Product Data

Split System Heat Pump Outdoor Unit

6 to 20 Nominal Tons

38AUQ25 shown

38AUQ07-25 60 Hz Heat Pump Outdoor Unit
Split System with Puron® (R-410A) Refrigerant

Features/Benefits

System indoor and outdoor sections offer outstanding performance in either the cooling or heating mode

Gemini split system heat pump systems save energy and provide outstanding heating and cooling all year with:

- All-season comfort in any climate
- High energy savings capability. Suitability for new construction or replacement

Heat pump system energy savings opportunity

Electrical energy consumption is always a prime concern when selecting an air-conditioning system for a commercial application. An easy, effective way to save energy is to install a heat pump. When building plans call for a heat pump, consider a matched Carrier 38AUQ/40RFQ/40RUQ heat pump system. These systems not only offer highly efficient cooling, they also provide a clean, safe, efficient source of heat. In fact, they are capable of delivering more than 3 units of heat energy for each unit of electrical power consumed.

Heat pump uniqueness

The outstanding performance of these heat pump systems is due to the heat pump's ability to absorb and transfer heat — from outdoors to indoors for heating, and from indoors to outdoors for cooling. System indoor and outdoor sections operate as evaporators or condensers, depending on whether heating or cooling is required. The heating cycle starts with the outdoor coil absorbing heat from the surrounding air (even outside air at extremely cold temperatures), and ends with the indoor coil releasing or rejecting heat to the air around it.

38AUQ application versatility

Whether for a new application or replacement, these Carrier split system heat pumps offer time-proven performance for year-round comfort in any climate. With matching 40RFQ/40RUQ air handler, the units standard cooling operation ranges up to 125°F (52°C) and down to 35°F (2°C) ambient temperatures. If lower ambient cooling temperatures are required, Carrier's Motormaster® controller will allow operation down to –20°F (–29°C) ambient temperatures.

Rugged long life compressor

The 38AUQ outdoor units are equipped with a scroll compressor for superior efficiency and long life. Crankcase heaters are available where required and each circuit is further protected by a suction line accumulator to protect during the defrost cycles or unique applications plus provide important oil management, all resulting in higher reliability.

Controls for performance efficiency

These units offer the building owner operating controls and components designed for performance dependability. The highly efficient hermetic scroll compressors are engineered for long life and durability. The compressor includes overload protection and compressor vibration isolation for further enhancement of quiet operation. The high-pressure switch protects the entire refrigeration system from abnormally high operating pressures. A loss-of-charge switch is also provided to protect the system against low charge conditions.

Each unit utilizes the Comfort Alert diagnostic and troubleshooting control system. This protects the units operation and provides valuable diagnostic information such as:

- System Go LED indicator
- Fault LED indicator
- Compressor fault LED indicator
- Phase loss protection
- Phase reversal protection
- Anti short cycle protection

The 24-v-75VA control circuit transformer permits quick, easy wiring of standard and programmable 24-v thermostats. The 24-v-75VA control circuit transformer also comes with a re-settable circuit breaker for extra protection.

Latest safety standards are assured through UL (Underwriters Laboratories), UL - Canada and ETL (Electrical Testing Laboratories) approval.

The 38AUQ units utilize a reliable defrost board with field configurable timed defrost cycles. The defrost board may be easily configured for defrost cycles of 30 to 90 minutes, depending upon the application.

Motor failure due to electrical overload is prevented by temperature and current sensors. Coil quality and performance are enhanced by copper tubes and aluminum fins, which provide maximum heat transfer. The coil is circuited for subcooling. A large heat transfer surface offers additional efficiency.

Innovative Carrier 40RFQ/40RUQ indoor units are custom matched to 38AUQ outdoor units for superior system performance

The 40RFQ/40RUQ heat pump air handler has excellent fan performance, efficient direct-expansion (DX) coils, easy installation, and a unique combination of indoor air quality features. Its versatility and state-of-the-art features help to ensure that the heat pump system provides economical performance now and in the future.

Easy installation and service

The 40RFQ comes with the new EcoBlue™ Vane Axial fan system. There is no longer a need to adjust belts or pulleys as in past designs. This frees up maintenance and installation time.

The multi-position design and component layout allow for quick unit installation and operation. The DX coils have factory-installed TXVs with matching distributor nozzles. Units can be

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Features/Benefits (cont)

converted from horizontal to vertical operation by simply repositioning the unit.

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.

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

The 40RFQ units come with the new EcoBlue™ vane axial fan system. With this system, there is no longer a need to adjust belts or pulleys as in past designs. This frees up maintenance and installation time.

Indoor-air quality (IAQ) features

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

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

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

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

Accessory economizer can provide ventilation air to improve indoor air quality. When used in conjunction with Carrier Comfort System thermostats and CO_2 sensors, the economizer admits fresh outdoor air to replace stale, recirculated indoor air.

Economy

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

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

Fan motors and contactors are prewired and TXVs are factory-installed on 40RFQ/40RUQ models.

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

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

Rugged dependability

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

For 40RUQ units, galvanized steel fan housings are securely mounted to a die-formed galvanized steel deck.

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

Direct expansion (DX) coils are designed for use with Puron® (R-410A) refrigerant and have copper tubes mechanically bonded to aluminum sine-wave fins. DX coils include matched, factory-installed thermostatic expansion valves (TXVs) with matching distributor nozzles.

The accompanying air handling unit has thermal insulation containing an immobilized anti-microbial agent to inhibit the growth of bacteria and fungi on the insulation.

Coil flexibility

Model 40RFQ/40RUQ coils have galvanized steel coil casings; inlet and outlet connections are on the same end. The coils are designed for use with Puron (R-410A) refrigerant and have 3/8-in. diameter copper tubes mechanically bonded to aluminum sine-wave fins. The coils include matched, factory-installed TXVs with matching distributor nozzles. Check valves and heat pump piping are also included in all 40RFQ/40RUQ units.

Duplicate piping access holes on both sides of the unit eliminate drilling; condensate connections for both vertical and horizontal installations are also provided on both sides of the unit.

Staged Air Volume (SAV)

Our Staged Air Volume (SAV) system 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.

EcoBlue™ Technology (40RFQ units only)

Direct drive EcoBlue™ indoor fan system on 40RFQ units uses Vane Axial fan design and electronically commutated motors.

Compared to past belt drive systems, this new Vane Axial design has 75% fewer moving parts, uses up to 40% less energy, and has no fan belts, blower bearings, or shaft.

Model number nomenclature

38AUQ 07-12 Model Number Nomenclature

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	8	A	U	Q	E	1	2	A	0	A	5	-	0	A	0	A	0

Model Type
38AU = Carrier Condensing Unit
Puron® R-410A Refrigerant

Heat Pump
Q = Heat Pump

Refrigerant Options[1]
D = Single Circuit / 2-Stage[2]
E = Single Circuit / 2-Stage with Low Ambient[2]
M = Single Circuit / 2-Stage[3]
N = Single Circuit / 2-Stage with Low Ambient[3]

Nominal Tonnage
07 = 6 Tons
08 = 7.5 Tons
12 = 10 Tons

Not Used
A = Not Used

Not Used
0 = Not Used

Coil Options (RTPF)
A = Al/Cu
B = Precoat (Al/Cu)
C = E-Coat (Al/Cu)
M = Al/Cu with Louvered Hail Guard
N = Precoat (Al/Cu) with Louvered Hail Guard
P = E-Coat (Al/Cu) with Louvered Hail Guard

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

Not Used
- = Not Used

Base Unit Controls
0 = Standard Electro-Mechanical Controls

Not Used
A = Not Used

Service Options
0 = None
1 = Un-powered Convenience Outlet
2 = Powered Convenience Outlet

Electrical Options
A = None
C = Non-Fused Disconnect

Packaging
0 = Standard
1 = LTL

[1] All units meet Department of Energy 2023 IEER requirements.
[2] 38AUQ 07/12 models only.
[3] 38AUQ 08 models only.

38AUQ 16-25 Model Number Nomenclature

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
3	8	A	U	Q	T	1	6	A	0	A	5	-	0	A	0	A	0

Model Type
38AU = Carrier Condensing Unit
Puron® R-410A Refrigerant

Heat Pump
Q = Heat Pump

Refrigerant Options[1]
T = Dual Circuit, 3-Stage
U = Dual Circuit, 3-Stage with Low Ambient

Nominal Tonnage
16 = 15 Tons
25 = 20 Tons

Not Used
A = Not Used

Not Used
0 = Not Used

Coil Options (RTPF)
A = Al/Cu
B = Precoat (Al/Cu)
C = E-Coat (Al/Cu)
M = Al/Cu with Louvered Hail Guard
N = Precoat (Al/Cu) with Louvered Hail Guard
P = E-Coat (Al/Cu) with Louvered Hail Guard

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

Not Used
- = Not Used

Base Unit Controls
0 = Standard Electro-Mechanical Controls

Not Used
A = Not Used

Service Options
0 = None
1 = Un-powered Convenience Outlet
2 = Powered Convenience Outlet

Electrical Options
A = None
C = Non-Fused Disconnect

Packaging
0 = Standard
1 = LTL

[1] All units meet Department of Energy 2023 IEER requirements.

AHRI capacity ratings

Cooling

UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	EER	IEER w/2–SPEED
38AUQ(D,E)07 / 40RFQ07	2	6.0	70.0	6.0	11.7	15.3
38AUQ(M,N)08 /40RFQ08	2	7.5	88.0	7.9	11.2	15.3
38AUQ(D,E)12 / 40RFQ12	2	10.0	112.0	10.2	11.0	15.3
38AUQ(T,U)16 / 40RUQ16	3	15.0	178.0	16.8	10.6	13.5
38AUQ(T,U)25 / 40RUQ25	3	20.0	222.0	20.9	10.6	13.5

High Heat at 47°F (8°C)

UNIT	HEATING STAGES	NOM. CAPACITY (TONS)	NET HEATING CAPACITY (MBH)	TOTAL POWER (kW)	COP
38AUQ(D,E)07 / 40RFQ07	1	6.0	66.0	5.7	3.4
38AUQ(M,N)08 / 40RFQ08	1	7.5	87.0	7.3	3.5
38AUQ(D,E)12 / 40RFQ12	1	10.0	106.0	9.1	3.4
38AUQ16 / 40RUQ16	1	15.0	176.0	14.7	3.5
38AUQ25 / 40RUQ25	1	20.0	218.0	18.2	3.5

Low Heat at 17°F (–8°C)

UNIT	HEATING STAGES	NOM. CAPACITY (TONS)	NET HEATING CAPACITY (MBH)	TOTAL POWER (kW)	COP
38AUQ(D,E)07 / 40RFQ07	1	6.0	39.0	4.8	2.4
38AUQ(M,N)08 / 40RFQ08	1	7.5	50.0	6.1	2.4
38AUQ(D,E)12 / 40RFQ12	1	10.0	66.0	8.1	2.4
38AUQ16 / 40RUQ16	1	15.0	103.0	12.6	2.4
38AUQ25 / 40RUQ25	1	20.0	126.0	16.1	2.3

LEGEND

AHRI — Air-Conditioning, Heating and Refrigeration Institute
ASHRAE — American Society of Heating, Refrigerating and Air Conditioning, Inc.
EER — Energy Efficiency Ratio
IEER — Integrated Energy Efficiency Ratio

NOTE(S):

1. Rated in accordance with AHRI Standard.
2. Ratings are based on:
   Cooling Standard: 80°F (27°C) db, 67°F (19°C) wb indoor air temp and 95°F (35°C) db outdoor air temp.
   IEER Standard: 80°F (27°C) db, 67°F (19°C) wb indoor air temp and 4 various outdoor temperatures.
3. All units comply with ASHRAE 90.1 Energy Standard for minimum EER and IEER requirements.
4. All units are AHRI listed as factory defined matched combinations of specific indoor and outdoor unit components.

c UL us
07-12 Models

c ETL us
Intertek
16-25 Models

ASHRAE 90.1 COMPLIANT

AHRI CERTIFIED
www.ahridirectory.org

Use of the AHRI Certified TM Mark indicates a manufacturer's participation in the program. For verification of certification for individual products, go to www.ahridirectory.org.

SOUND POWER LEVELS, dB

UNIT	COOLING STAGES	A-WEIGHTED	LINEAR OCTAVE OUTDOOR SOUND (dB)							
			63	125	250	500	1000	2000	4000	8000
38AUQ(D,E)07	2	83.6	87.8	84.9	83.2	81.4	78.7	74.5	68.8	63.8
38AUQ(M,N)08	2	82.4	86.8	85.7	80.3	80.3	77.7	72.3	70.2	65.4
38AUQ(D,E)12	2	84.2	84.8	92.0	80.8	82.6	78.4	74.0	69.2	67.8
38AUQ16	2	79.6	90.3	81.8	78.0	76.7	75.2	70.5	66.4	61.9
38AUQ25	2	85.2	91.0	85.0	80.0	86.0	79.0	73.0	68.0	63.0

LEGEND

dB — Decibel

NOTE(S):

1. Outdoor sound data is measure in accordance with AHRI standard 270.

Physical data

38AUQ*07-25 Physical Data

UNIT	38AUQ(D,E)07	38AUQ(M,N)08	38AUQ(D,E)12	38AUQ(T,U)16	38AUQ(T,U)25
Refrigeration System					
# Circuits / # Comp. / Type	1 / 1 / Scroll	1 / 1 / Digital Scroll	1 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
Refrigerant Type	Puron® R-410A	Puron® R-410A	Puron® R-410A	Puron® R-410A	Puron® R-410A
Shipping Charge A/B (lb)	9.0	9.0	9.0	9.0 / 9.0	9.0 / 9.0
System Charge w/ Fan Coil[a] A/B (lb)	18.0	26.2	27.0	28.3 / 26.7	27.0 / 27.0
Metering Device	Acutrol	Acutrol	Acutrol	Acutrol	Acutrol
High-Press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505	630 / 505	630 / 505
Low-Press. Trip / Reset (psig)	27 / 44	27 / 44	27 / 44	27 / 44	27 / 44
Outdoor Coil					
Material - Tube/Fin	Al/Cu	Al/Cu	Al/Cu	Al/Cu	Al/Cu
Coil Type	RTPF	RTPF	RTPF	RTPF	RTPF
Rows / FPI	2 / 17	2 / 17	2 / 17	2 / 17	2 / 17
Total Face Area (ft^2)	17.5	28.1	28.1	47.1	50.1
Outdoor Fan / Motor					
Qty / Motor Drive Type	2 / Direct	2 / Direct	2 / Direct	3 / Direct	4 / Direct
Motor hp / rpm	1/4 / 1100	1/4 / 1100	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan Diameter (in.)	22	22	22	22	22
Nominal Airflow (cfm)	6,000	6,000	6,000	10,000	14,000
Watts (total)	610	610	610	970	1150
Piping Connections					
Qty / Vapor (in. ODS)	1 / 1-1/8	1 / 1-1/8	1 / 1-3/8	2 / 1-3/8	2 / 1-3/8
Qty / Liquid (in. ODS)	1 / 3/8	1 / 1/2	1 / 1/2	2 / 1/2	2 / 1/2

NOTE(S):

a. Approximate system charge with 25 ft piping of sizes indicated with matched 40RFQ/40RUQ.

LEGEND

RTPF — Round Tube / Plate Fin

Options and accessories

38AUQ

ITEM	OPTION[a]	ACCESSORY[b]
Convenience Outlet (115-v) Powered	X	
Convenience Outlet Non-powered	X	
Enviro-Shield Outdoor Coil Protection	X	
Louvered Hail Guard	X	X
Low Ambient Temperature Control	X	X
Non-Fused Disconnect Switch[c]	X	
Programmable Thermostats		X

NOTE(S):

a. Factory-installed option.
b. Field-installed accessory.
c. Not available when unit MOCP electrical rating exceeds 80 amps.

Enviro-Shield outdoor coil options

Outdoor coil options are available to match coil protection to site conditions for optimum durability. See "Outdoor Coil Protection Applications" on page 7. Refer to the Application data for selection guidance. Consult a Carrier representative for further information.

Low ambient temperature head pressure control

The head pressure control operates in Cooling mode at outdoor temperatures below 35°F (2°C). The low ambient control varies the speed of outdoor-fan motors to maintain correct condensing temperature down to –20°F (–29°C).

115-v convenience outlet

A convenience outlet is available to provide power to electric drills, lights, and refrigerant recovery machines. This means that a separate 115-v power supply is no longer required.

Non-powered convenience outlet requires the field installation of a general purpose 125-volt 15-A circuit powered from a source elsewhere in the building.

Non-fused disconnect switch

The Non-fused disconnect switch removes power locally at the condensing unit. This switch also includes a power lockout capability to protect the service person. This lockout switch saves time and effort as the service person no longer needs to access a distant disconnect switch while servicing the unit.

Outdoor coil louvered hail guard

The outdoor coil louvered hail guard protects outdoor units from hail and other flying debris.

Carrier commercial thermostats

Our commercial thermostats provide 7-day programmable capability for commercial applications.

Outdoor Coil Protection Applications

Enviro-Shield DESCRIPTION	ENVIRONMENT					
	Standard Non-Corrosive	Mild Coastal	Moderate Coastal	Severe Coastal	Industrial	Combined Coastal and Industrial
Alum Fin / Cu Tube	X					
Pre-Coated Al/Cu		X				
E-Coated Al/Cu		X	X	X	X	X

Options and accessories (cont)

40RFQ/40RUQ

ITEM	OPTION[a]	ACCESSORY[b]
Alternate Fan Motors	X	
Alternate Drive	X	
CO_2 Sensors		X
Condensate Drain Trap		X
Discharge Duct Adapter (40RFQ only)		X
Discharge Plenum		X
Economizer		X
Electric Heater		X
Hot Water Heating Coils		X
Optional Display Kit for Staged Air Volume (SAV) with VFD (40RUQ only)		X
Overhead Suspension Package		X
Pre-Painted Units	X	
Programmable Thermostats		X
Return Air Grille		X
Steam Heating Coil (1 row)		X

NOTE(S):

a. Factory-installed option.
b. Field-installed accessory.

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 units

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

Field-installed accessories

Optional VFD display kit (40RUQ only)

There is an optional VFD display kit offered (as an accessory) to allow the user to troubleshoot any VFD faults in the field after startup.

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.

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 plenum

The 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).

Economizer (enthalpy controlled)

The enthalpy controlled Economizer provides ventilation air and "free" cooling if outside ambient temperature and humidity are suitable. It can also be used with CO_2 sensors to help meet indoor air quality requirements.

Electric heater

Electric heaters are available as factory-supplied and field-installed accessories for nominal 240v, 480v, and 575v, 3-phase, 60 Hz units. Electric heaters are ETL (U.S.A.) and ETL, Canada, 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.

