Product Data

Packaged Air-Handling Units

6 to 20 Nominal Tons, 60 Hz

ecoblue™ technology

40RLQ 07-25 (Heat Pump)
Packaged Air Handling Units with
Puron Advance™ (R-454B) Refrigerant

Puron ADVANCE™

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Features/Benefits

Introducing Carrier's new Gemini™ 40RLQ Heat Pump air-handling units — offering maximum performance and flexibility for even the most demanding jobs.

Carrier's easy-to install and economical 40RLQ units provide reliable operation and versatility with:

- Puron Advance (R-454B) refrigerant, which delivers a 75% reduction in global warming potential (GWP) compared to the original Puron. Puron Advance's GWP of 466 easily exceeds the EPA (Environmental Protection Agency) requirement of <700 GWP
- Factory installed A2L leak detection system certified to UL 60335-2-40 to ensure reliable and safe indoor and outdoor unit operation.
- Multi-position designs for horizontal or vertical installation without modification.
- Standard sloped drain pans and cleanable insulation.
- Cooling coils with mechanically bonded fins for improved heat transfer and die-formed galvanized steel casings to provide durability and structural integrity available either painted or unpainted.
- Standard factory-installed thermostatic expansion valves (TXV) with removable power element.
- Upgraded unit control board with intuitive indoor fan adjustment.
- Standard Staged Air Volume (SAV™) system through our patented EcoBlue™ Direct Drive Vane Axial fan design (6-10 ton sizes) or factory installed and configured VFD (15 tons and up)
- Multiple fan static options to meet a wider range of applications
- Ultra Low Leak Economizer accessories to provide ventilation air and "free" cooling with built in Fault Detection and Diagnostic (FDD) capabilities.
- Hot water coil, steam coil, and electric heat accessories

Indoor air quality features

The 40RL Series air handlers deliver clean, fresh, conditioned air to the occupied space through a unique combination of features:

- **Cooling Coils:** Prevent humidity build-up, even during part-load conditions. Units 6 to 7.5 tons use a single coil while units 10 tons and above feature dual-circuit face-split coils that can be manifolded together for single circuit operation.
- **Filters:** 2-inch (51 mm) disposable filters remove dust and airborne particles.
- **Pitched Drain Pan:** Adjustable for right-hand or left-hand connections to ensure positive drainage and prevent standing condensate.
- **Economizer Accessory:** Precisely controls the blend of outdoor and room air to achieve comfort levels and allow for free cooling when available. The Ultra Low Leak design meets California Title 24 section 140.4 requirements for return and outside air damper leakage. The controller meets California Title 24 Section 120.2 Fault Detection and Diagnostic (FDD) requirements.

Economy

The 40RL Series packaged air handlers offer low initial costs and continue to save money through reduced installation expenses and energy-efficient performance.

The multi-position design allows for quick installation in the horizontal or vertical (upflow) configuration without modifications. Drain pan connections are available on both sides, and pans can be pitched for right-hand or left-hand operation with a simple adjustment.

Fan motors and contactors are prewired, and TXVs are factory-installed to allow contractors to set up units faster and get on to the next job.

Precision balanced high efficiency EcoBlue™ Vane Axial fans or VFD controlled forward curved fan assemblies minimize air turbulence, surging, and unbalanced operation, reducing operating expenses over the unit lifetime.

Rugged dependability

The 40RLQ units are built to last with galvanized steel panels to ensure structural integrity under all operating conditions and mechanically bonded coil fins to provide improved heat transfer.

To ensure reliable fan operation, EcoBlue™ Vane Axial Fan or forward curved fan assemblies are securely mounted to a die-formed galvanized steel deck. For larger units - 40RLQ sizes 16 and up - the design includes rugged pillow-block bearings that are securely fastened to the solid steel fan shaft with split collets and clamp locking devices.

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Features/Benefits (cont)

Coil flexibility

The 40RLQ air handling units offer flexible coil options for all job types. All units have inlet and outlet connections on the same end and use a heat pump coil design for use with Puron Advance™ R-454B refrigerant. Coils feature copper tubes mechanically bonded to aluminum sine-wave fins, factory-installed thermostatic expansion valves (TXVs) and matching distributor nozzles.

Easier installation and service

The multi-position design and component layout allow for quick unit installation and operation. There are simple, fast plug-in connections to the standard integrated unit control board (UCB). The UCB has clearly labeled connection points to reduce installation time. Also, a large control box provides room to work and mount Carrier accessory controls. The filters, motor, drive, TXVs, and coil connections are easily accessed by removing a single side panel.

EcoBlue™ Technology

The direct drive EcoBlue Technology indoor fan system on 6 to 10 ton 40RLQ units uses a Vane Axial fan design and easily adjustable electronically commutated motor.

EcoBlue™ has 75% fewer moving parts, uses up to 40% less energy, and eliminates the need for fan belts, blower bearings or an additional shaft. The ECM motor offers internal protection from phase reversal and phase loss situations and comes in multiple static options to make air balancing at site easier than ever.

Easy to use

The newly re-designed Unit Control Board by Carrier puts all connections and troubleshooting points in one convenient place. Most low voltage connections are made to the same board, making it easy to access. Setting up the fan is simple by an intuitive switch and rotary dial arrangement.

Staged Air Volume (SAV™) system

Our SAV units will automatically adjust the indoor fan motor speed in sequence with the unit's cooling operation. Per ASHRAE®[1] 90.1 2010 standard section 6.4.3.10.b, during the first stage of cooling operation the fan motor (either ECM or controlled by VFD) will adjust to provide two-thirds of the total cfm established for the unit. When a call for the second stage of cooling is required, the fan motor will allow the total cfm (100%) established for the unit. During the heating mode the fan motor will allow total design cfm (100%) operation and during the ventilation mode the fan motor will allow operation to two-thirds of total cfm.

Heat pump flexibility

40RLQ heat pump models offer onboard electromechanical heating standard. Our systems are tested for reliable reverse cycle heating operation with a matched 38AXQ outdoor unit. The result is a more sustainable heat source to keep occupants comfortable year-round. All 40RLQ models can be easily controlled with a standard thermostat, enabling sustainable electromechanical heating when required. Should you need supplemental heat, we offer a full line of single point powered electric heaters that can be installed at site.

Puron Advance™ features

In 2018, Carrier announced Puron Advance (R-454B) as our next generation refrigerant for light commercial products. With a GWP of 466 and similar working pressure and performance to R-410A, Puron Advance easily exceeds the EPA's new, stringent <700 GWP refrigerant requirement while minimizing unit redesign. Like other next generation refrigerants (R-32, etc.), R-454B is classified as an "A2L" refrigerant by ASHRAE (American Society of Heating, Refrigerating, and Air-Conditioning Engineers). This designation means that R-454B is "mildly flammable" under certain conditions. While this is a change from legacy "A1 — No Flame Propagation" refrigerants like Puron (R-410A), A2Ls are still very low on the flammability scale and quite safe for use. A2L refrigerants are difficult to ignite and have an extremely low flame speed — much less so than natural gas, propane, or even rubbing alcohol. At Carrier, we are committed to safety. As such, all of our Puron Advance systems include a factory installed dissipation control board and leak sensor designed to last the lifetime of the unit. This system is certified to UL 60335-2-40 and designed to work right away, without any field configuration or major rewiring. In the event of a leak, these systems automatically identify and resolve the issue by dissipating the refrigerant to minimize risk to equipment, buildings, or occupants.

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Model number nomenclature

40RLQ Model Number Nomenclature

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	4	0	R	L	Q	A	0	8	A	2	A	1	–	U	A	0	A	0

Model Type
40RL = Packaged Air-Handling Unit
Puron Advance™ R-454B Refrigerant

Heat Pump
Q = Heat Pump

Refrigeration Options
A = None

Nominal Tonage
07 = 6.0 Ton
08 = 7.5 Ton
12 = 10.0 Ton
16 = 15.0 Ton
25 = 20.0 Ton

Fan Motor Speed Controller
A = Two Speed Direct Drive - EcoBlue™ Vane Axial Fan[a]
T = 2-Speed Fan Controller (VFD)[b,c]

Indoor Fan Motor Options – Belt Drive
1 = Standard Motor / Standard Drive[c]
2 = Standard / Alternate Motor / Medium Drive
3 = High Motor / High Drive

Coil Options
A = Standard Aluminum Fin/Copper Tube

Voltage
1 = 575-3-60
5 = 208/230-3-60
6 = 460-3-60

Design Revision
– = Factory Design Revision

Control Box
U = Electromechanical Unit Control Board

Future Use
A = Standard

Cabinet Paint
0 = None
1 = Painted

Future Use
A = Standard

Packaging Compliance
0 = Standard

NOTE(S):
a. Size 07, 08, and 12 units only.
b. 2-Speed indoor fan motor must use dedicated voltage models listed. The VFD used is not multi-voltage
c. Size 16 and 25 units only.

Physical data

40RLQ Physical Data — Heat Pump Units

UNIT 40RLQ	07	08	12	16	25
NOMINAL CAPACITY (Tons)	6	7.5	10	15.0	20.0
OPERATING WEIGHT (lb)					
Base Unit with TXV	381	385	427	713	720
Plenum	175	175	175	225	225
FANS					
Qty...Diam. (in.)	1…23	1…23	1…23	2…15	2…15
Nominal Airflow (cfm)	2400	2625	3000	5625	8000
Airflow Range (cfm)	1800-3000	2250-3750	3000-5000	4500-7500	6000-10,000
Nominal Motor HP (Standard Motor)					
208/230-3-60 and 460-3-60	2.4	2.4	2.4	3.7	5.0
575-3-60	2.4	2.4	2.4	3.7	5.0
Motor Speed (rpm)					
208/230-3-60 and 460-3-60	2000	2000	2000	1,725	1,760
575-3-60	2000	2000	2000	1,725	1,745
REFRIGERANT	Puron Advance™ (R-454B)	Puron Advance™ (R-454B)	Puron Advance™ (R-454B)	Puron Advance™ (R-454B)	Puron Advance™ (R-454B)
Operating Charge (lb) (approx per circuit)[a]	3.0	3.0	2.0/2.0	3.0/3.0	3.5/3.5
DIRECT-EXPANSION COIL	Enhanced Copper Tubes, Aluminum Sine-Wave Fins	Enhanced Copper Tubes, Aluminum Sine-Wave Fins	Enhanced Copper Tubes, Aluminum Sine-Wave Fins	Enhanced Copper Tubes, Aluminum Sine-Wave Fins	Enhanced Copper Tubes, Aluminum Sine-Wave Fins
Max Working Pressure (psig)	650	650	650	650	650
Face Area (sq ft)	8.33	8.33	10.0	16.56	19.9
No. of Splits	1	1	2	2	2
No. of Circuits per Split	12	12	9	10	10
Split Type...Percentage	Face...100	Face...100	Face...50/50	Face...50/50	Face...50/50
Rows...Fins/in.	4...15	4...15	4...15	4...15	4...15
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...5/8	1...5/8	2...5/8	2...5/8	2...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...5/8 ODM / 1-1/4 IDF				
FILTERS					
Quantity...Size (in.)	4...16 x 24 x 2	4...16 x 24 x 2	4...16 x 24 x 2	4 / 16 x 24 x 2	4 / 16 x 24 x 2
Access Location	Either Side	Either Side	Either Side	Either Side	Either Side
STEAM COIL[b]					
Max Working Pressure (psig at 260°F)	20	20	20	20	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[b]					
Max Working Pressure (psig)	150	150	150	150	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	8.3	8.3	13.9	13.9
(ft^3)	1.1	1.1	1.1	1.85	1.85

NOTE(S):

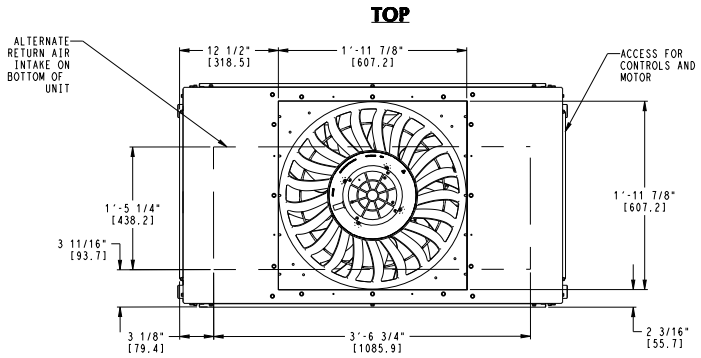
a. Units are shipped without refrigerant charge.
b. Field installed accessory only.

LEGEND

DX — Direct Expansion
IDF — Inside Diameter, Female
ODF — Outside Diameter, Female
ODM — Outside Diameter, Male
TXV — Thermostatic Expansion Valve

40RLQ 07-12 Base Unit Dimensions

UNIT	UNIT WEIGHT (W/TXV)
40RLA-07	399 lbs [181 kg]
40RLA-08	404 lbs [183 kg]
40RLA-12	425 lbs [193 kg]
40RLQ-07	381 lbs [173 kg]
40RLQ-08	385 lbs [175 kg]
40RLQ-12	427 lbs [194 kg]
40RLS-08	390 lbs [177 kg]
40RLS-10	391 lbs [177 kg]
40RLS-12	391 lbs [177 kg]



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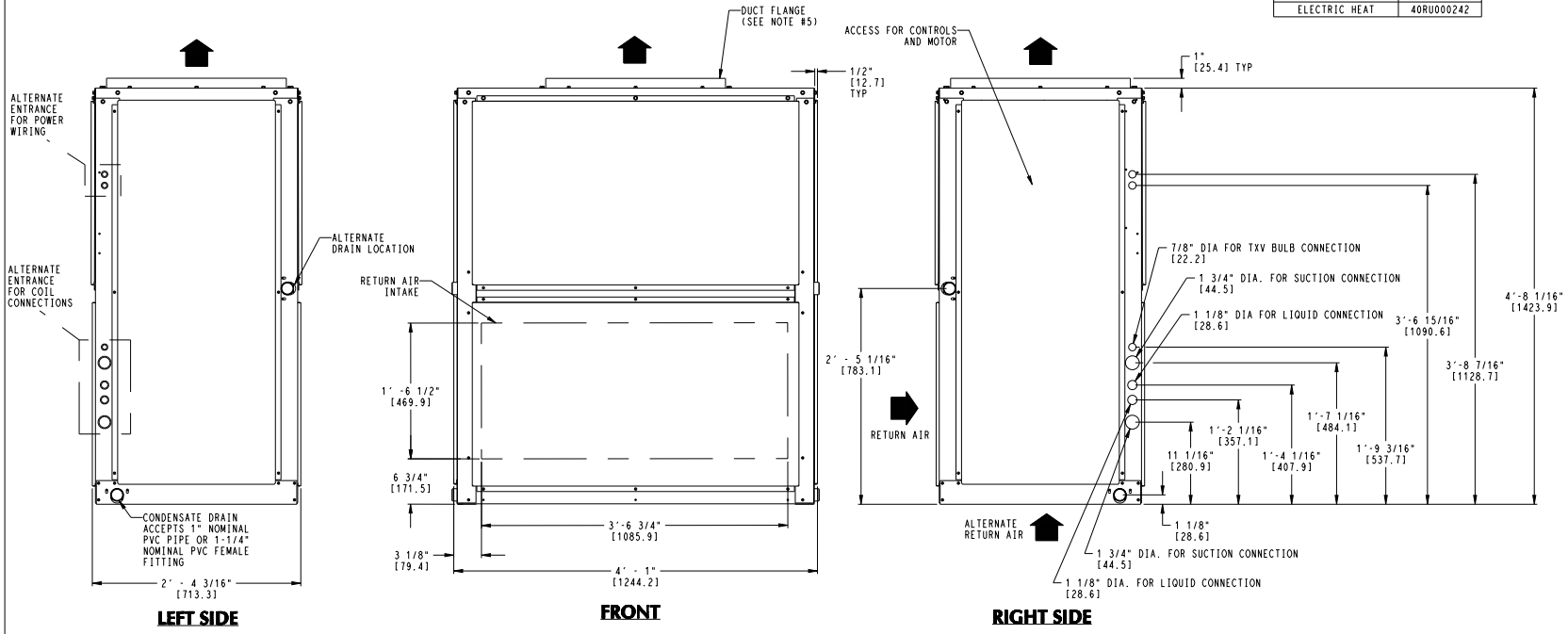
NOTES:
1. DIMENSIONS IN [ ] ARE IN MILLIMETERS.
2. ➡ DIRECTIONS OF AIRFLOW.
3. RECOMMENDED CLEARANCE:
   REAR: 2 ft 6 in. [762 mm]
   FRONT: 2 ft 6 in. [762 mm]
   RIGHT SIDE: 2 ft 6 in. [762 mm]
   LEFT SIDE: 2 ft 6 in. [762 mm]
   LOCAL CODES OR JURISDICTION MAY PREVAIL.
4. LIQUID PIPING NOT SUPPLIED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

ACCESSORY	SEE DRAWING
DISCHARGE PLENUM	40RM500996
ECONOMIZER	40RU000705
STEAM COIL	40RM500999
HOT WATER COIL	40RM500999
RETURN AIR GRILLE	40RM500996
OVERHEAD SUSPENSION	40RM500996
SUBBASE	40RM500996
ELECTRIC HEAT	40RU000242



ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	FAN COIL UNITS		REV
U.S. ECCN:NSR	1 OF 2	10/08/24	-	40RL A / Q / S - 07 / 08 / 10 / 12	40RU001207	-

40RLQ 07-12 Base Unit Dimensions (cont)

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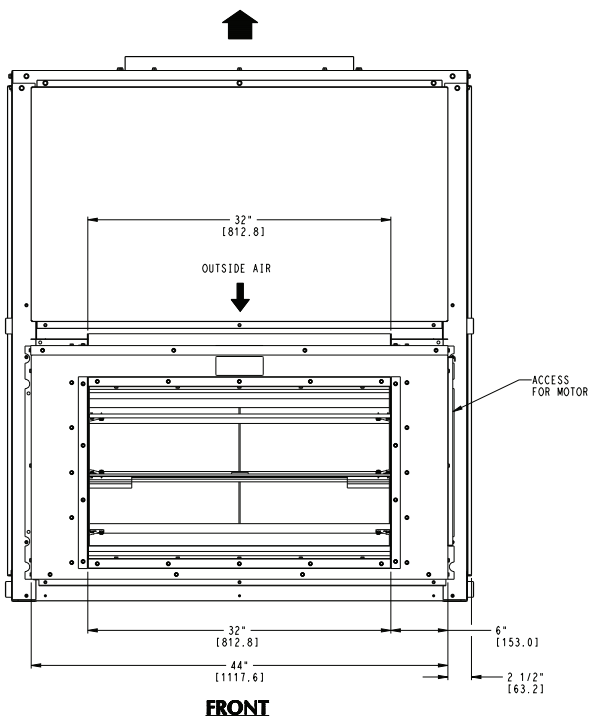
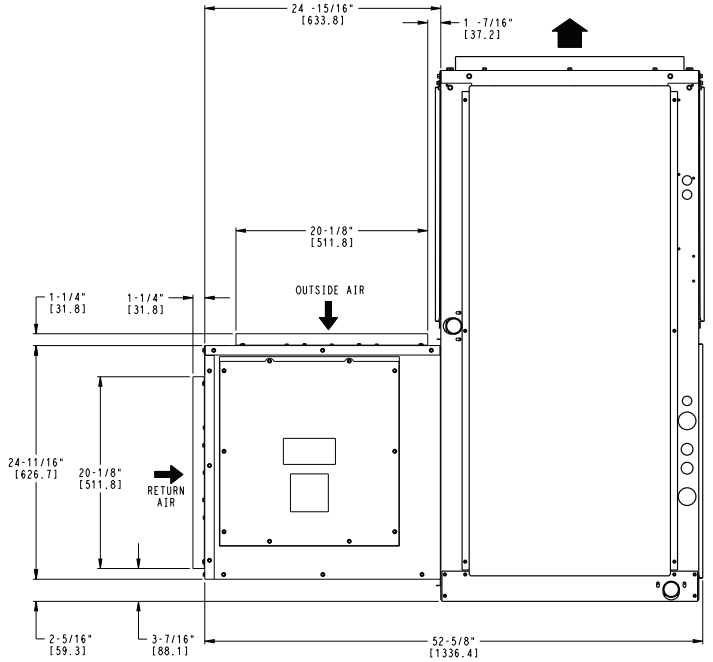


