<u>0.74</u>	<u>850</u>	<u>0.89</u>
	2,100	446	0.28	497	0.34	583	0.46	660	0.59	<u>733</u>	<u>0.73</u>	<u>802</u>	<u>0.88</u>	<u>867</u>	<u>1.05</u>
	2,400	498	0.40	541	0.47	622	0.60	<u>693</u>	<u>0.74</u>	<u>760</u>	<u>0.89</u>	<u>824</u>	<u>1.05</u>	<u>885</u>	<u>1.22</u>
	2,700	544	0.55	588	0.63	663	0.78	<u>730</u>	<u>0.93</u>	<u>792</u>	<u>1.09</u>	<u>851</u>	<u>1.26</u>	<u>909</u>	<u>1.44</u>
	3,000	594	0.73	635	0.82	<u>707</u>	<u>0.99</u>	<u>770</u>	<u>1.15</u>	<u>828</u>	<u>1.32</u>	<u>883</u>	<u>1.50</u>	<u>937</u>	<u>1.69</u>
40RUQ 08	2,250	273	0.08	493	0.37	580	0.49	656	0.62	727	0.76	<u>794</u>	<u>0.92</u>	<u>858</u>	<u>1.08</u>
	2,600	322	0.15	540	0.52	622	0.66	693	0.81	<u>757</u>	<u>0.96</u>	<u>819</u>	<u>1.12</u>	<u>878</u>	<u>1.29</u>
	3,000	552	0.65	595	0.73	673	0.91	740	1.07	<u>800</u>	<u>1.24</u>	<u>856</u>	<u>1.41</u>	<u>910</u>	<u>1.60</u>
	3,400	615	0.91	653	1.01	726	1.21	<u>789</u>	<u>1.40</u>	<u>846</u>	<u>1.59</u>	<u>899</u>	<u>1.78</u>	<u>950</u>	<u>1.97</u>
	3,750	671	1.20	706	1.31	<u>773</u>	<u>1.53</u>	<u>834</u>	<u>1.74</u>	<u>889</u>	<u>1.95</u>	<u>940</u>	<u>2.16</u>	<u>988</u>	<u>2.37</u>
40RUQ 12	3,000	421	0.35	592	0.73	670	0.90	737	1.06	<u>797</u>	<u>1.23</u>	<u>854</u>	<u>1.41</u>	<u>908</u>	<u>1.59</u>
	3,500	626	0.98	664	1.08	735	1.28	798	1.48	<u>855</u>	<u>1.67</u>	<u>908</u>	<u>1.87</u>	<u>958</u>	<u>2.07</u>
	4,000	706	1.42	738	1.54	803	1.77	862	2.00	<u>917</u>	<u>2.23</u>	<u>967</u>	<u>2.45</u>	<u>1014</u>	<u>2.67</u>
	4,500	786	1.99	815	2.12	<u>873</u>	<u>2.39</u>	<u>929</u>	<u>2.65</u>	<u>980</u>	<u>2.90</u>	<u>1028</u>	<u>3.16</u>	<u>1073</u>	<u>3.41</u>
	5,000	<u>867</u>	<u>2.70</u>	<u>893</u>	<u>2.84</u>	<u>946</u>	<u>3.14</u>	<u>997</u>	<u>3.43</u>	<u>1046</u>	<u>3.72</u>	<u>1092</u>	<u>4.00</u>	<u>1135</u>	<u>4.28</u>
40RUQ 16	4,500	437	0.61	483	0.72	576	1.01	660	1.35	<u>732</u>	<u>1.69</u>	<u>797</u>	<u>2.03</u>	<u>856</u>	<u>2.38</u>
	5,300	499	0.95	538	1.07	617	1.37	696	1.74	<u>767</u>	<u>2.13</u>	<u>830</u>	<u>2.53</u>	<u>888</u>	<u>2.94</u>
	6,000	555	1.34	590	1.48	659	1.79	<u>730</u>	<u>2.17</u>	<u>798</u>	<u>2.59</u>	<u>860</u>	<u>3.04</u>	<u>918</u>	<u>3.49</u>
	6,800	620	1.91	651	2.06	<u>712</u>	<u>2.39</u>	<u>774</u>	<u>2.78</u>	<u>836</u>	<u>3.22</u>	<u>896</u>	<u>3.71</u>	<u>952</u>	<u>4.21</u>
	7,500	677	2.52	<u>706</u>	<u>2.69</u>	<u>761</u>	<u>3.04</u>	<u>817</u>	<u>3.44</u>	<u>873</u>	<u>3.89</u>	<u>929</u>	<u>4.39</u>	<u>984</u>	<u>4.93</u>
40RUQ 25	6,000	542	1.29	577	1.42	646	1.72	716	2.09	785	2.51	849	2.95	<u>907</u>	<u>3.40</u>
	7,000	620	1.99	652	2.15	711	2.48	771	2.85	831	3.28	<u>890</u>	<u>3.76</u>	<u>947</u>	<u>4.27</u>
	8,000	700	2.92	728	3.10	781	3.46	833	3.85	<u>885</u>	<u>4.29</u>	<u>938</u>	<u>4.78</u>	<u>990</u>	<u>5.32</u>
	9,000	781	4.10	806	4.30	854	4.71	<u>900</u>	<u>5.13</u>	<u>946</u>	<u>5.58</u>	<u>993</u>	<u>6.08</u>	<u>1039</u>	<u>6.62</u>
	10,000	862	5.56	<u>885</u>	<u>5.79</u>	<u>929</u>	<u>6.24</u>	<u>971</u>	<u>6.70</u>	<u>1012</u>	<u>7.18</u>	<u>1054</u>	<u>7.69</u>	<u>1096</u>	<u>8.24</u>

