



Turn to the experts

Product Data

48LC WeatherExpert® Series
Single Package Rooftop
Gas Heat/Electric Cooling Unit
12.5 to 23 Nominal Tons



WeatherExpert™



Shown with economizer and power exhaust.

Packaged Rooftop Gas Heat/Electric Cooling Units
48LC sizes 14-26

Carrier's new Gas Heat/ Electric Cooling WeatherExpert® 12.5 to 23 ton Commercial Package Rooftop models are designed to provide total low cost of ownership by providing some of the highest cooling efficiencies in the industry with low installed costs, low maintenance costs, and high reliability.

These models focus on providing high IEERs (Integrated Energy Efficiency Ratios) which are a measurement of cooling part load performance and where actual buildings operate nearly all of the time. These high part load values are achieved by using logic that strategically sequences compressor stages, indoor fan motor and condenser fan motor speeds. These models are in addition to the 3 to 5 ton models with SEERs (Seasonal Energy Efficiency Ratios) up to 17.5 and 6 to 10 ton models with IEERs up to 20.8 to provide a full range offering.

Ultra high efficiency

With IEERs up to 19.1, these new WeatherExpert models help to contribute in LEED credits and help qualify for rebates. The high IEER efficiencies are achieved by utilizing a proven staged compressor design on a single refrigerant circuit that provides 3 stages of cooling capacity control.

The indoor fan motors are high efficiency belt drive and controlled by a VFD (Variable Frequency Drive) system that matches the cooling capacity stages for optimum comfort and efficient control.

Gas heat is provided with efficiencies up to 81% and 2 stages of operation to better match building loads. Models also have multiple heat capacities for each size and use an induced draft combustion system.

Easy to install

Units are designed for dedicated factory-supplied vertical or horizontal air flow duct configuration. No special field kits are required. Designed to fit on pre-installed curbs by another manufacturer, these units also fit on past designed Carrier installed curbs with an authorized adapter curb. The cabinet design also integrates a large control box that gives you room to work and room to mount Carrier accessory controls.

Easy to maintain

Easy access door handles by Carrier provide quick access to all normally serviced components. Our "no-strip" screw system has superior holding power and guides screws into position while preventing the screw from stripping the unit's metal. Units come with accessible 2 in. filter that have a dedicated access door for easy replacement. Optional hinged panels allow easy access with pull tabs and quarter turn latches.

Reliable

Carrier conducts rigorous testing to ensure your unit will perform as designed. Extensive rain testing is conducted in special designed test areas and under conditions that simulate actual job sites. In addition, units are both shake tested and driven around the country to make sure not only the packaging holds up, but the unit components within. Condensate pans are made of non corrosive composite material, motors are permanently lubricated, and compressors use crankcase heaters, all to further strengthen the unit's reliability.

- Three-stage cooling capacity control with staged scroll compressors design. Each stage is different in capacity output to better match typical building load profiles.
- Single refrigerant circuit design with precision sized TXV refrigerant metering devices to provide optimum operation through the entire operating range.
- Single full faced evaporator coil for full surface utilization, even at part load operation.
- Crankcase heater on each compressor designed to cycle off during the on cycle.
- IEER up to 19.1 and EERs up to 12.5.

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Features/Benefits (cont)