FRONT



RIGHT SIDE

UNIT WITH ECONOMIZER

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	FAN COIL UNITS		REV
U,S, ECCN;NSR	2 OF 2	10/08/24	-	40RL A / Q / S - 07 / 08 / 10 / 12	40RU001207	-

40RLQ 16-25 Base Unit Dimensions

UNIT	UNIT WEIGHT (W/TXV)
40RLA-14	695 lbs [315 kg]
40RLA-16	713 lbs [323 kg]
40RLA-25	730 lbs [331 kg]
40RLQ-16	713 lbs [323 kg]
40RLQ-25	720 lbs [327 kg]
40RLS-14	661 lbs [300 kg]
40RLS-16	677 lbs [307 kg]
40RLS-25	683 lbs [310 kg]

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   FRONT: 2 ft 6 in. [762 mm]
   RIGHT SIDE: 2 ft 6 in. [762 mm]
   LEFT SIDE: 2 ft 6 in. [762 mm]
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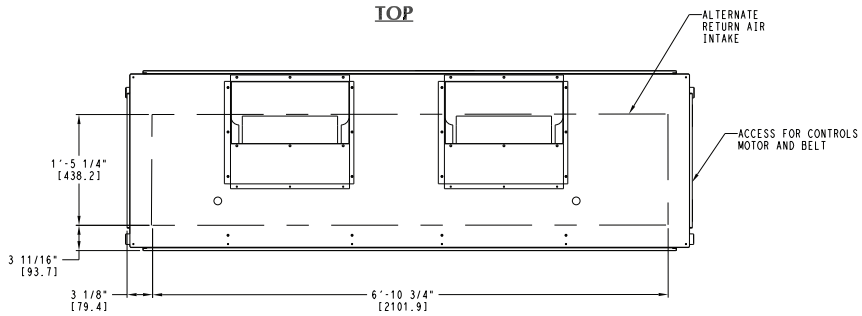
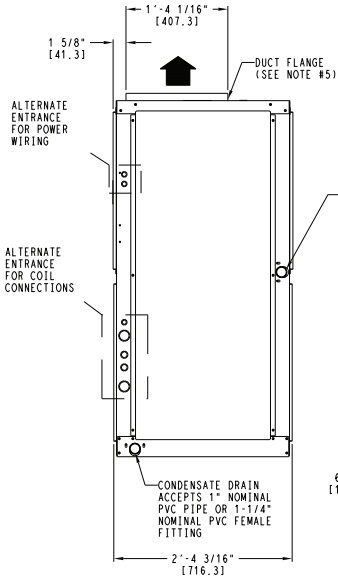
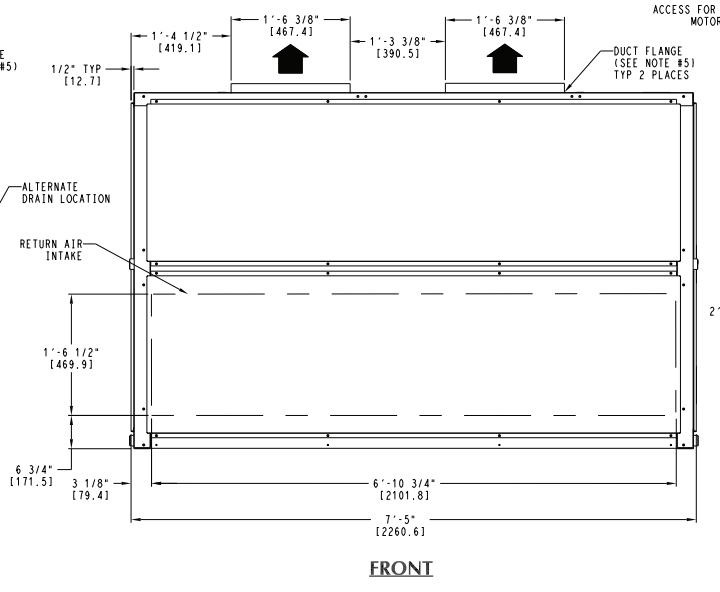
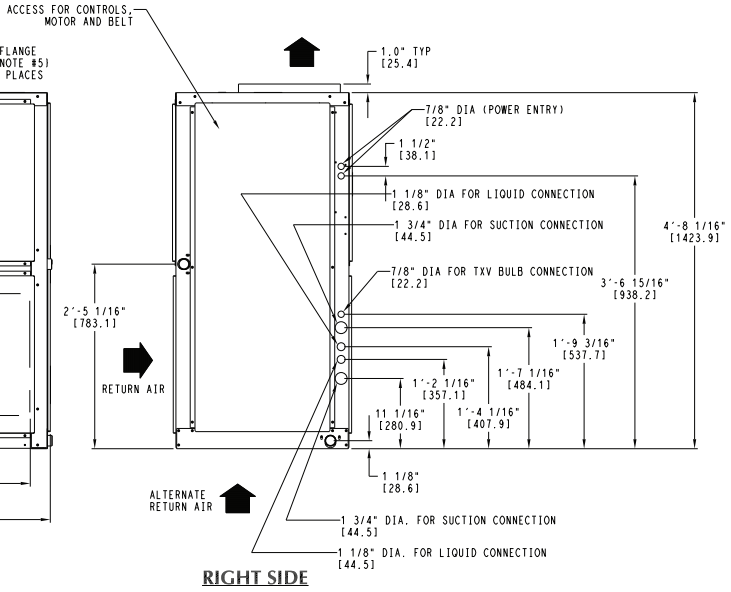
4. LIQUID PIPING NOT SUPPLIED BY CARRIER.
5. DUCT FLANGE IS FACTORY SUPPLIED AND FIELD INSTALLED.

ACCESSORY	SEE DRAWING
DISCHARGE PLENUM	40RM500997
ECONOMIZER	40RU000706
STEAM COIL	40RM501000
HOT WATER COIL	40RM501000
RETUNR AIR GRILLE	40RM500997
OVERHEAD SUSPENSION	40RM500997
SUBBASE	40RM500997
ELECTRIC HEAT	40RU000243









ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES			REV
U.S. ECCN:NSR	1 OF 2	10/16/24	-	FAN COIL UNITS 40RL A / Q / S - 14 / 16 / 25	40RU001208	-

40RLQ 16-25 Base Unit Dimensions (cont)

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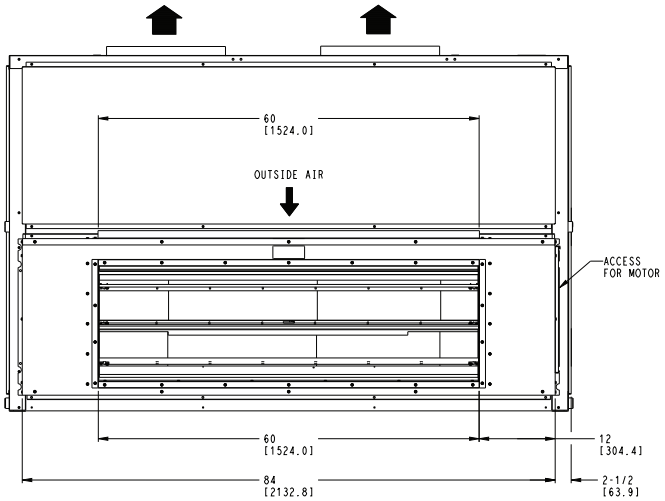
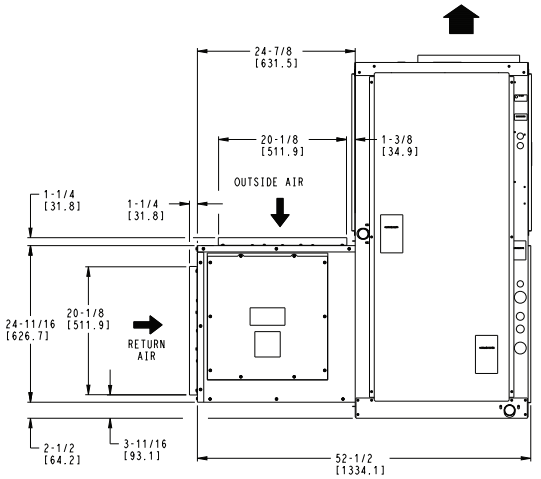


FRONT



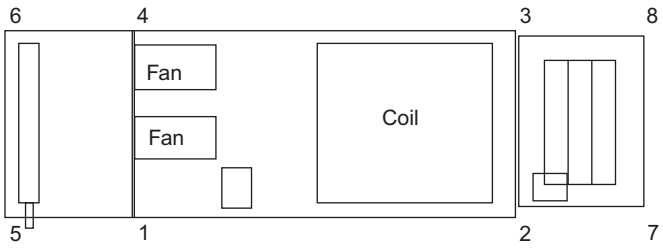
RIGHT SIDE

UNIT WITH ECONOMIZER

ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	FAN COIL UNITS		REV
U.S. ECCN:NSR	2 OF 2	10/16/24	-	40RL A / Q / S - 14 / 16 / 25	40RU001208	-

Base unit dimensions (cont)

Corner Weights — Horizontal Position



Steam Coil or Hot Water Coil

Base Unit Fan Coil

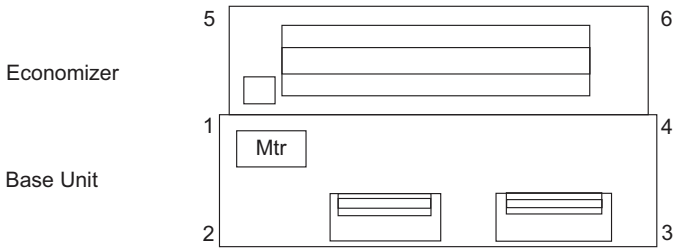
Economizer

40RLQ — Horizontal Position

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
40RLQ*07	Fan Coil Base Unit		381 (172.8)	101.0	83.0	89.0	109.0	—	—	—	—
40RLQ*08	Fan Coil Base Unit		385 (174.6)	102.0	83.0	90.0	110.0	—	—	—	—
40RLQ*12	Fan Coil Base Unit		427 (193.7)	113.0	93.0	99.0	122.0	—	—	—	—
40RLQ*07/08/12	Steam Coil	Add	137 (62.1)	25.6	—	—	25.9	42.4	43.0	—	—
	Hot Water Coil	Add	143 (64.9)	26.3	—	—	26.9	44.3	45.5	—	—
	Economizer	Add	128 (58.5)	—	25.5	24.7	—	—	—	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
40RLQ*16	Fan Coil Base Unit		713 (323.4)	229.8	182.3	133.2	167.9	—	—	—	—
40RLQ*25	Fan Coil Base Unit		720 (326.6)	232.1	184.1	134.5	169.6	—	—	—	—
40RLQ*16/25	Steam Coil	Add	239 (108.4)	43.2	—	—	43.6	75.8	76.5	—	—
	Hot Water Coil	Add	245 (111.1)	44.5	—	—	44.1	78.7	77.9	—	—
	Economizer	Add	217 (98.4)	—	42.7	39.6	—	—	—	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

Base unit dimensions (cont)

Corner Weights — Vertical Position



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

40RLQ — Vertical Position

UNIT SIZE	UNIT OR ACCESSORY NAME		UNIT OR ACCESSORY WEIGHT lb (kg)	CORNER NUMBER (Weight in lb)					
				1	2	3	4	5	6
40RLQ*07	Fan Coil Base Unit		381 (172.8)	100.0	96.0	90.0	95.0	—	—
40RLQ*08	Fan Coil Base Unit		385 (174.6)	101.0	97.0	91.0	96.0	—	—
40RLQ*12	Fan Coil Base Unit		427 (193.7)	112.0	107.0	101.0	106.0	—	—
40RLQ*07/08/12	Steam Coil	Add	137 (62.1)	34.5	34.5	34.0	34.0	—	—
	Hot Water Coil	Add	143 (64.9)	36.2	36.2	35.3	35.3	—	—
	Plenum	Add	175 (79.4)	50.8	36.7	36.7	50.8	—	—
	Economizer	Add	128 (58.1)	25.5	—	—	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
40RLQ*16	Fan Coil Base Unit		705 (319.8)	196.2	216.0	157.8	143.1	—	—
40RLQ*25	Fan Coil Base Unit		715 (324.3)	198.1	218.1	159.4	144.5	—	—
40RLQ*16/25	Steam Coil	Add	239 (108.4)	60.0	60.0	59.5	59.5	—	—
	Hot Water Coil	Add	245 (111.1)	61.0	61.0	61.6	61.6	—	—
	Plenum	Add	225 (102.1)	72.5	40.0	40.0	72.5	—	—
	Economizer	Add	217 (98.4)	42.7	—	—	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

Options and accessories

ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
Alternate Drive	X	
Alternate Fan Motor	X	
CO_2 Sensors		X
Condensate Drain Trap		X
Discharge Duct Adapter (sizes 07-12 only)		X
Discharge Plenum		X
EconomizerONE		X
Electric Heater		X
Hot Water Heating Coils (2 row)		X
Optional VFD Display Kit (sizes 16-25 only)		X
Overhead Suspension Package		X
Pre-Painted Units	X	
Programmable Thermostats		X
Return Air Grille		X
Staged Air Volume (SAV)	X	
Steam Heating Coil (1 row)		X

Factory-installed options

Alternate fan motors and drives

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

Pre-painted steel constructed units

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

Staged Air Volume (SAV™) system

Our SAV units will automatically adjust the indoor fan motor speed in sequence with the unit's cooling operation. Per ASHRAE 90.1 2010 standard section 6.4.3.10.b, during the first stage of cooling operation the fan motor (either ECM or controlled by VFD) will adjust to provide two-thirds of the total cfm established for the unit. When a call for the second stage of cooling is required, the fan motor will allow the total cfm (100%) established for the unit. During the heating mode the fan motor will allow total design cfm (100%) operation and during the ventilation mode the fan motor will allow operation to two-thirds of total cfm.

Field-installed accessories

CO_2 sensors

CO_2 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 CO_2 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

The 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 duct adapter (sizes 07-12)

This accessory is required for replacements using 40RL units with or without electric heat. It is not required for new installations or when using steam coil, hot water coil, or discharge plenum accessories.

Discharge plenum

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

EconomizerONE

This ultra low leak, temperature dry bulb controlled economizer accessory comes with solid-state POL224 controller, gear-driven, modulating damper, and spring return actuator. It is supply/outdoor air sensors, and CO_2 sensor compatible, for use in electro-mechanical controls only. It also includes return and outside air damper leakage that meets California Title 24 section 140.4 requirements. Controller meets California Title 24 Section 120.2 Fault Detection and Diagnostic (FDD) requirements. Also meets AMCA Class 1A economizer damper test standards and labeling.

Electric heater

Electric heaters are available as factory-supplied, field-installed accessories for nominal 240v, 480v, and 575v, 3-phase, 60 Hz units. Electric heaters are UL and CSA, agency-approved. They have single-point power wiring. The heater assembly includes contactors with 24-v coils, power wiring, 24-v control wiring terminal blocks, and a hinged access panel. Electric heaters should not be used with an air discharge plenum.

Return-air grille

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

One-row steam coil

One-row steam coils have 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.

Optional VFD display kit (sizes 16-25)

There is an optional VFD display kit offered (as an accessory) for 40RLQ units to allow the user to troubleshoot any VFD faults in the field after start-up.

NOTE: Do not use the VFD display kit to adjust the frequency and voltage in the VFD to required performance requirements. This could lead to decreased life of the motor and VFD.

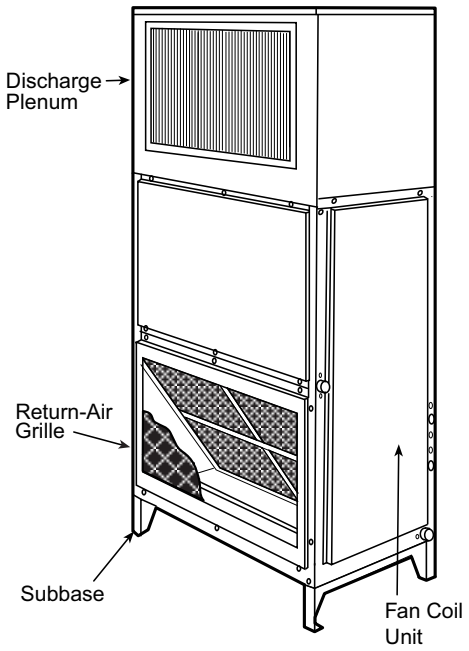
Overhead suspension package

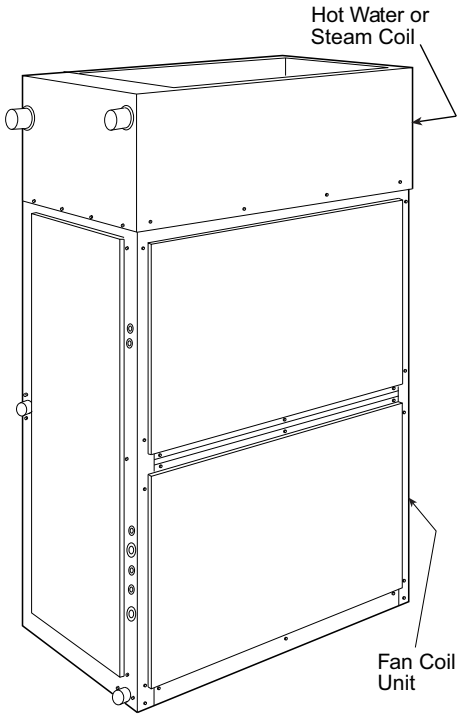
The overhead suspension package includes necessary brackets to support units in horizontal ceiling installations.

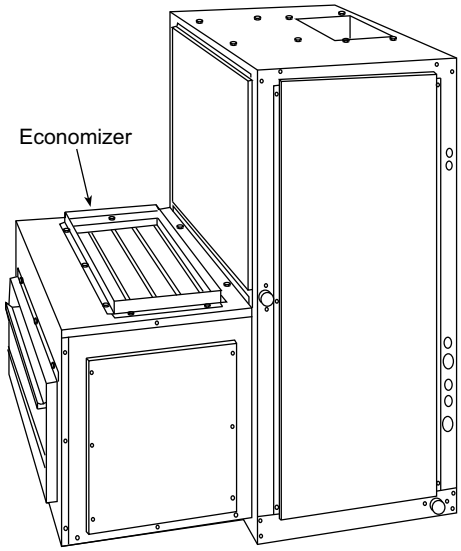
Two-row hot water coils

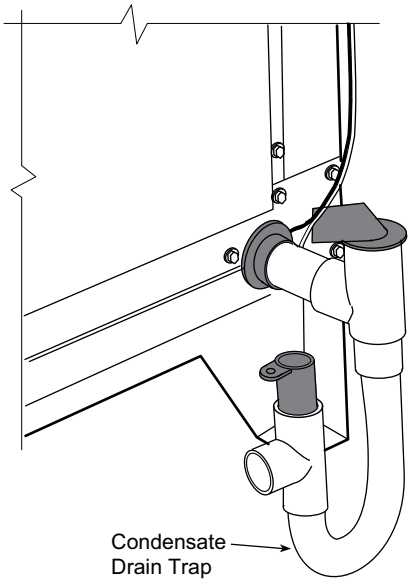
Two-row hot water coils have copper tubes mechanically bonded to aluminum plate fins and non-ferrous headers.