40RUQ

FAN PERFORMANCE DATA — 40RUQ 1.4-2.4 in. wg ESP — 60 Hz

UNIT	AIRFLOW (Cfm)	EXTERNAL STATIC PRESSURE (in. wg)											
		1.4		1.6		1.8		2.0		2.2		2.4	
		Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp	Rpm	Bhp
40RUQ 07	1,800	<u>910</u>	<u>1.04</u>	<u>965</u>	<u>1.20</u>	<u>1016</u>	<u>1.36</u>	<u>1065</u>	<u>1.52</u>	<u>1111</u>	<u>1.69</u>	<u>1155</u>	<u>1.86</u>
	2,100	<u>927</u>	<u>1.21</u>	<u>983</u>	<u>1.38</u>	<u>1035</u>	<u>1.56</u>	<u>1084</u>	<u>1.74</u>	<u>1131</u>	<u>1.92</u>	<u>1175</u>	<u>2.11</u>
	2,400	<u>944</u>	<u>1.41</u>	<u>999</u>	<u>1.59</u>	<u>1052</u>	<u>1.78</u>	<u>1101</u>	<u>1.98</u>	<u>1149</u>	<u>2.18</u>	<u>1193</u>	<u>2.38</u>
	2,700	<u>964</u>	<u>1.63</u>	<u>1018</u>	<u>1.82</u>	<u>1069</u>	<u>2.03</u>	<u>1118</u>	<u>2.24</u>	<u>1165</u>	<u>2.45</u>	—	—
	3,000	<u>989</u>	<u>1.89</u>	<u>1039</u>	<u>2.10</u>	<u>1089</u>	<u>2.31</u>	<u>1136</u>	<u>2.53</u>	<u>1183</u>	<u>2.76</u>	—	—
40RUQ 08	2,250	<u>918</u>	<u>1.26</u>	<u>975</u>	<u>1.43</u>	<u>1029</u>	<u>1.62</u>	<u>1079</u>	<u>1.80</u>	<u>1126</u>	<u>1.99</u>	<u>1172</u>	<u>2.18</u>
	2,600	<u>936</u>	<u>1.48</u>	<u>991</u>	<u>1.67</u>	<u>1044</u>	<u>1.87</u>	<u>1094</u>	<u>2.07</u>	<u>1142</u>	<u>2.28</u>	<u>1188</u>	<u>2.49</u>
	3,000	<u>963</u>	<u>1.79</u>	<u>1014</u>	<u>1.99</u>	<u>1064</u>	<u>2.20</u>	<u>1113</u>	<u>2.42</u>	<u>1159</u>	<u>2.64</u>	—	—
	3,400	<u>998</u>	<u>2.18</u>	<u>1045</u>	<u>2.39</u>	<u>1092</u>	<u>2.61</u>	<u>1137</u>	<u>2.83</u>	<u>1182</u>	<u>3.07</u>	—	—
	3,750	<u>1034</u>	<u>2.58</u>	<u>1078</u>	<u>2.80</u>	<u>1122</u>	<u>3.03</u>	<u>1164</u>	<u>3.27</u>	—	—	—	—
40RUQ 12	3,000	<u>961</u>	<u>1.78</u>	<u>1012</u>	<u>1.98</u>	<u>1062</u>	<u>2.19</u>	<u>1111</u>	<u>2.41</u>	<u>1158</u>	<u>2.64</u>	—	—
	3,500	<u>1005</u>	<u>2.27</u>	<u>1052</u>	<u>2.49</u>	<u>1098</u>	<u>2.71</u>	<u>1142</u>	<u>2.94</u>	<u>1186</u>	<u>3.18</u>	—	—
	4,000	<u>1058</u>	<u>2.90</u>	<u>1101</u>	<u>3.13</u>	<u>1143</u>	<u>3.36</u>	<u>1184</u>	<u>3.60</u>	—	—	—	—
	4,500	<u>1116</u>	<u>3.66</u>	<u>1157</u>	<u>3.91</u>	<u>1196</u>	<u>4.16</u>	—	—	—	—	—	—
	5,000	<u>1176</u>	<u>4.56</u>	—	—	—	—	—	—	—	—	—	—
40RUQ 16	4,500	<u>912</u>	<u>2.75</u>	<u>967</u>	<u>3.12</u>	<u>1019</u>	<u>3.52</u>	<u>1070</u>	<u>3.92</u>	<u>1120</u>	<u>4.35</u>	<u>1168</u>	<u>4.79</u>
	5,300	<u>942</u>	<u>3.34</u>	<u>992</u>	<u>3.76</u>	<u>1041</u>	<u>4.18</u>	<u>1088</u>	<u>4.61</u>	<u>1134</u>	<u>5.06</u>	<u>1179</u>	<u>5.52</u>
	6,000	<u>971</u>	<u>3.95</u>	<u>1020</u>	<u>4.40</u>	<u>1067</u>	<u>4.86</u>	<u>1112</u>	<u>5.33</u>	<u>1156</u>	<u>5.81</u>	<u>1198</u>	<u>6.29</u>
	6,800	<u>1005</u>	<u>4.72</u>	<u>1054</u>	<u>5.23</u>	<u>1101</u>	<u>5.75</u>	<u>1145</u>	<u>6.27</u>	<u>1187</u>	<u>6.79</u>	—	—
	7,500	1036	5.48	1084	6.04	1131	6.61	1174	7.17	—	—	—	—
40RUQ 25	6,000	<u>961</u>	<u>3.86</u>	<u>1011</u>	<u>4.31</u>	<u>1058</u>	<u>4.77</u>	<u>1104</u>	<u>5.24</u>	<u>1147</u>	<u>5.71</u>	—	—
	7,000	<u>1000</u>	<u>4.79</u>	<u>1050</u>	<u>5.32</u>	<u>1097</u>	<u>5.85</u>	<u>1142</u>	<u>6.38</u>	<u>1184</u>	<u>6.91</u>	—	—
	8,000	<u>1041</u>	<u>5.88</u>	<u>1090</u>	<u>6.47</u>	<u>1137</u>	<u>7.07</u>	<u>1181</u>	<u>7.67</u>	—	—	—	—
	9,000	<u>1086</u>	<u>7.21</u>	<u>1133</u>	<u>7.82</u>	<u>1178</u>	<u>8.47</u>	—	—	—	—	—	—
	10,000	1138	8.83	1180	9.46	—	—	—	—	—	—	—	—

LEGEND

ESP — External Static Pressure

Bold indicates field-supplied drive is required.

Plain type indicates standard motor and standard drive.

Underline indicates a different motor and drive combination other than the standard motor and standard drive combination is required. Refer to fan motor and drive tables to complete selection.

PERFORMANCE DATA (cont.)

DUCT SOUND POWER LEVELS (Lw)

MODEL	SIZE	CFM	dB(A)	OCTAVE BAND CENTER FREQUENCY (Hz)						
				63	125	250	500	1000	2000	4000
40RUQ	07	2,400	86.3	93.2	89.2	85.2	84.2	80.2	78.2	74.2
	08	3,000	88.3	95.3	91.3	87.3	86.3	82.3	80.3	76.3
	12	4,000	92.0	99.0	95.0	91.0	90.0	86.0	84.0	80.0
	16	6,000	92.9	99.2	95.2	91.2	92.2	86.2	84.2	80.2
	25	8,000	96.4	102.6	98.6	94.6	95.6	89.2	87.6	839.6

LEGEND:

ASHRAE – American Society of Heating, Refrigerating and Air Conditioning, Inc.

HVAC – Heating, Ventilation and Air Conditioning

NOTES:

1. The above estimated sound power levels are based upon the ASHRAE calculation approach from the ASHRAE HVAC Systems and Applications handbook.
2. Since this data is calculated, these sound power levels may be different than the actual sound power levels.
3. The acoustic center of the unit is located at the geometric center of the unit.

FACTORY-SUPPLIED FILTER PRESSURE DROP

SIZE	UNIT	AIRFLOW (Cfm)	PRESSURE DROP (in. wg)
07	40RUQ	1,800	0.05
		2,400	0.08
		3,000	0.11
08	40RUQ	2,250	0.07
		3,000	0.11
		3,750	0.15
12	40RUQ	3,000	0.11
		4,000	0.17
		5,000	0.23
16	40RUQ	4,500	0.08
		6,000	0.12
		7,500	0.17
25	40RUQ	6,000	0.12
		8,000	0.19
		10,000	0.26

ACCESSORY PLENUM AIR THROW DATA (Ft)

UNIT	AIRFLOW (Cfm)	VANE DEFLECTION		
		Straight	21 ¹ / ₂ °	45°
40RUQ07	2,400	39	33	24
40RUQ08	3,000	45	38	28
40RUQ12	4,000	55	46	33
40RUQ16	6,000	50	43	31
40RUQ25	8,000	60	51	37

NOTE: Throw distances shown are for 75 fpm terminal velocity. Use the following multipliers to determine throw values for other terminal velocities.

TERMINAL VELOCITY (Fpm)	THROW FACTOR
50	X 1.50
100	X 0.75
150	X 0.50

ACCESSORY PRESSURE DROP (in. wg)

UNIT	AIRFLOW (Cfm)	DISCHARGE PLENUM	RETURN AIR GRILLE	Hot Water	Steam	Electric	ECONOMIZER
40RUQ07	1,800	0.06	0.01	0.10	0.10	0.04	0.05
	2,400	0.10	0.01	0.16	0.16	0.06	0.07
	3,000	0.14	0.02	0.23	0.23	0.10	0.09
40RUQ08	2,250	0.09	0.01	0.15	0.15	0.06	0.06
	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	3,750	0.21	0.03	0.35	0.35	0.15	0.15
40RUQ12	3,000	0.14	0.02	0.23	0.23	0.10	0.09
	4,000	0.22	0.04	0.37	0.37	0.17	0.17
	5,000	0.32	0.06	0.53	0.53	0.26	0.28
40RUQ16	4,500	0.10	0.01	0.15	0.15	0.06	0.06
	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	7,500	0.23	0.03	0.33	0.33	0.15	0.15
40RUQ25	6,000	0.16	0.02	0.23	0.23	0.10	0.09
	8,000	0.26	0.04	0.37	0.37	0.17	0.17
	10,000	0.37	0.06	0.53	0.53	0.26	0.28

ELECTRICAL DATA

STANDARD MOTORS

UNIT	V*-PH-Hz	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	Minimum Circuit Amps	MOCP
40RUQ07	208/230-1-60	187-253	1.3 (0.97)	7.6	9.5	15
	208/230-3-60	187-253	2.4 (1.79)	5.8	7.5	15
	460-3-60	414-506	2.4 (1.79)	2.6	3.3	15
	575-3-60	518-632	1.0 (0.75)	1.4	1.7	15
40RUQ08	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	20
	208/230-3-60	187-253	2.4 (1.79)	5.8	6.5	15
	460-3-60	414-506	2.4 (1.79)	2.6	3.3	15
	575-3-60	518-632	2.0 (1.49)	2.4	3.0	15
40RUQ12	208/230-3-60	187-253	2.4 (1.79)	5.8	7.3	15
	460-3-60	414-506	2.4 (1.79)	2.6	3.3	15
	575-3-60	518-632	2.0 (1.49)	2.4	3.0	15
40RUQ16	208/230-3-60	187-253	3.7 (2.76)	10.6	13.3	20
	460-3-60	414-506	3.7 (2.76)	4.8	6.0	15
	575-3-60	518-632	3.0 (2.24)	3.8	4.8	15
40RUQ25	208/230-3-60	187-253	5.0 (3.73)	14.7/13.6	18.4/17.0	30/25
	460-3-60	414-506	5.0 (3.73)	6.8	8.5	15
	575-3-60	518-632	5.0 (3.73)	5.1	6.4	15

40RUQ

LEGEND

FLA — Full Load Amps

MOCP — Maximum Overcurrent Protection

* Motors are designed for satisfactory operation within 10% of nominal voltages shown. Voltages should not exceed the limits shown in the Voltage Limits column.