- High efficiency permanently lubricated belt driven evaporator-fan motor with VFD (Variable Frequency Drive) controller. Electro-Mechanical Integrated Staging Control (ISC) board that provides:
 - Thermostat controls
 - Compressor staging
 - Indoor fan motor staging
 - Field and factory wiring connections
 - Outdoor fan motor staging
 - Crank case heater control
- Sound levels as low as 84 dB.
- Exclusive non-corrosive composite condensate pan in accordance with ASHRAE 62 Standard, sloping design; side or bottom drain.
- Multiple gas heat sizes with heating efficiencies up to 81%.
- Induced draft combustion design.
- Redundant gas valve, with up to 2 stages of heating.
- Pre-painted exterior panels and primer-coated interior panels tested to 500 hours salt spray protection.
- Fully insulated with foil faced insulation throughout the entire cabinet.
- Exclusive IGC solid-state control for on-board diagnostics with LED error code designation, burner control logic and energy saving indoor fan motor delay.
- High ambient cooling operation and ratings up to 125°F (52°C).
- Low ambient mechanical cooling operation down to 40°F (4°C). An economizer shall be the source of cooling in low ambient temperature conditions. When the outside air temperature is below 40°F (4°C), to reduce operating costs, mechanical cooling shall not be utilized.
- Access panels with easy grip handles.
- Innovative, easy starting, no-strip screw feature on unit access panels.
- Two-inch disposable return air filters.
- Tool-less filter access door.
- Dedicated vertical and horizontal airflow models available ordered as factory option. No special kits required.
- Provisions for thru-the-bottom power entry capability as standard.
- Single point gas and electric connections.
- Full perimeter base rail with built-in rigging adapters and fork truck slots.
- 24-volt control circuit protected with resettable circuit breaker.
- Totally enclosed high-efficiency ECM outdoor fan motor with permanently lubricated bearings.
- Low-pressure switch and high-pressure switch protection.
- Solid-state electronic direct spark ignition system.
- Flame roll-out safety protector.
- High capacity liquid line filter drier.
- Factory-installed Humidi-MiZer® Adaptive Dehumidification System on all sizes
- Factory-installed SystemVu™ controller with LCD user display
- Standard Limited Parts Warranty: 10 yr. aluminized heat exchanger, 15 yr. stainless steel heat exchanger, 5 yr. compressor, 3 yr. SystemVu controller, 1 yr. parts.

MODEL NUMBER NOMENCLATURE

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	4	8	L	C	D	0	2	4	A	1	A	5	-	0	A	0	A	0

Unit Heat Type

48 - Gas Heat Packaged Rooftop

Model Series - WeatherExpert®

LC - Ultra High Efficiency

Heat Options

D = Low Gas Heat
E = Medium Gas Heat
F = High Gas Heat
S = Low Heat w/ Stainless Steel Exchanger
R = Medium Heat w/ Stainless Steel Exchanger
T = High Heat w/ Stainless Steel Exchanger

Refrig. Systems Options

0 = Three stage cooling capacity control with TXV
A = Three stage cooling capacity control with TXV and Humidi-MiZer® system

Cooling Tons

14 - 12.5 ton
17 - 15 ton
20 - 17.5 ton
24 - 20 ton
26 - 23 ton

Sensor Options

A = None
B = RA Smoke Detector
C = SA Smoke Detector
D = RA + SA Smoke Detector
E = CO₂
F = RA Smoke Detector and CO₂
G = SA Smoke Detector and CO₂
H = RA + SA Smoke Detector and CO₂

Indoor Fan Motor Options

1 = Standard Static / Vertical Supply, Return Air Flow
2 = Medium Static / Vertical Supply, Return Air Flow
3 = High Static / Vertical Supply, Return Air Flow
4 = Ultra High Static / Vertical Supply, Return Air Flow
5 = Standard Static / Horizontal Supply, Return Air Flow
6 = Medium Static / Horizontal Supply, Return Air Flow
7 = High Static / Horizontal Supply, Return Air Flow
8 = Ultra High Static / Horizontal Supply, Return Air Flow

Coil Options: Fin/Tube (Condenser – Evaporator – Hail Guard)

A = Al/Cu – Al/Cu
B = Precoat Al/Cu – Al/Cu
C = E-coat Al/Cu – Al/Cu
D = E-coat Al/Cu – E-coat Al/Cu
E = Cu/Cu – Al/Cu
F = Cu/Cu – Cu/Cu
M = Al/Cu – Al/Cu – Louvered Hail Guard
N = Precoat Al/Cu – Al/Cu – Louvered Hail Guard
P = E-coat Al/Cu – Al/Cu – Louvered Hail Guard
Q = E-coat Al/Cu – E-coat Al/Cu – Louvered Hail Guard
R = Cu/Cu – Al/Cu – Louvered Hail Guard
S = Cu/Cu – Cu/Cu – Louvered Hail Guard