Options and accessories (cont)





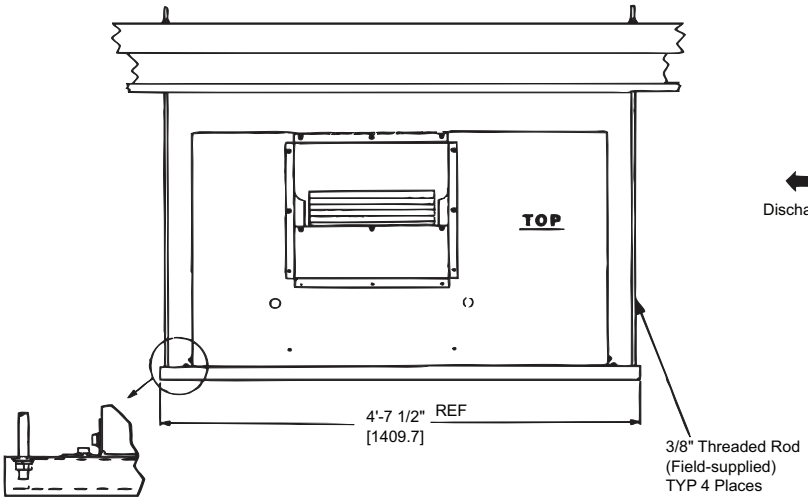


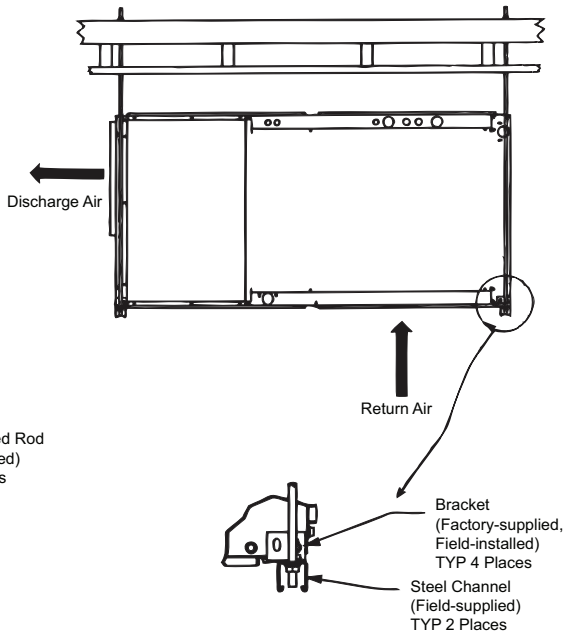


Accessory dimensions

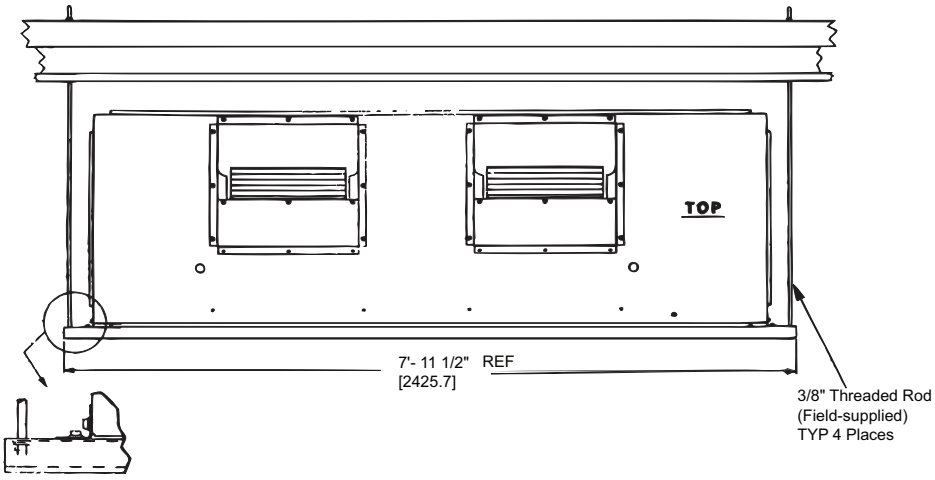
Overhead Suspension Accessory

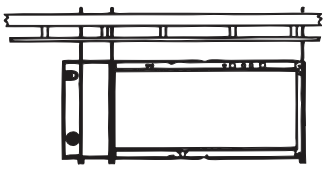
6-10 Ton Units (FRONT)





15 and 20 Ton Units (FRONT)





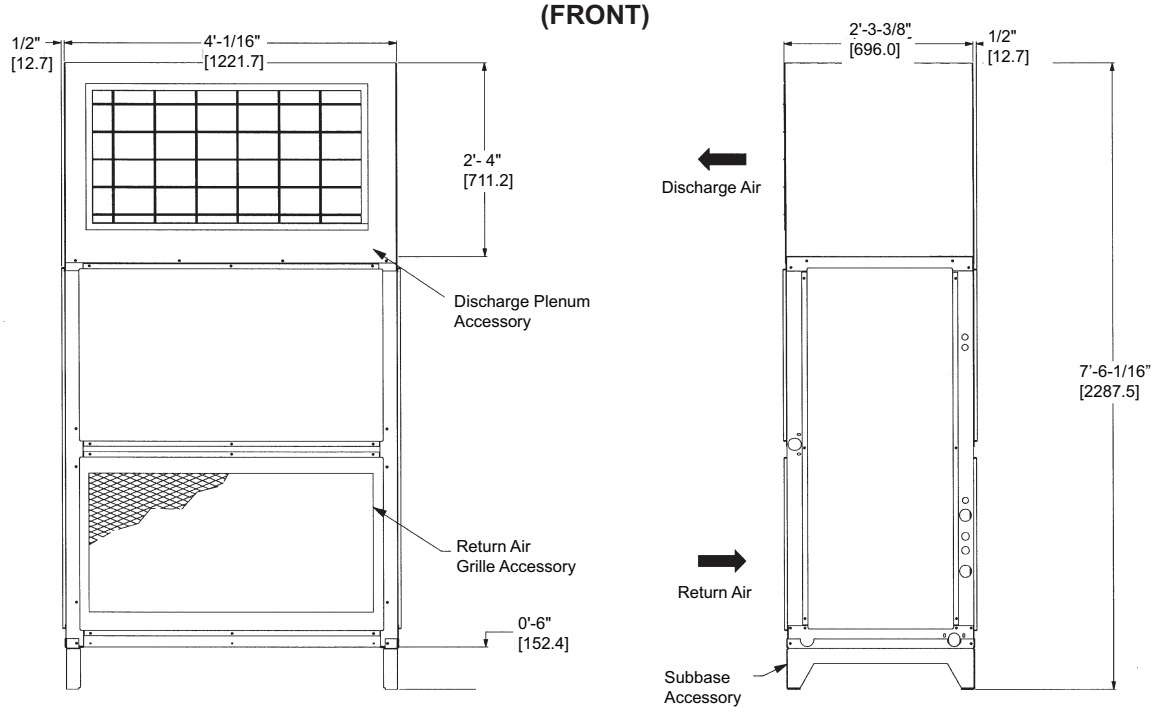
Overhead Suspension Accessory
With Hot Water Coil

NOTE: Dimensions in [ ] are in millimeters.

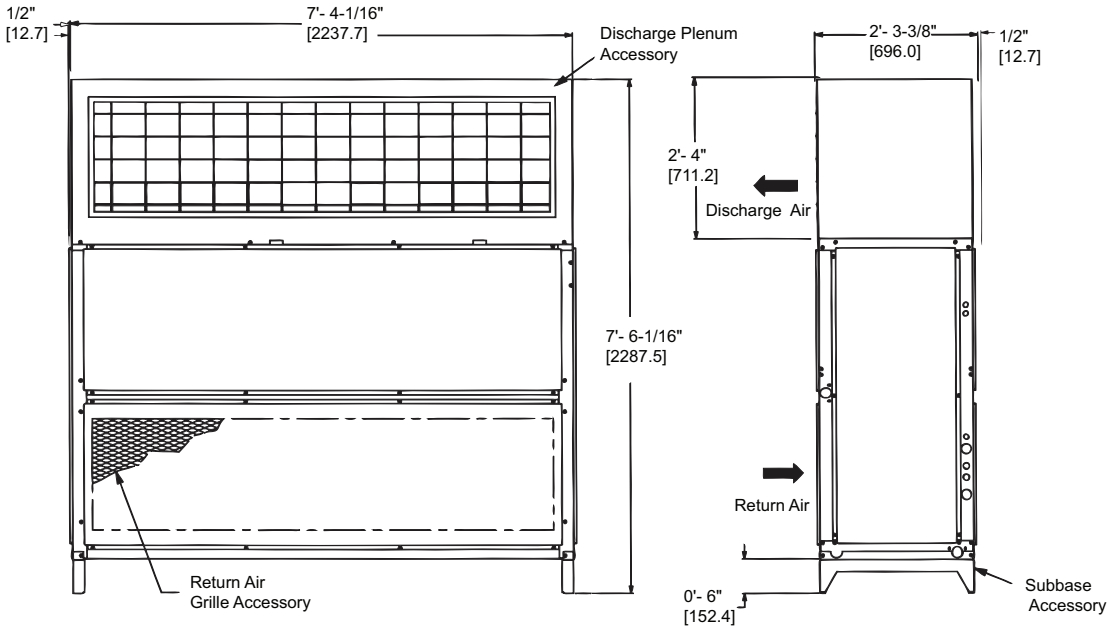
Accessory dimensions (cont)

Plenum, Return-Air Grille, and Subbase Accessories

6-10 Ton Units
(FRONT)



15 and 20 Ton Units
(FRONT)

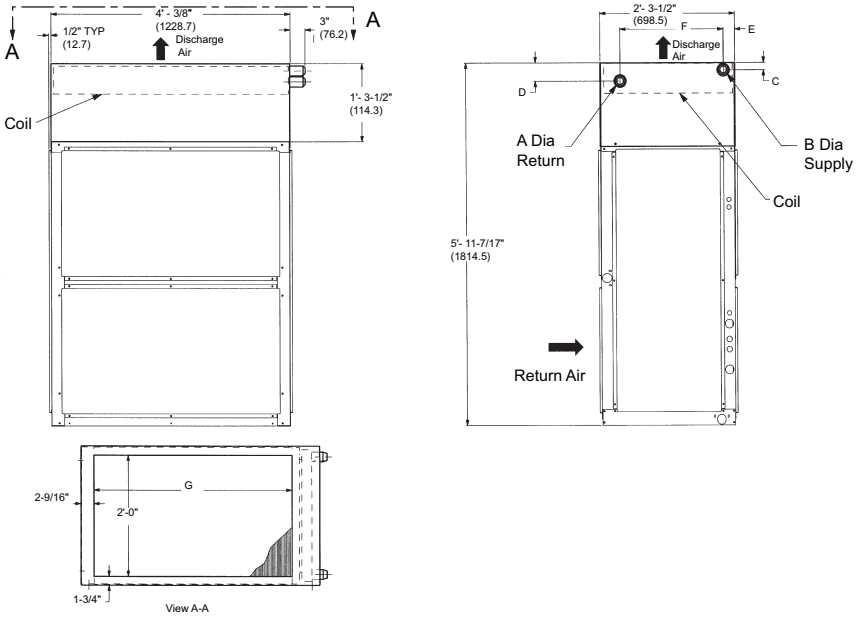


NOTE: Dimensions in [ ] are in millimeters.

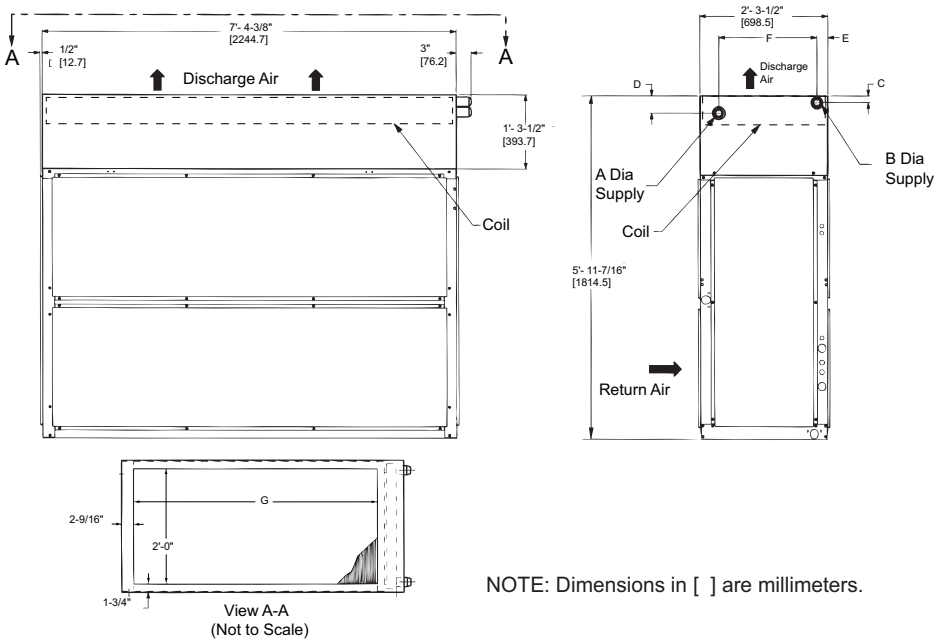
Accessory dimensions (cont)

Hot Water and Steam Coil Accessories

6-10 Ton Units



15 and 20 Ton Units



NOTE: Dimensions in [ ] are millimeters.

40RLQ*07-12

DIMENSIONS	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]

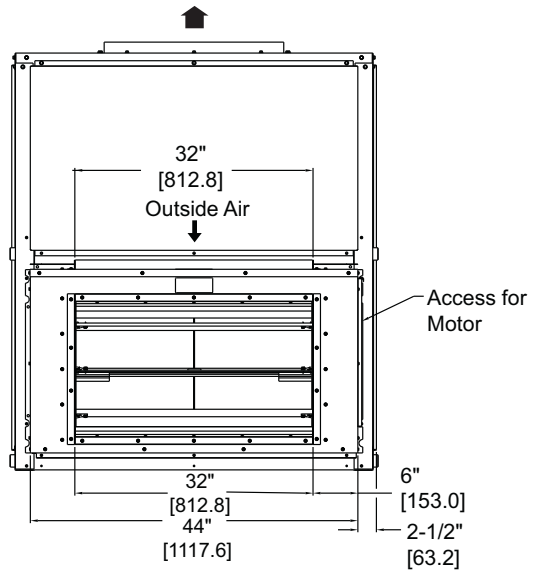
40RLQ**16/25

DIMENSIONS	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]

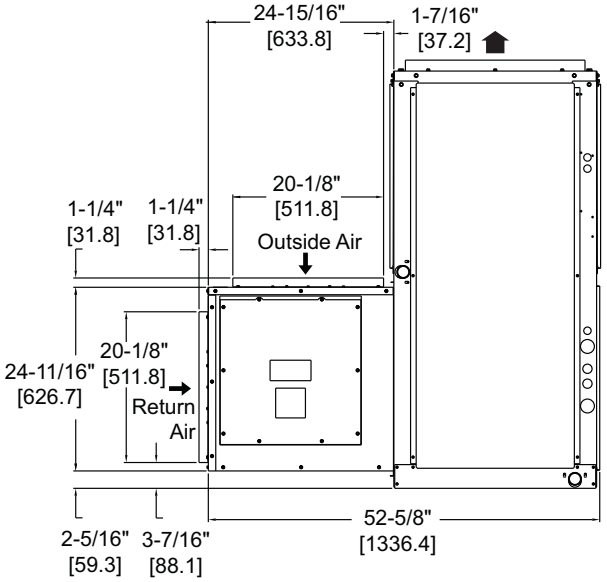
Accessory dimensions (cont)

Economizer Accessory

6 to 10 Ton Units

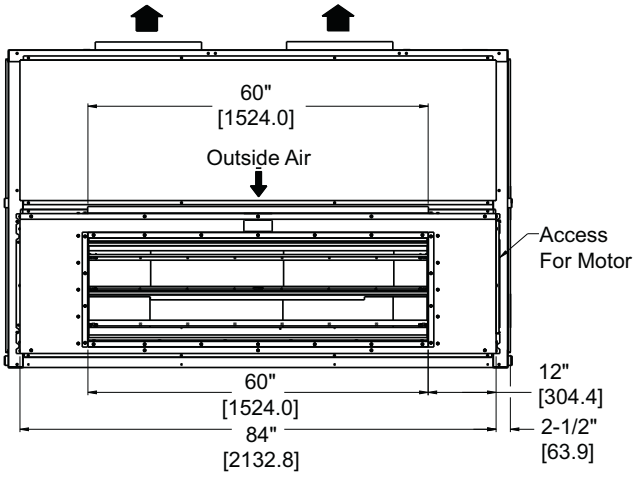


FRONT

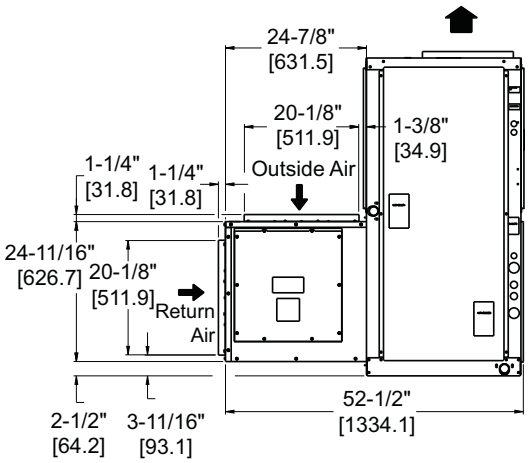


RIGHT SIDE

15 and 20 Ton Units



FRONT



RIGHT SIDE

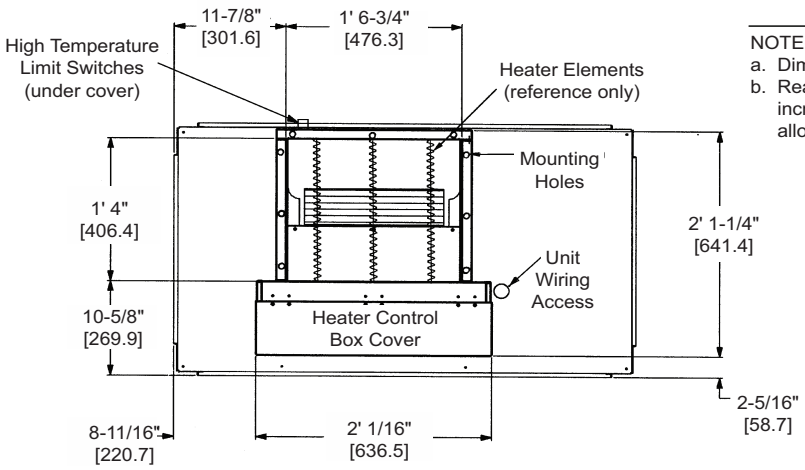
NOTES:
1. For horizontal unit applications, economizer can be attached to end of unit opposite duct connections.
2. Dimensions in [ ] are in millimeters.