NOTES:

1. Minimum circuit amps (MCA) and MOCP values are calculated in accordance with NEC (National Electrical Code) (U.S.A. standard), Article 440.
2. Motor FLA values are established in accordance with UL (Underwriters' Laboratories) Standard 1995 (U.S.A. standard).
3. Indoor fan motors 5 hp and larger meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT) effective October 24, 1997.
4. Unbalanced 3-Phase Supply Voltage
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 230-3-60



AB = 224 v

BC = 231 v

AC = 226 v

$$\text{Average Voltage} = \frac{(224 + 231 + 226)}{3} = \frac{681}{3} = 227$$

Determine maximum deviation from average voltage.

(AB) 227 - 224 = 3 v

(BC) 231 - 227 = 4 v

(AC) 227 - 226 = 1 v

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{4}{227} = 1.76\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.



ELECTRICAL DATA (cont.)

ALTERNATE MOTORS

40RUQ

UNIT	V*-PH-Hz	VOLTAGE LIMITS	FAN MOTOR		POWER SUPPLY	
			Hp (kW)	FLA	Minimum Circuit Amps	MOCP
40RUQ07	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	20
	208/230-3-60	187-253	2.9 (2.16)	7.5	9.4	15
	460-3-60	414-506	2.9 (2.16)	3.4	4.3	15
	575-3-60	518-632	2.0 (1.49)	2.3	2.9	15
40RUQ08	208/230-1-60	187-253	2.4 (1.79)	11.0	13.8	15
	208/230-3-60	187-253	2.9 (2.16)	7.5	9.4	15
	460-3-60	414-506	2.9 (2.16)	3.4	4.3	15
	575-3-60	518-632	3.0 (2.24)	3.8	4.8	15
40RUQ12	208/230-3-60	187-253	3.7 (2.76)	10.2	12.8	20
	460-3-60	414-506	3.7 (2.76)	4.8	6.0	15
	575-3-60	518-632	3.0 (2.24)	3.8	4.8	15
40RUQ16	208/230-3-60	187-253	5.0 (3.73)	14.7/13.6	18.4/17.0	30/25
	460-3-60	414-506	5.0 (3.73)	6.8	8.5	15
	575-3-60	518-632	5.0 (3.73)	5.1	6.4	15
40RUQ25	208/230-3-60	187-253	7.5 (5.59)	21.5/19.4	26.9/24.3	45/40
	460-3-60	414-506	7.5 (5.59)	9.7	12.1	20
	575-3-60	518-632	7.5 (5.59)	7.8	9.8	15

LEGEND

FLA — Full Load Amps

MOCP — Maximum Overcurrent Protection

* Motors are designed for satisfactory operation within 10% of nominal voltages shown. Voltages should not exceed the limits shown in the Voltage Limits column.

NOTES:

- Minimum circuit amps (MCA) and MOCP values are calculated in accordance with NEC (National Electrical Code) (U.S.A. standard), Article 440.
- Motor FLA values are established in accordance with UL (Underwriters' Laboratories) Standard 1995 (U.S.A. standard).
- Indoor fan motors 5 hp and larger meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT) effective October 24, 1997.
- Unbalanced 3-Phase Supply Voltage
Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{\text{max voltage deviation from average voltage}}{\text{average voltage}}$$

Example: Supply voltage is 230-3-60



AB = 224 v
BC = 231 v
AC = 226 v

$$\text{Average Voltage} = \frac{(224 + 231 + 226)}{3} = \frac{681}{3} = 227$$

Determine maximum deviation from average voltage.

(AB) 227 - 224 = 3 v

(BC) 231 - 227 = 4 v

(AC) 227 - 226 = 1 v

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{4}{227} = 1.76\%$$

This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

IMPORTANT: If the supply voltage phase imbalance is more than 2%, contact your local electric utility company immediately.



ELECTRICAL DATA (cont.)

ELECTRIC HEATER DATA

HEATER PART NO. CAELHEAT	SIZE	V-PH-Hz	FAN MOTOR			ELECTRIC HEATER(S)						
			Hp	kW	FLA	Nominal Capacity (kW)	Actual Capacity (kW)			FLA	MCA*	MOCP*
							Stage 1	Stage 2	Total			
001A00	208-3-60		1.3†	0.97	7.6	5	3.8	—	3.8	10.4	22.5	25
			2.4†	1.79	11.0	5	3.8	—	3.8	10.4	26.8	35
			2.4	1.79	5.2	5	3.8	—	3.8	10.4	19.5	20
			2.9	2.16	7.5	5	3.8	—	3.8	10.4	22.4	25
			3.7	2.76	10.2	5	3.8	—	3.8	10.4	25.8	30
			1.3†	0.97	7.6	5	5.0	—	5.0	12.0	24.5	25
	240-3-60		2.4†	1.79	11.0	5	5.0	—	5.0	12.0	28.8	35
			2.4	1.79	5.2	5	5.0	—	5.0	12.0	21.5	25
			2.9	2.16	7.5	5	5.0	—	5.0	12.0	24.4	25
			3.7	2.76	10.2	5	5.0	—	5.0	12.0	27.8	30
			2.4	1.79	2.6	5	5.0	—	5.0	6.00	10.8	15
			2.9	2.16	3.4	5	5.0	—	5.0	6.00	11.8	15
002A00	480-3-60		3.7	2.76	4.8	5	5.0	—	5.0	6.00	13.5	15
			1.0	0.75	1.4	5	5.0	—	5.0	5.00	8.0	15
			2.0	1.49	2.3	5	5.0	—	5.0	5.00	9.2	15
003A00	575-3-60		3.0	2.24	3.8	5	5.0	—	5.0	5.00	11.0	15
			1.3†	0.97	7.6	10	7.5	—	7.5	20.8	35.6	40
			2.4†	1.79	11.0	10	7.5	—	7.5	20.8	39.8	40
004A00	208-3-60		2.4	1.79	5.2	10	7.5	—	7.5	20.8	32.6	35
			2.9	2.16	7.5	10	7.5	—	7.5	20.8	35.4	40
			3.7	2.76	10.2	10	7.5	—	7.5	20.8	38.8	40
			1.3†	0.97	7.6	10	10.0	—	10.0	24.1	39.6	40
			2.4†	1.79	11.0	10	10.0	—	10.0	24.1	43.8	50
			2.4	1.79	5.2	10	10.0	—	10.0	24.1	36.6	40
	240-3-60		2.9	2.16	7.5	10	10.0	—	10.0	24.1	39.4	40
			3.7	2.76	10.2	10	10.0	—	10.0	24.1	42.8	50
			2.4	1.79	2.6	10	10.0	—	10.0	12.0	18.3	20
			2.9	2.16	3.4	10	10.0	—	10.0	12.0	19.3	20
			3.7	2.76	4.8	10	10.0	—	10.0	12.0	21.0	25
			1.0	0.75	1.4	10	10.0	—	10.0	10.0	14.3	15
005A00	480-3-60		2.0	1.49	2.3	10	10.0	—	10.0	10.0	15.4	20
			3.0	2.24	3.8	10	10.0	—	10.0	10.0	17.3	20
			1.3†	0.97	7.6	15	11.3	—	11.3	31.3	48.6	50
006A00	208-3-60		2.4†	1.79	11.0	15	11.3	—	11.3	31.3	52.9	60
			2.4	1.79	5.2	15	11.3	—	11.3	31.3	45.6	50
			2.9	2.16	7.5	15	11.3	—	11.3	31.3	48.5	50
			3.7	2.76	10.2	15	11.3	—	11.3	31.3	51.9	60
			1.3†	0.97	7.6	15	15.0	—	15.0	36.1	54.6	60
			2.4†	1.79	11.0	15	15.0	—	15.0	36.1	58.9	60
	240-3-60		2.4	1.79	5.2	15	15.0	—	15.0	36.1	51.6	60
			2.9	2.16	7.5	15	15.0	—	15.0	36.1	54.5	60
			3.7	2.76	10.2	15	15.0	—	15.0	36.1	57.9	60

40RUQ

LEGEND

- FLA** — Full Load Amps
- Hp** — Horsepower
- MCA** — Minimum Circuit Amps
- MOCP** — Maximum Overcurrent Protection (Amps)

* Values shown are for single-point connection of electric heat accessory and air handler.