Two-row hot water coils

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

Overhead suspension package

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

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

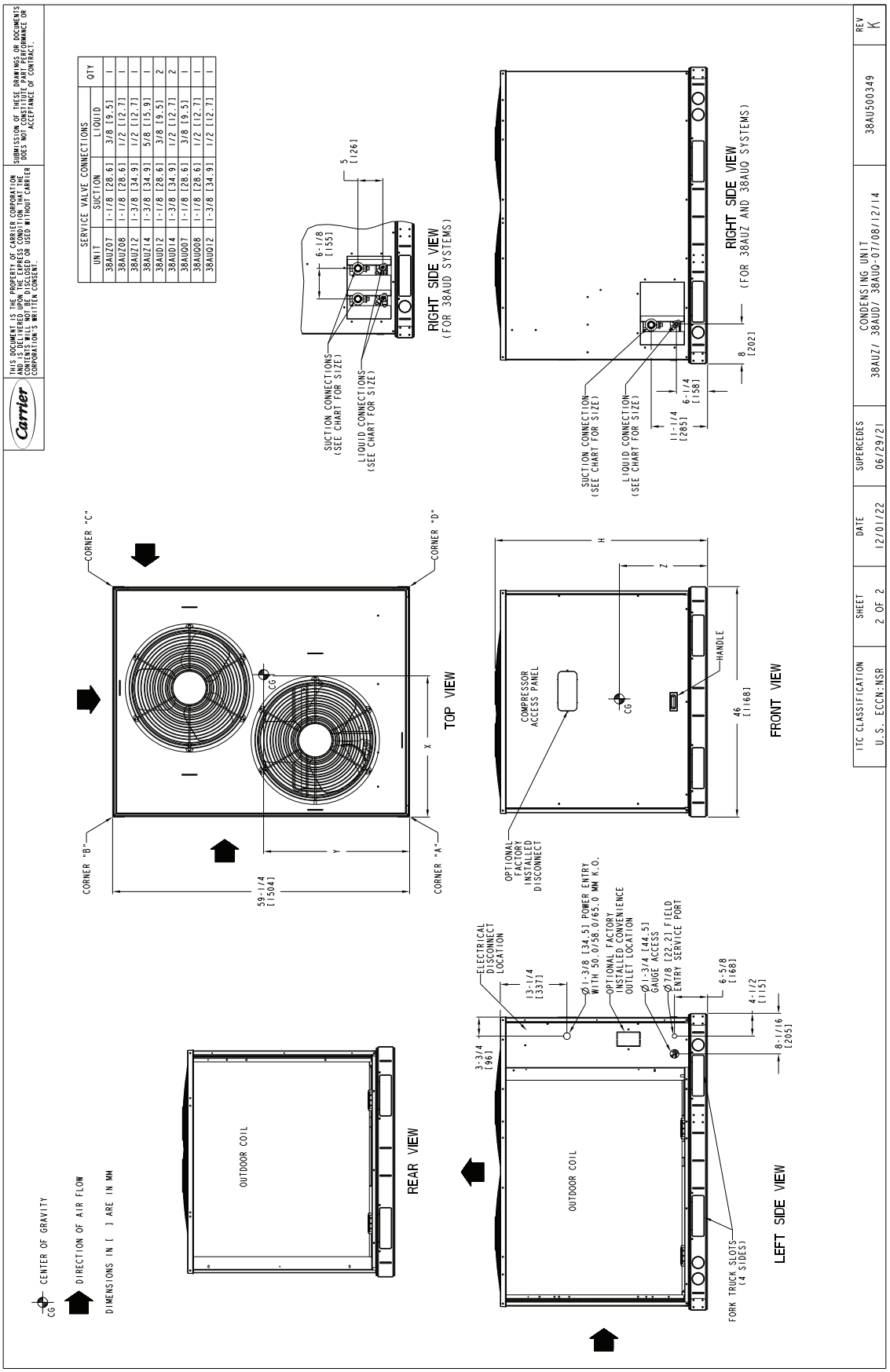
The one-row steam coil has copper tubes and aluminum fins. The Inner Distributing Tube (IDT) design provides uniform temperatures across the coil face. The steam coil has a broad operating pressure range; up to 20 psi (138 kPag) at 260°F (126°C). The IDT steam coils are especially suited to applications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

Discharge duct adapter

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

Base unit dimensions

38AUQ*07–12 Base Unit Dimensions



Base unit dimensions (cont)

38AUQ*07–12 Corner Weights

UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY[a]			UNIT HEIGHT[a]
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	X	Y	Z	H
38AUQ(D,E)07	444	201	134	61	97	44	90	41	123	56	22 [558.8]	25 [635.0]	13 [330.2]	42-3/8 [1076.0]
38AUQ(M,N)08	523	237	174	79	118	54	96	44	135	61	21 [533.4]	24 [609.6]	23 [584.2]	50-3/8 [1279.2]
38AUQ(D,E)12	575	261	186	84	126	57	106	48	157	71	21 [533.4]	24 [609.6]	23 [584.2]	50-3/8 [1279.2]

NOTE(S):

a. Measurements are in in. [mm]

Base unit dimensions (cont)

38AUQ*16

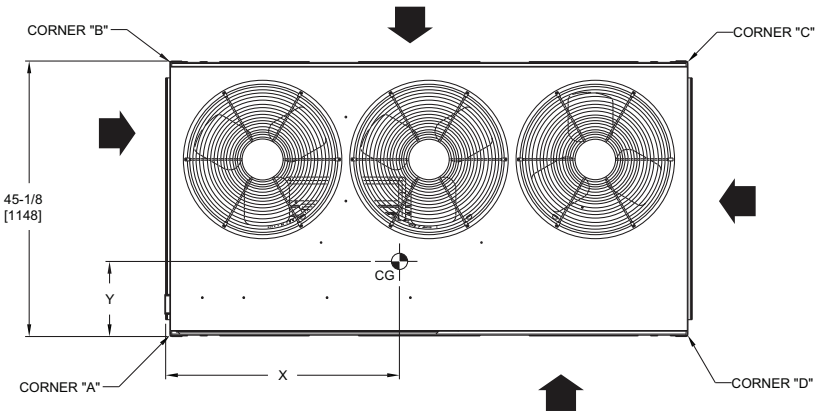
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	H
38AUQ16	768	348	236	107	183	83	153	69	196	89	39 [990.6]	20 [508]	23 [584.2]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

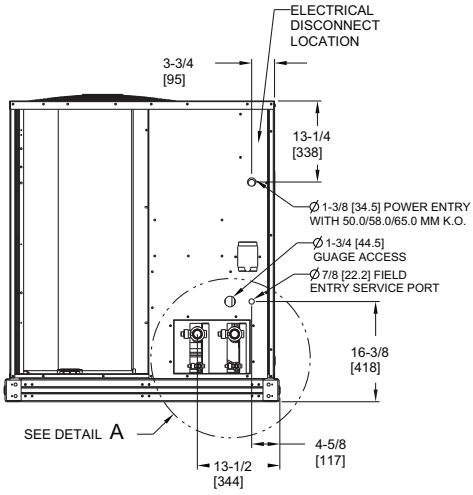
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

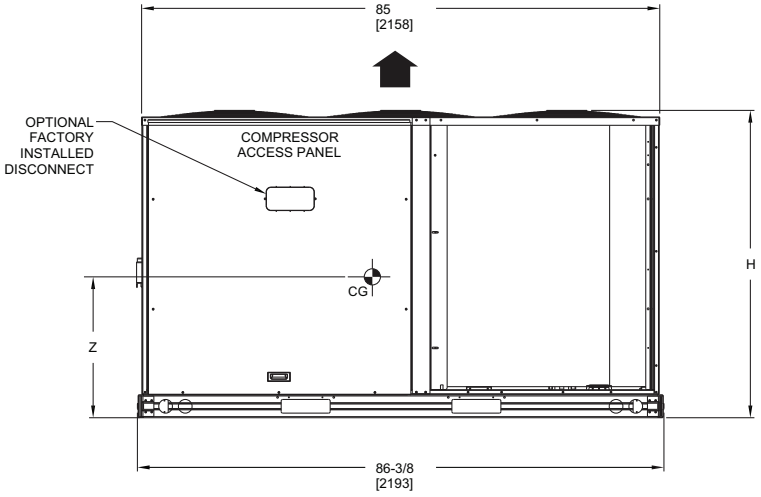
SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUQ16	1-3/8 [34.9]	1/2 [12.7]	2 EA

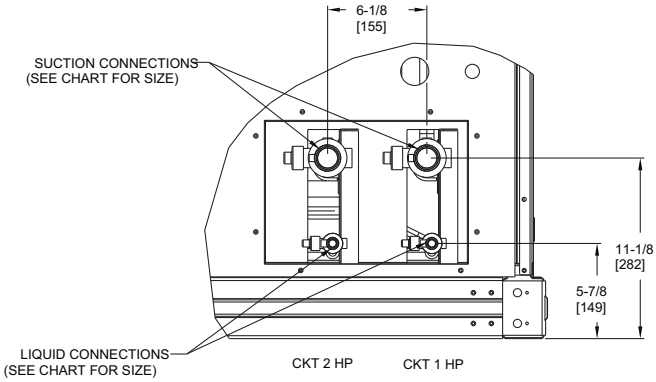


TOP VIEW



LEFT SIDE VIEW





DETAIL A
(NOTE POSITION OF CKT 1)

NOTES:
1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

Base unit dimensions (cont)

38AUQ*25

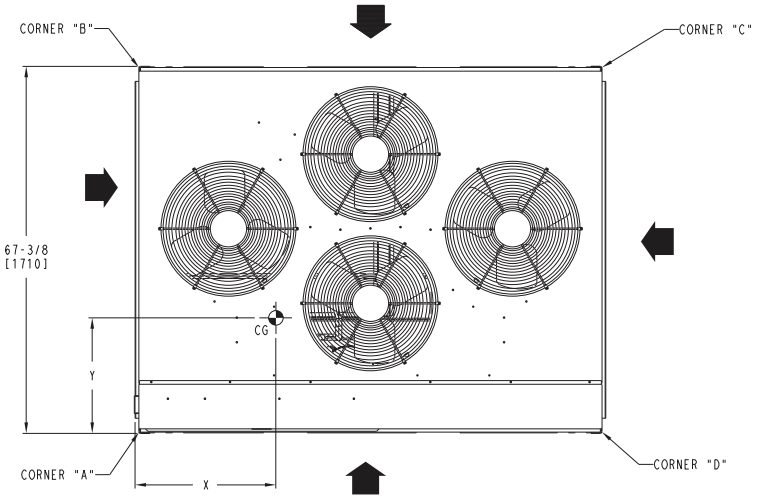
UNIT	STD. UNIT WT.		CORNER A		CORNER B		CORNER C		CORNER D		CENTER OF GRAVITY			UNIT HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z	H
38AUQ25	1015	460	354	161	224	102	170	77	268	122	37 [939.8]	26 [660.4]	23 [584.2]	50-3/8 [1279.2]

CG CENTER OF GRAVITY

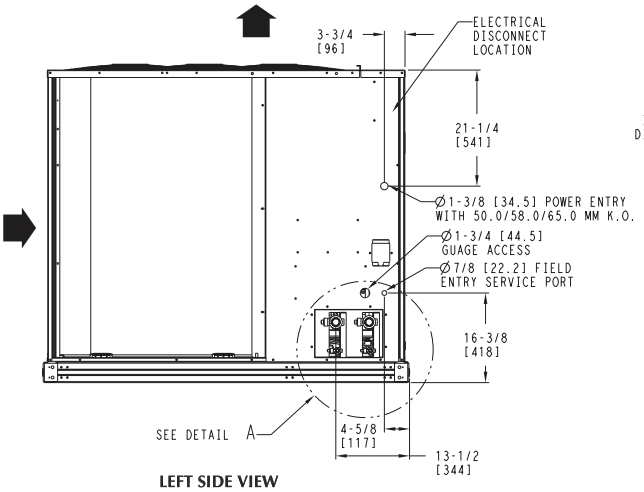
DIRECTION OF AIR FLOW

DIMENSIONS IN [ ] ARE IN MM

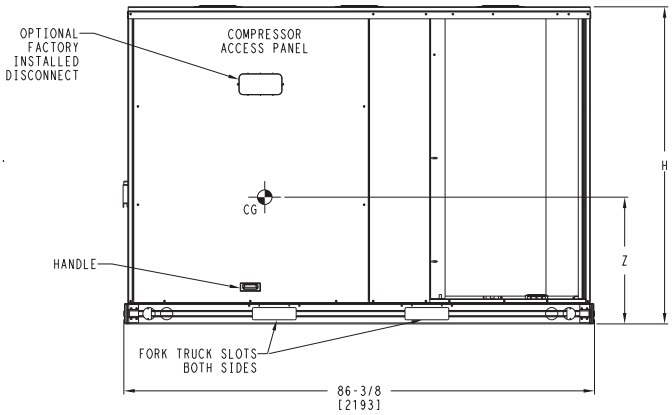
SERVICE VALVE CONNECTIONS			QTY
UNIT	SUCTION	LIQUID	
38AUQ25	1-3/8 [34.9]	1/2 [12.7]	2 EA



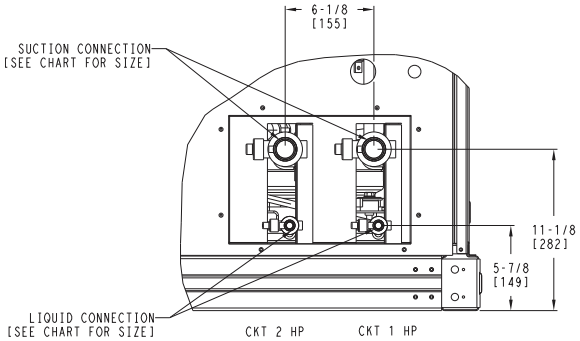
TOP VIEW



LEFT SIDE VIEW



FRONT VIEW



DETAIL A
(NOTE POSITION OF CKT 1)

NOTES:
1. MINIMUM CLEARANCE (LOCAL CODES OR JURISDICTION MAY PREVAIL):
   A. BOTTOM TO COMBUSTIBLE SURFACES: 0 INCHES.
   B. OUTDOOR COIL, FOR PROPER AIR FLOW: 36 INCHES ONE SIDE, 12 INCHES THE OTHER. THE SIDE GETTING THE GREATER CLEARANCE IS OPTIONAL.
   C. OVERHEAD: 60 INCHES, TO ASSURE PROPER OUTDOOR FAN OPERATION.
   D. BETWEEN UNITS: CONTROL BOX SIDE, 42 INCHES PER NEC.
   E. BETWEEN UNIT AND UNGROUNDED SURFACES: CONTROL BOX SIDE, 36 INCHES PER NEC.
   F. BETWEEN UNIT AND BLOCK OR CONCRETE WALLS AND OTHER GROUNDED SURFACES: CONTROL BOX SIDE, 42 INCHES PER NEC.
2. WITH EXCEPTION OF THE CLEARANCE FOR THE OUTDOOR COIL AS STATED IN NOTE 1B, A REMOVABLE FENCE OR BARRICADE REQUIRES NO CLEARANCE.
3. UNITS MAY BE INSTALLED ON COMBUSTIBLE FLOORS MADE FROM WOOD OR CLASS A, B OR C ROOF COVERING MATERIAL.