Accessory dimensions (cont)

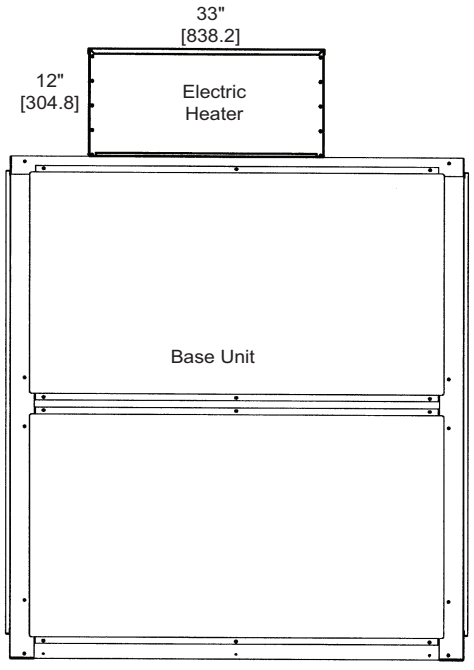
Electric Heater Accessory - Sizes 07-12

Recommended Unit Service Clearances[a,b]	
Front	2' 6" [762]
Rear[b]	2' 6" [762]
Right Side	2' 6" [762]
Left Side	2' 6" [762]

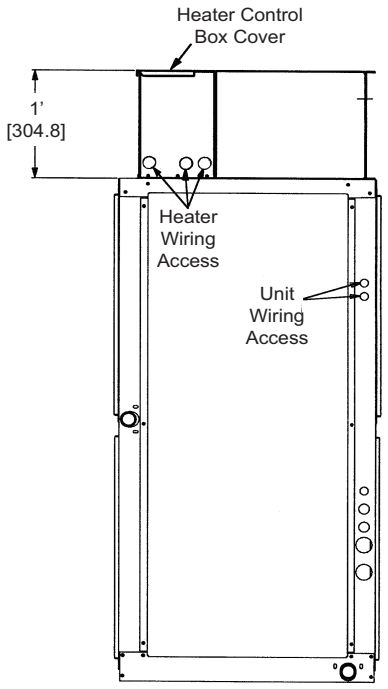
NOTE(S):
a. Dimensions in [ ] are millimeters.
b. Rear clearance for base units with heaters must be increased from that of base units without heaters to allow service access.



Top



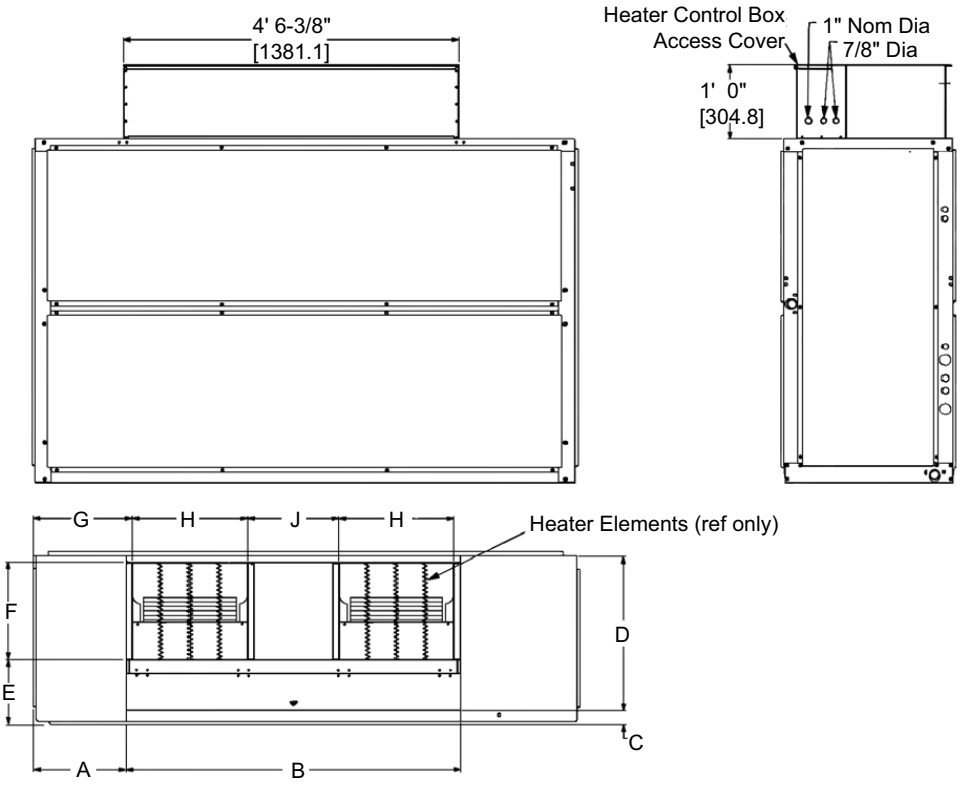
Front



Right Side

Accessory dimensions (cont)

Electric Heater Accessory — Sizes 16-25

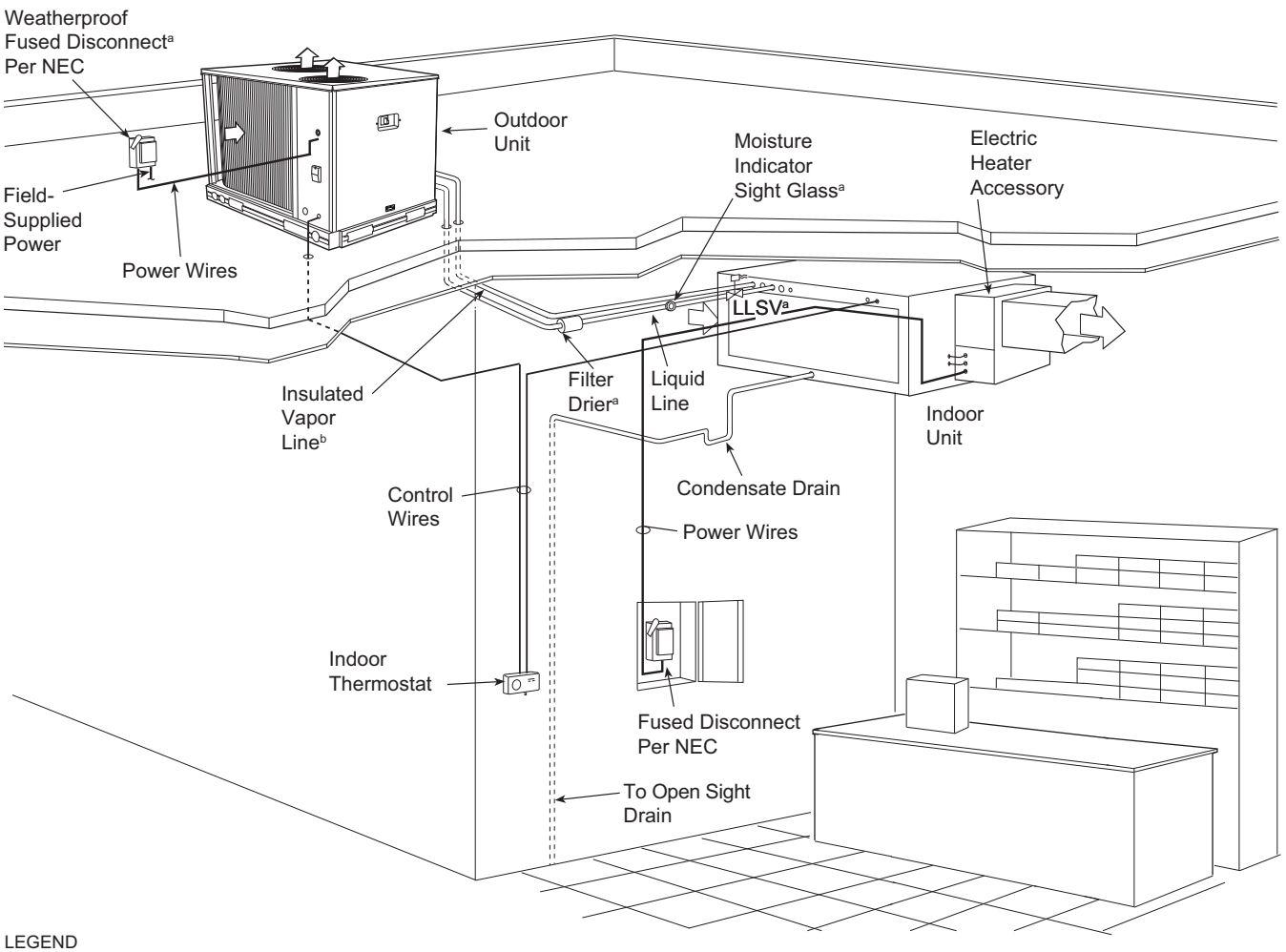


40RL UNIT SIZE	A	B	C	D	E	F	G	H	J
16-25	1'-3-1/4" [387.4]	4'-6" [1381.1]	2-5/16" [58.7]	2'-1-1/4" [641.4]	10-5/8" [269.9]	1'-4" [406.4]	1'-4-5/16" [414.3]	1'-6-3/4" [476.3]	1'-7/8" [327.0]

NOTE: Dimensions in [ ] are in millimeters.

Typical piping and wiring

Horizontal Installation — 40RLQ

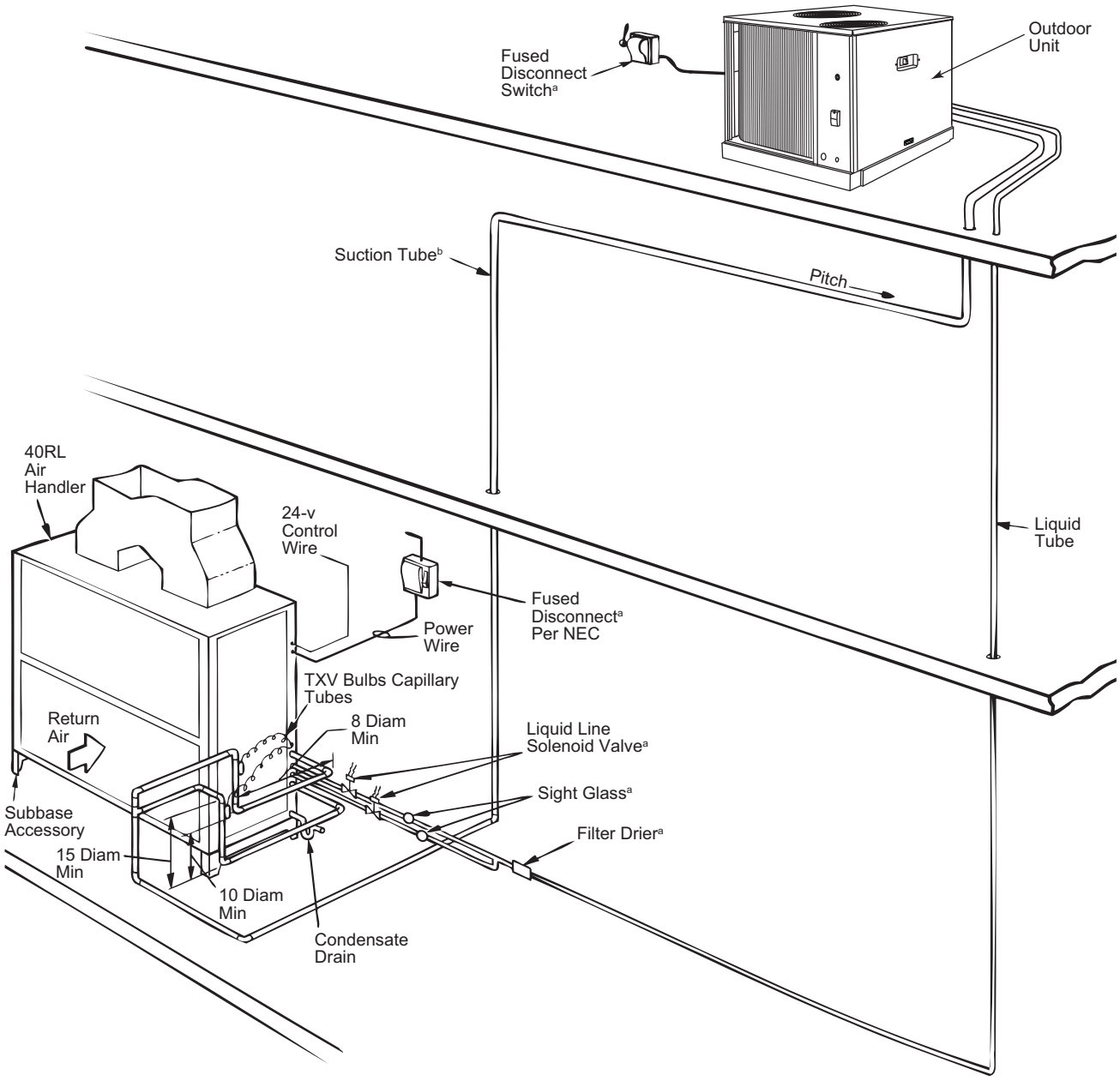


LEGEND
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve

NOTE(S):
a. Field-supplied.
b. Double riser may be required. Consult condensing unit product data catalog for details.
c. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual for details.
d. All wiring must comply with the applicable local and national codes.
e. 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.
f. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor.
g. Internal factory-supplied TXVs not shown.

Typical piping and wiring (cont)

Vertical Installation — 40RLQ

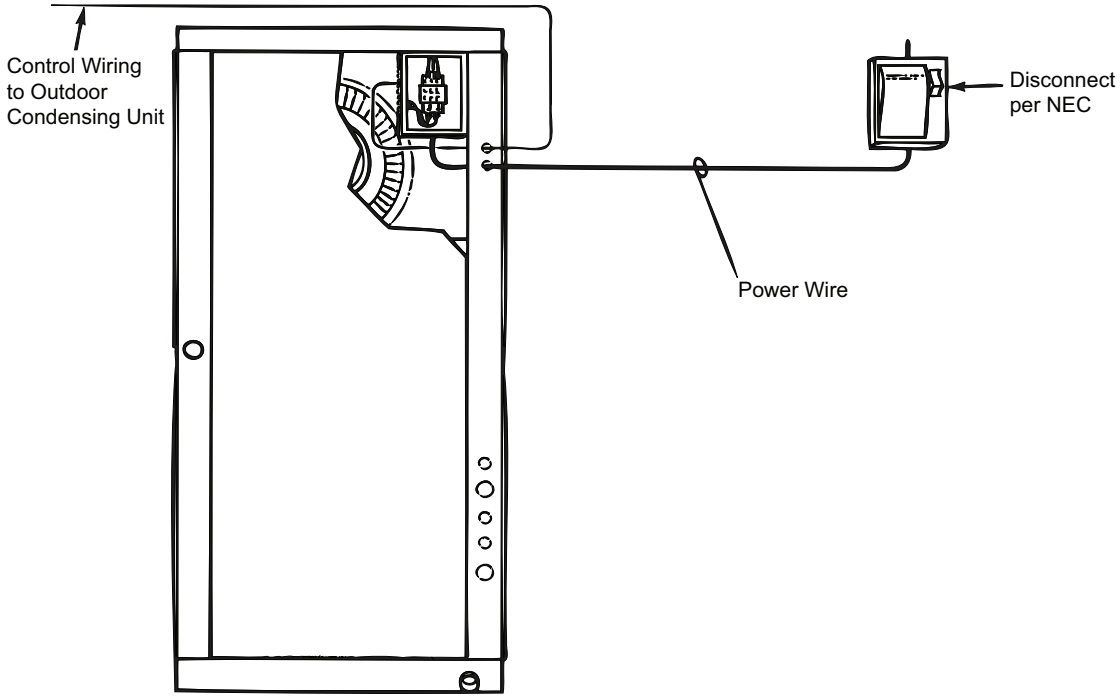


LEGEND
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve
LLSV — Liquid Line Solenoid Valve

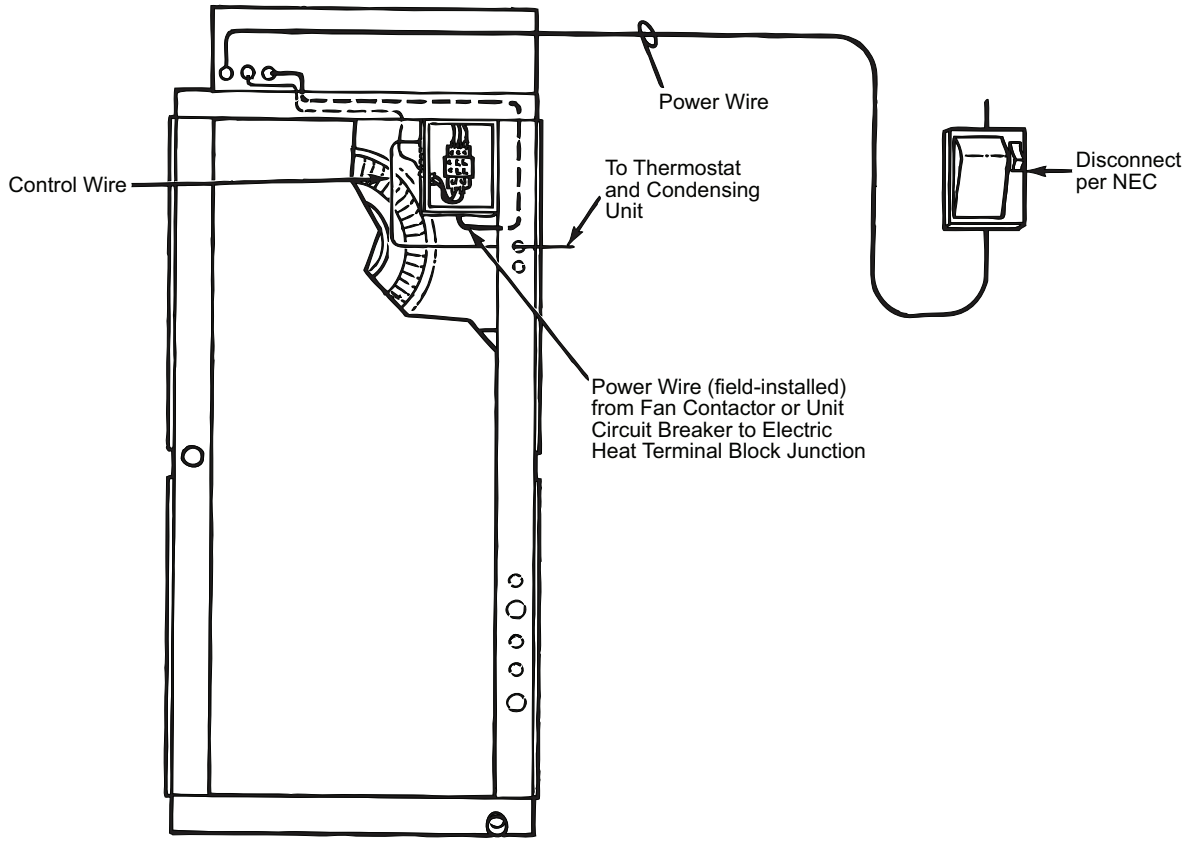
NOTE(S):
a. Field-supplied.
b. Double riser may be required. Consult condensing unit product data catalog for details.
c. All piping must follow standard refrigerant piping techniques. Refer to Carrier System Design Manual for details.
d. All wiring must comply with the applicable local and national codes.
e. 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.
f. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor.
g. Internal factory-supplied TXVs not shown.