† Single-phase motors. All other motors are 3-phase.

NOTES:

- Electrical resistance heaters are rated at 240 v, 480 v, or 575 v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.

HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089

- The following equation converts kW of heat energy to Btuh: $kW \times 3,412 = Btuh$.
- Heater contactor coils are 24 v and require 8 va holding current.
- Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
- MCA and MOCP values apply to both standard and alternate factory-supplied motors.
- Approximate shipping weight for CAELHEAT001A00-015A00 is 55 lb (25 kg) each.
- Approximate shipping weight for CAELHEAT016A00-027A-- is 60 LBS. (27 kg) each.



ELECTRICAL DATA (cont.)

ELECTRIC HEATER DATA (cont.)

40RUQ

HEATER PART NO. CAELHEAT	SIZE	V-PH-Hz	FAN MOTOR			ELECTRIC HEATER(S)						
			Hp	kW	FLA	Nominal Capacity (kW)	Actual Capacity (kW)			FLA	MCA*	MOCP*
							Stage 1	Stage 2	Total			
008A00	480-3-60		2.4	1.79	2.6	15	15.0	—	15.0	18.0	25.8	30
			2.9	2.16	3.4	15	15.0	—	15.0	18.0	26.8	30
			3.7	2.76	4.8	15	15.0	—	15.0	18.0	28.6	30
009A00	575-3-60		1.0	0.75	1.4	15	15.0	—	15.0	15.1	20.6	25
			2.0	1.49	2.3	15	15.0	—	15.0	15.1	21.7	25
			3.0	2.24	3.8	15	15.0	—	15.0	15.1	23.6	25
010A00	40RUQ 07-12	208-3-60	1.3†	0.97	7.6	25	11.3	7.5	18.8	52.1	74.7	80
			2.4†	1.79	11.0	25	11.3	7.5	18.8	52.1	78.9	80
			2.4	1.79	5.2	25	11.3	7.5	18.8	52.1	71.7	80
			2.9	2.16	7.5	25	11.3	7.5	18.8	52.1	74.5	80
			3.7	2.76	10.2	25	11.3	7.5	18.8	52.1	77.9	80
			3.7	2.76	10.2	25	11.3	7.5	18.8	52.1	77.9	80
	240-3-60	1.3†	0.97	7.6	25	15.0	10.0	25.0	60.1	84.7	90	
		2.4†	1.79	11.0	25	15.0	10.0	25.0	60.1	88.9	90	
		2.4	1.79	5.2	25	15.0	10.0	25.0	60.1	81.7	90	
		2.9	2.16	7.5	25	15.0	10.0	25.0	60.1	84.6	90	
		3.7	2.76	10.2	25	15.0	10.0	25.0	60.1	87.9	90	
		3.7	2.76	10.2	25	15.0	10.0	25.0	60.1	87.9	90	
011A00	480-3-60		2.4	1.79	2.6	25	15.0	10.0	25.0	30.1	40.8	50
			2.9	2.16	3.4	25	15.0	10.0	25.0	30.1	41.8	50
			3.7	2.76	4.8	25	15.0	10.0	25.0	30.1	43.6	50
012A00	575-3-60		1.0	0.75	1.4	25	15.0	10.0	25.0	25.1	33.1	35
			2.0	1.49	2.3	25	15.0	10.0	25.0	25.1	34.3	35
			3.0	2.24	3.8	25	15.0	10.0	25.0	25.1	36.1	40
013A00	40RUQ 08,12	208-3-60	2.4†	1.79	11.0	35	15.0	11.3	26.3	73.0	105.0	110
			2.4	1.79	5.2	35	15.0	11.3	26.3	73.0	97.7	100
			2.9	2.16	7.5	35	15.0	11.3	26.3	73.0	100.6	110
			3.7	2.76	10.2	35	15.0	11.3	26.3	73.0	104.0	110
			3.7	2.76	10.2	35	15.0	11.3	26.3	73.0	104.0	110
			3.7	2.76	10.2	35	15.0	11.3	26.3	73.0	104.0	110
	240-3-60	2.4†	1.79	11.0	35	20.0	15.0	35.0	84.2	119.0	125	
		2.4	1.79	5.2	35	20.0	15.0	35.0	84.2	111.7	125	
		2.9	2.16	7.5	35	20.0	15.0	35.0	84.2	114.6	125	
		3.7	2.76	10.2	35	20.0	15.0	35.0	84.2	118.0	125	
		3.7	2.76	10.2	35	20.0	15.0	35.0	84.2	118.0	125	
		3.7	2.76	10.2	35	20.0	15.0	35.0	84.2	118.0	125	
014A00	480-3-60		2.4	1.79	2.6	35	20.0	15.0	35.0	42.1	55.9	60
			2.9	2.16	3.4	35	20.0	15.0	35.0	42.1	56.9	60
			3.7	2.76	4.8	35	20.0	15.0	35.0	42.1	58.6	60
015A00	575-3-60		2.0	1.49	2.3	35	20.0	15.0	35.0	35.1	46.8	50
			3.0	2.24	3.8	35	20.0	15.0	35.0	35.1	48.7	50

LEGEND

- FLA** — Full Load Amps
- Hp** — Horsepower
- MCA** — Minimum Circuit Amps
- MOCP** — Maximum Overcurrent Protection (Amps)

* Values shown are for single-point connection of electric heat accessory and air handler.

† Single-phase motors. All other motors are 3-phase.

NOTES:

1. Electrical resistance heaters are rated at 240 v, 480 v, or 575 v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.

HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089

2. The following equation converts kW of heat energy to Btuh: kW x 3,412 = Btuh.
3. Heater contactor coils are 24 v and require 8 va holding current.
4. Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
5. MCA and MOCP values apply to both standard and alternate factory-supplied motors.
6. Approximate shipping weight for CAELHEAT001A00-015A00 is 55 lb (25 kg) each.
7. Approximate shipping weight for CAELHEAT016A00-027A-- is 60 LBS. (27 kg) each.



ELECTRICAL DATA (cont.)

HEATER PART NO. CAELHEAT	SIZE	V-PH-Hz	FAN MOTOR			ELECTRIC HEATER(S)					MCA*	MOCP*
						Nominal Capacity (kW)	Actual Capacity (kW)			FLA		
			Hp	kW	FLA		Stage 1	Stage 2	Total			
016A00	40RUQ 16, 25	208-3-60	2.9	2.16	7.5	10	7.5	—	7.5	20.8	35.4	40
			3.7	2.76	10.2	10	7.5	—	7.5	20.8	44.4	40
			5.0	3.73	14.7	10	7.5	—	7.5	20.8	41.3	50
			7.5	5.59	21.5	10	7.5	—	7.5	20.8	52.9	60
		240-3-60	2.9	2.16	7.5	10	10.0	—	10.0	24.1	39.4	40
			3.7	2.76	10.2	10	10.0	—	10.0	24.1	42.8	50
			5.0	3.73	13.6	10	10.0	—	10.0	24.1	47.1	50
			7.5	5.59	19.4	10	10.0	—	10.0	24.1	54.4	60
017A00	480-3-60	2.9	2.16	3.4	10	10.0	—	10.0	12.0	19.3	20	
		3.7	2.76	4.8	10	10.0	—	10.0	12.0	21.0	25	
		5.0	3.73	6.8	10	10.0	—	10.0	12.0	23.5	25	
		7.5	5.59	9.7	10	10.0	—	10.0	12.0	27.2	30	
018A00	575-3-60	3.0	2.24	3.8	10	10.0	—	10.0	10.0	17.3	20	
		5.0	3.73	5.1	10	10.0	—	10.0	10.0	19.6	20	
		7.5	5.59	7.8	10	10.0	—	10.0	10.0	22.1	25	
019A00	208-3-60	2.9	2.16	7.5	20	14.9	—	14.9	41.5	51.2	70	
		3.7	2.76	10.2	20	14.9	—	14.9	41.5	64.6	70	
		5.0	3.73	14.7	20	14.9	—	14.9	41.5	70.2	80	
		7.5	5.59	21.5	20	14.9	—	14.9	41.5	78.7	80	
	240-3-60	2.9	2.16	7.5	20	19.9	—	19.9	47.9	69.2	70	
		3.7	2.76	10.2	20	19.9	—	19.9	47.9	72.6	80	
		5.0	3.73	13.6	20	19.9	—	19.9	47.9	76.8	80	
		7.5	5.59	19.4	20	19.9	—	19.9	47.9	84.1	80	
020A00	480-3-60	2.9	2.16	3.4	20	20.0	—	20.0	24.1	34.3	35	
		3.7	2.76	4.8	20	20.0	—	20.0	24.1	36.1	40	
		5.0	3.73	6.8	20	20.0	—	20.0	24.1	38.6	40	
		7.5	5.59	9.7	20	20.0	—	20.0	24.1	42.3	50	

40RUQ

LEGEND

- FLA** — Full Load Amps
- Hp** — Horsepower
- MCA** — Minimum Circuit Amps
- MOCP** — Maximum Overcurrent Protection (Amps)

* Values shown are for single-point connection of electric heat accessory and air handler.