Performance data

38AUQ07/40RFQ07 Cooling Combination Ratings

38AUQ07/40RFQ07				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
1800 (cfm)	EA (wb)	58	TC	60.5	60.5	68.9	58.3	58.3	66.3	55.8	55.8	63.5	53.2	53.2	60.5	50.4	50.4	57.3
			SHC	52.2	60.5	68.9	50.3	58.3	66.3	48.2	55.8	63.5	45.9	53.2	60.5	43.4	50.4	57.3
		62	TC	63.4	63.4	66.3	60.4	60.4	65.0	57.2	57.2	63.5	53.9	53.9	61.9	51.0	51.0	58.4
			SHC	47.3	56.8	66.3	45.9	55.5	65.0	44.5	54.0	63.5	43.0	52.4	61.9	40.5	49.5	58.4
		67	TC	70.9	70.9	70.9	67.6	67.6	67.6	64.1	64.1	64.1	60.3	60.3	60.3	56.3	56.3	56.3
			SHC	38.4	47.9	57.4	37.1	46.6	56.1	35.7	45.2	54.7	34.2	43.7	53.3	32.7	42.2	51.7
		72	TC	79.3	79.3	79.3	75.6	75.6	75.6	71.8	71.8	71.8	67.7	67.7	67.7	63.3	63.3	63.3
			SHC	29.6	38.9	48.2	28.2	37.6	46.9	26.8	36.2	45.5	25.3	34.7	44.1	23.8	33.2	42.6
		76	TC	—	86.7	86.7	—	82.7	82.7	—	78.6	78.6	—	74.1	74.1	—	—	—
			SHC	—	31.3	41.2	—	30.1	40.0	—	28.8	37.0	—	27.4	36.1	—	—	—
2100 (cfm)	EA (wb)	58	TC	64.5	64.5	73.2	62.0	62.0	70.4	59.3	59.3	67.4	56.5	56.5	64.2	53.4	53.4	60.7
			SHC	55.7	64.5	73.2	53.5	62.0	70.4	51.2	59.3	67.4	48.8	56.5	64.2	46.1	53.4	60.7
		62	TC	65.8	65.8	73.6	62.7	62.7	72.0	60.8	60.8	66.8	57.1	57.1	65.6	53.5	53.5	63.2
			SHC	51.7	62.6	73.6	50.2	61.1	72.0	47.1	56.9	66.8	45.7	55.6	65.6	43.7	53.5	63.2
		67	TC	73.2	73.2	73.2	69.8	69.8	69.8	66.0	66.0	66.0	62.1	62.1	62.1	57.9	57.9	57.9
			SHC	41.3	52.3	63.4	40.0	51.0	62.0	38.5	49.5	60.6	37.0	48.0	59.1	35.4	46.5	57.5
		72	TC	81.8	81.8	81.8	77.9	77.9	77.9	73.8	73.8	73.8	69.5	69.5	69.5	64.9	64.9	64.9
			SHC	30.9	41.7	52.6	29.5	40.4	51.2	28.0	39.0	49.9	26.5	37.5	48.4	25.0	35.9	46.9
		76	TC	—	89.3	89.3	—	85.2	85.2	—	80.8	80.8	—	—	—	—	—	—
			SHC	—	33.0	42.6	—	31.7	41.7	—	30.3	40.6	—	—	—	—	—	—
2400 (cfm)	EA (wb)	58	TC	67.8	67.8	76.9	65.1	65.1	73.9	62.3	62.3	70.7	59.2	59.2	67.3	55.9	55.9	63.5
			SHC	58.6	67.8	76.9	56.3	65.1	73.9	53.8	62.3	70.7	51.2	59.2	67.3	48.3	55.9	63.5
		62	TC	68.3	68.3	78.9	66.7	66.7	73.1	62.3	62.3	73.6	59.3	59.3	70.0	56.0	56.0	66.2
			SHC	55.0	67.0	78.9	51.7	62.4	73.1	51.1	62.3	73.6	48.5	59.3	70.0	45.9	56.0	66.2
		67	TC	75.1	75.1	75.1	71.4	71.4	71.4	67.6	67.6	67.6	63.5	63.5	64.7	59.1	59.1	63.1
			SHC	44.1	56.6	69.0	42.6	55.1	67.6	41.2	53.7	66.2	39.7	52.2	64.7	38.0	50.5	63.1
		72	TC	83.7	83.7	83.7	79.7	79.7	79.7	75.4	75.4	75.4	70.9	70.9	70.9	66.2	66.2	66.2
			SHC	32.0	44.4	56.7	30.6	43.0	55.4	29.2	41.6	54.0	27.6	40.1	52.5	26.0	38.5	50.9
		76	TC	—	91.3	91.3	—	—	—	—	—	—	—	—	—	—	—	—
			SHC	—	34.5	46.0	—	—	—	—	—	—	—	—	—	—	—	—
2700 (cfm)	EA (wb)	58	TC	70.6	70.6	80.1	67.8	67.8	76.9	64.8	64.8	73.5	61.6	61.6	69.9	58.1	58.1	65.9
			SHC	61.1	70.6	80.1	58.6	67.8	76.9	56.0	64.8	73.5	53.2	61.6	69.9	50.2	58.1	65.9
		62	TC	71.3	71.3	81.6	67.9	67.9	80.0	64.8	64.8	76.5	61.6	61.6	72.7	58.2	58.2	68.7
			SHC	57.2	69.4	81.6	55.7	67.9	80.0	53.2	64.8	76.5	50.5	61.6	72.7	47.7	58.2	68.7
		67	TC	76.6	76.6	76.6	72.8	72.8	73.2	68.8	68.8	71.7	64.6	64.6	70.1	60.1	60.1	68.3
			SHC	46.7	60.6	74.6	45.2	59.2	73.2	43.8	57.7	71.7	42.2	56.1	70.1	40.5	54.4	68.3
		72	TC	85.2	85.2	85.2	81.1	81.1	81.1	76.7	76.7	76.7	72.1	72.1	72.1	67.2	67.2	67.2
			SHC	33.1	46.9	60.7	31.7	45.5	59.4	30.2	44.1	58.0	28.6	42.5	56.5	27.0	40.9	54.9
		76	TC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			SHC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
3000 (cfm)	EA (wb)	58	TC	73.1	73.1	82.8	70.1	70.1	79.5	66.9	66.9	75.9	63.6	63.6	72.1	59.9	59.9	68.0
			SHC	63.3	73.1	82.8	60.7	70.1	79.5	58.0	66.9	75.9	55.0	63.6	72.1	51.9	59.9	68.0
		62	TC	73.1	73.1	86.2	70.2	70.2	82.7	67.0	67.0	79.0	63.6	63.6	75.0	60.0	60.0	70.8
			SHC	60.1	73.1	86.2	57.6	70.2	82.7	55.0	67.0	79.0	52.2	63.6	75.0	49.2	60.0	70.8
		67	TC	77.8	77.8	79.9	73.9	73.9	78.5	69.8	69.8	76.9	65.5	65.5	75.3	60.9	60.9	73.3
			SHC	49.2	64.6	79.9	47.7	63.1	78.5	46.2	61.6	76.9	44.6	59.9	75.3	42.9	58.1	73.3
		72	TC	86.5	86.5	86.5	82.2	82.2	82.2	77.7	77.7	77.7	73.0	73.0	73.0	68.0	68.0	68.0
			SHC	34.1	49.4	64.6	32.6	48.0	63.3	31.2	46.5	61.8	29.6	44.9	60.3	28.0	43.4	58.7
		76	TC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
			SHC	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

LEGEND

EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Cooling Capacity, Gross (1000 Btuh)
TC — Total Cooling Capacity, Gross (1000 Btuh)

Performance data (cont)

38AUQ08/40RFQ08 Cooling Combination Ratings

38AUQ08/40RFQ08				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
2250 (cfm)	EA (wb)	58	TC	77.4	77.4	84.6	73.7	73.7	79.8	68.4	68.4	77.9	64.0	64.0	73.0	59.2	59.2	67.8
			SHC	65.3	75.0	84.6	61.5	70.6	79.8	59.0	68.4	77.9	55.0	64.0	73.0	50.7	59.2	67.8
		62	TC	82.0	82.0	82.0	77.1	77.1	77.8	72.0	72.0	74.9	66.4	66.4	71.8	60.6	60.6	68.4
			SHC	59.1	69.8	80.5	56.3	67.0	77.8	53.4	64.2	74.9	50.3	61.0	71.8	47.0	57.7	68.4
		67	TC	91.0	91.0	91.0	85.7	85.7	85.7	80.1	80.1	80.1	74.1	74.1	74.1	67.7	67.7	67.7
			SHC	48.9	59.4	69.9	46.0	56.6	67.2	43.1	53.8	64.4	40.0	50.8	61.5	36.9	47.6	58.4
		72	TC	100.8	100.8	100.8	95.0	95.0	95.0	88.9	88.9	88.9	82.4	82.4	82.4	75.4	75.4	75.4
			SHC	38.8	48.7	58.6	35.8	46.0	56.1	32.8	43.1	53.4	29.7	40.1	50.6	26.4	37.0	47.6
		76	TC	—	109.0	109.0	—	103.0	103.0	—	96.7	96.7	—	89.7	89.7	—	82.1	82.1
			SHC	—	40.4	52.7	—	37.1	49.4	—	34.1	46.5	—	31.5	43.8	—	28.4	38.1
2625 (cfm)	EA (wb)	58	TC	81.4	81.4	92.2	77.3	77.3	87.7	72.8	72.8	82.8	68.1	68.1	77.6	62.9	62.9	71.9
			SHC	70.6	81.4	92.2	66.9	77.3	87.7	62.9	72.8	82.8	58.6	68.1	77.6	54.0	62.9	71.9
		62	TC	85.2	85.2	88.9	79.9	79.9	85.8	74.6	74.6	82.8	68.9	68.9	79.1	64.2	64.2	72.6
			SHC	64.2	76.5	88.9	61.2	73.5	85.8	58.1	70.5	82.8	54.8	66.9	79.1	50.0	61.3	72.6
		67	TC	94.0	94.0	94.0	88.5	88.5	88.5	82.6	82.6	82.6	76.3	76.3	76.3	69.6	69.6	69.6
			SHC	52.1	64.4	76.6	49.3	61.6	73.9	46.3	58.6	71.0	43.2	55.6	68.0	39.9	52.3	64.8
		72	TC	104.0	104.0	104.0	97.8	97.8	97.8	91.5	91.5	91.5	84.8	84.8	84.8	77.4	77.4	77.4
			SHC	40.1	51.9	63.8	37.1	49.1	61.1	34.1	46.2	58.3	31.0	43.2	55.4	27.7	39.9	52.2
		76	TC	—	112.5	112.5	—	106.0	106.0	—	99.0	99.0	—	91.7	91.7	—	84.0	84.0
			SHC	—	41.5	56.0	—	38.9	53.5	—	36.1	46.8	—	33.1	44.5	—	29.9	41.8
3000 (cfm)	EA (wb)	58	TC	85.1	85.1	96.3	80.7	80.7	91.5	76.0	76.0	86.4	71.0	71.0	80.8	65.6	65.6	74.8
			SHC	73.8	85.1	96.3	69.9	80.7	91.5	65.7	76.0	86.4	61.2	71.0	80.8	56.3	65.6	74.8
		62	TC	87.3	87.3	95.5	82.0	82.0	92.2	76.7	76.7	88.3	72.2	72.2	82.2	66.7	66.7	74.8
			SHC	68.2	81.8	95.5	65.0	78.6	92.2	61.5	74.9	88.3	57.2	69.7	82.2	51.8	63.3	74.8
		67	TC	96.2	96.2	96.2	90.5	90.5	90.5	84.4	84.4	84.4	77.9	77.9	77.9	71.0	71.0	71.0
			SHC	54.8	68.5	82.2	51.9	65.7	79.4	48.9	62.7	76.5	45.7	59.5	73.4	42.4	56.2	70.1
		72	TC	106.0	106.0	106.0	100.0	100.0	100.0	93.3	93.3	93.3	86.2	86.2	86.2	78.8	78.8	78.8
			SHC	41.1	54.5	67.9	38.2	51.7	65.1	35.1	48.7	62.3	31.9	45.6	59.2	28.6	42.3	56.1
		76	TC	—	114.5	114.5	—	108.0	108.0	—	101.0	101.0	—	93.2	93.2	—	85.3	85.3
			SHC	—	43.1	54.1	—	40.4	52.6	—	37.4	50.2	—	34.3	47.5	—	31.1	44.6
3375 (cfm)	EA (wb)	58	TC	88.5	88.5	100.1	84.0	84.0	95.2	79.1	79.1	89.7	73.8	73.8	83.9	68.1	68.1	77.6
			SHC	76.9	88.5	100.1	72.8	84.0	95.2	68.4	79.1	89.7	63.6	73.8	83.9	58.5	68.1	77.6
		62	TC	89.5	89.5	101.8	85.5	85.5	94.1	81.3	81.3	86.4	74.9	74.9	83.8	68.2	68.2	81.0
			SHC	72.0	86.9	101.8	66.8	80.4	94.1	61.6	74.0	86.4	58.6	71.2	83.8	55.5	68.2	81.0
		67	TC	98.2	98.2	98.2	92.3	92.3	92.3	86.1	86.1	86.1	79.4	79.4	79.4	72.3	72.3	75.9
			SHC	57.7	73.0	88.3	54.7	70.1	85.4	51.7	67.1	82.5	48.5	63.9	79.3	45.1	60.5	75.9
		72	TC	108.0	108.0	108.0	102.0	102.0	102.0	94.8	94.8	94.8	87.7	87.7	87.7	80.0	80.0	80.0
			SHC	42.2	57.3	72.3	39.3	54.4	69.5	36.2	51.4	66.6	33.0	48.2	63.5	29.6	45.0	60.3
		76	TC	—	116.5	116.5	—	110.0	110.0	—	102.0	102.0	—	94.7	94.7	—	86.4	86.4
			SHC	—	44.6	58.4	—	41.7	56.0	—	38.8	53.4	—	35.7	50.6	—	32.4	47.5
3750 (cfm)	EA (wb)	58	TC	91.1	91.1	103.1	86.4	86.4	97.8	81.3	81.3	92.2	75.8	75.8	86.2	70.0	70.0	79.8
			SHC	79.2	91.1	103.1	74.9	86.4	97.8	70.3	81.3	92.2	65.4	75.8	86.2	60.2	70.0	79.8
		62	TC	93.2	93.2	103.8	88.2	88.2	96.5	81.3	81.3	96.0	75.9	75.9	89.8	70.0	70.0	83.1
			SHC	73.9	88.9	103.8	68.7	82.6	96.5	66.7	81.3	96.0	62.0	75.9	89.8	57.0	70.0	83.1
		67	TC	99.6	99.6	99.6	93.6	93.6	93.6	87.2	87.2	87.4	80.4	80.4	84.2	78.1	78.1	85.7
			SHC	60.0	76.7	93.4	57.1	73.8	90.5	54.0	70.7	87.4	50.8	67.5	84.2	52.3	69.0	85.7
		72	TC	109.0	109.0	109.0	103.0	103.0	103.0	95.9	95.9	95.9	88.6	88.6	88.6	80.9	80.9	80.9
			SHC	43.1	59.5	75.9	40.1	56.6	73.1	37.0	53.6	70.1	33.8	50.4	67.0	30.5	47.1	63.8
		76	TC	—	118.0	118.0	—	110.9	110.9	—	104.0	104.0	—	95.6	95.6	—	87.3	87.3
			SHC	—	45.7	61.3	—	42.8	58.7	—	39.8	56.0	—	36.7	53.0	—	33.3	49.8

LEGEND

EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Cooling Capacity, Gross (1000 Btuh)
TC — Total Cooling Capacity, Gross (1000 Btuh)

Performance data (cont)

38AUQ12/40RFQ12 Cooling Combination Ratings

38AUQ12/40RFQ12				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3000 (cfm)	EA (wb)	58	TC	102.3	102.3	113.7	97.9	97.9	111.0	94.0	94.0	107.0	89.6	89.6	102.0	84.9	84.9	96.5
			SHC	86.7	100.2	113.7	84.4	97.9	111.0	81.0	94.0	107.0	77.3	89.6	102.0	73.2	84.9	96.5
		62	TC	108.0	108.0	108.0	103.0	103.0	106.0	97.9	97.9	104.0	92.2	92.2	101.0	86.2	86.2	98.1
			SHC	78.3	93.3	108.4	76.1	91.2	106.0	73.7	88.8	104.0	71.2	86.2	101.0	68.4	83.2	98.1
		67	TC	120.0	120.0	120.0	114.0	114.0	114.0	108.6	108.6	108.6	102.0	102.0	102.0	95.4	95.4	95.4
			SHC	63.9	78.8	93.7	61.7	76.6	91.6	59.4	74.4	89.3	56.9	71.9	86.9	54.3	69.3	84.3
		72	TC	133.0	133.0	133.0	127.0	127.0	127.0	120.0	120.0	120.0	113.0	113.0	113.0	106.0	106.0	106.0
			SHC	49.6	64.0	78.4	47.4	61.9	76.5	45.0	59.6	74.3	42.5	57.2	72.0	39.8	54.6	69.4
		76	TC	—	144.0	144.0	—	137.0	137.0	—	130.0	130.0	—	122.0	122.0	—	114.0	114.0
			SHC	—	51.5	68.0	—	49.8	66.3	—	47.7	60.8	—	45.3	59.2	—	42.6	57.0
3500 (cfm)	EA (wb)	58	TC	108.0	108.0	123.0	104.0	104.0	118.0	100.0	100.0	113.0	94.8	94.8	108.0	89.5	89.5	102.0
			SHC	93.1	108.0	122.5	89.7	104.0	118.0	85.9	100.0	113.0	81.9	94.8	108.0	77.3	89.5	102.0
		62	TC	112.0	112.0	120.0	106.7	106.7	117.0	101.0	101.0	114.0	95.5	95.5	111.0	90.2	90.2	105.0
			SHC	85.0	102.0	120.0	82.6	100.0	117.0	80.0	97.1	114.0	77.0	93.9	111.0	72.8	88.7	105.0
		67	TC	124.0	124.0	124.0	118.0	118.0	118.0	112.0	112.0	112.0	105.0	105.0	105.0	97.8	97.8	97.8
			SHC	68.2	85.4	103.0	66.0	83.2	100.0	63.6	80.8	98.1	61.1	78.4	95.6	58.4	75.7	92.9
		72	TC	136.0	136.0	136.0	130.0	130.0	130.0	123.0	123.0	123.0	116.0	116.0	116.0	108.0	108.0	108.0
			SHC	51.4	68.2	85.0	49.1	66.0	82.9	46.7	63.6	80.6	44.2	61.1	78.1	41.4	58.4	75.4
		76	TC	—	147.0	147.0	—	140.0	140.0	—	133.0	133.0	—	125.0	125.0	—	116.0	116.0
			SHC	—	54.2	68.9	—	52.0	67.6	—	49.7	65.8	—	47.3	63.6	—	44.4	61.0
4000 (cfm)	EA (wb)	58	TC	113.0	113.0	128.0	109.0	109.0	123.0	104.0	104.0	118.0	99.0	99.0	112.0	93.3	93.3	106.0
			SHC	97.7	113.0	128.0	94.0	108.7	123.4	90.0	104.0	118.0	85.6	99.0	112.0	80.7	93.3	106.0
		62	TC	115.0	115.0	130.0	110.0	110.0	126.0	106.0	106.0	118.0	99.1	99.1	117.0	93.4	93.4	110.3
			SHC	91.0	110.0	130.0	88.3	107.0	126.0	83.3	100.8	118.0	81.2	99.1	117.0	76.6	93.4	110.3
		67	TC	127.0	127.0	127.0	121.0	121.0	121.0	114.0	114.0	114.0	107.0	107.0	107.0	99.7	99.7	101.0
			SHC	72.3	91.7	111.0	70.0	89.4	109.0	67.6	87.0	106.0	65.0	84.5	104.0	62.3	81.7	101.0
		72	TC	139.4	139.4	139.4	133.0	133.0	133.0	126.0	126.0	126.0	118.0	118.0	118.0	110.0	110.0	110.0
			SHC	53.0	72.0	91.1	50.7	69.8	88.8	48.2	67.3	86.5	45.6	64.8	83.9	42.9	62.0	81.1
		76	TC	—	149.9	149.9	—	143.0	143.0	—	135.0	135.0	—	126.0	126.0	—	117.0	117.0
			SHC	—	56.1	73.9	—	53.8	72.0	—	51.5	69.9	—	48.9	67.4	—	45.9	64.5
4500 (cfm)	EA (wb)	58	TC	117.0	117.0	133.0	113.0	113.0	128.0	108.0	108.0	122.0	102.0	102.0	116.0	96.5	96.5	110.0
			SHC	102.0	117.0	133.0	97.6	113.0	128.0	93.4	108.0	122.0	88.7	102.0	116.0	83.5	96.5	110.0
		62	TC	118.0	118.0	137.0	115.0	115.0	126.0	109.0	109.0	123.0	103.0	103.0	121.0	96.6	96.6	114.0
			SHC	95.7	116.0	137.0	89.6	108.0	126.0	86.8	105.0	123.0	84.2	103.0	121.0	79.3	96.6	114.0
		67	TC	129.0	129.0	129.0	123.0	123.0	123.0	116.0	116.0	116.0	109.0	109.0	112.0	101.1	101.1	109.0
			SHC	76.1	97.7	119.0	73.8	95.4	116.9	71.3	92.9	115.0	68.7	90.3	112.0	65.9	87.4	109.0
		72	TC	141.7	141.7	141.7	135.0	135.0	135.0	128.0	128.0	128.0	120.0	120.0	120.0	111.0	111.0	111.0
			SHC	54.4	75.6	96.8	52.0	73.3	94.5	49.6	70.8	92.0	47.0	68.2	89.4	44.1	65.3	86.4
		76	TC	—	152.0	152.0	—	145.0	145.0	—	136.0	136.0	—	128.0	128.0	—	118.0	118.0
			SHC	—	57.7	77.9	—	55.5	75.9	—	52.9	73.4	—	50.2	70.7	—	47.2	67.7
5000 (cfm)	EA (wb)	58	TC	121.0	121.0	137.0	116.0	116.0	132.0	111.0	111.0	126.0	105.0	105.0	120.0	99.2	99.2	113.0
			SHC	105.0	121.0	137.0	100.7	116.0	132.0	96.2	111.0	126.0	91.3	105.0	120.0	85.9	99.2	113.0
		62	TC	121.2	121.2	143.0	117.0	117.0	135.0	111.0	111.0	131.0	106.0	106.0	124.0	99.3	99.3	117.0
			SHC	99.6	121.2	143.0	94.7	115.0	135.0	91.4	111.3	131.1	86.7	105.5	124.0	81.6	99.3	117.0
		67	TC	131.0	131.0	131.0	124.0	124.0	125.0	117.6	117.6	122.2	110.0	110.0	119.0	102.0	102.0	116.0
			SHC	79.8	103.0	127.0	77.4	101.0	125.0	74.9	98.6	122.2	72.2	95.8	119.0	69.4	92.8	116.0
		72	TC	144.0	144.0	144.0	137.0	137.0	137.0	129.0	129.0	129.0	121.0	121.0	121.0	112.0	112.0	112.0
			SHC	55.7	78.9	102.0	53.3	76.6	100.0	50.8	74.1	97.3	48.2	71.4	94.6	45.3	68.4	91.5
		76	TC	—	154.0	154.0	—	146.0	146.0	—	138.0	138.0	—	129.0	129.0	—	119.0	119.0
			SHC	—	59.2	81.5	—	56.8	79.2	—	54.2	76.6	—	51.4	73.8	—	48.3	70.5