Packaging

0 = Standard
1 = LTL

Electrical Options

A = None
B = HACR Circuit Breaker
C = Non-Fused Disconnect

Service Options

0 = None
1 = Unpowered Convenience Outlet
2 = Powered Convenience Outlet
3 = Hinged Panels
4 = Hinged Panels and Unpowered Convenience Outlet
5 = Hinged Panels and Powered Convenience Outlet

Intake / Exhaust Options

A = None
B = Temperature Low Leak Economizer with Barometric Relief
C = Temperature Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only
E = Enthalpy Low Leak Economizer with Barometric Relief
F = Enthalpy Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only
N = Temperature Ultra Low Leak Economizer with Barometric Relief
P = Temperature Ultra Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only
R = Enthalpy Ultra Low Leak Economizer with Barometric Relief
S = Enthalpy Ultra Low Leak Economizer with Centrifugal Power Exhaust - Vertical Only

Base Unit Controls

0 = Electro-mechanical Controls
1 = RTU Open Multi-Protocol Controller
4 = SystemVu™ Controller

Design Revision

- = Factory Design Revision

Voltage

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

SystemVu controller is not available on units equipped with Low Leak Economizers.

FACTORY-INSTALLED OPTIONS AND FIELD-INSTALLED ACCESSORIES

CATEGORY	ITEM	FACTORY-INSTALLED OPTION	FIELD-INSTALLED ACCESSORY
Cabinet	Hinged access panels	X	
Coil Options	Cu/Cu indoor and/or outdoor coils	X	
	Pre-coated outdoor coils	X	
	Premium, E-coated outdoor coils	X	
Humidity Control	Humidi-MiZer Adaptive Dehumidification System	X	X
Condenser Protection	Condenser coil hail guard (louvered design)	X	X
Controls	Thermostats, temperature sensors, and subbases		X
	Smoke detector (supply and/or return air)	X	X
	Horn/Strobe Annunciator ⁷		X
	Time Guard II compressor delay control circuit		X
	Phase Monitor		X
	SystemVu Controller ⁶	X	
Economizers and Outdoor Air Dampers	EconoMi\$er X for electromechanical controls, complies with FDD. (Low Leak and Ultra Low Leak air damper models) ⁵	X	X
	EconoMi\$er2 for DDC controls, complies with FDD. (Low Leak and Ultra Low Leak air damper models) ⁵	X	X
	Barometric relief ¹	X	X
	Power exhaust	X	X
Economizer Sensors and IAQ Devices	Single dry bulb temperature sensors ²	X	X
	Differential dry bulb temperature sensors ²		X
	Single enthalpy sensors ²	X	X
	Differential enthalpy sensors ²		X
	Wall or duct mounted CO ₂ sensor ²		X
	Unit mounted CO ₂ sensor ²	X	
Gas Heat	Propane conversion kit		X
	Stainless steel heat exchanger	X	
	High altitude conversion kit		X
	Flue Discharge Deflector		X
Indoor Motor and Drive	Multiple motor and drive packages	X	
Power Options	Convenience outlet (powered)	X	
	Convenience outlet (unpowered)	X	
	HACR circuit breaker ^{3,4}	X	
	Non-fused disconnect ⁴	X	
Roof Curbs	Roof curb 14 in. (356 mm)		X
	Roof curb 24 in. (610 mm)		X

NOTES:

- Included with economizer.
- Sensors used to optimize economizer performance.
- On 575V applications, HACR breaker can only be used with WYE power distribution systems. Using on Delta power distribution systems is prohibited.
- When selecting a factory installed HACR breaker or non-fused disconnect, note they are sized for the unit as ordered from the factory. The sizing of these do not accommodate any field items, such as power exhaust devices, etc.
- FDD (Fault Detection and Diagnostic) capability per California Title 24 section 120.2.
- SystemVu controller is not available on units equipped with Low Leak Economizers.
- Requires a field-supplied 24V transformer for each application. See price pages for details.

Economizer

Economizers can reduce operating costs. They bring in fresh, outside air for ventilation; and provide cool outside air to cool your building. This also is the preferred method of low ambient cooling. When coupled to CO₂ sensors, economizers can limit the ventilation air to only that amount required.