Typical piping and wiring (cont)

Wire Routing, Base Unit — 40RLQ

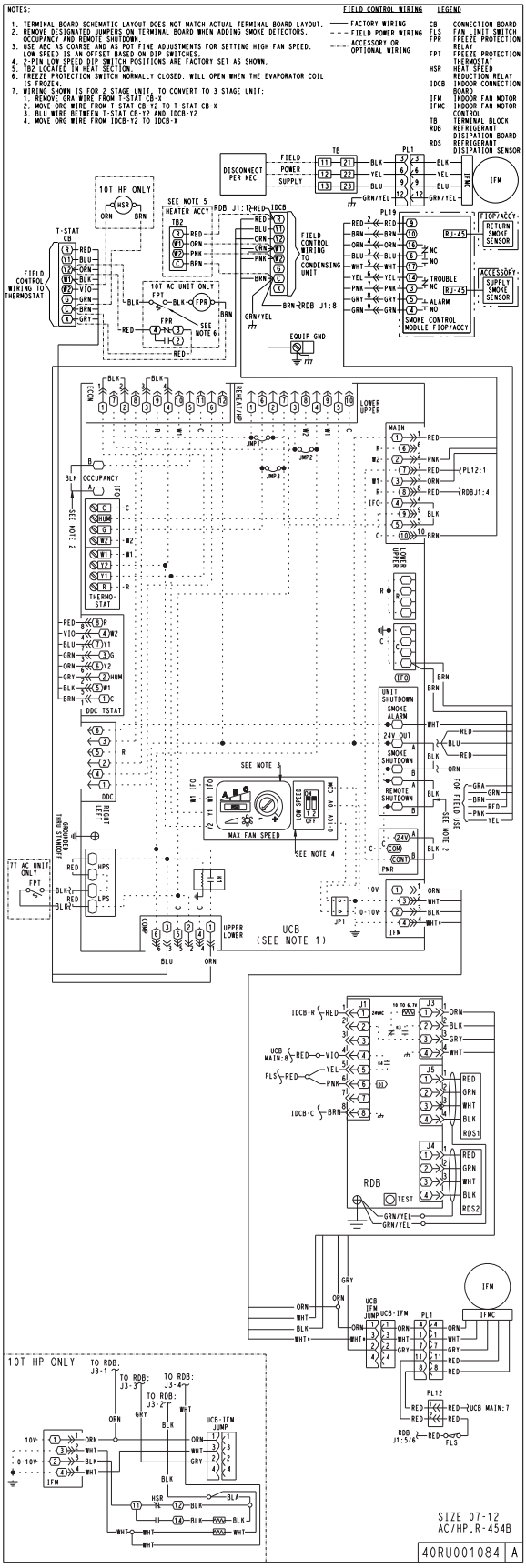


Wire Routing, Unit with Electrical Heat — 40RLQ



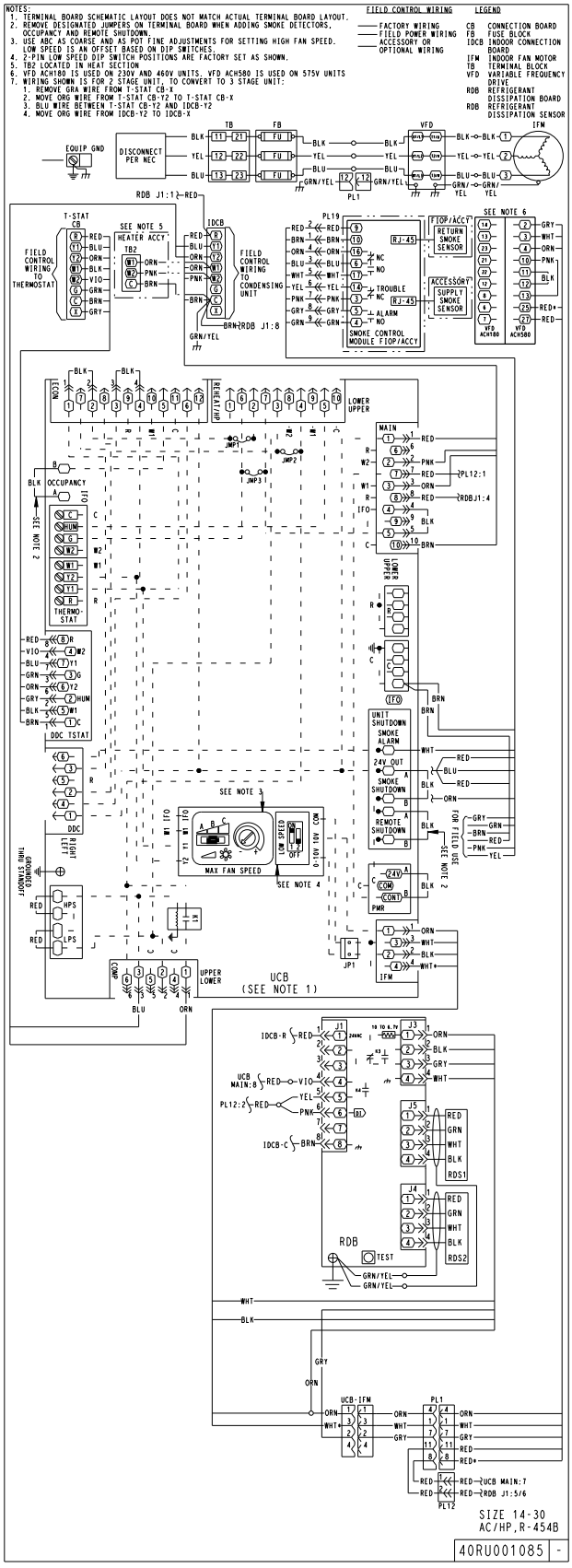
Typical piping and wiring (cont)

Unit Wiring Diagram — 40RLQ*07-12



Typical piping and wiring (cont)

Unit Wiring Diagram — 40RLQ*16-25



Fan data

General Fan Performance Notes

1. Interpolation is permissible. Do not extrapolate.
2. External static pressure is the static pressure difference between the return duct and the supply duct plus the static pressure caused by any FIOPs or accessories.
3. Tabular data accounts for pressure loss due to clean filters, unit casing, wet coils, and highest gas heat exchanger (when gas heat unit).
4. Factory options and accessories may effect static pressure losses. Selection software is available, through your salesperson, to help you select the best motor/drive combination for your application.
5. The fan performance tables offer motor/drive recommendations. In cases when two motor/drive combinations would work, Carrier recommends the lower horsepower option.
6. For information on the electrical properties of Carrier motors, please see the Electrical Data section of this book.
7. For more information on the performance limits of Carrier motors, see the Application Data section of this book.
8. The EPACT (Energy Policy Act of 1992, U.S.A.) regulates energy requirements for specific types of indoor fan motors. Motors regulated by EPACT include any general purpose, T-frame (three-digit, 143 and larger), single-speed, foot mounted, polyphase, squirrel cage induction motors of NEMA (National Electrical Manufacturers Association) design A and B, manufactured for use in the United States. Ranging from 1 to 200 Hp, these continuous-duty motors operate on 230 and 460 volt, 60 Hz power. If a motor does not fit into these specifications, the motor does not have to be replaced by an EPACT compliant energy-efficient motor. Variable-speed motors are exempt from EPACT compliance requirements.

40RLQA07 Fan Data (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	788	0.18	942	0.31	1081	0.48	1202	0.67	1308	0.88
1950	828	0.20	973	0.34	1107	0.52	1227	0.71	1333	0.92
2100	870	0.23	1005	0.37	1134	0.55	1252	0.75	1358	0.97
2250	914	0.26	1040	0.41	1163	0.59	1278	0.80	1383	1.02
2400	958	0.30	1077	0.45	1194	0.63	1305	0.84	1409	1.07
2550	1004	0.34	1115	0.50	1226	0.68	1334	0.89	1435	1.13
2700	1050	0.39	1155	0.55	1261	0.74	1364	0.95	1462	1.18
2850	1097	0.44	1197	0.60	1297	0.79	1395	1.01	1491	1.25
3000	1144	0.50	1239	0.66	1334	0.86	1429	1.08	1521	1.32

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
1800	1403	1.09	1491	1.32	1571	1.55	1647	1.79	1718	2.04
1950	1429	1.14	1517	1.38	1598	1.62	1674	1.87	1745	2.13
2100	1454	1.20	1542	1.44	1624	1.69	1700	1.95	1772	2.21
2250	1479	1.25	1568	1.50	1650	1.76	1726	2.02	1799	2.30
2400	1504	1.31	1593	1.57	1675	1.83	1752	2.11	1825	2.39
2550	1529	1.37	1618	1.64	1700	1.91	1777	2.19	1850	2.48
2700	1555	1.44	1643	1.70	1725	1.98	1802	2.27	1875	2.57
2850	1582	1.50	1668	1.78	1750	2.06	1827	2.36	1900	2.66
3000	1610	1.58	1695	1.86	1775	2.14	1852	2.45	1925	2.76

Standard Static 1080-2000 rpm, 2.55 Max bhp

High Static 1080-2200 rpm, 3.2 Max bhp

Fan data (cont)

40RLQA07 Standard Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
1800	788	3.8	942	4.6	1081	5.3	1202	5.9	1308	6.4
1950	828	4.0	973	4.7	1107	5.4	1227	6.0	1333	6.6
2100	870	4.2	1005	4.9	1134	5.5	1252	6.2	1358	6.7
2250	914	4.4	1040	5.1	1163	5.7	1278	6.3	1383	6.8
2400	958	4.6	1077	5.3	1194	5.9	1305	6.4	1409	7.0
2550	1004	4.9	1115	5.4	1226	6.0	1334	6.6	1435	7.1
2700	1050	5.1	1155	5.7	1261	6.2	1364	6.7	1462	7.2
2850	1097	5.4	1197	5.9	1297	6.4	1395	6.9	1491	7.4
3000	1144	5.6	1239	6.1	1334	6.6	1429	7.1	1521	7.5

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
1800	1403	6.9	1491	7.4	1571	7.8	1647	8.2	1718	8.5
1950	1429	7.1	1517	7.5	1598	7.9	1674	8.3	1745	8.7
2100	1454	7.2	1542	7.6	1624	8.1	1700	8.5	1772	8.8
2250	1479	7.3	1568	7.8	1650	8.2	1726	8.6	1799	9.0
2400	1504	7.4	1593	7.9	1675	8.3	1752	8.7	1825	9.1
2550	1529	7.6	1618	8.0	1700	8.5	1777	8.9	1850	9.2
2700	1555	7.7	1643	8.2	1725	8.6	1802	9.0	—	—
2850	1582	7.9	1668	8.3	1750	8.7	1827	9.1	—	—
3000	1610	8.0	1695	8.4	1775	8.8	1852	9.2	—	—

Standard Static 1080-2000 rpm, 2.55 Max bhp

40RLQA07 High Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
1800	788	3.5	942	4.2	1081	4.8	1202	5.4	1308	5.9
1950	828	3.7	973	4.3	1107	5.0	1227	5.5	1333	6.0
2100	870	3.9	1005	4.5	1134	5.1	1252	5.6	1358	6.1
2250	914	4.1	1040	4.6	1163	5.2	1278	5.7	1383	6.2
2400	958	4.3	1077	4.8	1194	5.4	1305	5.9	1409	6.3
2550	1004	4.5	1115	5.0	1226	5.5	1334	6.0	1435	6.5
2700	1050	4.7	1155	5.2	1261	5.7	1364	6.1	1462	6.6
2850	1097	4.9	1197	5.4	1297	5.8	1395	6.3	1491	6.7
3000	1144	5.1	1239	5.6	1334	6.0	1429	6.4	1521	6.9

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
1800	1403	6.3	1491	6.7	1571	7.1	1647	7.4	1718	7.8
1950	1429	6.4	1517	6.8	1598	7.2	1674	7.6	1745	7.9
2100	1454	6.6	1542	7.0	1624	7.3	1700	7.7	1772	8.0
2250	1479	6.7	1568	7.1	1650	7.5	1726	7.8	1799	8.1
2400	1504	6.8	1593	7.2	1675	7.6	1752	7.9	1825	8.3
2550	1529	6.9	1618	7.3	1700	7.7	1777	8.0	1850	8.4
2700	1555	7.0	1643	7.4	1725	7.8	1802	8.2	1875	8.5
2850	1582	7.1	1668	7.5	1750	7.9	1827	8.3	1900	8.6
3000	1610	7.3	1695	7.7	1775	8.0	1852	8.4	1925	8.7

High Static 1080-2200 rpm, 3.2 Max bhp

Fan data (cont)

40RLQA08 Fan Data (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2250	884	0.23	1009	0.37	1131	0.54	1247	0.74	1354	0.95
2440	937	0.27	1053	0.42	1168	0.59	1279	0.79	1383	1.01
2625	991	0.32	1099	0.47	1206	0.64	1311	0.84	1412	1.07
2815	1048	0.37	1149	0.53	1249	0.70	1348	0.90	1445	1.13
3000	1103	0.43	1199	0.59	1293	0.77	1386	0.97	1478	1.20
3190	1161	0.50	1252	0.66	1340	0.85	1428	1.05	1516	1.28
3375	1218	0.57	1304	0.74	1388	0.93	1471	1.14	1554	1.37
3565	1277	0.66	1359	0.83	1438	1.02	1517	1.24	1596	1.47
3750	1335	0.75	1413	0.93	1489	1.13	1564	1.34	1639	1.58

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
2250	1452	1.18	1542	1.43	1625	1.68	1703	1.94	1776	2.21
2440	1480	1.25	1570	1.50	1653	1.76	1731	2.03	1805	2.31
2625	1507	1.31	1597	1.57	1680	1.83	1759	2.11	1833	2.40
2815	1537	1.38	1625	1.64	1708	1.91	1787	2.20	1861	2.50
3000	1568	1.45	1654	1.72	1736	2.00	1814	2.29	1888	2.60
3190	1602	1.54	1685	1.80	1765	2.09	1842	2.39	1916	2.70
3375	1636	1.62	1717	1.90	1795	2.18	1871	2.49	1944	2.81
3565	1675	1.73	1752	2.00	1828	2.29	1902	2.60	1973	2.92
3750	1714	1.83	1788	2.11	1862	2.41	1933	2.71	2003	3.04

Standard Static 1080-2000 rpm, 2.55 Max bhp

High Static 1080-2200 rpm, 3.2 Max bhp

40RLQA08 Standard Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
2250	884	4.3	1009	4.9	1131	5.5	1247	6.1	1354	6.7
2440	937	4.5	1053	5.1	1168	5.7	1279	6.3	1383	6.8
2625	991	4.8	1099	5.4	1206	5.9	1311	6.5	1412	7.0
2815	1048	5.1	1149	5.6	1249	6.1	1348	6.6	1445	7.1
3000	1103	5.4	1199	5.9	1293	6.4	1386	6.8	1478	7.3
3190	1161	5.7	1252	6.2	1340	6.6	1428	7.1	1516	7.5
3375	1218	6.0	1304	6.4	1388	6.9	1471	7.3	1554	7.7
3565	1277	6.3	1359	6.7	1438	7.1	1517	7.5	1596	7.9
3750	1335	6.6	1413	7.0	1489	7.4	1564	7.8	1639	8.1

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
2250	1452	7.2	1542	7.6	1625	8.1	1703	8.5	1776	8.8
2440	1480	7.3	1570	7.8	1653	8.2	1731	8.6	1805	9.0
2625	1507	7.5	1597	7.9	1680	8.4	1759	8.8	1833	9.1
2815	1537	7.6	1625	8.1	1708	8.5	1787	8.9	1861	9.3
3000	1568	7.8	1654	8.2	1736	8.6	1814	9.0	—	—
3190	1602	8.0	1685	8.4	1765	8.8	1842	9.2	—	—
3375	1636	8.1	1717	8.5	1795	8.9	1871	9.3	—	—
3565	1675	8.3	1752	8.7	1828	9.1	—	—	—	—
3750	1714	8.5	1788	8.9	1862	9.3	—	—	—	—

Standard Static 1080-2000 rpm, 2.55 Max bhp

Fan data (cont)

40RLQA08 High Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
2250	884	3.9	1009	4.5	1131	5.1	1247	5.6	1354	6.1
2440	937	4.2	1053	4.7	1168	5.2	1279	5.7	1383	6.2
2625	991	4.4	1099	4.9	1206	5.4	1311	5.9	1412	6.4
2815	1048	4.7	1149	5.1	1249	5.6	1348	6.1	1445	6.5
3000	1103	4.9	1199	5.4	1293	5.8	1386	6.2	1478	6.7
3190	1161	5.2	1252	5.6	1340	6.0	1428	6.4	1516	6.8
3375	1218	5.5	1304	5.9	1388	6.3	1471	6.6	1554	7.0
3565	1277	5.7	1359	6.1	1438	6.5	1517	6.8	1596	7.2
3750	1335	6.0	1413	6.4	1489	6.7	1564	7.1	1639	7.4

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
2250	1452	6.5	1542	7.0	1625	7.3	1703	7.7	1776	8.0
2440	1480	6.7	1570	7.1	1653	7.5	1731	7.8	1805	8.2
2625	1507	6.8	1597	7.2	1680	7.6	1759	8.0	1833	8.3
2815	1537	6.9	1625	7.3	1708	7.7	1787	8.1	1861	8.4
3000	1568	7.1	1654	7.5	1736	7.9	1814	8.2	1888	8.6
3190	1602	7.2	1685	7.6	1765	8.0	1842	8.3	1916	8.7
3375	1636	7.4	1717	7.8	1795	8.1	1871	8.5	1944	8.8
3565	1675	7.6	1752	7.9	1828	8.3	1902	8.6	1973	9.0
3750	1714	7.8	1788	8.1	1862	8.4	1933	8.8	2003	9.1

High Static 1080-2200 rpm, 3.2 Max bhp

Fan data (cont)

40RLQA12 Fan Data (rpm - bhp)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1080	0.40	1175	0.55	1268	0.72	1361	0.92	1453	1.14
3250	1154	0.48	1243	0.64	1329	0.81	1415	1.01	1501	1.24
3500	1229	0.57	1312	0.74	1393	0.92	1473	1.13	1553	1.35
3750	1305	0.68	1384	0.86	1459	1.04	1534	1.25	1609	1.48
4000	1381	0.80	1456	0.99	1527	1.18	1598	1.40	1668	1.63
4250	1458	0.94	1529	1.13	1597	1.34	1664	1.56	1730	1.79
4500	1535	1.09	1603	1.29	1668	1.50	1731	1.73	1794	1.97
4750	1613	1.26	1678	1.47	1740	1.69	1800	1.92	1860	2.17
5000	1691	1.45	1753	1.67	1813	1.90	1870	2.14	1927	2.39

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp	rpm	bhp
3000	1543	1.38	1629	1.64	1712	1.91	1791	2.20	1866	2.50
3250	1586	1.48	1668	1.74	1748	2.02	1825	2.31	1899	2.62
3500	1632	1.59	1711	1.86	1787	2.14	1862	2.44	1935	2.75
3750	1683	1.73	1757	1.99	1830	2.28	1902	2.58	1972	2.89
4000	1738	1.88	1807	2.14	1877	2.43	1945	2.73	2013	3.05
4250	1795	2.04	1861	2.31	1927	2.60	1992	2.90	—	—
4500	1856	2.23	1918	2.50	1980	2.79	2042	3.09	—	—
4750	1919	2.43	1977	2.71	2036	3.00	—	—	—	—
5000	1983	2.66	2039	2.94	—	—	—	—	—	—

Standard Static 1080-2000 rpm, 2.55 Max bhp

High Static 1080-2200 rpm, 3.2 Max bhp

40RLQA12 Standard Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
3000	1080	5.3	1175	5.8	1268	6.2	1361	6.7	1453	7.2
3250	1154	5.6	1243	6.1	1329	6.5	1415	7.0	1501	7.4
3500	1229	6.0	1312	6.5	1393	6.9	1473	7.3	1553	7.7
3750	1305	6.4	1384	6.8	1459	7.2	1534	7.6	1609	8.0
4000	1381	6.8	1456	7.2	1527	7.6	1598	7.9	1668	8.3
4250	1458	7.2	1529	7.6	1597	7.9	1664	8.3	1730	8.6
4500	1535	7.6	1603	8.0	1668	8.3	1731	8.6	1794	8.9
4750	1613	8.0	1678	8.3	1740	8.7	1800	9.0	1860	9.3
5000	1691	8.4	1753	8.7	1813	9.0	1870	9.3	1927	9.6