LEGEND

EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Cooling Capacity, Gross (1000 Btuh)
TC — Total Cooling Capacity, Gross (1000 Btuh)

Performance data (cont)

38AUQ16/40RUQ16 Cooling Combination Ratings

38AUQ16/40RUQ16				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
4500 (cfm)	EA (wb)	58	TC	161.0	161.0	177.0	153.0	153.0	174.0	147.0	147.0	166.0	140.0	140.0	158.0	132.0	132.0	150.0
			SHC	137.0	157.0	177.0	133.0	153.0	174.0	128.0	147.0	166.0	122.0	140.0	158.0	115.0	132.0	150.0
		62	TC	169.0	169.0	171.0	162.0	162.0	165.0	153.0	153.0	162.0	144.0	144.0	157.0	134.0	134.0	152.0
			SHC	127.0	149.0	171.0	120.0	143.0	165.0	117.0	139.0	162.0	112.0	135.0	157.0	107.0	130.0	152.0
		67	TC	187.0	187.0	187.0	178.0	178.0	178.0	169.0	169.0	169.0	159.0	159.0	159.0	148.0	148.0	148.0
			SHC	101.0	124.0	146.0	98.0	120.0	143.0	94.1	117.0	139.0	90.1	113.0	135.0	85.9	109.0	131.0
		72	TC	206.0	206.0	206.0	197.0	197.0	197.0	187.0	187.0	187.0	175.0	175.0	175.0	163.0	163.0	163.0
			SHC	78.9	100.0	122.0	75.2	97.0	118.0	71.5	93.4	115.0	67.5	89.5	112.0	63.2	85.4	108.0
		76	TC	—	223.2	223.2	—	213.0	213.0	—	202.0	202.0	—	188.0	188.0	—	175.0	175.0
			SHC	—	80.3	105.0	—	77.3	102.0	—	74.2	99.0	—	70.2	90.0	—	66.3	87.0
5250 (cfm)	EA (wb)	58	TC	168.0	168.0	191.0	162.0	162.0	183.0	155.0	155.0	175.0	148.0	148.0	167.0	139.0	139.0	158.0
			SHC	146.0	168.0	191.0	141.0	162.0	183.0	135.0	155.0	175.0	128.0	148.0	167.0	121.0	139.0	158.0
		62	TC	175.0	175.0	185.0	167.0	167.0	181.0	158.0	158.0	177.0	149.0	149.0	171.0	140.0	140.0	161.0
			SHC	134.0	159.0	185.0	130.0	156.0	181.0	126.0	152.0	177.0	121.0	146.0	171.0	114.0	138.0	161.0
		67	TC	193.0	193.0	193.0	184.0	184.0	184.0	174.0	174.0	174.0	163.0	163.0	163.0	152.0	152.0	152.0
			SHC	108.0	133.0	159.0	104.0	130.0	156.0	100.0	126.0	152.0	96.0	122.0	148.0	92.0	118.0	144.0
		72	TC	212.0	212.0	212.0	202.0	202.0	202.0	191.0	191.0	191.0	180.0	180.0	180.0	167.0	167.0	167.0
			SHC	81.4	106.0	131.0	77.6	103.0	128.0	73.8	99.0	125.0	69.7	95.0	121.0	65.4	91.2	116.9
		76	TC	—	229.0	229.0	—	218.0	218.0	—	206.0	206.0	—	194.0	194.0	—	180.0	180.0
			SHC	—	83.9	113.0	—	80.6	102.0	—	77.2	100.0	—	73.4	97.0	—	69.3	94.0
6000 (cfm)	EA (wb)	58	TC	176.0	176.0	199.0	169.0	169.0	191.0	162.0	162.0	183.0	154.0	154.0	174.0	145.0	145.0	164.0
			SHC	153.0	176.0	199.0	147.0	169.0	191.0	141.0	162.0	183.0	134.0	154.0	174.0	126.0	145.0	164.0
		62	TC	179.0	179.0	201.0	171.0	171.0	196.0	163.0	163.0	187.0	155.0	155.0	177.0	145.0	145.0	170.0
			SHC	143.0	172.0	201.0	138.0	167.0	196.0	132.0	159.0	187.0	126.0	151.0	177.0	120.0	145.0	170.0
		67	TC	197.0	197.0	197.0	187.0	187.0	187.0	177.0	177.0	177.0	166.0	166.0	166.0	154.0	154.0	157.0
			SHC	114.0	143.0	172.0	110.0	139.0	168.0	106.0	136.0	165.0	102.0	131.0	161.0	98.0	127.0	157.0
		72	TC	216.0	216.0	216.0	206.0	206.0	206.0	195.0	195.0	195.0	183.0	183.0	183.0	169.0	169.0	169.0
			SHC	83.4	112.0	141.0	79.8	109.0	137.0	75.9	105.0	133.7	71.8	101.0	130.0	67.4	97.0	126.0
		76	TC	—	233.0	233.0	—	222.0	222.0	—	210.0	210.0	—	197.0	197.0	—	183.0	183.0
			SHC	—	86.7	112.0	—	83.5	110.0	—	79.8	107.0	—	75.9	104.0	—	71.7	100.0
6750 (cfm)	EA (wb)	58	TC	183.0	183.0	206.0	175.0	175.0	198.0	168.0	168.0	190.0	159.0	159.0	180.0	150.0	150.0	169.0
			SHC	159.0	183.0	206.0	152.0	175.0	198.0	146.0	168.0	190.0	138.0	159.0	180.0	130.0	150.0	169.0
		62	TC	184.0	184.0	212.0	176.0	176.0	203.0	168.0	168.0	197.0	159.0	159.0	187.0	150.0	150.0	176.0
			SHC	150.0	181.0	212.0	144.0	173.0	203.0	139.0	168.0	197.0	131.0	159.0	187.0	124.0	150.0	176.0
		67	TC	200.0	200.0	200.0	191.0	191.0	191.0	180.0	180.0	180.0	169.0	169.0	173.0	156.0	156.0	168.0
			SHC	119.0	152.0	184.0	116.0	148.0	181.0	112.0	145.0	178.0	108.0	140.0	173.0	103.0	136.0	168.0
		72	TC	220.0	220.0	220.0	209.0	209.0	209.0	198.0	198.0	198.0	185.0	185.0	185.0	172.0	172.0	172.0
			SHC	85.4	117.0	149.0	81.7	114.0	146.0	77.9	110.0	142.0	73.6	106.0	138.0	69.3	102.0	134.0
		76	TC	—	237.0	237.0	—	225.0	225.0	—	212.0	212.0	—	199.0	199.0	—	185.0	185.0
			SHC	—	89.1	119.0	—	85.9	116.0	—	82.0	113.0	—	78.1	110.0	—	73.8	106.0
7500 (cfm)	EA (wb)	58	TC	189.0	189.0	213.0	181.0	181.0	204.0	172.0	172.0	195.0	163.0	163.0	185.0	154.0	154.0	174.0
			SHC	164.0	189.0	213.0	157.0	181.0	204.0	150.0	172.0	195.0	142.0	163.0	185.0	134.0	154.0	174.0
		62	TC	190.0	190.0	216.0	182.0	182.0	206.0	173.0	173.0	202.0	164.0	164.0	192.0	154.0	154.0	180.0
			SHC	153.0	185.0	216.0	147.0	176.0	206.0	143.0	173.0	202.0	135.0	164.0	192.0	127.0	154.0	180.0
		67	TC	203.0	203.0	203.0	193.0	193.0	193.0	182.0	182.0	189.0	171.0	171.0	185.0	158.0	158.0	180.0
			SHC	125.0	160.0	196.0	121.0	157.0	192.0	117.0	153.0	189.0	113.0	149.0	185.0	109.0	144.0	180.0
		72	TC	223.0	223.0	223.0	212.0	212.0	212.0	200.0	200.0	200.0	187.0	187.0	187.0	173.0	173.0	173.0
			SHC	87.0	122.0	157.0	83.4	119.0	154.0	79.5	115.0	150.0	75.4	111.0	147.0	71.0	107.0	142.0
		76	TC	—	240.0	240.0	—	227.0	227.0	—	215.0	215.0	—	201.0	201.0	—	186.0	186.0
			SHC	—	91.2	125.0	—	87.7	122.0	—	84.0	118.0	—	80.1	115.0	—	75.8	111.0

LEGEND

EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Cooling Capacity, Gross (1000 Btuh)
TC — Total Cooling Capacity, Gross (1000 Btuh)

Performance data (cont)

38AUQ25/40RUQ25 Cooling Combination Ratings

38AUQ25/40RUQ25				AMBIENT TEMPERATURE (°F)															
				85			95			105			115			125		
				EA (db)			EA (db)			EA (db)			EA (db)			EA (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
6000 (cfm)	EA (wb)	58	TC	222.5	222.5	245.2	214.6	214.6	236.4	204.8	204.8	228.8	194.5	194.5	218.1	183.5	183.5	205.8
			SHC	192.5	218.8	245.2	186.0	211.2	236.4	179.4	204.1	228.8	170.8	194.5	218.1	161.2	183.5	205.8
		62	TC	229.9	229.9	231.8	222.0	222.0	224.5	208.0	208.0	219.8	196.2	196.2	211.3	184.1	184.1	203.2
			SHC	176.0	203.9	231.8	171.0	197.8	224.5	164.4	192.1	219.8	157.1	184.2	211.3	150.0	176.6	203.2
		67	TC	241.2	241.2	241.2	230.5	230.5	230.5	218.5	218.5	218.5	205.6	205.6	205.6	192.2	192.2	192.2
			SHC	147.8	175.6	203.3	143.1	171.0	198.8	138.0	166.0	193.9	132.4	160.5	188.5	126.8	154.9	183.0
		72	TC	253.8	253.8	253.8	242.2	242.2	242.2	229.7	229.7	229.7	216.1	216.1	216.1	201.0	201.0	201.0
			SHC	118.6	145.6	172.6	113.8	141.1	168.4	108.7	136.2	163.7	103.3	131.0	158.8	97.4	125.3	153.2
		76	TC	—	264.9	264.9	—	252.5	252.5	—	239.1	239.1	—	224.5	224.5	—	208.8	208.8
			SHC	—	120.6	144.6	—	116.1	141.2	—	111.4	137.4	—	106.3	132.9	—	100.7	127.9
7000 (cfm)	EA (wb)	58	TC	228.1	228.1	255.5	218.9	218.9	245.7	209.1	209.1	234.7	198.4	198.4	222.7	186.8	186.8	209.7
			SHC	199.9	227.7	255.5	192.1	218.9	245.7	183.5	209.1	234.7	174.1	198.4	222.7	163.9	186.8	209.7
		62	TC	231.6	231.6	246.5	220.9	220.9	240.3	210.4	210.4	232.6	199.4	199.4	221.2	186.9	186.9	215.8
			SHC	183.3	214.9	246.5	177.4	208.9	240.3	171.0	201.8	232.6	162.4	191.8	221.2	157.5	186.7	215.8
		67	TC	244.0	244.0	244.0	232.8	232.8	232.8	220.5	220.5	220.5	208.8	208.8	208.8	193.3	193.3	195.8
			SHC	152.4	184.4	216.3	147.7	179.8	211.8	142.6	174.7	206.8	137.4	167.8	198.2	131.5	163.6	195.8
		72	TC	257.3	257.3	257.3	245.2	245.2	245.2	231.9	231.9	231.9	218.0	218.0	218.0	202.5	202.5	202.5
			SHC	118.5	149.8	181.2	113.8	145.4	176.9	108.7	140.4	172.2	103.4	135.3	167.2	97.6	129.7	161.7
		76	TC	—	270.2	270.2	—	256.3	256.3	—	242.2	242.2	—	227.2	227.2	—	211.1	211.1
			SHC	—	121.5	150.6	—	116.8	146.7	—	112.0	142.4	—	107.0	138.0	—	101.6	133.0
8000 (cfm)	EA (wb)	58	TC	232.6	232.6	261.2	223.2	223.2	250.7	212.9	212.9	239.1	201.6	201.6	226.4	189.5	189.5	212.9
			SHC	204.0	232.6	261.2	195.8	223.2	250.7	186.7	212.9	239.1	176.7	201.6	226.4	166.2	189.5	212.9
		62	TC	233.8	233.8	259.3	223.7	223.7	252.3	213.2	213.2	245.1	202.3	202.3	228.1	189.7	189.7	219.6
			SHC	189.9	224.6	259.3	184.0	218.2	252.3	178.4	211.7	245.1	166.9	197.5	228.1	159.7	189.7	219.6
		67	TC	246.2	246.2	246.2	234.6	234.6	234.6	222.0	222.0	222.0	208.5	208.5	214.3	194.1	194.1	208.0
			SHC	157.2	193.2	229.2	152.5	188.5	224.5	147.4	183.5	219.6	142.1	178.2	214.3	136.1	172.0	208.0
		72	TC	259.9	259.9	259.9	247.6	247.6	247.6	234.0	234.0	234.0	219.5	219.5	219.5	203.9	203.9	203.9
			SHC	118.7	154.2	189.7	114.1	149.7	185.4	109.0	144.9	180.7	103.8	139.8	175.8	98.2	134.3	170.4
		76	TC	—	272.0	272.0	—	259.1	259.1	—	244.7	244.7	—	229.2	229.2	—	212.6	212.6
			SHC	—	121.9	155.6	—	117.7	152.0	—	112.9	147.7	—	107.8	143.1	—	102.4	138.0
9000 (cfm)	EA (wb)	58	TC	236.7	236.7	265.9	226.6	226.6	254.7	216.1	216.1	242.9	204.3	204.3	229.5	191.9	191.9	215.7
			SHC	207.4	236.7	265.9	198.6	226.6	254.7	189.4	216.1	242.9	179.0	204.3	229.5	168.2	191.9	215.7
		62	TC	237.1	237.1	268.1	227.0	227.0	261.1	216.9	216.9	248.4	204.5	204.5	237.1	192.0	192.0	222.6
			SHC	195.3	231.7	268.1	189.7	225.4	261.1	180.6	214.5	248.4	171.9	204.5	237.1	161.4	192.0	222.6
		67	TC	248.0	248.0	248.0	236.2	236.2	237.4	223.2	223.2	232.3	210.7	210.7	223.8	194.5	194.5	218.0
			SHC	162.1	201.9	241.8	157.5	197.4	237.4	152.4	192.4	232.3	146.3	185.0	223.8	139.6	178.8	218.0
		72	TC	262.1	262.1	262.1	249.3	249.3	249.3	235.4	235.4	235.4	220.7	220.7	220.7	204.6	204.6	204.6
			SHC	119.1	158.6	198.1	114.5	154.1	193.8	109.6	149.4	189.3	104.4	144.3	184.3	98.8	138.9	179.0
		76	TC	—	274.6	274.6	—	261.3	261.3	—	246.7	246.7	—	231.0	231.0	—	213.8	213.8
			SHC	—	122.8	160.8	—	118.5	156.9	—	113.7	152.6	—	108.8	148.1	—	103.3	143.0
10000 (cfm)	EA (wb)	58	TC	239.9	239.9	269.7	229.7	229.7	258.2	218.8	218.8	246.0	206.8	206.8	232.5	193.9	193.9	218.0
			SHC	210.1	239.9	269.7	201.2	229.7	258.2	191.6	218.8	246.0	181.1	206.8	232.5	169.8	193.9	218.0
		62	TC	240.4	240.4	276.4	230.6	230.6	262.2	218.7	218.7	253.8	206.9	206.9	240.1	194.0	194.0	225.2
			SHC	200.3	238.4	276.4	190.5	226.4	262.2	183.6	218.7	253.8	173.7	206.9	240.1	162.9	194.0	225.2
		67	TC	249.9	249.9	255.8	239.7	239.7	239.7	225.0	225.0	240.9	209.8	209.8	236.6	195.2	195.2	227.4
			SHC	167.9	211.8	255.8	157.3	197.8	238.3	155.8	198.3	240.9	150.6	193.6	236.6	143.2	185.3	227.4
		72	TC	263.8	263.8	263.8	250.8	250.8	250.8	236.8	236.8	236.8	221.8	221.8	221.8	205.7	205.7	205.7
			SHC	119.6	163.0	206.4	115.1	158.6	202.2	110.2	154.0	197.7	105.1	148.9	192.8	99.8	143.7	187.6
		76	TC	—	276.8	276.8	—	264.5	264.5	—	248.5	248.5	—	231.8	231.8	—	214.7	214.7
			SHC	—	123.6	165.6	—	119.6	162.1	—	114.6	157.5	—	109.4	152.7	—	104.2	147.7

LEGEND

EA (db) — Entering Air Temperature (dry bulb)
EA (wb) — Entering Air Temperature (wet bulb)
SHC — Sensible Cooling Capacity, Gross (1000 Btuh)
TC — Total Cooling Capacity, Gross (1000 Btuh)