† Single-phase motors. All other motors are 3-phase.

NOTES:

1. Electrical resistance heaters are rated at 240 v, 480 v, or 575 v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.

2. The following equation converts kW of heat energy to Btuh: kW x 3,412 = Btuh.
3. Heater contactor coils are 24 v and require 8 va holding current.
4. Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
5. MCA and MOCP values apply to both standard and alternate factory-supplied motors.
6. Approximate shipping weight for CAELHEAT001A00-015A00 is 55 lb (25 kg) each.
7. Approximate shipping weight for CAELHEAT016A00-027A-- is 60 LBS. (27 kg) each.

HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089



ELECTRICAL DATA (cont.)

40RUQ

HEATER PART NO. CAELHEAT	SIZE	V-PH-Hz	FAN MOTOR			ELECTRIC HEATER(S)					MCA*	MOCP*
						Nominal Capacity (kW)	Actual Capacity (kW)			FLA		
			Hp	kW	FLA		Stage 1	Stage 2	Total			
021A00	40RUQ 16, 25	575-3-60	3.0	2.24	3.8	20	20.0	—	20.0	20.1	29.9	30
			5.0	3.73	5.1	20	20.0	—	20.0	20.1	31.5	35
			7.5	5.59	7.8	20	20.0	—	20.0	20.1	34.9	35
022A00		208-3-60	2.9	2.16	7.5	30	15.0	7.5	22.5	62.5	87.5	90
			3.7	2.76	10.2	30	15.0	7.5	22.5	62.5	90.9	100
			5.0	3.73	14.7	30	15.0	7.5	22.5	62.5	96.5	100
		7.5	5.59	21.5	30	15.0	7.5	22.5	62.5	105.0	110	
		240-3-60	2.9	2.16	7.5	30	20.0	10.0	30.0	72.2	99.6	100
			3.7	2.76	10.2	30	20.0	10.0	30.0	72.2	103.0	110
5.0			3.73	13.6	30	20.0	10.0	30.0	72.2	107.2	110	
7.5		5.59	19.4	30	20.0	10.0	30.0	72.2	114.5	125		
023A00		480-3-60	2.9	2.16	3.4	30	20.0	10.0	30.0	36.1	49.4	50
	3.7		2.76	4.8	30	20.0	10.0	30.0	36.1	51.1	60	
	5.0		3.73	6.8	30	20.0	10.0	30.0	36.1	53.6	60	
	7.5		5.59	9.7	30	20.0	10.0	30.0	36.1	57.2	60	
024A00	575-3-60	3.0	2.24	3.8	30	20.0	10.0	30.0	30.1	42.4	50	
		5.0	3.73	5.1	30	20.0	10.0	30.0	30.1	44.0	50	
		7.5	5.59	7.8	30	20.0	10.0	30.0	30.1	47.4	50	
025A00	208-3-60	3.7	2.76	10.2	50	22.6	15.0	37.6	104.3	143.1	150	
		5.0	3.73	14.7	50	22.6	15.0	37.6	104.3	148.7	150	
		7.5	5.59	21.5	50	22.6	15.0	37.6	104.3	157.2	175	
	240-3-60	3.7	2.76	10.2	50	30.0	20.0	50.0	120.3	163.1	175	
		5.0	3.73	13.6	50	30.0	20.0	50.0	120.3	167.4	175	
		7.5	5.59	19.4	50	30.0	20.0	50.0	120.3	174.6	175	
026A00	480-3-60	3.7	2.76	4.8	50	30.0	20.0	50.0	60.1	81.2	90	
		5.0	3.73	6.4	50	30.0	20.0	50.0	60.1	83.2	90	
		7.5	5.59	9.7	50	30.0	20.0	50.0	60.1	87.3	90	
	400-3-50	2.9	2.16	3.4	50	20.8	13.9	34.7	50.1	66.9	70	
		5.0	3.73	7.6	50	20.8	13.9	34.7	50.1	72.1	80	
		7.5	5.59	11.4	50	20.8	13.9	34.7	50.1	76.9	80	
027A00	575-3-60	3.0	2.24	3.8	50	30.0	20.0	50.0	50.2	67.5	70	
		5.0	3.73	5.1	50	30.0	20.0	50.0	50.2	69.1	70	
		7.5	5.59	7.8	50	30.0	20.0	50.0	50.2	72.5	80	

LEGEND

FLA — Full Load Amps

Hp — Horsepower

MCA — Minimum Circuit Amps

MOCP — Maximum Overcurrent Protection (Amps)

* Values shown are for single-point connection of electric heat accessory and air handler.

† Single-phase motors. All other motors are 3-phase.

NOTES:

- Electrical resistance heaters are rated at 240 v, 480 v, or 575 v. To determine heater capacity (kW) at unit nameplate multiply the 240-v, 480-v, or 575-v capacity (kW) by the factor shown in the table below for the unit voltage.

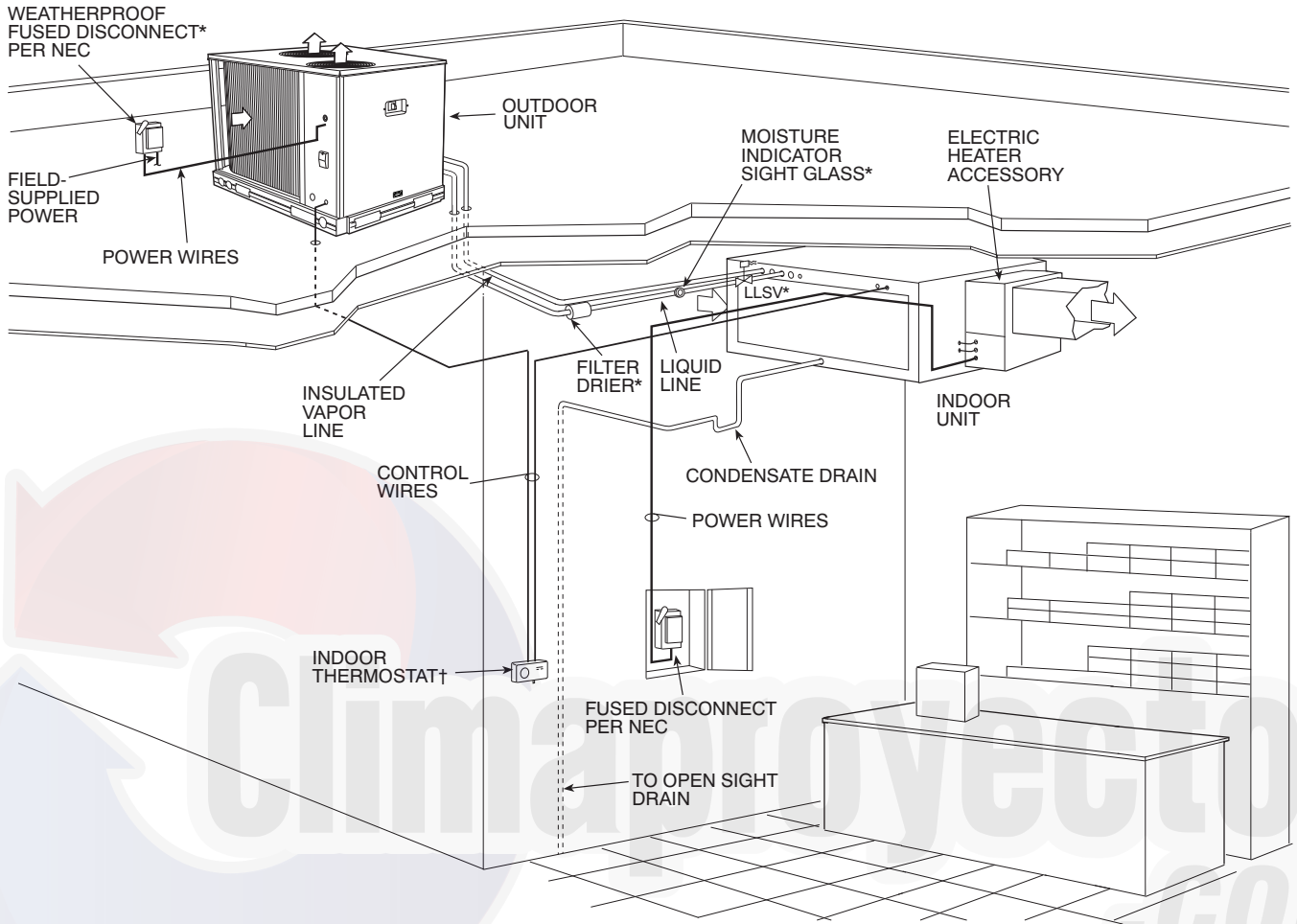
- The following equation converts kW of heat energy to Btuh: $kW \times 3,412 = Btuh$.
- Heater contactor coils are 24 v and require 8 va holding current.
- Electric heaters are tested and ETL approved at maximum total external static pressure of 1.9 in. wg.
- MCA and MOCP values apply to both standard and alternate factory-supplied motors.
- Approximate shipping weight for CAELHEAT001A00-015A00 is 55 lb (25 kg) each.
- Approximate shipping weight for CAELHEAT016A00-027A-- is 60 LBS. (27 kg) each.

HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089



TYPICAL PIPING AND WIRING

HORIZONTAL INSTALLATION

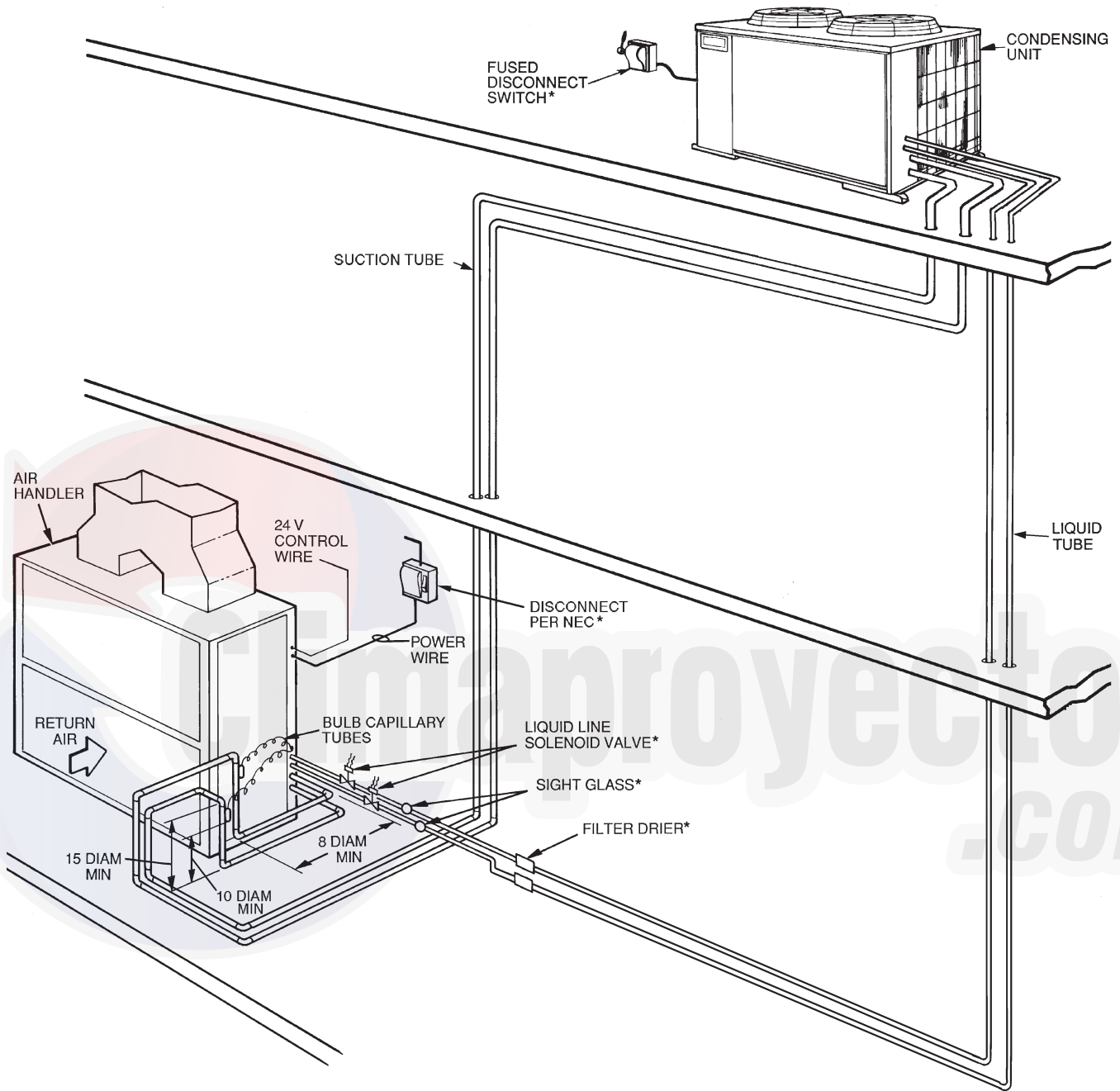


40RUQ

C09054

TYPICAL PIPING AND WIRING (cont.)

40RUQ

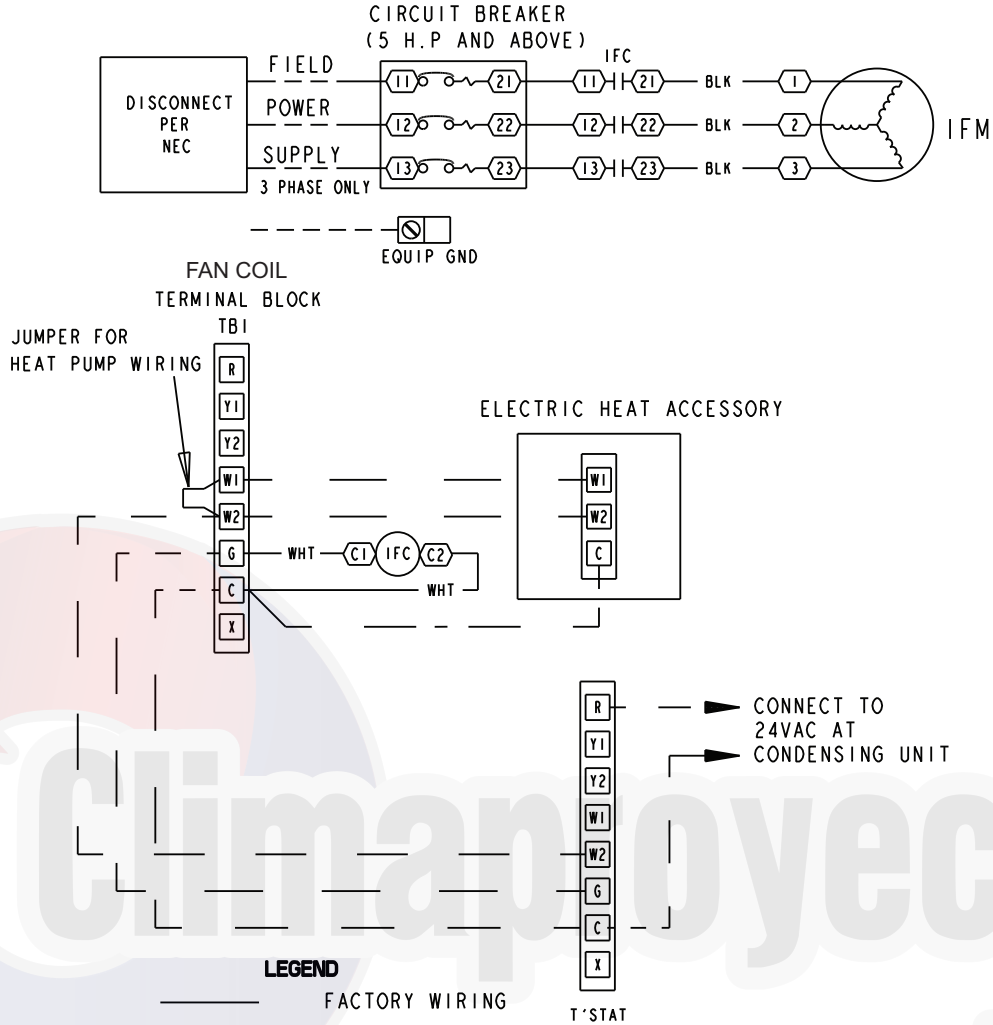


C10875

NOTES:

1. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual for details.
2. All wiring must comply with the applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor.
5. Internal factory-supplied TXVs not shown.