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
3000	1543	7.6	1629	8.1	1712	8.5	1791	8.9	1866	9.3
3250	1586	7.9	1668	8.3	1748	8.7	1825	9.1	—	—
3500	1632	8.1	1711	8.5	1787	8.9	1862	9.3	—	—
3750	1683	8.4	1757	8.8	1830	9.1	—	—	—	—
4000	1738	8.7	1807	9.0	1877	9.4	—	—	—	—
4250	1795	8.9	1861	9.3	—	—	—	—	—	—
4500	1856	9.3	1918	9.6	—	—	—	—	—	—
4750	1919	9.6	—	—	—	—	—	—	—	—
5000	—	—	—	—	—	—	—	—	—	—

Standard Static 1080-2000 rpm, 2.55 Max bhp

Fan data (cont)

40RLQA12 High Static Fan Data (rpm - vdc)

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	0.2		0.4		0.6		0.8		1.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
3000	1080	4.8	1175	5.3	1268	5.7	1361	6.1	1453	6.6
3250	1154	5.2	1243	5.6	1329	6.0	1415	6.4	1501	6.8
3500	1229	5.5	1312	5.9	1393	6.3	1473	6.6	1553	7.0
3750	1305	5.9	1384	6.2	1459	6.6	1534	6.9	1609	7.3
4000	1381	6.2	1456	6.6	1527	6.9	1598	7.2	1668	7.5
4250	1458	6.6	1529	6.9	1597	7.2	1664	7.5	1730	7.8
4500	1535	6.9	1603	7.2	1668	7.5	1731	7.8	1794	8.1
4750	1613	7.3	1678	7.6	1740	7.9	1800	8.2	1860	8.4
5000	1691	7.7	1753	7.9	1813	8.2	1870	8.5	1927	8.7

CFM	AVAILABLE EXTERNAL STATIC PRESSURE (in. wg)									
	1.2		1.4		1.6		1.8		2.0	
	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc	rpm	vdc
3000	1543	7.0	1629	7.4	1712	7.7	1791	8.1	1866	8.5
3250	1586	7.2	1668	7.5	1748	7.9	1825	8.3	1899	8.6
3500	1632	7.4	1711	7.7	1787	8.1	1862	8.4	1935	8.8
3750	1683	7.6	1757	8.0	1830	8.3	1902	8.6	1972	8.9
4000	1738	7.9	1807	8.2	1877	8.5	1945	8.8	2013	9.1
4250	1795	8.1	1861	8.4	1927	8.7	1992	9.0	—	—
4500	1856	8.4	1918	8.7	1980	9.0	2042	9.3	—	—
4750	1919	8.7	1977	9.0	2036	9.2	—	—	—	—
5000	1983	9.0	2039	9.3	—	—	—	—	—	—

High Static 1080-2200 rpm, 3.2 Max bhp

Fan data (cont)

Standard Fan, 40RLQ 16-25, 0.0-1.2 in. wg ESP, 60 Hz[a]

UNIT 40RLQ	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
16	4,500	437	0.61	483	0.72	576	1.01	660	1.35	732	1.69	797	2.03	856	2.38
	5,300	499	0.95	538	1.07	617	1.37	696	1.74	767	2.13	830	2.53	888	2.94
	6,000	555	1.34	590	1.48	659	1.79	730	2.17	798	2.59	860	3.04	918	3.49
	6,800	620	1.91	651	2.06	712	2.39	774	2.78	836	3.22	896	3.71	952	4.21
	7,500	677	2.52	706	2.69	761	3.04	817	3.44	873	3.89	929	4.39	984	4.93
25	6,000	542	1.29	577	1.42	646	1.72	716	2.09	785	2.51	849	2.95	907	3.40
	7,000	620	1.99	652	2.15	711	2.48	771	2.85	831	3.28	890	3.76	947	4.27
	8,000	700	2.92	728	3.10	781	3.46	833	3.85	885	4.29	938	4.78	990	5.32
	9,000	781	4.10	806	4.30	854	4.71	900	5.13	946	5.58	993	6.08	1039	6.62
	10,000	862	5.56	885	5.79	929	6.24	971	6.70	1012	7.18	1054	7.69	1096	8.24

NOTE(S):

a. Underline indicates a field-supplied drive is required.

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure

Standard Static
Medium Static
High Static

Standard Fan, 40RLQ 16-25, 1.4-2.4 in. wg ESP, 60 Hz[a]

UNIT 40RLQ	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
16	4,500	912	2.75	967	3.12	1019	3.52	1070	3.92	1120	4.35	1168	4.79
	5,300	942	3.34	992	3.76	1041	4.18	1088	4.61	1134	5.06	1179	5.52
	6,000	971	3.95	1020	4.40	1067	4.86	1112	5.33	1156	5.81	—	—
	6,800	1005	4.72	1054	5.23	1101	5.75	1145	6.27	1187	6.79	—	—
	7,500	1036	5.48	1084	6.04	1131	6.61	1174	7.17	—	—	—	—
25	6,000	961	3.86	1011	4.31	1058	4.77	1104	5.24	1147	5.71	—	—
	7,000	1000	4.79	1050	5.32	1097	5.85	1142	6.38	1184	6.91	—	—
	8,000	1041	5.88	1090	6.47	1137	7.07	1181	7.67	—	—	—	—
	9,000	1086	7.21	1133	7.82	1178	8.47	—	—	—	—	—	—
	10,000	1138	8.83	1180	9.46	—	—	—	—	—	—	—	—

NOTE(S):

a. Underline indicates a field-supplied drive is required.

LEGEND

Bhp — Brake Horsepower Input to Fan
ESP — External Static Pressure

Standard Static
Medium Static
High Static

Performance data

40RLQ**07-25 Cooling Capacities[a,b,c,d,e]

UNIT 40RL	EVAPORATOR AIR		COIL REFRIGERANT TEMP (°F)[f]									
	Airflow (cfm)	Ewb (°F)	30		35		40		45		50	
			TC	SHC	TC	SHC	TC	SHC	TC	SHC	TC	SHC
07	1,800	72	148	72	135	65	121	58	107	50	88	43
		67	128	72	112	66	98	60	82	53	65	46
		62	103	76	90	69	75	62	60	55	48	47
	2,400	72	178	85	163	77	147	68	127	60	106	52
		67	151	88	135	81	117	73	98	65	77	56
		62	125	93	109	85	91	77	73	68	59	59
	3,000	72	201	95	187	85	169	77	144	69	119	60
		67	172	101	154	93	134	84	112	75	88	66
		62	142	108	124	100	104	90	84	80	74	69
08	2,250	72	201	93	184	84	165	75	143	65	120	55
		67	167	96	149	86	130	77	109	67	86	57
		62	135	97	117	88	98	78	78	68	59	59
	3,000	72	251	116	229	106	205	94	178	82	149	70
		67	209	122	187	110	163	98	136	86	107	74
		62	171	125	148	114	124	101	98	89	76	76
	3,750	72	294	136	268	124	239	111	208	97	173	83
		67	246	144	219	131	191	117	160	103	126	89
		62	201	150	175	137	147	123	116	108	92	92
12	3,000	72	270	128	247	117	222	105	195	93	164	79
		67	225	133	202	120	177	108	149	94	118	81
		62	184	135	160	122	135	109	108	96	83	83
	4,000	72	334	159	306	145	275	131	241	115	203	100
		67	280	167	252	152	221	136	186	120	147	103
		62	231	172	202	156	170	140	135	123	106	106
	5,000	72	389	184	356	169	320	153	280	135	235	117
		67	327	196	294	179	258	161	218	143	173	124
		62	271	204	237	187	201	168	160	149	127	127
16	4,500	72	349	164	319	149	286	133	250	117	209	100
		67	290	169	259	153	226	136	190	119	151	103
		62	236	171	205	155	173	138	138	122	105	105
	6,000	72	434	203	397	185	356	167	310	147	260	126
		67	363	213	325	193	284	173	238	152	187	130
		62	297	219	259	198	217	177	173	156	135	135
	7,500	72	507	237	463	217	415	195	362	172	303	148
		67	425	251	381	229	333	205	280	182	219	156
		62	350	261	306	238	257	214	203	188	161	161
25	6,000	72	418	198	382	180	342	161	298	141	249	120
		67	348	205	312	185	271	164	228	144	181	124
		62	284	208	248	188	209	168	167	148	127	127
	8,000	72	515	242	470	221	421	198	368	174	308	149
		67	432	254	387	230	337	206	282	181	222	155
		62	355	261	308	237	258	211	205	186	160	160
	10,000	72	597	279	545	255	488	230	426	202	357	174
		67	502	296	450	270	393	242	330	214	259	184
		62	415	309	362	281	303	252	239	222	190	190

NOTE(S):

a. Ratings based on approximately 15°F superheat leaving coil.
b. Direct interpolation is permissible. Do not extrapolate.
c. Dashes indicate coil loading limits are exceeded.
d. Evaporator fan heat not deducted from ratings.
e. See dry and wet bulb formulas below.
f. SHC is based on 80°F db temperature of air entering evaporator coil.

Dry and Wet Bulb Formulas:

$$\text{Leaving db} = \text{entering db} - \frac{\text{sensible heat capacity (Btuh)}}{1.1 \times \text{cfm}}$$

$$\text{Leaving wb} = \text{wet-bulb temperature corresponding to enthalpy of air leaving coil } (h_{|wb})$$

$$h_{|wb} = h_{ewb} - \frac{\text{total capacity (Btuh)}}{4.5 \times \text{cfm}}$$

where $h_{|wb}$ = enthalpy of air entering coil

LEGEND

db — Dry Bulb Temperature (°F)
SHC — Sensible Heat Capacity (1000 Btuh)
TC — Total Capacity (1000 Btuh)
wb — Wet Bulb Temperature (°F)

Performance data (cont)

Hydronic Heating Capacity[a,b,c]

UNIT	AIRFLOW (cfm)	1-ROW STEAM[d]		2-ROW HOT WATER COIL[e]			
		Cap.	Ldb	Cap.	Ldb	Water Flow (Gpm)	PD
40RLQ*07	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
40RLQ*08	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
40RLQ*12	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
40RLQ*16	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
40RLQ*25	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

NOTE(S):

a. Maximum operating limits for heating coils: 20 psig at 260°F.
b. See Leaving Air Dry Bulb formula below.
c. See Heating Correction Factors table below.
d. Based on 5 psig steam, 60°F entering temperature. All steam coils are non-freeze type.
e. Based on 200°F entering water, 20°F water temperature drop, 60°F entering-air temperature.

Leaving Air Dry Bulb Formula:

$$\text{Leaving db} = \text{entering db} + \frac{\text{Capacity (Btuh)}}{1.1 \times \text{cfm}}$$

LEGEND

Cap. — Capacity (Btuh in 1000)
Ldb — Leaving Air Dry Bulb Temp (°F)
PD — Pressure Drop (ft water)

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 b of Hydronic Heating Capacity table.

Performance data (cont)

Duct Sound Power Levels (Lw)[a,b,c]

MODEL	CFM	dB(A)	OCTAVE BAND CENTER FREQUENCY (Hz)						
			63	125	250	500	1000	2000	4000
40RLQ*07	2,400	86.3	93.2	89.2	85.2	84.2	80.2	78.2	74.2
40RLQ*08	3,000	88.3	95.3	91.3	87.3	86.3	82.3	80.3	76.3
40RLQ*12	4,000	92.0	99.0	95.0	91.0	90.0	86.0	84.0	80.0
40RLQ*16	6,000	92.9	99.2	95.2	91.2	92.2	86.2	84.2	80.2
40RLQ*25	8,000	96.4	102.6	98.6	94.6	95.6	89.2	87.6	83.6

NOTE(S):

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

LEGEND

ASHRAE — American Society of Heating and Air Conditioning, Inc.
HVAC — Heating, Ventilation and Air Conditioning

Accessory Pressure Drop — in. wg

UNIT	AIRFLOW (cfm)	DISCHARGE PLENUM	RETURN AIR GRILLE	HOT WATER	STEAM	ELECTRIC	ECONOMIZER
40RLQ*07	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
40RLQ*08	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
40RLQ*12	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
40RLQ*16	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
40RLQ*25	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

Factory-Supplied Filter Pressure Drop

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

Accessory Plenum Air Throw Data (ft)[a]

UNIT	AIRFLOW (cfm)	VANE DEFLECTION		
		Straight	21-1/2°	45°
40RLQ*07	2,400	39	33	24
40RLQ*08	3,000	45	38	28
40RLQ*12	4,000	55	46	33
40RLQ*16	6,000	50	43	31
40RLQ*25	8,000	60	51	37

NOTE(S):

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

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

Application data

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.

Two-speed motor data

40RLQ 16-25 Standard Drive Data

UNIT	16	25
MOTOR DRIVE		
Motor Pulley Pitch Diameter (in.)	2.8-3.8	3.7-4.7
Pulley Factory Setting Full Turns Open	2.5	3.0
FAN DRIVE		
Pulley Pitch Diameter (in.)	9.0	9.4
Pulley Bore (in.)	1-1/16	1-1/16
Belt No. — Section	1 — A	1 — B
Belt Pitch (in.)	42.3	41.8
FAN SPEEDS (rpm)		
Factory Setting	632	771
Range	537-728	679-863
Max Allowable Speed (rpm)	1,200	1,200
Change per 1/2 Turn of Movable Motor Pulley Flange	19.1	15.3
MAX FULL TURN FROM CLOSED POSITION	5	6
SHAFTS CENTER DISTANCE (in.)	10.44-12.32	9.12-10.99

40RLQ 16-25 Medium-Static Drive Data

UNIT	16	25
MOTOR DRIVE		
Motor Pulley Pitch Diameter (in.)	3.7-4.7	4.3-5.3
Pulley Factory Setting Full Turns Open	3.0	3.0
FAN DRIVE		
Pulley Pitch Diameter (in.)	8.6	9.4
Pulley Bore (in.)	1-1/16	1-1/16
Belt No. — Section	1 — B	1 — B
Belt Pitch (in.)	41.8	41.8
FAN SPEEDS (rpm)		
Factory Setting	842	881
Range	742-943	798-984
Max Allowable Speed (rpm)	1,200	1,200
Change per 1/2 Turn of Movable Motor Pulley Flange	16.7	15.3
MAX FULL TURN FROM CLOSED POSITION	6	6
SHAFTS CENTER DISTANCE (in.)	10.44-1.2.32	9.16-10.99

40RLQ 16-25 High-Static Drive Data

UNIT	16	25
MOTOR DRIVE		
Motor Pulley Pitch Diameter (in.)	4.3-5.3	4.3-5.3
Pulley Factory Setting Full Turns Open	3.0	3.0
FAN DRIVE		
Pulley Pitch Diameter (in.)	7.9	7.4
Pulley Bore (in.)	1-1/16	1-1/16
Belt No. — Section	1 — B	2 — B
Belt Pitch (in.)	39.8	36.8
FAN SPEEDS (rpm)		
Factory Setting	1,060	1,118
Range	950-1,171	1,014-1,200[a]
Max Allowable Speed (rpm)	1,200	1,200
Change per 1/2 Turn of Movable Motor Pulley Flange	18.4	19.4
MAX FULL TURN FROM CLOSED POSITION	6	6
SHAFTS CENTER DISTANCE (in.)	9.16-10.99	8.16-10.02

NOTE(S):

a. It is possible to adjust drive so that fan speed exceeds maximum allowable. DO NOT exceed 1,200 rpm.

40RLQ Fan Motor Data Standard Motor, Two Speed

UNIT	40RLQ 16	40RLQ 25
208/230-3-60 and 460-3-60		
Speed (rpm)	1,750	1,755
Hp	3.7	5.0
Frame (NEMA)	56HY	184T
Shaft Diameter (in.)	7/8	1-1/8
575-3-60		
Speed (rpm)	1,710	1,755
Hp	3.7	5.0
Frame (NEMA)	56HY	184T
Shaft Diameter (in.)	7/8	1-1/8

40RLQ Fan Motor Data Alternate Motor, Two Speed

UNIT	40RLQ 16	40RLQ 25
208/230-3-60 and 460-3-60		
Speed (rpm)	1,755	1,760
Hp	5.0	7.5
Frame (NEMA)	184T	S213T
Shaft Diameter (in.)	1-1/8	1-3/8
575-3-60		
Speed (rpm)	1,755	1,750
Hp	5.0	7.5
Frame (NEMA)	184T	S213T
Shaft Diameter (in.)	1-1/8	1-3/8

40RLQ Motor Efficiency Two-Speed Motor

MOTOR HP	EPACT MINIMUM (%)	MOTOR EFFICIENCY (%)
1.7	—	82.0
2.4	—	80.0
2.9	—	86.5
3.7	—	83.6
3.7[a]	—	87.9
5.0	89.5	87.9
7.5	—	91.0
10.0	—	91.7

NOTE(S):

a. High Efficiency Motor.

Legend and Notes for Electrical Heater Data tables, pages 36-42

LEGEND

FLA — Full Load Amps
MCA — Minimum Circuit Amps
MOC — Maximum Operating Current (For Variable Frequency Drives)
MOCP — Maximum Overcurrent Protection (Amps)

NOTES:
1. Electrical resistance heaters are rated at 240v, 480v, 575v. To determine heater capacity (kW) at unit nameplate multiply the 240v, 480v, or 575v 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 3412 = Btuh.
3. Heater contactor coils are 24v and require 8va holding current.
4. Electric heaters are tested and UL approved at maximum total external static pressure of 1.9 in. wg.

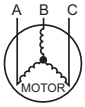
HEATER RATING VOLTAGE	ACTUAL HEATER VOLTAGE AT SITE										
	200	208	230	240	400	440	460	480	550	575	600
240	0.694	0.751	0.918	1	—	—	—	—	—	—	—
480	—	—	—	—	0.694	0.84	0.918	1	—	—	—
575	—	—	—	—	—	—	—	—	0.915	1	1.089

Electrical Data, Standard Motors — Two Speed

UNIT	NOMINAL V-PH-Hz	IFM TYPE	UNIT VOLTAGE RANGE		FAN MOTOR			POWER SUPPLY	
			Min.	Max.	Hp	kW	FLA/*MOC*	MCA	MOCP
40RLQ*07	208/230-3-60	MED	187	253	2.4	1.76	6.4/5.8	8/8	15/15
		HIGH	187	253	3.0	2.24	7.5/6.7	10/9	15/15
	460-3-60	MED	414	506	2.4	1.76	3.0	4	15
		HIGH	414	506	3.0	2.24	3.5	5	15
	575-3-60	MED	518	632	2.4	1.76	2.5	4	15
		HIGH	518	632	3.0	2.24	3.0	4	15
40RLQ*08	208/230-3-60	MED	187	253	2.4	1.76	6.4/5.8	8/8	15/15
		HIGH	187	253	3.0	2.24	7.5/6.7	10/9	15/15
	460-3-60	MED	414	506	2.4	1.76	3.0	4	15
		HIGH	414	506	3.0	2.24	3.5	5	15
	575-3-60	MED	518	632	2.4	1.76	2.5	4	15
		HIGH	518	632	3.0	2.24	3.0	4	15
40RLQ*12	208/230-3-60	MED	187	253	2.4	1.76	6.4/5.8	8/8	15/15
		HIGH	187	253	3.0	2.24	7.5/6.7	10/9	15/15
	460-3-60	MED	414	506	2.4	1.76	3.0	4	15
		HIGH	414	506	3.0	2.24	3.5	5	15
	575-3-60	MED	518	632	2.4	1.76	2.5	4	15
		HIGH	518	632	3.0	2.24	3.0	4	15
40RLQ*16	208/230-3-60	STD	187	253	3.7	2.76	*17.0*	22.0	35.0
		MED	187	253	3.7	2.76	*17.0*	22.0	35.0
		HIGH	187	253	5.0	3.73	*25.0*	32.0	50.0
	460	STD	414	506	3.7	2.76	*4.9*	7.0	15.0
		MED	414	506	3.7	2.76	*4.9*	7.0	15.0
		HIGH	414	506	5.0	3.73	*9.1*	12.0	20.0
	575	STD	518	632	3.7	2.76	*4.5*	6.0	15.0
		MED	518	632	3.7	2.76	*4.5*	6.0	15.0
		HIGH	518	632	5.0	3.73	*5.1*	7.0	15.0
40RLQ*25	208/230-3-60	STD	187	253	5.0	3.73	*25.0*	32.0	50.0
		MED	187	253	5.0	3.73	*25.0*	32.0	50.0
		HIGH	187	253	7.5	5.60	*25.0*	32.0	50.0
	460	STD	414	506	5.0	3.73	*9.1*	12.0	20.0
		MED	414	506	5.0	3.73	*9.1*	12.0	20.0
		HIGH	414	506	7.5	5.60	*15.0*	19.0	30.0
	575	STD	518	632	5.0	3.73	*8.0*	10.0	15.0
		MED	518	632	5.0	3.73	*8.0*	10.0	15.0
		HIGH	518	632	7.5	5.60	*9.0*	12.0	20.0

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

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.