Performance data (cont)

38AUQ07 / 40RFQ07 Heating Combination Ratings

RETURN AIR (°F db)	STANDARD AIR (cfm)		TEMPERATURE AIR ENTERING OUTDOOR COIL (°F db at 70% rh)								
			–10	0	10	17	30	40	47	50	60
55	1800	TH	—	28.2	35.8	41.5	52.9	62.3	69.7	72.5	83.7
		THI	—	25.9	32.8	37.8	46.3	62.3	69.7	72.5	83.7
		kW	—	3.75	3.88	3.98	4.18	4.36	4.52	4.58	4.83
	2400	TH	—	28.8	36.5	42.3	53.8	63.4	70.9	73.7	85.3
		THI	—	26.5	33.5	38.6	47.2	63.4	70.9	73.7	85.3
		kW	—	3.73	3.82	3.89	4.04	4.18	4.29	4.32	4.49
	3000	TH	—	29.5	37.2	42.9	54.7	63.9	71.6	74.4	86.1
		THI	—	27.1	34.1	39.1	47.9	63.9	71.6	74.4	86.1
		kW	—	3.79	3.87	3.93	4.07	4.15	4.23	4.25	4.38
70	1800	TH	—	26.3	33.9	39.5	50.7	60.1	67.2	70.1	80.7
		THI	—	24.2	31.1	36.1	44.5	60.1	67.2	70.1	80.7
		kW	—	4.27	4.42	4.54	4.79	5.00	5.19	5.27	5.54
	2400	TH	—	27.2	34.9	40.7	52.1	61.5	68.7	71.6	82.6
		THI	—	25.0	32.0	37.1	45.6	61.5	68.7	71.6	82.6
		kW	—	4.25	4.36	4.44	4.63	4.79	4.93	4.97	5.15
	3000	TH	—	28.0	35.7	41.5	52.4	62.3	69.6	72.3	83.1
		THI	—	25.8	32.8	37.9	45.9	62.3	69.6	72.3	83.1
		kW	—	4.31	4.40	4.47	4.65	4.76	4.85	4.88	5.03
80	1800	TH	17.6	24.6	32.1	37.8	49.0	58.3	65.1	68.2	78.4
		THI	16.3	22.6	29.5	34.4	42.9	58.3	65.1	68.2	78.4
		kW	4.50	4.67	4.84	4.97	5.25	5.50	5.70	5.80	6.09
	2400	TH	18.5	25.6	33.3	39.1	50.5	59.9	66.9	69.8	80.4
		THI	17.1	23.6	30.6	35.6	44.3	59.9	66.9	69.8	80.4
		kW	4.51	4.64	4.77	4.87	5.07	5.26	5.42	5.46	5.67
	3000	TH	19.3	26.5	34.3	40.1	51.6	60.9	68.0	71.8	81.0
		THI	17.8	24.4	31.5	36.6	45.2	60.9	68.0	71.8	81.0
		kW	4.59	4.71	4.81	4.88	5.06	5.23	5.32	5.37	5.53

38AUQ08 / 40RFQ08 Heating Combination Ratings

RETURN AIR (°F db)	STANDARD AIR (cfm)		TEMPERATURE AIR ENTERING OUTDOOR COIL (°F db at 70% rh)								
			–10	0	10	17	30	40	47	50	60
55	2250	TH	—	35.3	45.0	52.0	66.6	78.0	89.3	92.0	104.5
		THI	—	32.5	41.3	47.4	58.4	78.0	89.3	92.0	104.5
		kW	—	4.70	4.95	5.13	5.52	5.85	6.21	6.29	6.70
	3000	TH	—	37.0	47.0	54.2	68.7	82.5	92.8	95.6	108.3
		THI	—	34.1	43.2	49.4	60.2	82.5	92.8	95.6	108.3
		kW	—	4.75	4.95	5.09	5.39	5.70	5.94	6.00	6.31
	3750	TH	—	38.7	48.8	56.1	71.0	85.0	95.0	97.9	110.8
		THI	—	35.6	44.8	51.2	62.2	85.0	95.0	97.9	110.8
		kW	—	4.93	5.11	5.23	5.49	5.76	5.95	6.00	6.26
70	2250	TH	20.0	29.4	39.5	46.6	60.2	71.8	81.3	85.0	98.8
		THI	18.5	27.1	36.2	42.4	52.8	71.8	81.3	85.0	98.8
		kW	5.00	5.29	5.59	5.80	6.22	6.60	6.94	7.08	7.61
	3000	TH	21.4	31.3	41.7	48.9	63.3	75.2	86.7	90.3	102.7
		THI	19.8	28.8	38.3	44.6	55.5	75.2	86.7	90.3	102.7
		kW	5.10	5.35	5.60	5.76	6.10	6.40	6.72	6.82	7.16
	3750	TH	22.8	32.9	43.5	50.9	66.3	78.1	90.3	93.1	105.4
		THI	21.1	30.3	39.9	46.4	58.1	78.1	90.3	93.1	105.4
		kW	5.33	5.55	5.77	5.91	6.22	6.47	6.75	6.81	7.09
80	2250	TH	15.2	25.2	35.3	42.6	56.4	67.6	76.4	79.8	94.4
		THI	14.1	23.2	32.4	38.8	49.4	67.6	76.4	79.8	94.4
		kW	5.39	5.73	6.06	6.31	6.78	7.19	7.53	7.66	8.28
	3000	TH	16.7	26.9	37.5	45.0	59.3	71.0	81.0	84.8	98.9
		THI	15.4	24.8	34.4	41.0	51.9	71.0	81.0	84.8	98.9
		kW	5.49	5.80	6.08	6.28	6.65	6.97	7.27	7.38	7.82
	3750	TH	18.1	28.6	39.4	47.0	61.6	74.3	84.6	88.4	101.6
		THI	16.7	26.3	36.1	42.9	54.0	74.3	84.6	88.4	101.6
		kW	5.76	6.02	6.26	6.43	6.75	7.04	7.30	7.39	7.73

NOTE: See Legend on page 20.

Performance data (cont)

38AUQ12 / 40RFQ012 Heating Combination Ratings

RETURN AIR (°F db)	STANDARD AIR (cfm)		TEMPERATURE AIR ENTERING OUTDOOR COIL (°F db at 70% rh)								
			–10	0	10	17	30	40	47	50	60
55	3000	TH	—	49.5	60.7	69.4	86.7	101.0	114.2	118.0	135.9
		THI	—	45.6	55.7	63.2	75.9	101.0	114.2	118.0	135.9
		kW	—	6.53	6.77	6.98	7.45	7.87	8.19	8.30	8.81
	4000	TH	—	50.9	62.0	70.7	87.9	102.1	115.5	119.3	136.6
		THI	—	46.8	56.9	64.4	77.0	102.1	115.5	119.3	136.6
		kW	—	6.73	6.93	7.10	7.48	7.80	8.02	8.10	8.47
	5000	TH	—	52.7	63.8	72.4	89.5	103.4	116.8	120.4	136.2
		THI	—	48.5	58.5	66.0	78.4	103.4	116.8	120.4	136.2
		kW	—	7.16	7.33	7.48	7.84	8.07	8.25	8.31	8.59
70	3000	TH	—	48.6	60.3	68.5	85.7	99.7	112.5	116.1	132.9
		THI	—	44.7	55.3	62.5	75.1	99.7	112.5	116.1	132.9
		kW	—	7.48	7.79	8.02	8.58	9.08	9.48	9.60	10.16
	4000	TH	—	50.5	62.2	70.5	87.7	101.7	114.4	118.1	133.6
		THI	—	46.5	57.1	64.3	76.8	101.7	114.4	118.1	133.6
		kW	—	7.68	7.93	8.11	8.57	8.98	9.23	9.32	9.71
	5000	TH	—	52.7	64.4	72.7	89.8	103.5	116.3	119.6	133.1
		THI	—	48.5	59.1	66.2	78.7	103.5	116.3	119.6	133.1
		kW	—	8.13	8.35	8.51	8.91	9.23	9.44	9.51	9.80
80	3000	TH	—	47.1	59.1	67.5	84.3	98.2	110.7	114.2	130.5
		THI	—	43.3	54.3	61.6	73.8	98.2	110.7	114.2	130.5
		kW	—	8.20	8.59	8.86	9.46	10.02	10.49	10.61	11.22
	4000	TH	—	49.3	61.4	69.7	86.8	100.7	113.1	116.7	131.4
		THI	—	45.4	56.4	63.6	76.0	100.7	113.1	116.7	131.4
		kW	—	8.41	8.72	8.92	9.41	9.88	10.18	10.27	10.70
	5000	TH	—	51.8	63.8	72.2	89.3	103.0	115.4	118.8	131.7
		THI	—	47.7	58.6	65.8	78.2	103.0	115.4	118.8	131.7
		kW	—	8.87	9.14	9.31	9.74	10.14	10.37	10.44	10.76

38AUQ16 / 40RUQ16 Heating Combination Ratings

RETURN AIR (°F db)	STANDARD AIR (cfm)		TEMPERATURE AIR ENTERING OUTDOOR COIL (°F db at 70% rh)								
			–10	0	10	17	30	40	47	50	60
55	4500	TH	—	—	93.6	107.8	136.4	161.6	182.2	188.3	216.8
		THI	—	—	85.9	98.3	119.5	161.6	182.2	188.3	216.8
		kW	—	—	10.35	10.75	11.6	12.4	13.1	13.3	14.4
	6000	TH	—	—	—	112.8	142.6	169.3	187.2	192.3	217.4
		THI	—	—	—	102.8	124.9	169.3	187.2	192.3	217.4
		kW	—	—	—	10.93	11.7	12.4	12.8	12.9	13.6
	7500	TH	—	—	—	117.1	147.6	173.5	190.5	196.7	221.6
		THI	—	—	—	106.8	129.3	173.5	190.5	196.7	221.6
		kW	—	—	—	11.46	12.1	12.7	13.1	13.2	13.8
70	4500	TH	45.8	64.7	84.2	98.2	126.4	150.0	170.0	177.3	205.8
		THI	42.4	59.5	77.3	89.5	110.8	150.0	170.0	177.3	205.8
		kW	10.4	11.0	11.6	12.1	13.0	13.8	14.6	14.9	16.0
	6000	TH	49.6	68.9	89.0	103.6	132.8	157.6	179.6	186.3	211.4
		THI	45.8	63.4	81.7	94.5	116.4	157.6	179.6	186.3	211.4
		kW	10.9	11.4	11.9	12.3	13.1	13.7	14.4	14.6	15.3
	7500	TH	53.3	72.9	93.4	108.3	138.1	164.1	185.0	191.1	216.1
		THI	49.3	67.0	85.7	98.8	121.0	164.1	185.0	191.1	216.1
		kW	11.6	12.1	12.5	12.9	13.5	14.2	14.7	14.8	15.4
80	4500	TH	38.3	57.2	76.6	90.9	119.1	142.4	161.2	168.2	199.2
		THI	35.4	52.6	70.3	82.9	104.3	142.4	161.2	168.2	199.2
		kW	11.32	11.91	12.58	13.08	14.08	14.95	15.70	15.98	17.36
	6000	TH	42.0	61.4	81.7	96.5	125.5	149.9	170.6	177.7	206.9
		THI	38.9	56.5	75.0	88.0	110.0	149.9	170.6	177.7	206.9
		kW	11.81	12.32	12.89	13.31	14.13	14.85	15.50	15.77	16.67
	7500	TH	46.0	65.6	86.4	101.3	131.0	156.0	177.7	185.3	211.3
		THI	42.5	60.3	79.3	92.4	114.8	156.0	177.7	185.3	211.3
		kW	12.56	13.02	13.53	13.89	14.62	15.26	15.91	16.10	16.75

NOTE: See Legend on page 20.

Performance data (cont)

38AUQ25 / 40RUQ25 Heating Combination Ratings

TEMP (°F) AIR ENT INDOOR COIL	INDOOR AIR FLOW (cfm)		AIR TEMPERATURE ENTERING OUTDOOR COIL (°F)								
			–10	0	10	17	30	40	47	50	60
55	6,000	TH	73.5	96.0	118.8	134.6	182.2	206.7	230.8	238.3	244.0
		THI	68.0	88.3	109.1	122.7	159.6	206.7	230.8	238.3	244.0
		kW	12.36	12.84	13.40	13.84	15.07	15.56	16.29	16.50	16.61
	8,000	TH	78.5	101.1	124.2	139.6	190.6	215.1	239.0	250.7	252.8
		THI	72.6	93.0	114.0	127.2	167.0	215.1	239.0	250.7	252.8
		kW	13.07	13.46	13.91	14.23	15.28	15.77	16.29	16.48	16.29
	10,000	TH	83.9	106.4	128.2	152.2	187.3	211.8	243.4	249.3	245.4
		THI	77.6	97.9	117.7	138.8	164.1	211.8	243.4	249.3	245.4
		kW	14.17	14.51	14.86	13.14	15.84	16.33	16.72	17.06	16.64
70	6,000	TH	60.2	83.9	106.8	122.5	166.2	190.8	215.9	223.9	243.7
		THI	55.7	77.2	98.0	111.7	145.6	190.8	215.9	223.9	243.7
		kW	13.87	14.43	15.00	15.43	16.72	17.21	18.15	18.44	19.05
	8,000	TH	65.7	90.1	113.2	128.5	174.6	199.2	207.8	236.3	252.5
		THI	60.8	82.9	103.9	117.2	153.0	199.2	207.8	236.3	252.5
		kW	14.66	15.12	15.57	15.89	16.93	17.42	17.61	18.42	18.73
	10,000	TH	71.3	96.3	118.2	142.0	177.1	205.0	236.5	242.4	245.0
		THI	65.9	88.6	108.5	129.5	155.2	205.0	236.5	242.4	245.0
		kW	15.83	16.24	16.59	14.58	17.28	18.58	18.96	19.07	19.08
80	6,000	TH	51.6	73.7	98.2	113.9	154.2	178.8	203.9	222.2	234.5
		THI	47.7	67.8	90.1	103.8	135.1	178.8	203.9	222.2	234.5
		kW	15.12	15.59	16.25	16.69	18.02	18.51	19.45	20.09	20.63
	8,000	TH	57.1	79.8	104.9	120.2	162.6	187.2	195.8	224.3	243.3
		THI	52.8	73.4	96.3	109.6	142.5	187.2	195.8	224.3	243.3
		kW	15.91	16.33	16.86	17.18	18.90	19.40	19.58	19.84	20.31
	10,000	TH	62.6	86.2	111.2	131.9	166.9	194.8	226.3	235.1	243.3
		THI	57.9	79.3	102.1	120.2	146.2	194.8	226.3	235.1	243.3
		kW	17.09	17.51	17.97	16.01	18.71	20.02	20.40	20.60	20.72

LEGEND

TH — Total Heating Capacity, Gross (1000 Btuh)
THI — Integrated Heating Capacity, Gross (1000 Btuh)
kW — Total Power Motor Input

Electrical data

Without Powered Convenience Outlet

UNIT	NOMINAL POWER SUPPLY	VOLTAGE RANGE		COMPRESSOR				WITHOUT POWERED CONVENIENCE OUTLET					
				No. 1		No. 2		OFM (ea)		POWER SUPPLY		DISCONNECT SIZE	
	V-Ph-Hz	MIN	MAX	RLA	LRA	RLA	LRA	QTY	FLA	MCA	Fuse or HACR Brkr	FLA	LRA
38AUQD/E07	208/230-3-60	187	253	17.5	136.0	—	—	2	1.5	25.0/25.0	30/30	24/24	142/142
	460-3-60	414	506	8.4	66.0	—	—	2	0.8	13.0	20	12	70
	575-3-60	518	633	6.3	55.0	—	—	2	0.7	10.0	15	9	59
38AUQM/N08	208/230-3-60	187	253	27.4	164.0	—	—	2	1.5	38.0/38.0	60/60	35/35	170/170
	460-3-60	414	506	12.9	94.0	—	—	2	0.8	18.0	30	17	98
	575-3-60	518	633	10.0	65.0	—	—	2	0.7	14.0	20	13	69
38AUQD/E12	208/230-3-60	187	253	15.9	110.0	15.6	110.0	2	1.5	39.0/39.0	50/50	40/40	226/226
	460-3-60	414	506	7.7	52.0	7.7	52.0	2	0.8	19.0	25	20	108
	575-3-60	518	633	5.7	39.0	5.8	39.0	2	0.7	15.0	20	15	82
38AUQT/U16	208/230-3-60	187	253	26.8	164.0	25.0	164.0	3	1.5	63.0/63.0	80/80	65/65	337/337
	460-3-60	414	506	12.0	94.0	12.2	100.0	3	0.8	29.7	40	31	200
	575-3-60	518	633	9.0	65.0	9.9	78.0	3	0.7	23.5	30	24	149
38AUQT/U25	208/230-3-60	187	253	32.5	240.0	28.2	240.0	4	1.5	74.8/74.8	100/100	77/77	492/492
	460-3-60	414	506	14.8	130.0	14.7	130.0	4	0.8	36.4	50	38	268
	575-3-60	518	633	11.1	94.0	11.3	94.0	4	0.7	28.0	35	29	196

LEGEND

BRKR — Circuit Breaker
FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps Protection
NEC — National Electrical Code
RLA — Rated Load Amps

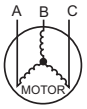
NOTE(S):

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.
2. The MCA values are calculated in accordance with The NEC. Article 440.
3. Motor RLA and LRA values are established in accordance with Underwriters' Laboratories (UL). Standard 1995.
4. The 575-v units are UL, Canada-listed only.
5. Unbalanced 3-Phase Supply Voltage

   Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

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

Example: Supply voltage is 230-3-60



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

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

Determine maximum deviation from average voltage.

(AB) 227-224 = 3-v

(BC) 231-227 = 4-v

(AC) 227-226 = 1-v

Maximum deviation is 4-v.

Determine percent of voltage imbalance.

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

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.