Economizers are available, installed and tested by the factory, with either enthalpy or temperature dry-bulb inputs. There are also models for electromechanical and direct digital controllers. Additional sensors are available as accessories to optimize the economizer.

Economizers include gravity-controlled barometric relief that helps equalize building pressure and ambient air pressures. This can be a cost effective solution to prevent building pressurization. Economizers are available in ultra low leak and low leak versions.

CO₂ Sensor

The CO₂ sensor works with the economizer to intake only the correct amount of outside air for ventilation. As occupants fill your building, the CO₂ sensor detects their presence through increasing CO₂ levels, and opens the economizer appropriately.

When the occupants leave, the CO₂ levels decrease, and the sensor appropriately closes the economizer. This intelligent control of the ventilation air, called Demand Controlled Ventilation (DCV) reduces the overall load on the rooftop, saving money.

Smoke Detectors

Trust the experts. Smoke detectors make your application safer and your job easier. Carrier smoke detectors immediately shut down the rooftop unit when smoke is detected. They are available, installed by the factory, for supply air, return air, or both.

Louvered Hail Guards

Sleek, louvered panels protect the condenser coil from hail damage, foreign objects, and incidental contact.

Convenience Outlet (powered or un-powered)

Reduce service and/or installation costs by including a convenience outlet in your specification. Carrier will install this service feature at our factory. Provides a convenient, 15 amp, 115v GFCI receptacle with "Wet in Use" cover. The "powered" option allows the installer to power the outlet from the line side of the disconnect or load side as required by code. The "unpowered" option is to be powered from a separate 115/120v power source.

Non-fused Disconnect

This OSHA-compliant, factory-installed, safety switch allows a service technician to locally secure power to the rooftop.

When selecting a factory-installed non-fused disconnect, note they are sized for unit as ordered from the factory. The sizing of these does not accommodate any power exhaust devices, etc.

Power Exhaust

Superior internal building pressure control. This field-installed accessory may eliminate the need for costly, external pressure control fans.

Time Guard II Control Circuit

This accessory protects your compressor by preventing short-cycling in the event of some other failure, prevents

the compressor from restarting for 30 seconds after stopping. Not required if built into thermostat or building management system.

Hinged Access Panels

Allows access to unit's major components with specifically designed hinged access panels. Panels are: filter, control box, fan motor and compressor. Comes with quarter turn latches and lift tabs.

Propane Heating

Convert your gas heat rooftop from standard natural gas operation to Propane using this field-installed kit.

High Altitude Heating

High altitudes have less oxygen, which means heat exchangers need less fuel. The new gas orifices in this field-installed kit make the necessary adjustment for high altitude applications. They restore the optimal fuel to air mixture and maintain healthy combustion at altitudes above 2000 ft (610 m). Kits may not be required in all areas.

Flue Discharge Deflector

The flue discharge deflector is a useful accessory when flue gas recirculation is a concern. By venting the flue discharge upwards, the deflector minimizes the chance for a neighboring unit to intake the flue exhaust.

Optional Stainless Steel Heat Exchanger

The stainless steel heat exchanger option provides the tubular heat exchanger be made out of a minimum 20 gauge type 409 stainless steel for applications where the mixed air to the heat exchanger is expected to drop below 45°F (7°C). Stainless steel may be specified on applications where the presence of airborne contaminants require its use (applications such as paper mills) or in area with very high outdoor humidity that may result in severe condensation in the heat exchanger during cooling operation.

HACR Breaker

These manual reset devices provide overload and short circuit protection for the unit. They are factory wired and mounted with the units with access cover to help provide environment protection.

When selecting a factory installed non-fused disconnect, note they are sized for unit as ordered from the factory. The sizing of these do not accommodate any power exhaust devices, etc.

On 575V applications, HACR breaker can only be used with WYE power distribution systems. Use on Delta power distribution systems is prohibited.