TYPICAL CONTROL WIRING SCHEMATIC



40RUQ

- LEGEND**
- FACTORY WIRING
 - - - - FIELD CONTROL WIRING
 - CB CIRCUIT BREAKER
 - IFC INDOOR FAN CONTACTOR
 - IFM INDOOR FAN MOTOR
 - TB TERMINAL BLOCK
 - T'STAT THERMOSTAT
- NOTE: USE COPPER CONDUCTORS ONLY

C11030

APPLICATION DATA

Operating limits

Maximum fan speed

40RUQ07-25 1200 RPM(20 R/S)

General

IMPORTANT: Do not bury refrigerant piping underground.

Select equipment to match or to be slightly less than peak load. This provides better humidity control, less unit

cycling, and less part-load operation. Equipment should be selected to perform at no less than 300 cfm/ton (40 L/s per kW).

The air handler fan must always be operating when the condensing unit is operating.

Ductwork should be sized according to unit size, not building load. For larger units with two fans, a split duct transition is recommended at the fan outlets, but a plenum can be used with slight reduction in external static pressure capability.

FAN MOTOR DATA STANDARD MOTOR

UNIT	40RUQ07	40RUQ08	40RUQ12	40RUQ16	40RUQ25
208/230-1-60					
Speed (rpm)	1725	1725	—	—	—
Hp	1.3	2.4	—	—	—
Frame (NEMA)	56Y	56Y	—	—	—
Shaft Dia (in.)	5/8	5/8	—	—	—
208/230-3-60 and 460-3-60					
Speed (rpm)	1725	1725	1725	1725	1745
Hp	2.4	2.4	2.4	3.7	5.0
Frame (NEMA)	56Y	56Y	56Y	56Y	S184T
Shaft Dia (in.)	5/8	5/8	5/8	7/8	1 1/8
575-3-60					
Speed (rpm)	1725	1725	1725	1725	1745
Hp	1.0	2.0	2.0	3.0	5.0
Frame (NEMA)	56	56HZ	56HZ	56HZ	184T
Shaft Dia (in.)	5/8	7/8	7/8	7/8	1 1/8

LEGEND:

NEMA — National Electrical Manufacturers Association (U.S.A.)

FAN MOTOR DATA ALTERNATE MOTOR

UNIT	40RUQ07	40RUQ08	40RUQ12	40RUQ16	40RUQ25
208/230-1-60					
Speed (rpm)	1725	1725	—	—	—
Hp	2.4	2.4	—	—	—
Frame (NEMA)	56Y	56Y	—	—	—
Shaft Dia (in.)	5/8	5/8	—	—	—
230-3-60 and 460-3-60					
Speed (rpm)	1725	1725	1725	1725	1745
Hp	2.9	2.9	3.7	5.0	7.5
Frame (NEMA)	56Y	56Y	Y56Y	S184T	S213T
Shaft Dia (in.)	7/8	7/8	7/8	1 1/8	1 3/8
575-3-60					
Speed (rpm)	1725	1725	1725	1745	1755
Hp	2.0	3.0	3.0	5.0	7.5
Frame (NEMA)	56HZ	56HZ	56HZ	184T	S213T
Shaft Dia (in.)	7/8	7/8	7/8	1 1/8	1 3/8

LEGEND:

NEMA — National Electrical Manufacturers Association (U.S.A.)

APPLICATION DATA (cont.)

STANDARD DRIVE DATA

UNIT	40RUQ07	40RUQ08	40RUQ12	40RUQ16	40RUQ25
MOTOR DRIVE					
Motor Pulley Pitch Dia (in.)	2.4-3.4	2.8-3.8	3.4-4.4	2.8-3.8	3.7-4.7
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	2.5	3.0
FAN DRIVE					
Pulley Pitch Dia (in.)	8.8	8.8	8.8	9.0	9.4
Pulley Bore (in.)	1	1	1	1 ⁷ / ₁₆	1 ⁷ / ₁₆
Belt No. — Section	1—A	1—A	1—A	1—A	1—B
Belt Pitch (in.)	40.3	41.3	42.3	42.3	41.8
FAN SPEEDS (rpm)					
Factory Settings	568	647	764	632	771
Range	470-666	549-745	666-863	537-728	679-863
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200
Change per 1/2 turn of Moveable Motor Pulley Flange	19.6	19.6	19.7	19.1	15.3
MAX FULL TURNS FROM CLOSED POSITION					
	5	5	5	5	6
SHAFTS CENTER DISTANCE (in.)					
	10.44 - 12.32	10.44 - 12.32	10.44 - 12.32	10.44 - 12.32	9.12 - 10.99

40RUQ

MEDIUM-STATIC DRIVE DATA

UNIT	40RUQ07	40RUQ08	40RUQ12	40RUQ16	40RUQ25
MOTOR DRIVE					
Motor Pulley Pitch Dia (in.)	3.4-4.4	3.4-4.4	3.4-4.4	3.7-4.7	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	3.0	3.0
FAN DRIVE					
Pulley Pitch Dia (in.)	8.8	8.0	8.0	8.6	9.4
Pulley Bore (in.)	1	1	1	1 ⁷ / ₁₆	1 ⁷ / ₁₆
Belt No. — Section	1—A	1—A	1—A	1—B	1—B
Belt Pitch (in.)	42.3	40.3	40.3	41.8	41.8
FAN SPEEDS (rpm)					
Factory Setting	764	841	841	842	881
Range	666 - 863	733 - 949	733 - 949	742 - 943	798 - 984
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200
Change per 1/2 Turn of Moveable Motor Pulley Flange	19.7	21.6	21.6	16.7	15.3
MAX FULL TURNS FROM CLOSED POSITION					
	5	5	5	6	6
SHAFTS CENTER DISTANCE (in.)					
	10.44 - 12.32	10.44 - 12.32	10.44 - 12.32	10.44 - 12.32	9.16 - 10.99

HIGH-STATIC DRIVE DATA

UNIT	40RUQ07	40RUQ08	40RUQ12	40RUQ16	40RUQ25
MOTOR DRIVE					
Motor Pulley Pitch Dia (in.)	3.4-4.4	3.4-4.4	3.4-4.4	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	2.5	2.5	2.5	3.0	3.0
FAN DRIVE					
Pulley Pitch Dia (in.)	7.0	6.0*	6.0	7.9	7.4
Pulley Bore (in.)	1	1	1	1 ⁷ / ₁₆	1 ⁷ / ₁₆
Belt No. — Section	1—A	1—A	1—A	1—B	2—B
Belt Pitch (in.)	41.3	37.3	37.3	39.8	36.8
FAN SPEEDS (rpm)					
Factory Setting	961	1121	1121	1060	1118
Range	838 - 1084	978 - 1200	978 - 1200	950 - 1171	1014 - 1200
Max Allowable Speed (rpm)	1200	1200	1200	1200	1200
Change per 1/2 Turn of Moveable Motor Pulley Flange	24.6	28.7	28.7	18.4	19.4
MAX FULL TURNS FROM CLOSED POSITION					
	5	5	5	6	6
SHAFTS CENTER DISTANCE (in.)					
	10.44 - 12.32	10.44 - 12.32	10.44 - 12.32	9.16 - 10.99	8.16 - 10.02

GUIDE SPECIFICATIONS - 40RUQ07-25

Split System Heat Pump Indoor Unit (Air-Handling Unit) with PURON® Refrigerant

HVAC Guide Specifications — Section 15859

Size Range: **1,800 to 8,000 Cfm, Nominal Airflow**
6 to 20 Tons, Nominal Cooling

Carrier Model Numbers: **40RUQ07-25**

Part 1 — General

1.01 SYSTEM DESCRIPTION

- A. Indoor, packaged air-handling unit for use in commercial heat pump split systems. Unit shall have a multi-position design and shall be capable of horizontal or vertical installation on a floor or in a ceiling, with or without ductwork. (Only vertical units are to be applied without ductwork.) Unit shall function as the indoor component of an air-to-air electric heat pump system.
- B. Unit must be designed with a Puron® (R-410A) refrigerant circuit with a matching air-cooled condensing unit 38AUQ, for matched systems approved by the manufacturer.