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

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.

40RLQ*07-12, 60 Hz Electrical Heater Data

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Min	Max	hp	kW	FLA/*MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW) Stage 1	Stage 2	Total	FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
40RLQA07A2A5	208/230	MED	187	253	2.4	1.76	6.4/5.8	—	208/240	—	—	—	—	—	8/8	15/15
			187	253	2.4	1.76	6.4/5.8	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	21/22.3	25/25
			187	253	2.4	1.76	6.4/5.8	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	34/37.4	35/40
			187	253	2.4	1.76	6.4/5.8	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	47.1/52.4	50/60
			187	253	2.4	1.76	6.4/5.8	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	73.1/82.4	80/90
			187	253	2.4	1.76	6.4/5.8	—	—	—	—	—	—	—	—	—
40RLQA07A3A5		HIGH	187	253	3	2.24	7.5/6.7	—	208/240	—	—	—	—	—	10/9	15/15
			187	253	3	2.24	7.5/6.7	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	22.4/23.4	25/25
			187	253	3	2.24	7.5/6.7	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	35.4/38.5	40/40
			187	253	3	2.24	7.5/6.7	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	48.5/53.5	50/60
			187	253	3	2.24	7.5/6.7	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	74.5/83.5	80/90
40RLQA07A2A6	460	MED	414	506	2.4	1.76	3	—	480	—	—	—	—	—	4	15
			414	506	2.4	1.76	3	051A	480	5	5	—	5	6	11.3	15
			414	506	2.4	1.76	3	053A	480	10	10	—	10	12	18.8	20
			414	506	2.4	1.76	3	056A	480	15	15	—	15	18	26.3	30
			414	506	2.4	1.76	3	059A	480	25	15	10	25	30.1	41.4	50
40RLQA07A3A6		HIGH	414	506	3	2.24	3.5	—	480	—	—	—	—	—	5	15
			414	506	3	2.24	3.5	051A	480	5	5	—	5	6	11.9	15
			414	506	3	2.24	3.5	053A	480	10	10	—	10	12	19.4	20
			414	506	3	2.24	3.5	056A	480	15	15	—	15	18	26.9	30
			414	506	3	2.24	3.5	059A	480	25	15	10	25	30.1	42	50
40RLQA07A2A1	575	MED	518	632	2.4	1.76	2.5	—	575	—	—	—	—	—	4	15
			518	632	2.4	1.76	2.5	064A	575	5	5	—	5	4.8	9.1	15
			518	632	2.4	1.76	2.5	054A	575	10	10	—	10	9.6	15.1	20
			518	632	2.4	1.76	2.5	057A	575	15	15	—	15	14.4	21.1	25
			518	632	2.4	1.76	2.5	060A	575	25	15	10	25	24.1	33.3	35
40RLQA07A3A1		HIGH	518	632	3	2.24	3	—	575	—	—	—	—	—	4	15
			518	632	3	2.24	3	064A	575	5	5	—	5	4.8	9.8	15
			518	632	3	2.24	3	054A	575	10	10	—	10	9.6	15.8	20
			518	632	3	2.24	3	057A	575	15	15	—	15	14.4	21.8	25
			518	632	3	2.24	3	060A	575	25	15	10	25	24.1	33.9	35

40RLQ*07-12, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA/*MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	ELECTRIC HEATER(S) Heater Voltage	ELECTRIC HEATER(S) Nom. Cap. (kW)	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 1	ELECTRIC HEATER(S) Actual Capacity (kW) Stage 2	ELECTRIC HEATER(S) Actual Capacity (kW) Total	ELECTRIC HEATER(S) FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
40RLQA08A2A5	208/230	MED	187	253	2.4	1.76	6.4/5.8	—	208/240	—	—	—	—	—	8/8	15/15
			187	253	2.4	1.76	6.4/5.8	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	21/22.3	25/25
			187	253	2.4	1.76	6.4/5.8	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	34/37.4	35/40
			187	253	2.4	1.76	6.4/5.8	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	47.1/52.4	50/60
			187	253	2.4	1.76	6.4/5.8	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	73.1/82.4	80/90
			187	253	2.4	1.76	6.4/5.8	061A	208/240	32	12/16	12/16	24/32	66.7/77	91.4/103.5	100/110
40RLQA08A3A5		HIGH	187	253	3	2.24	7.5/6.7	—	208/240	—	—	—	—	—	10/9	15/15
			187	253	3	2.24	7.5/6.7	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	22.4/23.4	25/25
			187	253	3	2.24	7.5/6.7	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	35.4/38.5	40/40
			187	253	3	2.24	7.5/6.7	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	48.5/53.5	50/60
			187	253	3	2.24	7.5/6.7	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	74.5/83.5	80/90
			187	253	3	2.24	7.5/6.7	061A	208/240	32	12/16	12/16	24/32	66.7/77	92.8/104.6	100/110
40RLQA08A2A6	460	MED	414	506	2.4	1.76	3	—	480	—	—	—	—	—	4	15
			414	506	2.4	1.76	3	051A	480	5	5	—	5	6	11.3	15
			414	506	2.4	1.76	3	053A	480	10	10	—	10	12	18.8	20
			414	506	2.4	1.76	3	056A	480	15	15	—	15	18	26.3	30
			414	506	2.4	1.76	3	059A	480	25	15	10	25	30.1	41.4	50
			414	506	2.4	1.76	3	062A	480	35	20	15	35	42.1	56.4	60
40RLQA08A3A6		HIGH	414	506	3	2.24	3.5	—	480	—	—	—	—	—	5	15
			414	506	3	2.24	3.5	051A	480	5	5	—	5	6	11.9	15
			414	506	3	2.24	3.5	053A	480	10	10	—	10	12	19.4	20
			414	506	3	2.24	3.5	056A	480	15	15	—	15	18	26.9	30
			414	506	3	2.24	3.5	059A	480	25	15	10	25	30.1	42	50
			414	506	3	2.24	3.5	062A	480	35	20	15	35	42.1	57	60
40RLQA08A2A1	575	MED	518	632	2.4	1.76	2.5	—	575	—	—	—	—	—	4	15
			518	632	2.4	1.76	2.5	064A	575	5	5	—	5	4.8	9.1	15
			518	632	2.4	1.76	2.5	054A	575	10	10	—	10	9.6	15.1	20
			518	632	2.4	1.76	2.5	057A	575	15	15	—	15	14.4	21.1	25
			518	632	2.4	1.76	2.5	060A	575	25	15	10	25	24.1	33.3	35
			518	632	2.4	1.76	2.5	063A	575	35	20	15	35	33.7	45.3	50
40RLQA08A3A1		HIGH	518	632	3	2.24	3	—	575	—	—	—	—	—	4	15
			518	632	3	2.24	3	064A	575	5	5	—	5	4.8	9.8	15
			518	632	3	2.24	3	054A	575	10	10	—	10	9.6	15.8	20
			518	632	3	2.24	3	057A	575	15	15	—	15	14.4	21.8	25
			518	632	3	2.24	3	060A	575	25	15	10	25	24.1	33.9	35
			518	632	3	2.24	3	063A	575	35	20	15	35	33.7	45.9	50

40RLQ*07-12, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA/*MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW) Stage 1	Actual Capacity (kW) Stage 2	Actual Capacity (kW) Total	FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
40RLQA12A2A5	208/230	MED	187	253	2.4	1.76	6.4/5.8	—	208/240	—	—	—	—	—	8/8	15/15
			187	253	2.4	1.76	6.4/5.8	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	21/22.3	25/25
			187	253	2.4	1.76	6.4/5.8	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	34/37.4	35/40
			187	253	2.4	1.76	6.4/5.8	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	47.1/52.4	50/60
			187	253	2.4	1.76	6.4/5.8	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	73.1/82.4	80/90
			187	253	2.4	1.76	6.4/5.8	061A	208/240	32	12/16	12/16	24/32	66.7/77	91.4/103.5	100/110
40RLQA12A3A5		HIGH	187	253	3	2.24	7.5/6.7	—	208/240	—	—	—	—	—	10/9	15/15
			187	253	3	2.24	7.5/6.7	050A	208/240	5	3.8/5	—	3.8/5	10.4/12	22.4/23.4	25/25
			187	253	3	2.24	7.5/6.7	052A	208/240	10	7.5/10	—	7.5/10	20.8/24.1	35.4/38.5	40/40
			187	253	3	2.24	7.5/6.7	055A	208/240	15	11.3/15	—	11.3/15	31.3/36.1	48.5/53.5	50/60
			187	253	3	2.24	7.5/6.7	058A	208/240	25	11.3/15	7.5/10	18.8/25	52.1/60.1	74.5/83.5	80/90
			187	253	3	2.24	7.5/6.7	061A	208/240	32	12/16	12/16	24/32	66.7/77	92.8/104.6	100/110
40RLQA12A2A6	460	MED	414	506	2.4	1.76	3	—	480	—	—	—	—	—	4	15
			414	506	2.4	1.76	3	051A	480	5	5	—	5	6	11.3	15
			414	506	2.4	1.76	3	053A	480	10	10	—	10	12	18.8	20
			414	506	2.4	1.76	3	056A	480	15	15	—	15	18	26.3	30
			414	506	2.4	1.76	3	059A	480	25	15	10	25	30.1	41.4	50
			414	506	2.4	1.76	3	062A	480	35	20	15	35	42.1	56.4	60
40RLQA12A3A6		HIGH	414	506	3	2.24	3.5	—	480	—	—	—	—	—	5	15
			414	506	3	2.24	3.5	051A	480	5	5	—	5	6	11.9	15
			414	506	3	2.24	3.5	053A	480	10	10	—	10	12	19.4	20
			414	506	3	2.24	3.5	056A	480	15	15	—	15	18	26.9	30
			414	506	3	2.24	3.5	059A	480	25	15	10	25	30.1	42	50
			414	506	3	2.24	3.5	062A	480	35	20	15	35	42.1	57	60
40RLQA12A2A1	575	MED	518	632	2.4	1.76	2.5	—	575	—	—	—	—	—	4	15
			518	632	2.4	1.76	2.5	064A	575	5	5	—	5	4.8	9.1	15
			518	632	2.4	1.76	2.5	054A	575	10	10	—	10	9.6	15.1	20
			518	632	2.4	1.76	2.5	057A	575	15	15	—	15	14.4	21.1	25
			518	632	2.4	1.76	2.5	060A	575	25	15	10	25	24.1	33.3	35
			518	632	2.4	1.76	2.5	063A	575	35	20	15	35	33.7	45.3	50
40RLQA12A3A1		HIGH	518	632	3	2.24	3	—	575	—	—	—	—	—	4	15
			518	632	3	2.24	3	064A	575	5	5	—	5	4.8	9.8	15
			518	632	3	2.24	3	054A	575	10	10	—	10	9.6	15.8	20
			518	632	3	2.24	3	057A	575	15	15	—	15	14.4	21.8	25
			518	632	3	2.24	3	060A	575	25	15	10	25	24.1	33.9	35
			518	632	3	2.24	3	063A	575	35	20	15	35	33.7	45.9	50

NOTE(S):

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

40RLQ*16-25, 60 Hz Electrical Heater Data

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Range		hp	kW	FLA/*MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW)			FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
			Min	Max							Stage 1	Stage 2	Total			
40RLQA16T1A5	208/230	STD	187	253	3.7	2.76	*16.7*	—	208/240	—	—	—	—	—	21.0	35
			187	253	3.7	2.76	*16.7*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	46.9/51.0	50/60
			187	253	3.7	2.76	*16.7*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	73.0/81.0	80/90
			187	253	3.7	2.76	*16.7*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	99.0/111.1	100/125
			187	253	3.7	2.76	*16.7*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	125.1/141.2	150/175
40RLQA16T2A5		MED	187	253	3.7	2.76	*16.7*	—	208/240	—	—	—	—	—	21.0	35
			187	253	3.7	2.76	*16.7*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	46.9/51.0	50/60
			187	253	3.7	2.76	*16.7*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	73.0/81.0	80/90
			187	253	3.7	2.76	*16.7*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	99.0/111.1	100/125
			187	253	3.7	2.76	*16.7*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	125.1/141.2	150/175
40RLQA16T3A5		HIGH	187	253	5.0	3.73	*24.2*	—	208/240	—	—	—	—	—	31.0	50
			187	253	5.0	3.73	*24.2*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	56.3/60.4	70/70
			187	253	5.0	3.73	*24.2*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	82.4/90.4	90/100
			187	253	5.0	3.73	*24.2*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	108.4/120.5	110/125
			187	253	5.0	3.73	*24.2*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	134.5/150.6	150/175
40RLQA16T1A6	460	STD	414	506	3.7	2.76	*8.9*	—	480	—	—	—	—	—	12.0	20
			414	506	3.7	2.76	*8.9*	017B	480	10	10	—	10	12	26.1	30
			414	506	3.7	2.76	*8.9*	020B	480	20	20	—	19.9	23.9	41.0	50
			414	506	3.7	2.76	*8.9*	023B	480	30	20	10	30	36.1	56.3	60
			414	506	3.7	2.76	*8.9*	026B	480	50	30	20	50	60.1	71.2	80
40RLQA16T2A6		MED	414	506	3.7	2.76	*8.9*	—	480	—	—	—	—	—	12.0	20
			414	506	3.7	2.76	*8.9*	017B	480	10	10	—	10	12	26.1	30
			414	506	3.7	2.76	*8.9*	020B	480	20	20	—	19.9	23.9	41.0	50
			414	506	3.7	2.76	*8.9*	023B	480	30	20	10	30	36.1	56.3	60
			414	506	3.7	2.76	*8.9*	026B	480	50	30	20	50	60.1	71.2	80
40RLQA16T3A6		HIGH	414	506	5.0	3.73	*12.0*	—	480	—	—	—	—	—	15.0	25
			414	506	5.0	3.73	*12.0*	017B	480	10	10	—	10	12	30.0	35
			414	506	5.0	3.73	*12.0*	020B	480	20	20	—	19.9	23.9	44.9	50
			414	506	5.0	3.73	*12.0*	023B	480	30	20	10	30	36.1	60.1	70
			414	506	5.0	3.73	*12.0*	026B	480	50	30	20	50	60.1	75.1	80

40RLQ*16-25, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range		FAN MOTOR (QTY 1)			ELECTRIC HEATER(S)							POWER SUPPLY[a]	
			Min	Max	hp	kW	FLA/*MOC*	CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW) Stage 1	Stage 2	Total	FLA (Full Load Amps)	MCA (Minimum Ckt Amps)	MOCP (Maximum Overcurrent Protection)
40RLQA16T1A1	575	STD	518	632	3.7	2.76	*6.1*	—	575	—	—	—	—	—	8.0	15
			518	632	3.7	2.76	*6.1*	018B	575	10	10	—	10	10	20.1	25
			518	632	3.7	2.76	*6.1*	021B	575	20	20	—	20	20.1	32.8	35
			518	632	3.7	2.76	*6.1*	024B	575	30	20	10	30	30.1	45.3	50
			518	632	3.7	2.76	*6.1*	027B	575	50	30	20	50	50.2	57.8	70
40RLQA16T2A1		MED	518	632	3.7	2.76	*6.1*	—	575	—	—	—	—	—	8.0	15
			518	632	3.7	2.76	*6.1*	018B	575	10	10	—	10	10	20.1	25
			518	632	3.7	2.76	*6.1*	021B	575	20	20	—	20	20.1	32.8	35
			518	632	3.7	2.76	*6.1*	024B	575	30	20	10	30	30.1	45.3	50
			518	632	3.7	2.76	*6.1*	027B	575	50	30	20	50	50.2	57.8	70
40RLQA16T3A1		HIGH	518	632	5.0	3.73	*9.0*	—	575	—	—	—	—	—	12.0	20
			518	632	5.0	3.73	*9.0*	018B	575	10	10	—	10	10	23.8	30
			518	632	5.0	3.73	*9.0*	021B	575	20	20	—	20	20.1	36.4	40
			518	632	5.0	3.73	*9.0*	024B	575	30	20	10	30	30.1	48.9	50
			518	632	5.0	3.73	*9.0*	027B	575	50	30	20	50	50.2	61.5	70
40RLQA25T1A5	208/230	STD	187	253	5.0	3.73	*24.2*	—	208/240	—	—	—	—	—	31.0	50
			187	253	5.0	3.73	*24.2*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	56.3/60.4	70/70
			187	253	5.0	3.73	*24.2*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	82.4/90.4	90/100
			187	253	5.0	3.73	*24.2*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	108.4/120.5	110/125
			187	253	5.0	3.73	*24.2*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	134.5/150.6	150/175
40RLQA25T2A5		MED	187	253	5.0	3.73	*24.2*	—	208/240	—	—	—	—	—	31.0	50
			187	253	5.0	3.73	*24.2*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	56.3/60.4	70/70
			187	253	5.0	3.73	*24.2*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	82.4/90.4	90/100
			187	253	5.0	3.73	*24.2*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	108.4/120.5	110/125
			187	253	5.0	3.73	*24.2*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	134.5/150.6	150/175
40RLQA25T3A5		HIGH	187	253	7.5	5.60	*24.2*	—	208/240	—	—	—	—	—	31.0	50
			187	253	7.5	5.60	*24.2*	016B	208/240	10	7.5/10	—	7.5/10	20.8/24.1	56.3/60.4	70/70
			187	253	7.5	5.60	*24.2*	019B	208/240	20	14.9/19.9	—	15/20	41.7/48.1	82.4/90.4	90/100
			187	253	7.5	5.60	*24.2*	022B	208/240	30	15/20	7.5/10	22.5/30	62.5/72.2	108.4/120.5	110/125
			187	253	7.5	5.60	*24.2*	025B	208/240	50	22.6/30	15/20	37.6/50	104.2/120.3	134.5/150.6	150/175

40RLQ*16-25, 60 Hz Electrical Heater Data (cont)