Electrical data (cont)

With Powered Convenience Outlet

UNIT	NOMINAL POWER SUPPLY	VOLTAGE RANGE		COMPRESSOR				WITH POWERED CONVENIENCE OUTLET					
				No. 1		No. 2		OFM (ea)		POWER SUPPLY		DISCONNECT SIZE	
	V-Ph-Hz	MIN	MAX	RLA	LRA	RLA	LRA	QTY	FLA	MCA	Fuse or HACR Brkr	FLA	LRA
38AUQD/E07	208/230-3-60	187	253	17.5	136.0	—	—	2	1.5	30.0/30.0	45/45	29/29	147/147
	460-3-60	414	506	8.4	66.0	—	—	2	0.8	15.0	20	14	72
	575-3-60	518	633	6.3	55.0	—	—	2	0.7	11.0	15	11	61
38AUQM/N08	208/230-3-60	187	253	27.4	164.0	—	—	2	1.5	43.0/43.0	60/60	40/40	175/175
	460-3-60	414	506	12.9	94.0	—	—	2	0.8	20.0	30	19	100
	575-3-60	518	633	10.0	65.0	—	—	2	0.7	16.0	25	15	71
38AUQD/E12	208/230-3-60	187	253	15.9	110.0	15.6	110.0	2	1.5	44.0/44.0	50/50	45/45	231/231
	460-3-60	414	506	7.7	52.0	7.7	52.0	2	0.8	22.0	25	22	110
	575-3-60	518	633	5.7	39.0	5.8	39.0	2	0.7	17.0	20	17	84
38AUQT/U16	208/230-3-60	187	253	26.8	164.0	25.0	164.0	3	1.5	67.8/67.8	90/90	70/70	342/342
	460-3-60	414	506	12.0	94.0	12.2	100.0	3	0.8	31.9	40	33	202
	575-3-60	518	633	9.0	65.0	9.9	78.0	3	0.7	25.2	30	26	151
38AUQT/U25	208/230-3-60	187	253	32.5	240.0	28.2	240.0	4	1.5	79.6/79.6	100/100	82/82	497/497
	460-3-60	414	506	14.8	130.0	14.7	130.0	4	0.8	38.6	50	40	270
	575-3-60	518	633	11.1	94.0	11.3	94.0	4	0.7	29.7	40	31	198

LEGEND

BRKR — Circuit Breaker
FLA — Full Load Amps
LRA — Locked Rotor Amps
MCA — Minimum Circuit Amps Protection
NEC — National Electrical Code
RLA — Rated Load Amps

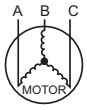
NOTE(S):

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the overcurrent protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.
2. The MCA values are calculated in accordance with The NEC. Article 440.
3. Motor RLA and LRA values are established in accordance with Underwriters' Laboratories (UL). Standard 1995.
4. The 575-v units are UL, Canada-listed only.
5. Unbalanced 3-Phase Supply Voltage

   Never operate a motor where a phase imbalance in supply voltage is greater than 2%. Use the following formula to determine the percentage of voltage imbalance.

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

Example: Supply voltage is 230-3-60



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

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

Determine maximum deviation from average voltage.

(AB) 227-224 = 3-v

(BC) 231-227 = 4-v

(AC) 227-226 = 1-v

Maximum deviation is 4-v.

Determine percent of voltage imbalance.

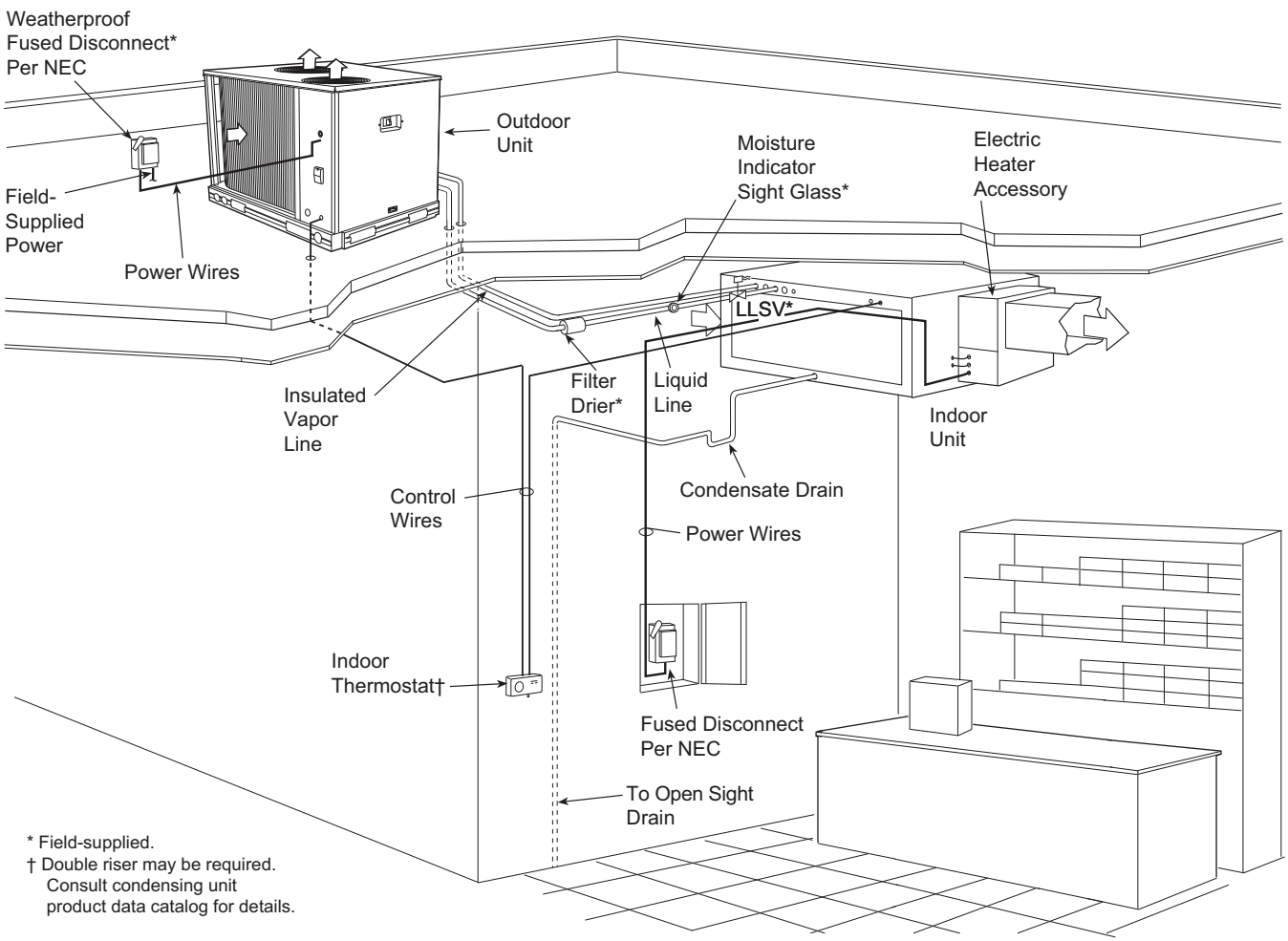
$$\text{\% Voltage Imbalance} = 100x \frac{4}{227} = 1.76\%$$

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.

Typical piping and wiring

Horizontal Installation



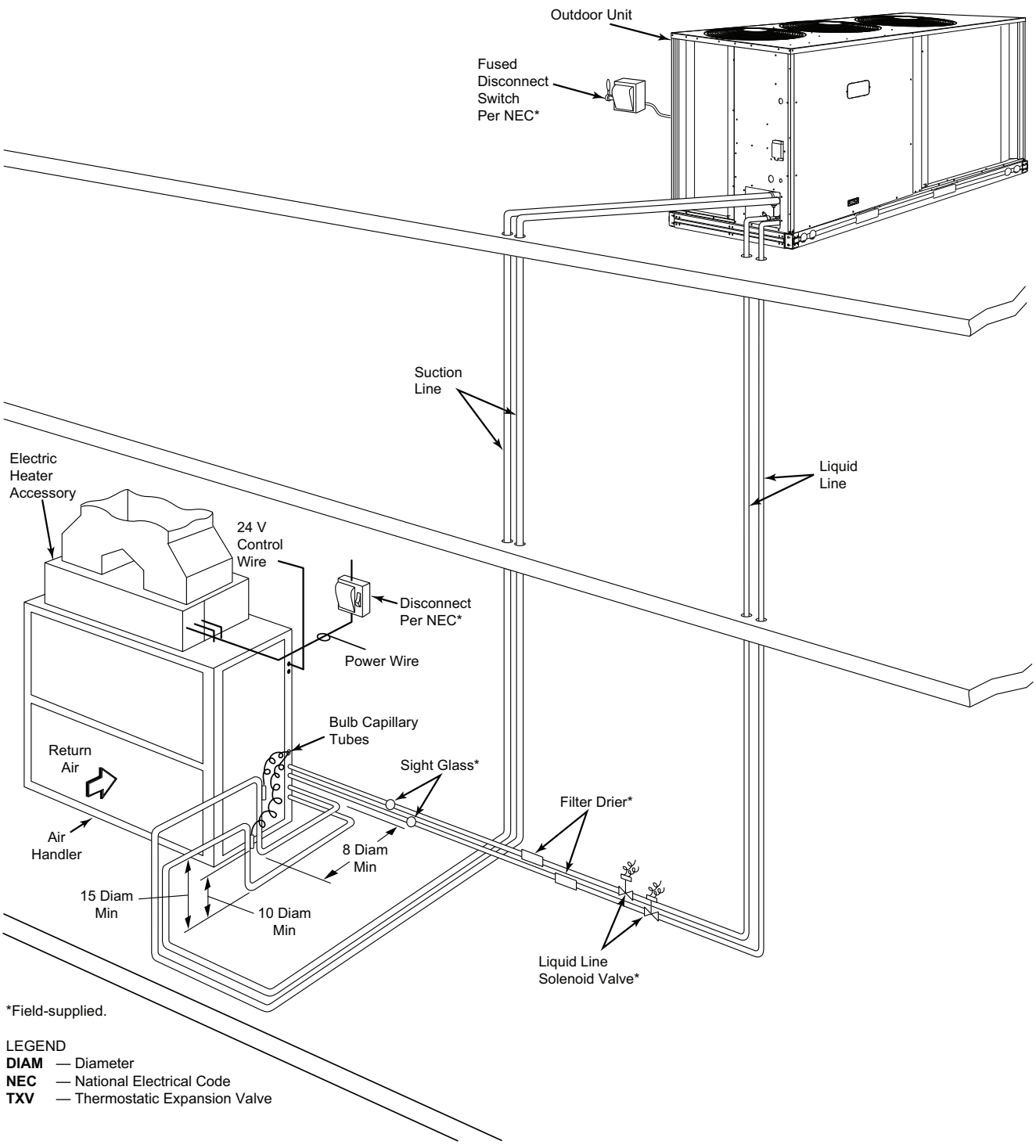
* Field-supplied.
† Double riser may be required. Consult condensing unit product data catalog for details.

LEGEND
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve

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

Typical piping and wiring (cont)

Vertical Installation



*Field-supplied.

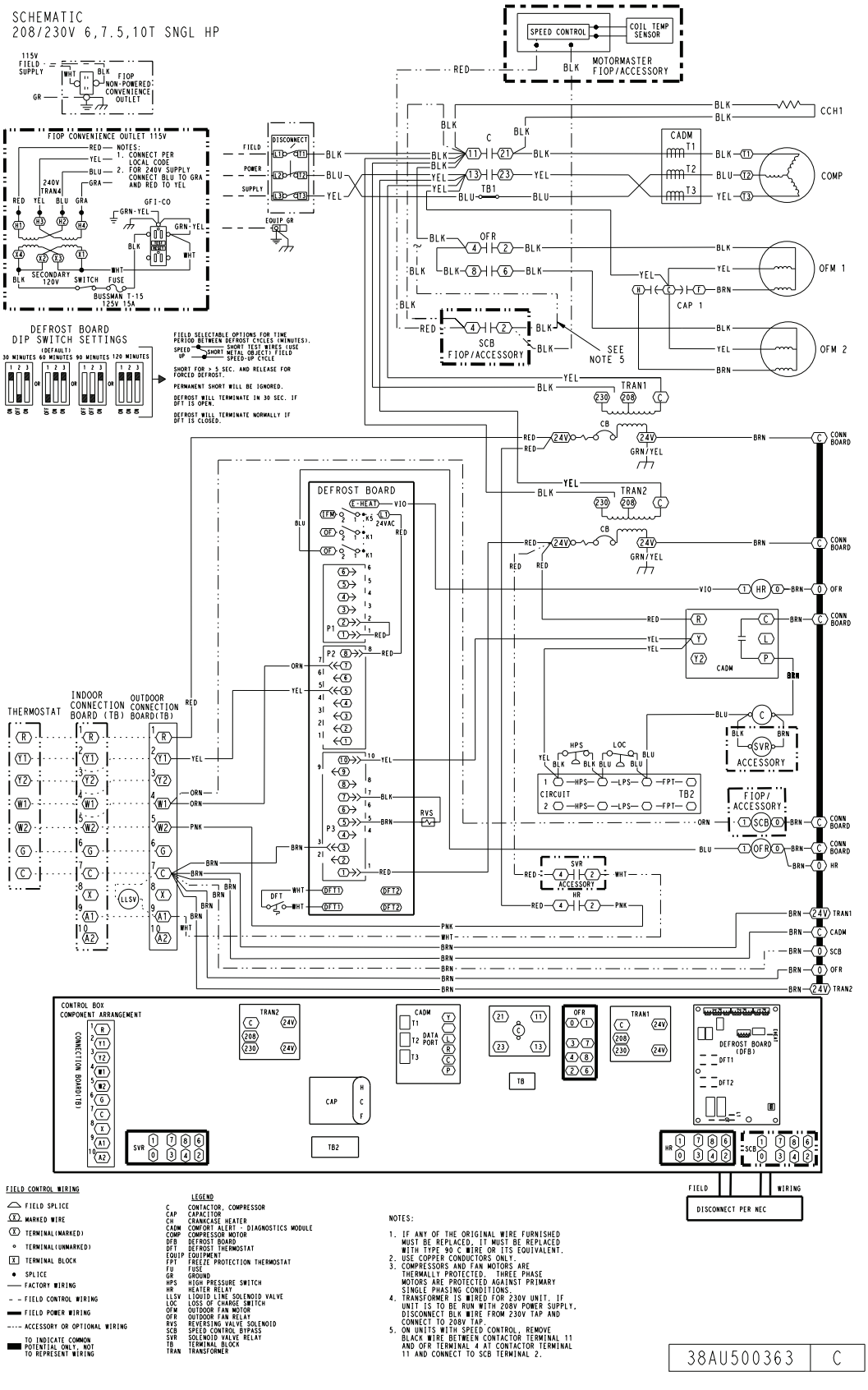
LEGEND
DIAM — Diameter
NEC — National Electrical Code
TXV — Thermostatic Expansion Valve

NOTE(S):

1. All piping must follow standard refrigerant piping techniques. Refer to System Design Manual for details.
2. All wiring must comply with applicable local and national codes.
3. Wiring and piping shown are general points-of-connection guides only and are not intended for, or to include all details for, a specific installation.
4. Filter driers must be bi-flow type suited for heat pump duty.
5. Liquid line solenoid valve (solenoid drop control) is recommended to prevent refrigerant migration to the compressor on line links above 75 ft.
6. Internal factory-supplied TXVs and check valves not shown.

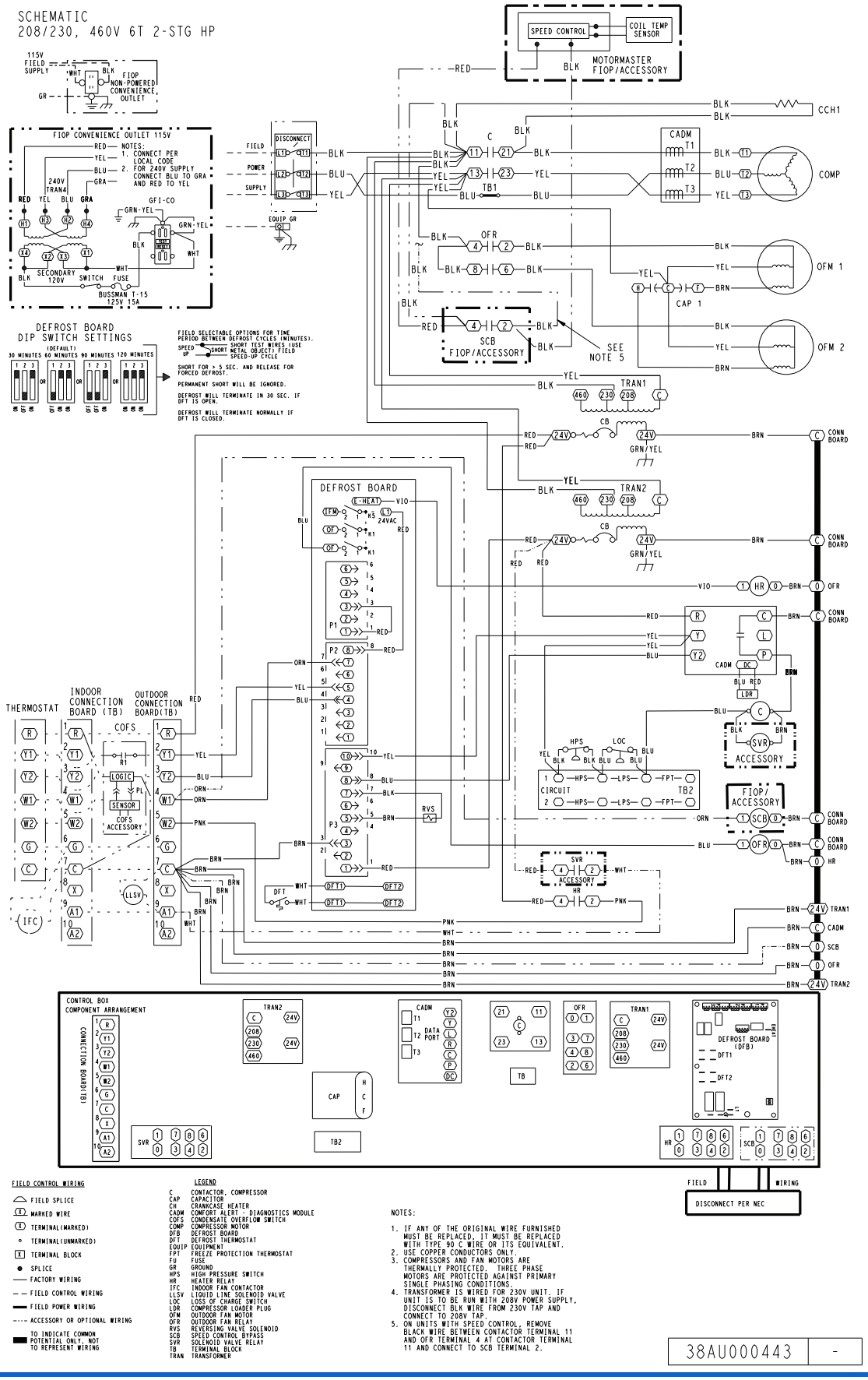
Typical piping and wiring (cont)