Alternate Motors and Drives

Some applications need larger horsepower motors, some need more airflow, and some need both. Regardless of the case, your Carrier expert has a factory-installed combination to meet your application. A wide selection of motors and pulleys (drives) are available, factory installed, to handle nearly any application.

Thru-the-Bottom Connections

Provisions for thru-the-bottom power connections are standard.

Thermostat

Due to the 3-stage cooling capacity design of these units, a 3-stage cooling thermostat is required for the unit to perform at listed operating efficiencies.

Options and accessories (cont)



Carrier offers a Honeywell branded T7350D (3 Cool/3 Heat) Commercial Programmable Thermostat.

This provides:

- 7-day programmable
- 65-day clock with holiday programming
- Automatic Daylight Saving Time adjustment
- Backlit display
- Changeover selections: automatic or manual
- Fan configurable: continuous or intermittent during occupied

Optional Humidi-MiZer Adaptive Dehumidification System

Carrier's Humidi-MiZer adaptive dehumidification system is an all-inclusive factory installed option that can be ordered with any 48LC WeatherExpert rooftop unit.

This system expands the envelope of operation of Carrier's WeatherExpert rooftop products to provide unprecedented flexibility to meet year round comfort conditions.

The Humidi-MiZer adaptive dehumidification system has a unique dual operational mode setting. The Humidi-MiZer system provides greater dehumidification of the occupied space by 2 modes of dehumidification operations in addition to its normal design cooling mode.

The 48LC WeatherExpert rooftop coupled with the Humidi-MiZer system is capable of operating in normal design cooling mode, subcooling mode, and hot gas reheat mode. Normal design cooling mode is when the unit will operate under its normal sequence of operation by cycling compressors to maintain comfort conditions.

Subcooling mode will operate to satisfy part load type conditions when the space requires combined sensible and a higher proportion of latent load control. Hot Gas Reheat mode will operate when outdoor temperatures diminish and the need for latent capacity is required for sole humidity control. Hot Gas Reheat mode will provide neutral air for maximum dehumidification operation.

SystemVu™ Controller



Carrier's new SystemVu unit controller is an optional factory installed and tested controller designed specifically for use in the WeatherExpert rooftop units.

This new controller takes on a whole new approach to provide an intuitive, intelligent controller that not only monitors and controls the unit, but also provides linkage to multiple building automation systems.

Each SystemVu controller makes it easy to set up, service, troubleshoot, gain historical data, generate reports and provide comfort only Carrier is noted for.

Some of the key features include:

- Easy to read backlit 4 line text screen for superior visibility.
- Quick operational condition LED's of: Run, Alert, and Fault.
- Simple navigation with large keypad buttons of: Navigation arrows, Test, Back, Enter and Menu.
- Capable of being controlled with a conventional thermostat, space sensor or building automation systems.
- Service Capabilities include:
 - Auto run test
 - Manual run test
 - Component run hours and starts
 - Commissioning reports
 - Data logging
- Full Range of Diagnosis:
 - Read refrigerant pressures without the need of gauges
 - Sensor faults
 - Compressor reverse rotation
 - Economizer diagnostics that meets California Title 24 requirements
- Quick data transfer via USB port:
 - Unit configuration uploading/downloading
 - Data logging
 - Software upgrades
- Built in capability for:
 - i-Vu® open systems
 - BACnet¹ systems
 - CCN systems
- Configuration and alarms point capability
 - Contain over 100 alarm codes
 - Contain over 260 status, troubleshooting, diagnostic and maintenance points
 - Contain over 270 control configuration setpoints

NOTE: SystemVu controller is not available on units equipped with Low Leak Economizers.