1.02 QUALITY ASSURANCE

- A. All coils shall be designed and tested in accordance with ASHRAE 15 Safety Code for Mechanical Refrigeration, latest edition.
- B. Unit shall be constructed in accordance with ETL and ETL, Canada, standards and shall carry the ETL and ETL, Canada, labels.
- C. Unit insulation and adhesive shall comply with NFPA-90A requirements for flame spread and smoke generation. Insulation shall contain an EPA-registered immobilized antimicrobial agent to effectively resist the growth of bacteria and fungi as proven by tests in accordance with ASTM standards G21 and 22.
- D. Unit shall be manufactured in a facility registered to the ISO 9001 manufacturing quality standard.
- E. Direct-expansion coils shall be leak tested at 150 psig and pressure tested at 650 psig and qualified to UL burst test at 1980 psig.

1.03 DELIVERY AND STORAGE

Units shall be stored and handled per manufacturer's recommendations.

Part 2 — Products

2.01 EQUIPMENT

Indoor mounted, draw-thru, packaged air-handling unit that can be used with or without ductwork in a suspended horizontal configuration or free-standing vertical configuration. Unit shall be indoor component of a heat pump system. Unit shall consist of forward-curved belt-driven centrifugal fan(s), motor and drive assembly, prewired fan motor contactor, factory-installed refrigerant metering devices, bypass check valves, cooling coil, 2-in. disposable air filters, and condensate drain pans for vertical or horizontal configurations.

A. Base Unit:

- 6. Cabinet shall be constructed of mill-galvanized steel.
- 7. Cabinet panels shall be fully insulated with 1/2-in. fire-retardant material. Insulation shall contain an EPA-registered immobilized antimicrobial agent to effectively resist the growth of bacteria and fungi as proven by tests in accordance with ASTM standards G21 and 22.
- 8. Unit shall contain corrosion-free condensate drain pans for both vertical and horizontal applications. Drain pans shall have connections on right and left sides of unit to facilitate field connection. Drain pans shall have the ability to be sloped toward the right or left side of the unit to prevent standing water from accumulating in pans.
- 9. Unit shall have factory-supplied 2-in. throwaway-type filters installed upstream from the cooling coil. Filter access shall be from either the right or left side of the unit.

B. Coils:

- 1. Coils shall consist of 3 rows (40RUQ07) or 4 rows (40RUQ08 - 25) of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Coil tubing shall be internally rifled to maximize heat transfer. Refrigerant line connections shall be made on the same side of the coil.
- 2. Coils shall feature factory-installed thermostatic expansion valves (TXVs) for refrigerant control. The TXVs shall be capable of external adjustment.

3. Coils shall have a factory-installed bypass line and check valve assembly around the TXVs to allow liquid flow from the coil to the outdoor unit during Heating mode.
- C. Operating Characteristics:
1. When combined with the matching 38AUQ condensing unit the system shall be capable of starting and running up to 125 F (52 C) and down to 35 F (2 C) ambient outdoor temperature.
 2. Unit shall operate at +/- 10% from rated voltage
- D. Motor:
1. Fan motor of the size and electrical characteristics specified on the equipment schedule shall be factory-supplied and factory-installed.
 2. Indoor-fan motor shall have permanently lubricated, sealed bearings and inherent automatic-reset thermal overload protection (motors smaller than 5 hp) or manual reset calibrated circuit breakers (motors equal or larger than 5 hp). Indoor motors are designed specifically for Carrier and do not have conventional horsepower (hp) ratings listed on the motor nameplate. Motors are designed and qualified in the "air-over" location downstream of the cooling coil and carry a maximum continuous bhp rating that is the maximum application bhp rating for the motors; no "safety factors" above that rating may be applied.
 3. All indoor fan motors 5 hp and larger shall meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPA), effective October 24, 1997.
 4. High efficient motors listed shall meet section 313 of the Energy Independence and Security Act of 2007 (EISA 2007).
- E. Special Features:
1. Alternate Motor and Drive:
An alternate motor and medium or high-static drive shall be available to meet the airflow and external static pressure requirements specified on the equipment schedule.
 2. External Paint Cabinet:
Where conditions require, units shall be painted with an American Sterling Gray finish.
 3. Hot Water Coil:
Coil shall be 2-row, U-bend coil with copper tubes and aluminum plate fins bonded to the tubes by mechanical expansion. Coil shall be mounted in a galvanized steel housing that shall be fastened to the unit's fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 150 psig.
 4. Steam Distributing Coil:
Coil shall consist of one row of copper tubes with aluminum plate fins, and shall have inner steam distributing tubes. Coil shall be mounted in a galvanized steel housing and shall be fastened to the unit's fan deck for blow-thru heating operation. Coil shall have maximum working pressure of 20 psig at 260 F.
 5. Electric Heaters:
Heaters for nominal 240, 480, or 575-volt, 3-phase, 60 Hz power supply shall be factory-supplied for field installation as shown on the equipment drawings. Electric heat assembly shall be ETL and ETL, Canada; agency approved, and shall have single-point power wiring. Heater assembly shall include contactors with 24-v coils, power wiring, 24-v control wiring terminal blocks, and a hinged access panel.
 6. Air Discharge Plenum:
Plenum shall be factory-supplied to provide free-blow air distribution for vertical floor-mounted units. A grille with moveable vanes for horizontal or vertical airflow adjustment shall be included. Plenum housing shall be field-installed on the unit's fan deck for blow-thru air distribution.
 7. Return Air Grille:
Grille shall be factory-supplied for field installation on the unit's return air opening.
 8. Unit Subbase:
Subbase assembly shall be factory-supplied for field installation. Subbase shall elevate floor-mounted vertical units to provide access for correct condensate drain connection.
 9. Economizer:
Economizer for ventilation or "free" cooling shall be factory-provided for field installation. For free cooling applications, economizer shall be compatible with factory-supplied thermostat; economizer dampers shall open when outdoor air enthalpy is suitable for free cooling. Economizer shall be compatible with factory-supplied CO2 sensor; economizer dampers shall open when indoor CO2 level rises above predetermined set point. Economizer shall include enthalpy control and damper actuator.

10. Thermostat Controls:

Programmable multi-stage thermostat with 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.

a. Carrier PremierLink™ Controller Field Installed

This control will function with CCN software and ComfortVIEW™ software. It shall also be compatible with ComfortLink™ controllers. It shall be ASHRAE 62-99 compliant. It shall accept a CO2 sensor in the conditioned space and be Demand Control Ventilation (DCV) ready. The communication rate must be 38.4K or faster. It shall include an integrated economizer controller.

b. Commercial electronic thermostat with 7-day time clock, auto-changeover, multi-stage capability, and large LCD temperature display.

c. Non-programmable thermostat with fan switch subbase.

11. Overhead Suspension Package:

Package shall include necessary brackets to support units in a horizontal ceiling installation.

12. CO2 Sensor:

Sensor shall provide the ability to signal the economizer to open when the space CO2 level exceeds the predetermined set point. Sensor shall have the capability of being connected to Comfort System relay pack or to economizer using field-supplied and field-installed Honeywell dc adapter no. Q769C1004.

13. Condensate Drain Trap:

Trap shall have transparent, serviceable design for easy cleaning. Kit shall also include overflow shutoff switch and wiring harness for connection to alarm if desired.

14. UV-C Germicidal Lamps - *Application Engineering Assistance Required:*

a. UV-C emitters and fixtures shall be specifically designed for use inside an HVAC system. An ASME nozzled test apparatus using a 45 F (7.2 C) airstream moving at not less than 400 fpm (189 liters/sec.) shall measure individual lamp output. Lamp output at 253.7 nm shall not be less than $10\mu\text{W}/\text{cm}^2$ per inch of arc length measured at a distance of one meter.

b. UV-C power supplies shall be high efficiency, electric type which are matched to the emitters and are capable of producing the specified output intensity with an input power no more than 80 watts.

c. Emitters and fixtures shall be installed in sufficient quantity and arranged so as to provide an equal distribution of UV-C energy on the coil and drain pan.

d. The minimum UV-C energy striking the leading edge of the coil fins shall be not less than $820\mu\text{W}/\text{cm}^2$ at the closest point and through placement, not less than 60% of that value at the farthest point. Equal amounts are to strike the drain pan, either directly or indirectly through reflection

e. Emitters and fixtures shall be installed at right angles to the conforming lines of the coil fins, such that through incident angle reflection, UV-C energy strikes all target surfaces of the coil, drain pan, and the available line of sight airstream.