38AUQD/E07-12 Single Circuit / Single Stage Wiring Diagram (208/230-3-60 shown)



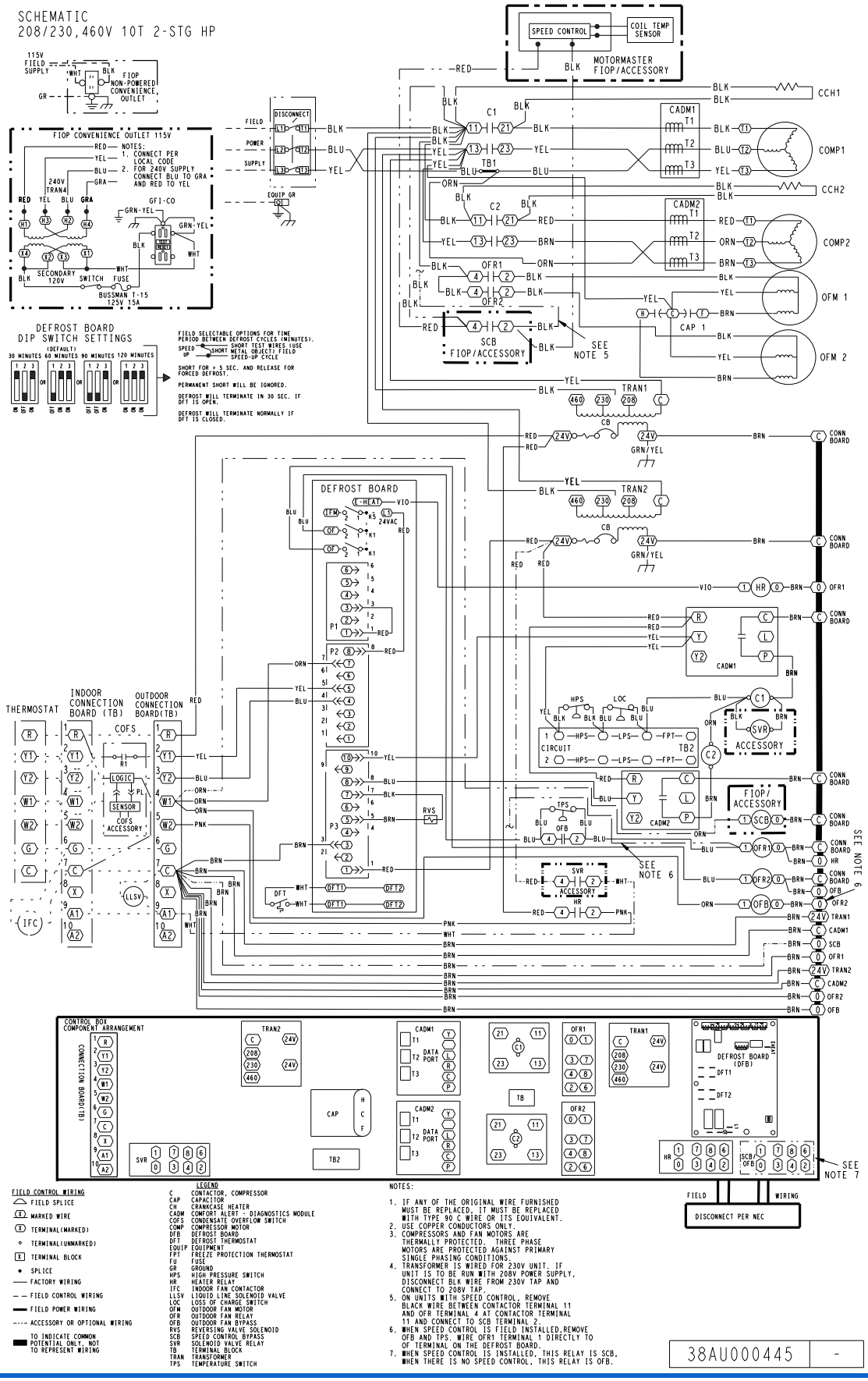
Typical piping and wiring (cont)

38AUQD/E07 Single Circuit / Two Stage Wiring Diagram (208/230, 460-3-60 shown)



Typical piping and wiring (cont)

38AUQD/E12 Single Circuit / Two Stage Wiring Diagram (208/230, 460-3-60 shown)



FIELD CONTROL WIRING
- FIELD SPLICE
- MARKED WIRE
- TERMINAL(MARKED)
- TERMINAL(UNMARKED)
- TERMINAL BLOCK
- SPLICE
- FACTORY WIRING
- FIELD CONTROL WIRING
- FIELD POWER WIRING
- ACCESSORY OR OPTIONAL WIRING
- TO INDICATE COMMON POTENTIAL ONLY, NOT TO REPRESENT WIRING

LEGEND

C	CONTACTOR, COMPRESSOR
CAP	CAPACITOR
CH	CRANKCASE HEATER
CADM	COMFORT ALERT - DIAGNOSTICS MODULE
COFS	CONDENSATE OVERFLOW SWITCH
COMP	COMPRESSOR MOTOR
DFB	DEFROST BOARD
DFT	DEFROST THERMOSTAT
EQUIP	EQUIPMENT
FPT	FREEZE PROTECTION THERMOSTAT
FU	FUSE
GR	GROUND
HPS	HIGH PRESSURE SWITCH
HR	HEATER RELAY
IFC	INDOOR FAN CONTACTOR
LLSV	LIQUID LINE SOLENOID VALVE
LOC	LOSS OF CHARGE SWITCH
OFM	OUTDOOR FAN MOTOR
OFR	OUTDOOR FAN RELAY
OFB	OUTDOOR FAN BYPASS
RVS	REVERSING VALVE SOLENOID
SCB	SPEED CONTROL BYPASS
SVR	SOLENOID VALVE RELAY
TB	TERMINAL BLOCK
TRAN	TRANSFORMER
TPS	TEMPERATURE SWITCH

NOTES:
1. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90 C WIRE OR ITS EQUIVALENT.
2. USE COPPER CONDUCTORS ONLY.
3. COMPRESSORS AND FAN MOTORS ARE THERMALLY PROTECTED. THREE PHASE MOTORS ARE PROTECTED AGAINST PRIMARY SINGLE PHASING CONDITIONS.
4. TRANSFORMER IS WIRED FOR 230V UNIT. IF UNIT IS TO BE RUN WITH 208V POWER SUPPLY, DISCONNECT BLK WIRE FROM 230V TAP AND CONNECT TO 208V TAP.
5. ON UNITS WITH SPEED CONTROL, REMOVE BLACK WIRE BETWEEN CONTACTOR TERMINAL 11 AND OFR TERMINAL 4 AT CONTACTOR TERMINAL 11 AND CONNECT TO SCB TERMINAL 2.
6. WHEN SPEED CONTROL IS FIELD INSTALLED,REMOVE OFB AND TPS. WIRE OFR1 TERMINAL 1 DIRECTLY TO OF TERMINAL ON THE DEFROST BOARD.
7. WHEN SPEED CONTROL IS INSTALLED, THIS RELAY IS SCB. WHEN THERE IS NO SPEED CONTROL, THIS RELAY IS OFB.

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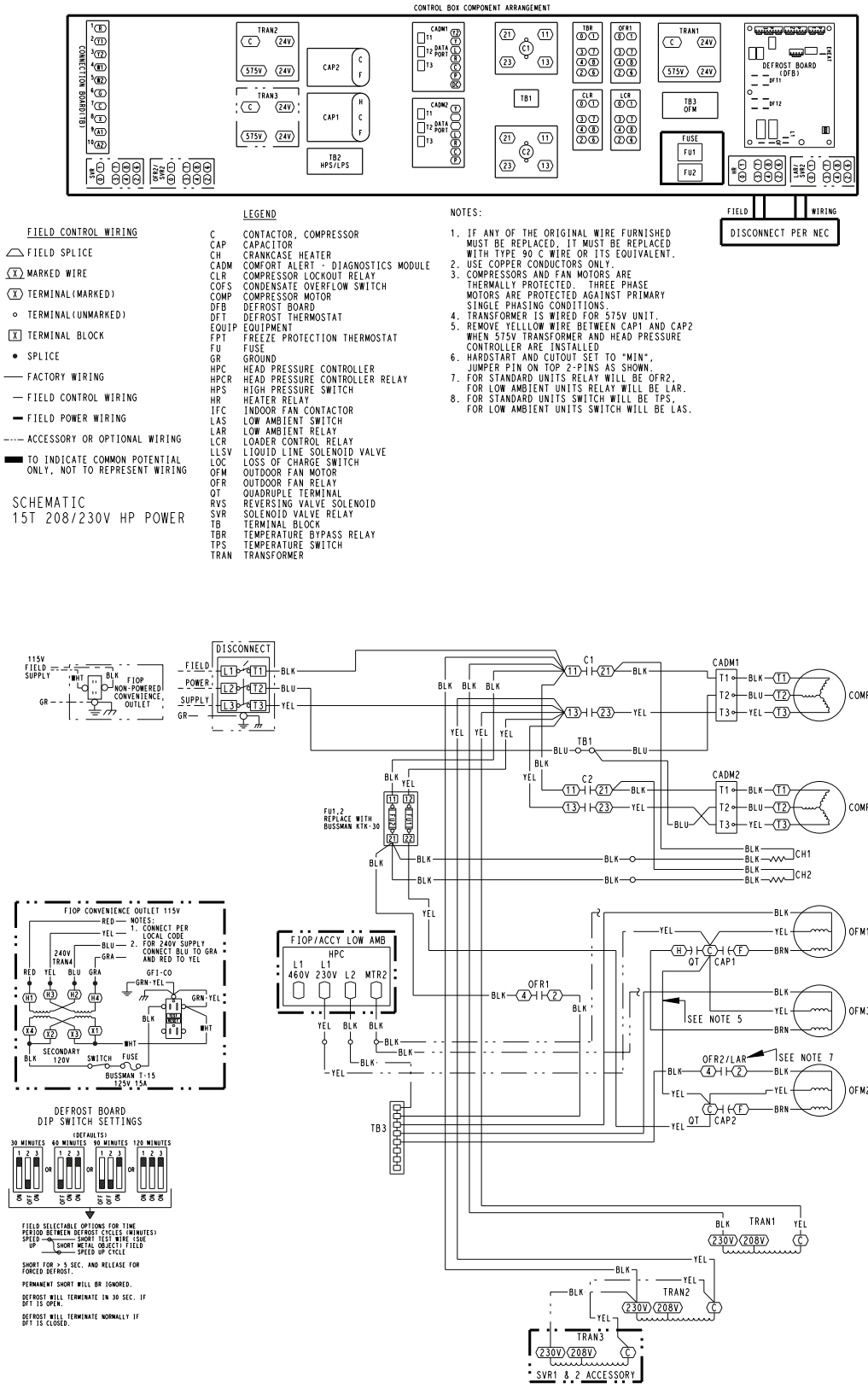
Typical piping and wiring (cont)

38AUQ*16 Power Schematic (208/230-3-60 shown)



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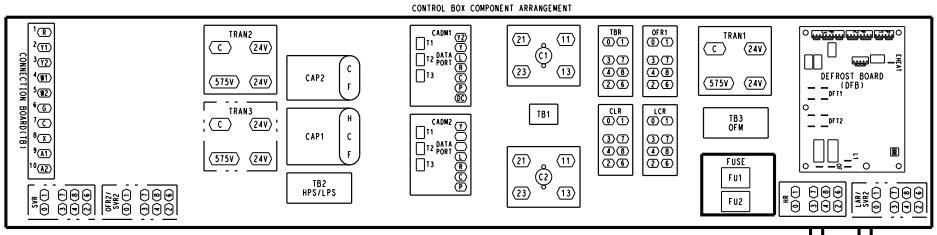
Typical piping and wiring (cont)

38AUQ*25 Power Schematic (208/230-3-60 shown)



FIELD CONTROL WIRING

- FIELD SPLICE
- MARKED WIRE
- TERMINAL(MARKED)
- TERMINAL(UNMARKED)
- TERMINAL BLOCK
- SPLICE
- FACTORY WIRING
- FIELD CONTROL WIRING
- FIELD POWER WIRING
- ACCESSORY OR OPTIONAL WIRING
- TO INDICATE COMMON POTENTIAL ONLY, NOT TO REPRESENT WIRING

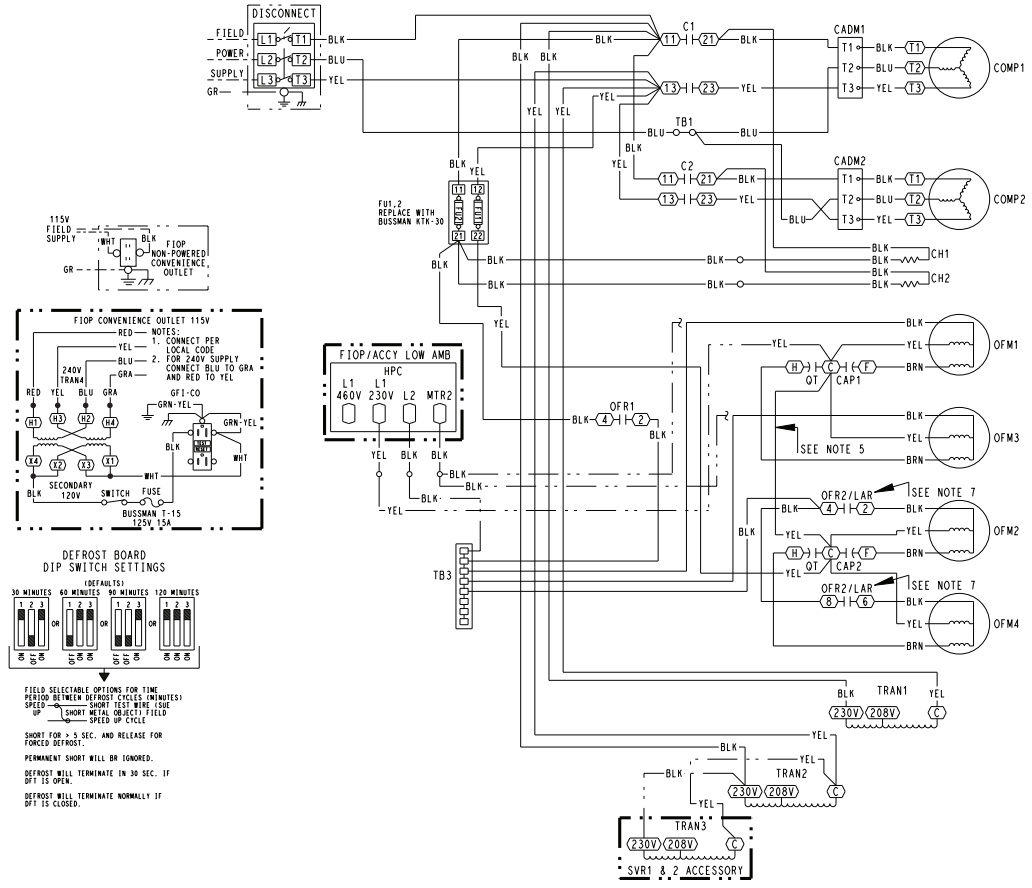
SCHEMATIC
20T 208/230V HP POWER

LEGEND

C	CONTACTOR, COMPRESSOR
CAP	CAPACITOR
CH	CRANKCASE HEATER
CADM	COMFORT ALERT - DIAGNOSTICS MODULE
CLR	COMPRESSOR LOCKOUT RELAY
COFS	CONDENSATE OVERFLOW SWITCH
COMP	COMPRESSOR MOTOR
DFB	DEFROST BOARD
DFT	DEFROST THERMOSTAT
EQUIP	EQUIPMENT
FPT	FREEZE PROTECTION THERMOSTAT
FU	FUSE
GR	GROUND
HPC	HEAD PRESSURE CONTROLLER
HPCR	HEAD PRESSURE CONTROLLER RELAY
HPS	HIGH PRESSURE SWITCH
HR	HEATER RELAY
IFC	INDOOR FAN CONTACTOR
LAS	LOW AMBIENT SWITCH
LAR	LOW AMBIENT RELAY
LCR	LOADER CONTROL RELAY
LLSV	LIQUID LINE SOLENOID VALVE
LOC	LOSS OF CHARGE SWITCH
OFM	OUTDOOR FAN MOTOR
OFR	OUTDOOR FAN RELAY
QT	QUADRUPLE TERMINAL
RVS	REVERSING VALVE SOLENOID
SVR	SOLENOID VALVE RELAY
TB	TERMINAL BLOCK
TBR	TEMPERATURE BYPASS RELAY
TPS	TEMPERATURE SWITCH
TRAN	TRANSFORMER

NOTES:

1. IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED, IT MUST BE REPLACED WITH TYPE 90 C WIRE OR ITS EQUIVALENT.
2. USE COPPER CONDUCTORS ONLY.
3. COMPRESSORS AND FAN MOTORS ARE THERMALLY PROTECTED. THREE PHASE MOTORS ARE PROTECTED AGAINST PRIMARY SINGLE PHASING CONDITIONS.
4. TRANSFORMER IS WIRED FOR 575V UNIT.
5. REMOVE YELLLOW WIRE BETWEEN CAP1 AND CAP2 WHEN 575V TRANSFORMER AND HEAD PRESSURE CONTROLLER ARE INSTALLED
6. HARDSTART AND CUTOUT SET TO "MIN", JUMPER PIN ON TOP 2-PINS AS SHOWN.
7. FOR STANDARD UNITS RELAY WILL BE OFR2, FOR LOW AMBIENT UNITS RELAY WILL BE LAR.
8. FOR STANDARD UNITS SWITCH WILL BE TPS, FOR LOW AMBIENT UNITS SWITCH WILL BE LAS.