1. BACnet is a trademark of ASHRAE.

OPTIONS AND ACCESSORY WEIGHTS

OPTION/ACCESSORY	WEIGHT IN LBS				
	48LC**14	48LC**17	48LC**20	48LC**24	48LC**26
Humidi-MiZer Adaptive Dehumidification System	120	120	120	120	120
Medium Gas Heat	90	90	90	90	90
High Gas Heat	113	113	113	113	113
Medium Heat with Stainless Steel Exchanger	90	90	90	90	90
High Heat with Stainless Steel Exchanger	113	113	113	113	113
Return Smoke Detector	5	5	5	5	5
Supply Smoke Detector	5	5	5	5	5
RA and SA Smoke Detector	10	10	10	10	10
CO ₂ Sensor	5	5	5	5	5
RA Smoke Detector and CO ₂	10	10	10	10	10
SA Smoke Detector and CO ₂	10	10	10	10	10
RA and SA Smoke Detector and CO ₂	15	15	15	15	15
Medium Static Belt Drive	5	6	6	10	10
High Static Belt Drive	11	16	16	20	20
Cu/Cu Cond and Al/Cu Evap	28	34	34	34	34
Cu/Cu Cond and Cu/Cu Evap	53	64	64	64	64
Al/Cu Cond and Al/Cu Evap + Hail Guard	60	150	150	150	150
Pre-coat Al/Cu Cond and Al/Cu Evap + Hail Guard	60	150	150	150	150
E-coat Al/Cu Cond and Al/Cu Evap + Hail Guard	60	150	150	150	150
E-coat Al/Cu Cond and E-coat Al/Cu Evap + Hail Guard	60	150	150	150	150
Cu/Cu Cond and Al/Cu Evap + Hail Guard	88	184	184	184	184
Cu/Cu Cond and Cu/Cu Evap + Hail Guard	113	214	214	214	214
Temp Ultra Low Leak Econo with Baro Relief	246	246	246	246	246
Temp Ultra Low Leak Econo with Power Exhaust	371	371	371	371	371
Enthalpy Ultra Low Leak Econo with Baro Relief	246	246	246	246	246
Enthalpy Ultra Low Leak Econo with Power Exhaust	371	371	371	371	371
Unpowered Convenience Outlet	5	5	5	5	5
Powered Convenience outlet	35	35	35	35	35
Hinged Panels	5	5	5	5	5
Hinged Panels with Unpowered Convenience Outlet	10	10	10	10	10
Hinged Panels with Powered Convenience Outlet	40	40	40	40	40
HACR Breaker	10	10	10	10	10
Non-Fused Disconnect	15	15	15	15	15

AHRI COOLING RATINGS – 208v

48LC UNIT	COOLING STAGES	HEATING OPTION	MOTOR OPTION	NOMINAL CAPACITY	NOM COOLING CAPACITY	CONFIG	TOTAL POWER (KW)	EER	IEER	RATED INDOOR AIRFLOW (CFM)
014	3	All	1,3,4	12.5	146.0	VERTICAL	11.8	12.4	19.1	4,375
			2	12.5	146.0	VERTICAL	11.9	12.3	18.9	4,375
			5,7,8	12.5	146.0	HORIZONTAL	12.2	12.0	18.3	4,375
			6	12.5	146.0	HORIZONTAL	12.4	11.8	18.1	4,375
017	3	All	—	15.0	172.0	VERTICAL	13.8	12.5	18.4	4,875
			—	15.0	170.0	HORIZONTAL	14.4	11.8	17.2	4,875
020	3	All	—	17.5	192.0	VERTICAL	16.0	12.0	17.7	5,690
			—	17.5	190.0	HORIZONTAL	17.0	11.2	16.8	5,690
024	3	All	—	20.0	230.0	VERTICAL	19.2	12.0	18.0	6,500
			—	20.0	228.0	HORIZONTAL	20.8	10.9	17.1	6,500
026	3	All	—	23.0	272.0	VERTICAL	24.5	11.1	17.8	7,500
			—	23.0	266.0	HORIZONTAL	26.3	10.1	16.1	7,500