UNIT	NOMINAL VOLTS	IFM TYPE	UNIT VOLTAGE Range Min	UNIT VOLTAGE Range Max	FAN MOTOR (QTY 1) hp	FAN MOTOR (QTY 1) kW	FAN MOTOR (QTY 1) FLA/*MOC*	ELECTRIC HEATER(S) CAELHEAT ****00	Heater Voltage	Nom. Cap. (kW)	Actual Capacity (kW) Stage 1	Actual Capacity (kW) Stage 2	Actual Capacity (kW) Total	FLA (Full Load Amps)	POWER SUPPLY[a] MCA (Minimum Ckt Amps)	POWER SUPPLY[a] MOCP (Maximum Overcurrent Protection)
40RLQA25T1A6	460	STD	414	506	5.0	3.73	*12.0*	—	480	—	—	—	—	—	15.0	25
			414	506	5.0	3.73	*12.0*	017B	480	10	10	—	10	12	20.0	35
			414	506	5.0	3.73	*12.0*	020B	480	20	20	—	19.9	23.9	44.9	50
			414	506	5.0	3.73	*12.0*	023B	480	30	20	10	30	36.1	60.1	70
			414	506	5.0	3.73	*12.0*	026B	480	50	30	20	50	60.1	75.1	80
40RLQA25T2A6		MED	414	506	5.0	3.73	*12.0*	—	480	—	—	—	—	—	15.0	25
			414	506	5.0	3.73	*12.0*	017B	480	10	10	—	10	12	20.0	35
			414	506	5.0	3.73	*12.0*	020B	480	20	20	—	19.9	23.9	44.9	50
			414	506	5.0	3.73	*12.0*	023B	480	30	20	10	30	36.1	60.1	70
			414	506	5.0	3.73	*12.0*	026B	480	50	30	20	50	60.1	75.1	80
40RLQA25T3A6		HIGH	414	506	7.5	5.60	*12.0*	—	480	—	—	—	—	—	15.0	25
			414	506	7.5	5.60	*12.0*	017B	480	10	10	—	10	12	20.0	35
			414	506	7.5	5.60	*12.0*	020B	480	20	20	—	19.9	23.9	44.9	50
			414	506	7.5	5.60	*12.0*	023B	480	30	20	10	30	36.1	60.1	70
			414	506	7.5	5.60	*12.0*	026B	480	50	30	20	50	60.1	75.1	80
40RLQA25T1A1	575	STD	518	632	5.0	3.73	*9.0*	—	575	—	—	—	—	—	12.0	20
			518	632	5.0	3.73	*9.0*	018B	575	10	10	—	10	10	23.8	30
			518	632	5.0	3.73	*9.0*	021B	575	20	20	—	20	20.1	36.4	40
			518	632	5.0	3.73	*9.0*	024B	575	30	20	10	30	30.1	48.9	50
			518	632	5.0	3.73	*9.0*	027B	575	50	30	20	50	50.2	61.5	70
40RLQA25T2A1		MED	518	632	5.0	3.73	*9.0*	—	575	—	—	—	—	—	12.0	20
			518	632	5.0	3.73	*9.0*	018B	575	10	10	—	10	10	23.8	30
			518	632	5.0	3.73	*9.0*	021B	575	20	20	—	20	20.1	36.4	40
			518	632	5.0	3.73	*9.0*	024B	575	30	20	10	30	30.1	48.9	50
			518	632	5.0	3.73	*9.0*	027B	575	50	30	20	50	50.2	61.5	70
40RLQA25T3A1		HIGH	518	632	7.5	5.60	*9.0*	—	575	—	—	—	—	—	12.0	20
			518	632	7.5	5.60	*9.0*	018B	575	10	10	—	10	10	23.8	30
			518	632	7.5	5.60	*9.0*	021B	575	20	20	—	20	20.1	36.4	40
			518	632	7.5	5.60	*9.0*	024B	575	30	20	10	30	30.1	48.9	50
			518	632	7.5	5.60	*9.0*	027B	575	50	30	20	50	50.2	61.5	70

NOTE(S):

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

Commercial Packaged Air-Handling Unit

HVAC Guide Specifications

Size Range: **6-10 Tons, Nominal Cooling**

Carrier Model Numbers: **40RLQ (Heat Pump Coil)**

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 with direct-expansion coil shall use Puron Advance™ (R-454B) in a refrigerant circuit with a matching air-cooled condensing unit.

1.02 Quality Assurance

A. Coils shall be designed and tested in accordance with ASHRAE®[1] 15 Safety Code for Mechanical Refrigeration (U.S.A.)

B. Unit shall be constructed in accordance with UL Standard 60335-1 and 60335-2-40, and shall carry the UL and UL, Canada, labels.

C. Unit insulation and adhesive shall comply with NFPA-90A (U.S.A.) requirements for flame spread and smoke generation.

D. Unit shall be manufactured in a facility registered to the ISO 9001 manufacturing quality standard.

E. Direct-expansion coils shall be burst and leak tested at 435 psi.

1.03 Delivery and Storage

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

1.04 Safeties

A. A2L Refrigerant Leak Dissipation System (Electromechanical).

1. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40
2. System shall be designed for the life of the unit
3. Dissipation system shall be automatic and disable compressors on 38AXQ condensing units
4. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted
5. Factory installed dissipation controller shall use onboard microprocessor and include:
   a. Automatic reset after a dissipation event has occurred
   b. Onboard LED with flash code to indicate current unit status and hardware failures
   c. Depressible "Test" button to allow for a system test and recall/reset of leak detection history
   d. 24V dry contact alarm terminal to allow for external notification of leak detection
6. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible
7. Dissipation system shall "Fail Safe" per UL requirements
8. Dissipation shall allow smoke and building fire systems to override in case of event

Part 2 — Products

2.01 Equipment

A. Indoor mounted, draw-thru, packaged air-handling unit that can be used in a suspended horizontal configuration or a vertical configuration. Unit shall consist of a direct drive vane axial fan and motor assembly, pre-wired fan motor controller, factory-installed refrigerant metering devices (direct-expansion coil units), cooling coil, 2 in. (51 mm) disposable air filters, and condensate drain pans for vertical or horizontal configurations.

1. Cabinet shall be constructed of mill-galvanized steel.
2. Cabinet panels shall be fully insulated with 1/2 in. (12.7 mm) fire-retardant material.
3. Unit shall contain non-corroding 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.
4. Unit shall have factory-supplied 2 in. (51 mm) throwaway-type filters installed upstream from the cooling coil. Filter access shall be from either the right or left side of the unit.

B. Evaporator Fan and Motor with EcoBlue™ Technology:

1. Direct Drive Evaporator fan motor:
   a. Shall be an ECM motor design.
   b. Shall be direct drive design for all static options.
   c. Shall have permanently lubricated bearings.
   d. Shall have inherent automatic-reset thermal overload protection.
   e. Shall have slow ramp up to speed capabilities.
   f. Shall require no fan/motor belts for operation, adjustments and or initial fan speed set up.
   g. Shall be internally protected from electrical phase reversal and loss.

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2. Evaporator Fan:
   a. Shall be easily set with dedicated selection switch and adjustment pot on unit control board
   b. Shall provide two stage cooling capacity control, the indoor fan speed is automatically controlled to meet the code-compliant <66% low fan speed and 100% at full fan speed operation.
   c. Blower fan shall be a Vane Axial fan design with fan assembly secured directly to ECM motor. Additional shafts, belts, pulleys/sheaves, and bearing blocks to drive fan shall not be permitted or necessary.
   d. Additional variable frequency drive to control fan motor speed shall not be permitted or necessary. All speed control electronics must be onboard fan motor assembly.
   e. Shall be constructed of a high impact composite material on stator, rotor and air inlet casing.
   f. Shall be a patented / pending design with a corrosion resistant material and dynamically balanced.
   g. Shall have slow ramp up to speed capabilities to help reduce sound and comfort issues typically associated with single speed belt drive systems.
   h. Shall be a slide out design with removal of a few support brackets.
3. Shall include an easily accessible Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

C. Coils:

DX coil is 4-row and consists of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Suction and liquid line connections or supply and discharge connections shall be made on the same side of the coil.

1. DX coil is 4-row and consists of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Suction and liquid line connections or supply and discharge connections shall be made on the same side of the coil.
2. Direct-expansion coils shall feature factory installed thermostatic expansion valves (TXVs) for refrigerant control. The TXVs shall be Puron Advance™ R-454B compatible and capable of external adjustment. Coil tubing shall be internally rifled to maximize heat transfer.

D. Operating Characteristics:

1. When combined with matching 38AXQ condensing unit the system shall be capable of starting and running at ambient outdoor temperatures from 35°F (2°C) to 125°F (52°C) in cooling mode.
2. Unit shall operate at ±10% from rated voltage.

E. Motor:

1. Fan motor of the size and electrical characteristics specified on the equipment schedule shall be factory supplied and installed.
2. Evaporator 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 motor; no "safety factors" above that rating may be applied.

F. Special Features:

1. Alternate Motor and Drive:

   An alternate high-static motor shall be available to meet the airflow and external static pressure requirements specified on the equipment schedule.
2. External Paint:

   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 240v, 480v, or 575v, 3-phase, 60 Hz shall be factory-supplied for field installation as shown on the equipment drawings. Electric heat assembly shall be ETL (U.S.A.) 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. Electric heaters shall not be used with air discharge plenum.

6. Air Discharge Plenum:

   Plenum shall be factory-supplied to provide free-blow air distribution for vertical floor-mounted units. A grille with movable vanes for horizontal or vertical airflow adjustment shall be included. Plenum shall be field-assembled and field-installed on the unit's fan deck for blow-thru air distribution. Plenum shall not be used with electric heaters.

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. Economizers:

   a. Accessory Ultra Low Leak EconomizerONE. (Field-installed) Economizer for ventilation or "free" cooling shall be factory provided for field installation on either return air opening of air handler.

      1) Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.

      2) Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.

      3) Shall include all hardware, actuator and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.

      4) Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.

      5) Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE90.1 requirements for 4 cfm per sq ft on the outside air dampers and 10 cfm per sq ft on the return dampers.

      6) Economizer controller on EconomizerONE models shall be the Siemens POL224 that provides:

         a) Combined minimum and DCV maximum damper position potentiometers with compressor staging relay.

         b) Optional configuration via WLAN stick and Siemens Climatix™[1] smartphone app for easy setup.

         c) Functions with solid-state analog enthalpy or dry bulb changeover control sensing.

         d) LED indication for free cooling, sensor, and damper operation.

         e) One-line LCD interface screen for setup, configuration and troubleshooting.

         f) Onboard Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC®.

         g) Sensor failure loss of communication identification.

         h) Capabilities for use with multiple-speed or single speed indoor fan systems.

         i) Digital sensors: Dry bulb and Enthalpy.

10. Overhead Suspension Package:
    Package shall include necessary brackets to support units in a horizontal ceiling installation.

11. CO_2 Sensor:

    Sensor shall provide the ability to signal the economizer to open when the space CO_2 level exceeds the predetermined setpoint.

12. Thermostat Controls:

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

    b. Commercial Electronic Thermostat shall have 7-day time clock, auto-changeover, multi-stage capability, and large LCD (liquid crystal display) temperature display.

13. Condensate Drain Trap:

    Trap shall have transparent, service-able design for easy cleaning. Kit shall include overflow shutoff switch and wiring harness for connection to an alarm if desired.

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Commercial Packaged Air-Handling Unit

HVAC Guide Specifications

Size Range: **15 to 20 Tons, Nominal Cooling**

Carrier Model Numbers: **40RLQ (Heat Pump Coil)**

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 with direct-expansion coil shall use Puron Advance™ (R-454B) in a refrigerant circuit with a matching air-cooled condensing unit.

1.02 Quality Assurance

A. Coils shall be designed and tested in accordance with ASHRAE®[1] 15 Safety Code for Mechanical Refrigeration (U.S.A.)

B. Unit shall be constructed in accordance with UL Standard 60335-1 and 60335-2-40, and shall carry the UL and UL, Canada, labels.

C. Unit insulation and adhesive shall comply with NFPA-90A (U.S.A.) requirements for flame spread and smoke generation.

D. Unit shall be manufactured in a facility registered to the ISO 9001 manufacturing quality standard.

E. Direct-expansion coils shall be burst and leak tested at 435 psi.

1.03 Delivery and Storage

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

1.04 Safeties

A. A2L Refrigerant Leak Dissipation System (Electromechanical)

1. Leak dissipation system shall consist of control board and A2L sensor certified to UL 60335-2-40
2. System shall be designed for the life of the unit
3. Dissipation system shall be automatic and disable compressors on 38AX condensing units
4. Refrigerant leak sensor shall be installed in UL certified location and orientation. Sensor shall be self-correcting and resettable. Single use refrigerant leak sensor shall not be permitted
5. Factory installed dissipation controller shall use onboard microprocessor and include:
   a. Automatic reset after a dissipation event has occurred
   b. Onboard LED with flash code to indicate current unit status and hardware failures
   c. Depressible "Test" button to allow for a system test and recall/reset of leak detection history
   d. 24V dry contact alarm terminal to allow for external notification of leak detection
6. Dissipation control board shall be accessible via normal maintenance locations and LED shall be visible
7. Dissipation system shall "Fail Safe" per UL requirements
8. Dissipation shall allow smoke and building fire systems to override in case of event

Part 2 — Products

2.01 Equipment

A. Indoor mounted, draw-thru, packaged air-handling unit that can be used in a suspended horizontal configuration or a vertical configuration. Unit shall consist of forward-curved belt-driven centrifugal fan(s), motor and drive assembly, pre-wired fan motor contactor, factory-installed refrigerant metering devices (direct-expansion coil units), cooling coil, 2 in. (51 mm) disposable air filters, and condensate drain pans for vertical or horizontal configurations.

1. Cabinet shall be constructed of mill-galvanized steel.
2. Cabinet panels shall be fully insulated with 1/2 in. (12.7 mm) fire-retardant material.
3. Unit shall contain non-corroding 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.
4. Unit shall have factory-supplied 2 in. (51 mm) 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. DX coil is 4-row and consists of copper tubes with sine-wave aluminum fins bonded to the tubes by mechanical expansion. Suction and liquid line connections or supply and discharge connections shall be made on the same side of the coil.
2. Direct-expansion coils shall feature factory installed thermostatic expansion valves (TXVs) for refrigerant control. The TXVs shall be Puron Advance™ R-454B compatible and capable of external adjustment. Coil tubing shall be internally rifled to maximize heat transfer.

C. Operating Characteristics:

1. When combined with matching 38AX condensing unit the system shall be capable of starting and running at ambient outdoor temperatures from 35°F (2°C) to 125°F (52°C) in cooling mode.
2. Unit shall operate at ±10% from rated voltage.

1. Third-party trademarks and logos are the property of their respective owners.

D. Motor:
   1. Fan motor of the size and electrical characteristics specified on the equipment schedule shall be factory supplied and installed.
   2. Motors rated at 1.3 through 3.7 hp shall have inherent thermal overload protection. Motors rated at 5 hp shall be protected by a circuit breaker.
   3. Evaporator-fan motor shall have permanently lubricated, sealed bearings and inherent automatic-reset thermal overload protection or manual reset calibrated circuit breakers. Evaporator 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 motor; no "safety factors" above that rating may be applied.
   4. All evaporator-fan motors 5 hp and larger shall meet the minimum efficiency requirements as established by the Energy Policy Act of 1992 (EPACT), effective October 24, 1997.

E. Control Box:
   1. Shall include an easily accessible Unit Control Board to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, economizer, thermostat, and low and high pressure switches. Controller shall also provide an intuitive means to adjust the indoor fan speed through a simple switch and pot adjustment design.

F. Staged Air Volume System (SAV™) for 2-stage cooling models (standard):
   1. Evaporator fan motor.
      a. Shall have permanently lubricated bearings.
      b. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating.
      c. Shall be Variable Frequency duty and 2-speed control.
      d. Shall contain motor shaft grounding ring to prevent electrical bearing fluting damage by safely diverting harmful shaft voltages and bearing currents to ground.
   2. Variable Frequency Drive (VFD) Standard:
      a. Shall be installed inside the unit cabinet, mounted, wired and tested.
      b. Shall contain Electromagnetic Interference (EMI) frequency protection.
      c. Insulated Gate Bi-Polar Transistors (IGBT) used to produce the output pulse width modulated (PWM) wave-form, allowing for quiet motor operation.
      d. Self diagnostics with fault and power code LED indicator. Field accessory Display Kit available for further diagnostics and special setup applications.
      e. RS485 capability standard.
      f. Electronic thermal overload protection.
      g. 5% swinging chokes for harmonic reduction and improved power factor.
      h. All printed circuit boards shall be con-formal coated.

G. Special Features:
   1. Alternate Motor and Drive:
      An alternate motor and/or medium-static or high-static drive shall be available to meet the airflow and external static pressure requirements specified on the equipment schedule.
   2. External Paint:
      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 240v, 480v, or 575v, 3-phase, 60 Hz shall be factory-supplied for field installation as shown on the equipment drawings. Electric heat assembly shall be UL (U.S.A.) and UL, 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. Electric heaters shall not be used with air discharge plenum.
   6. Air Discharge Plenum:
      Plenum shall be factory-supplied to provide free-blow air distribution for vertical floor-mounted units. A grille with move-able vanes for horizontal or vertical airflow adjustment shall be included. Plenum shall be field-assembled and field-installed on the unit's fan deck for

Guide specifications (cont)

blow-thru air distribution. Plenum shall not be used with electric heaters.

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. Economizers:
   a. Accessory Ultra Low Leak EconomizerONE. (Field-installed) Economizer for ventilation or "free" cooling shall be factory provided for field installation on either return air opening of air handler.
      1) Integrated, gear driven opposing modulating blade design type capable of simultaneous economizer and compressor operation.
      2) Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on in-take or return shall not be acceptable.
      3) Shall include all hardware, actuator and controls to provide free cooling with outdoor air when temperature and/or humidity are below setpoints.
      4) Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
      5) Ultra Low Leak design meets California Title 24 section 140.4 and ASHRAE90.1 requirements for 4 cfm per sq ft on the outside air dampers and 10 cfm per sq ft on the return dampers.
      6) Economizer controller on EconomizerONE models shall be the Siemens POL224 that provides:
         a) Combined minimum and DCV maximum damper position potentiometers with compressor staging relay.
         b) Optional configuration via WLAN stick and Siemens Climatix™[1] smartphone app for easy setup.
         c) Functions with solid-state analog enthalpy or dry bulb changeover control sensing.
         d) LED indication for free cooling, sensor, and damper operation.
         e) One-line LCD interface screen for setup, configuration and troubleshooting.
         f) Onboard Fault Detection and Diagnostics (FDD) that senses and alerts when the economizer is not operating properly, per California Title 24, ASHRAE 90.1 and IECC®[1].
         g) Sensor failure loss of communication identification.
         h) Capabilities for use with multiple-speed or single speed indoor fan systems.
         i) Digital sensors: Dry bulb and Enthalpy.
10. Overhead Suspension Package:
    Package shall include necessary brackets to support units in a horizontal ceiling installation.
11. CO_2 Sensor:
    Sensor shall provide the ability to signal the economizer to open when the space CO_2 level exceeds the predetermined setpoint.
12. Thermostat Controls:
    a. Programmable multi-stage thermostat shall have 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.
    b. Commercial Electronic Thermostat shall have 7-day time clock, auto-changeover, multi-stage capability, and large LCD (liquid crystal display) temperature display.
13. Condensate Drain Trap:
    Trap shall have transparent, serviceable design for easy cleaning. Kit shall include overflow shutoff switch and wiring harness for connection to an alarm if desired.
14. Display Kit for Variable Frequency Drive:
    a. Kit allows the ability to access the VFD controller programs to provide special setup capabilities and diagnostics.
    b. Kit contains display module and communications cable.
    c. Display Kit can be permanently installed in the unit or used on any SAV system VFD controller as needed.

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