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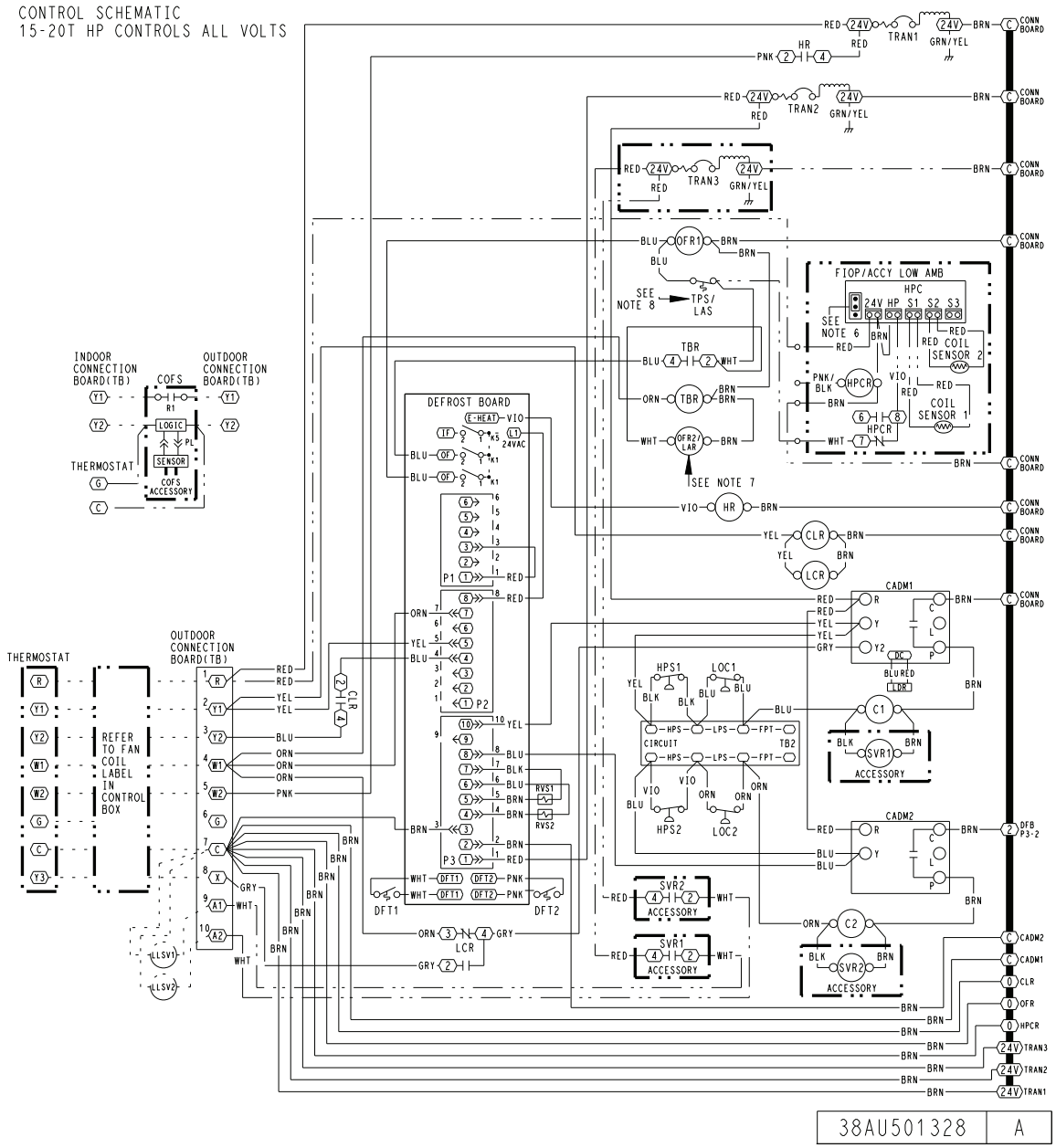
Typical piping and wiring (cont)

38AUQ*16–25 Control Schematic



38AUQ*07-12 Piping Recommendations (Single-Circuit Unit)

R-410A	EQUIVALENT LENGTH (ft)							
Model Nominal Capacity	**Length Linear**	**0-24**	**25-49**	**50-74**		**75-100**	
	Length Equiv	**0-37**	**38-74**	**74-112**		**113-115**	
38AUQ*07	Liquid Line Size	3/8"	3/8"	3/8"	1/2"	3/8"	1/2"
	Max Lift Cool	25	50	48	75	39	100
	Max Lift Heat	25	50	48	60	31	60
	Vapor Line	7/8"	7/8"	1-1/8"		1-1/8"	
	Charge (lb)	17.8	18.8	20.3	22.6	21.4	24.5
38AUQ*08	Liquid Line Size	1/2"	1/2"	1/2"		1/2"	
	Max Lift Cool	25	50	75		100	
	Max Lift Heat	25	50	50		60	
	Vapor Line	7/8" / 1-1/8"	1-1/8"	1-1/8"		1-1/8"	
	Charge (lb)	23.9	26.0	27.9		29.8	
38AUQ*12	Liquid Line Size	1/2"	1/2"	1/2"		1/2"	5/8"
	Max Lift Cool	25	50	75		85	100
	Max Lift Heat	25	50	60		60	60
	Vapor Line	7/8" / 1-1/8"	1-1/8"	1-1/8"		1-1/8"	1-3/8"
	Charge (lb)	26.8	28.8	30.7		33.4	37.2

LEGEND

Length Equiv. Linear — Equivalent tubing length, including effects of refrigeration specialties devices
— Typical linear tubing length, Feet (50% added to linear to define Equivalent Length for this table)
Liquid Line — Tubing size, inches OD
Max Lift Cool — Maximum liquid lift at maximum permitted liquid line pressure drop Indoor unit ABOVE outdoor unit
Max Lift Heat — Maximum liquid lift at maximum permitted liquid line pressure drop Indoor unit BELOW outdoor unit
Vapor Line — Tube size, inches OD
Charge — Charge Quantity, lb. Calculated for both liquid line sizes (where applicable), but only with large suction line size (where applicable)

NOTE(S):

Commercial Heat Pump Split Systems are limited to 100 linear feet of separation.

38AUQ*16-25 Piping Recommendations (Two-Circuit Unit)

R-410A	EQUIVALENT LENGTH (ft)									
Model Nominal Capacity	**Length Linear**	**0-24**	**25-49**		**50-74**		**75-99**		**100-125**	
	Length Equiv	**0-37**	**38-74**		**75-112**		**113-149**		**150-188**	
38AUQ*16	Liquid Line	1/2"	1/2"		1/2"		1/2"		1/2"	
	Max Lift Cool	25	50		75		100		125	
	Max Lift Heat	25	50		60		60		60	
	Vapor Line	1-3/8"	1-3/8"		1-1/8"		1-1/8"		1-1/8"	
	Charge (lb)	28.5	30.6		24.8		26.6		28.6	
38AUQ*25	Liquid Line	1/2"	1/2"	5/8"	1/2"	5/8"	5/8"		5/8"	
	Max Lift Cool	25	37	50	24	51	48		63	
	Max Lift Heat	25	50	50	60	60	60		60	
	Vapor Line	1-3/8"	1-3/8"	1-3/8"	1-1/8"	1-1/8"	1-1/8"	1-3/8"	1-3/8"	
	Charge (lb)	27.1	29.2	31.1	30.7	33.6	37.1		40.2	

LEGEND

Length Equiv. Linear — Equivalent tubing length, including effects of refrigeration specialties devices
— Typical linear tubing length, Feet (50% added to linear to define Equivalent Length for this table)
Liquid Line — Tubing size, inches OD
Max Lift (Heat) (Cool) — Maximum liquid lift (indoor unit ABOVE outdoor unit only), at maximum permitted liquid line pressure drop:
- Linear Length Less than 100 ft: Minimum 2.0°F subcooling entering TXV
- Linear Length Greater than 100 ft: Minimum 0.5°F subcooling entering TXV

Vapor Line — Tube size, inches OD
Charge — Charge Quantity, lb. Calculated for both liquid line sizes (where applicable), but only with large suction line size (where applicable)

NOTE(S):

Commercial Heat Pump Split Systems are limited to 100 linear feet of separation.

Application data (cont)

Refrigerant Line Sizing

Consider the length of the piping required between the outdoor and indoor units. The maximum allowable line length is 100 ft (30.5 m). See the Piping Recommendations tables on the previous page. Refrigerant vapor piping should be insulated.

IMPORTANT: A refrigerant receiver is not provided with the unit. Do not install a receiver.

Install Filter Drier(s) and Moisture Indicator(s)

Every unit MUST have a bi-directional filter drier in the liquid line. Locate the filter drier at the indoor unit, close to the evaporator coil thermal expansion valve (TXV) inlets.

38AUQ units include one (two on 16 and 25 size models) Puron-duty filter drier, shipped in cartons attached to the unit base pan. Remove the filter drier and prepare to install in the liquid line at the evaporator coil. Do not remove connection fitting plugs until ready to connect and braze the filter drier into the liquid line position.

Installation of liquid line moisture indicating sight glass in each circuit is recommended. Locate the sight glass(es) between the outlet of the filter drier and the TXV inlet.

Refer to Refrigerant Specialties Part Numbers Table for recommendations on refrigeration specialties.

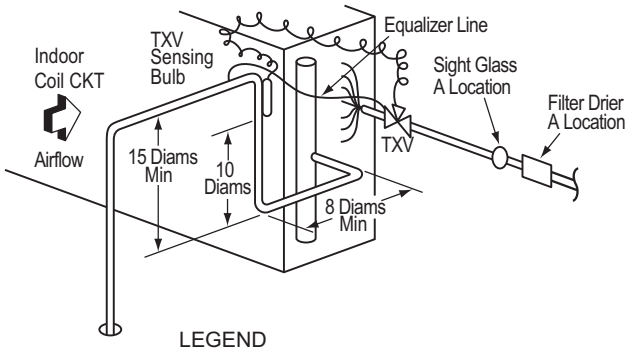
Select the filter drier for maximum unit capacity and minimum pressure drop. Complete the refrigerant piping from the indoor unit to the outdoor unit before opening the liquid and suction lines at the outdoor unit.

Install Liquid Line Solenoid Valve

It is recommended that a bi-directional solenoid valve be placed in the main liquid line between the outdoor unit and the indoor coil. Locate the solenoid valve at the end of the liquid line, near the outdoor unit connections, with flow direction arrow pointed at the outdoor unit. Refer to Refrigerant Specialties Part Numbers Table below. (A liquid line solenoid valve is required when the liquid line length exceeds 75 ft [23 m].)

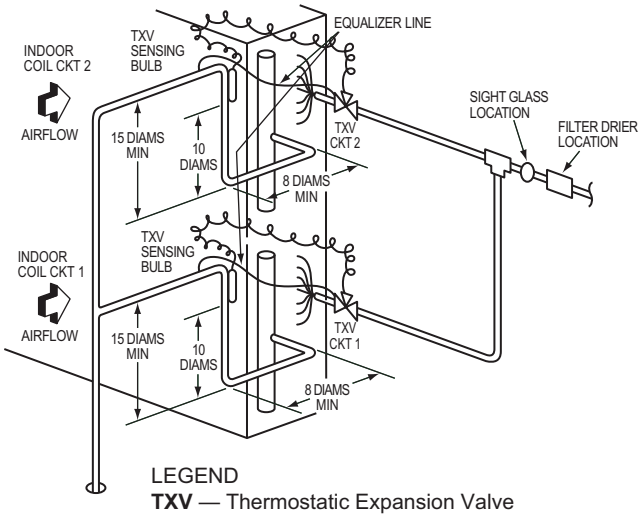
This valve prevents refrigerant migration (which causes oil dilution) to the compressor during the off cycle, at low outdoor ambient temperatures. Wire the solenoid according to the unit label diagram.

Location of Sight Glass(es) and Filter Driers (typical 38AUQ / 40RFQ size 07 and 08 system)



LEGEND
TXV — Thermostatic Expansion Valve

Location of Sight Glass(es) and Filter Driers (typical 38AUQ / 40RFQ size 12 system)



LEGEND
TXV — Thermostatic Expansion Valve

Refrigerant Specialties Part Numbers

LIQUID LINE SIZE (in.)	LIQUID LINE SOLENOID VALVE (LLSV)	SOLENOID COIL	SIGHT GLASS
3/8	EF680033 plus EF680039 biflow kit	EF680037	KM680008
1/2	EF680035 plus EF680039 biflow kit	EF680037	KM680004
5/8	EF680036 plus EF680039 biflow kit	EF680037	KM680005

Guide specifications

Split System Heat Pump Outdoor Unit with Puron® Refrigerant HVAC Guide Specifications - Section 15678

Size Range: **66,000 to 218,000 Btuh Heating**
6 to 20 Nominal Tons Cooling

Carrier Model Numbers: **38AUQ07-25**

Part 1 — General

1.01 SYSTEM DESCRIPTION

A. Outdoor-mounted, electrically controlled, air-cooled split system heat pump suitable for on-the-ground or rooftop installation. Unit shall consist of a scroll air-conditioning compressor assembly, an air-cooled coil, propeller-type condenser fans, and a control box. Unit shall discharge supply air upward as shown on contract drawings. Unit shall function as the outdoor component of an air to air electric heat pump system.

B. Unit must be designed with a Puron® (R-410A) refrigerant circuit to match Packaged Heat Pump Air Handling Unit(s), 40RFQ/40RUQ for matched systems approved by the manufacturer.

1.02 QUALITY ASSURANCE

A. Unit shall be rated in accordance with AHRI Standard 340/360.

B. Unit construction shall comply with ANSI/ASHRAE 15 safety code latest revision and comply with NEC.

C. Unit shall be constructed in accordance with UL 1995 standard and shall carry the UL and UL, Canada label for sizes 07-12 and ETL for 16 and 25 models.

D. Unit cabinet shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).

E. Air-cooled outdoor coils shall be leak tested at 150 psig and pressure tested at 650 psig and qualified to UL burst test at 1980 psig.

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

1.03 DELIVERY, STORAGE AND HANDLING

Unit shall be shipped as single package only, and shall be stored and handled according to unit manufacturer's recommendations.

1.04 WARRANTY (FOR INCLUSION BY SPECIFYING ENGINEER)

Part 2 — Products

2.01 EQUIPMENT

A. General: Factory-assembled, single piece, air-cooled split system heat pump. Contained within the unit enclosure shall be all factory wiring, piping, controls, compressor, holding charge Puron® (R-410A), and special features required prior to field start-up.

B. Unit Cabinet:

1. Unit cabinet shall be constructed of galvanized steel, bonderized and coated with a pre-painted baked enamel finish.
2. A heavy-gauge roll-formed perimeter base rail with forklift slots and lifting holes shall be provided to facilitate rigging.

C. Fans:

1. Condenser fans shall be direct driven, propeller type, discharging air vertically upward.
2. Fan blades shall be balanced.
3. Condenser fan discharge openings shall be equipped with PVC coated steel wire safety guards.
4. Condenser fan and motor shaft shall be corrosion resistant.

D. Compressor:

1. Compressor shall be of the hermetic scroll type.
2. Compressor shall be mounted on rubber grommets.
3. Compressor shall include overload protection.
4. Compressors shall be equipped with a crankcase heater.
5. Compressor shall be equipped with internal high discharge temperature protection.

E. Coil:

1. Coil shall be air-cooled and circuited for sub cooling during cooling mode of operation.
2. Coil shall be constructed of aluminum fins (copper fins optional) mechanically bonded to internally grooved seamless copper tubes which are then cleaned, dehydrated, and sealed.

F. Refrigeration Components and Operation:

1. Refrigeration circuit components shall include liquid line service valve, suction line service valve, a full charge of compressor oil, holding charge of refrigerant, and loose shipped refrigerant filter drier (one per circuit).
2. Precision-sized suction line accumulator on each refrigerant circuit shall protect from oil being removed from the scroll compressor rotating orbiter and plate during the activation of the defrost mode and switching back and forth from cooling and heating operations.
3. Unit shall be capable of starting and running up to 125°F (52°C) and down to 35°F (2°C) ambient outdoor temperature.
4. Unit shall operate at ± 10% from rated voltage

G. Controls and Safeties:

1. Minimum control functions shall include:
   a. Control wire terminal blocks.
   b. Compressor lockout on auto-reset safety until reset from thermostat.
   c. Each unit shall utilize the Comfort Alert Diagnostic Board that provides:
      1) System Pressure Trip fault code indication
      2) Short Cycling fault code indication
      3) Locked Rotor fault code indication

4) Open Circuit fault code indication
5) Reverse Phase 3 fault code indication
6) Welded Contactor fault code indication
7) Low Voltage fault code indication
8) Anti-short cycle protection
9) Phase reversal protection

2. Minimum safety devices which are equipped with automatic reset (after resetting first at thermostat), shall include:
   a. High discharge pressure protection switch.
   b. Loss-of-charge protection switch.

H. Electrical Requirements:
1. Unit electrical power shall be single-point connection.
2. Unit control circuit shall contain a 75VA - 24-v transformer for unit control.

I. Special Features:
1. Unit-Mounted, Non-Fused Disconnect Switch: (Not available when unit MOCP electrical rating exceeds 80 amps)

   Switch shall be factory-installed and internally mounted. NEC and UL-approved non-fused switch shall provide unit power shutoff. Switch shall be accessible from outside the unit and shall provide power off lock-out capability.

2. Convenience Outlet:
   a. Powered convenience outlet.
      1) Outlet shall be powered from main line power to the rooftop unit.
      2) Outlet shall be powered from line side or load side of disconnect by installing contractor, as required by code. If outlet is powered from load side of disconnect, unit electrical ratings shall be UL certified and rated for additional outlet amperage.
      3) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
      4) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
      5) Voltage required to operate convenience outlet shall be provided by a factory-installed step-down transformer.
      6) Outlet shall be accessible from outside the unit.
      7) Outlet shall include a field-installed "Wet in Use" cover.
   b. Non-Powered convenience outlet.
      1) Outlet shall be powered from a separate 115/120v power source.
      2) A transformer shall not be included.
      3) Outlet shall be factory-installed and internally mounted with easily accessible 115-v female receptacle.
      4) Outlet shall include 15 amp GFI receptacles with independent fuse protection.
      5) Outlet shall be accessible from outside the unit.
      6) Outlet shall include a field-installed "Wet in Use" cover.

3. Low-Ambient Temperature Control:

   A low-ambient temperature control shall be available as a factory-installed option or as a field-installed accessory. This low-ambient control shall regulate speed of the condenser-fan motors in response to the saturated condensing temperature of the unit. The control shall maintain correct condensing pressure at outdoor temperatures down to –20°F (–29°C).

4. Optional Outdoor Coil Materials:
   a. Pre-Coated Aluminum-Fin Coils:

      Coils shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments. Coating shall be applied to the aluminum fin stock prior to the fin stamping process to create an inert barrier between the aluminum fin and copper tube. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.

   b. E-Coated Aluminum-Fin Coils:

      Coils shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss requirements of 60° of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in./lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to a minimum of 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to no less than 1000 hours salt spray per ASTM B117-90. Coil construction shall be aluminum fins mechanically bonded to copper tubes.

5. Thermostat Controls:
   a. Programmable multi-stage thermostat with 7-day clock, holiday scheduling, large backlit display, remote sensor capability, and Title 24 compliance.
   b. Commercial electronic thermostat with 7-day time clock, auto-changeover, multistage capability, and large LCD temperature display.

6. Louvered Hail Guard Package:

   Louvered hail guard package shall protect coils against damage from hail and other flying debris.

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