AHRI COOLING RATINGS – 230v, 460v, 575v

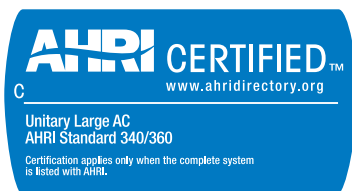
48LC UNIT	COOLING STAGES	HEATING OPTION	MOTOR OPTION	NOMINAL CAPACITY	NOM COOLING CAPACITY	CONFIG	TOTAL POWER (KW)	EER	IEER	RATED INDOOR AIRFLOW (CFM)
014	3	All	1,3,4	12.5	146.0	VERTICAL	11.8	12.4	19.1	4,375
			2	12.5	146.0	VERTICAL	11.9	12.3	18.9	4,375
			5,7,8	12.5	146.0	HORIZONTAL	12.2	12.0	18.3	4,375
			6	12.5	146.0	HORIZONTAL	12.4	11.8	18.1	4,375
017	3	All	—	15.0	174.0	VERTICAL	13.9	12.5	18.4	4,875
			—	15.0	172.0	HORIZONTAL	14.6	11.8	17.2	4,875
020	3	All	—	17.5	192.0	VERTICAL	16.2	12.0	17.5	5,690
			—	17.5	190.0	HORIZONTAL	17.1	11.2	16.6	5,690
024	3	All	—	20.0	232.0	VERTICAL	19.3	12.0	18.0	6,500
			—	20.0	230.0	HORIZONTAL	21.0	10.9	17.1	6,500
026	3	All	—	23.0	272.0	VERTICAL	24.5	11.1	17.8	7,500
			—	23.0	266.0	HORIZONTAL	26.3	10.1	16.1	7,500

LEGEND

- AHRI** — Air-Conditioning, Heating and Refrigeration Institute Test Standard
- ASHRAE** — American Society of Heating, Refrigerating and Air-Conditioning Engineers
- EER** — Energy Efficiency Ratio
- IEER** — Integrated Energy Efficiency Ratio

NOTES:

1. Rated in accordance with AHRI Standard 340/360.
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.
3. 48LC units comply with US Energy Policy Act. To evaluate code compliance requirements, refer to state and local codes.



HEATING RATING TABLE - NATURAL GAS AND PROPANE

UNITS		GAS HEAT	AL/SS HEAT EXCHANGER		TEMP RISE (°F)	THERMAL EFFICIENCY (%)
			INPUT/OUTPUT STAGE 1 (MBH)	INPUT/OUTPUT STAGE 2 (MBH)		
48LC	14	LOW	141 / 114	176 / 143	20 - 50	81
		MED	176 / 142	220 / 178	20 - 55	81
		HIGH	248 / 200	310 / 251	30 - 60	81
	17	LOW	176 / 142	220 / 178	20 - 55	81
		MED	248 / 200	310 / 251	30 - 60	81
		HIGH	320 / 260	400 / 324	35 - 65	81
	20	LOW	176 / 142	220 / 178	20 - 55	81
		MED	248 / 200	310 / 251	30 - 60	81
		HIGH	320 / 260	400 / 324	35 - 65	81
	24	LOW	176 / 142	220 / 178	20 - 55	81
		MED	248 / 200	310 / 251	30 - 60	81
		HIGH	320 / 260	400 / 324	35 - 65	81
	26	LOW	176 / 142	220 / 178	20 - 55	80
		MED	248 / 200	310 / 251	30 - 60	81
		HIGH	320 / 260	400 / 324	35 - 65	81

NOTES:

- Heat ratings are for natural gas heat exchangers operated at or below 2000 ft (610 m). For information on Propane or altitudes above 2000 ft (610 m), see the Application Data section of this book. Accessory Propane/High Altitude kits are also available.
- In the USA the input rating for altitudes above 2000 ft (610 m) must be derated by 4% for each 1000 ft (305 m) above sea level.

SOUND PERFORMANCE

UNIT	COOLING STAGES	OUTDOOR SOUND (dB) AT 60 HZ									
		A-WEIGHTED	31.5	63	125	250	500	1000	2000	4000	8000
014	3	84	92.6	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
017	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
020	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
024	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
026	3	86	101.3	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3

LEGEND

dB — Decibel

NOTES:

- Outdoor sound data is measured in accordance with AHRI standard 270.
- Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environmental factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.
- A-weighted sound ratings filter out very high and very low frequencies, to better approximate the response of "average" human ear. A-weighted measurements for Carrier units are taken in accordance with AHRI standard 270.

AHRI capacity ratings (cont)



COOLING MINIMUM - MAXIMUM AIRFLOW RATINGS

48LC SIZE	COOLING STAGE	MAX CFM	MIN CFM	MAX OD AMBIENT TEMPERATURE °f	MIN OD AMBIENT TEMPERATURE °f
14	Stage 3	6250	3150	125	40
	Stage 2	3750	1900		
	Stage 1	2500	1250		
17	Stage 3	7500	3750	125	40
	Stage 2	4500	2250		
	Stage 1	3000	1500		
20	Stage 3	8750	4400	125	40
	Stage 2	5400	2700		
	Stage 1	4600	2300		
24	Stage 3	10000	5000	125	40
	Stage 2	5700	2850		
	Stage 1	4300	2150		
26	Stage 3	11250	5650	125	40
	Stage 2	8100	4050		
	Stage 1	6750	3400		

NOTE: SystemVu controller provides minimum outdoor temperature operation down to 0°F (−18°C).

HEATING MINIMUM/MAXIMUM CFM FOR NATURAL GAS AND PROPANE

48lc	GAS HEAT	MINIMUM AIRFLOW		MAXIMUM AIRFLOW	
		cfm	cfm per ton	cfm	cfm per ton
14	LOW	2640	210	6600	530
	MED	3000	240	8250	660
	HIGH	3880	310	7750	620
17	LOW	3000	200	8250	550
	MED	3880	260	7750	520
	HIGH	4620	310	8570	570
20	LOW	3000	170	8250	470
	MED	3880	220	7750	440
	HIGH	4620	260	8570	490
24	LOW	3000	150	8250	410
	MED	3880	190	7750	390
	HIGH	4620	230	8570	430
26	LOW	2960	130	8150	350
	MED	3880	170	7750	340
	HIGH	4620	200	8570	370

PHYSICAL DATA (COOLING) 12.5 TO 23 TONS

	48LC*14	48LC*17	48LC*20	48LC*24	48LC*26
REFRIGERATION SYSTEM					
# Circuits / # Comp. / Type	1 / 2 / Scroll	1 / 2 / Scroll	1 / 2 / Scroll	1 / 2 / Scroll	1 / 2 / Scroll
R-410A charge (lbs-oz)	32-0	33-6	35-6	40-10	43-4
Alternate (Humidi-Mizer) R-410A charge A/B (lb-oz)	40-0	50-7	49-0	57-7	54-0
oil A/B (oz)	118	56/60	60/60	85/110	110 / 110
Metering device	TXV	TXV	TXV	TXV	TXV
High-press. Trip / Reset (psig)	630 / 505	630 / 505	630 / 505	630 / 505	630 / 505
Low-press. Trip / Reset (psig)	54 / 117	54 / 117	54/117	54 / 117	54 / 117
EVAP. COIL					
Material	Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
Coil Type	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF
Coil Length (in.)	72	72	72	72	72
Coil Height (in.)	44	52	52	52	52
Rows / FPI	4/15	4/15	4/15	4/15	4/15
Total face area (ft²)	22.0	26.0	26.0	26.0	26.0
Condensate drain conn. size (in.)	3/4 in.	3/4 in.	3/4 in.	3/4 in.	3/4 in.
HUMIDI-MIZER COIL					
Material	Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
Coil Type	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF
Coil Length (in.)	72	72	72	72	72
Coil Height (in.)	44	52	52	52	52
Rows / FPI	1/18	1/18	2/18	3/18	4/18
Total face area (ft²)	22	26	26	26	26
EVAPORATOR FAN AND MOTOR, VERTICAL					
Standard Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt
	Max Bhp	2.9	2.9	2.9	7.4
	Rpm range	498-676	555-753	676-854	707-888
	Motor frame size	56	56	56HZ	184T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15
Medium Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt
	Max Bhp	4.9	7.4	7.4	9.9
	Rpm range	682-861	707-888	782-963	872-1053
	Motor frame size	145TZ	184T	184T	213T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15
High Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 2 / Belt
	Max Bhp	7.4	9.9	9.9	13.6
	Rpm range	782-963	872-1053	933-1113	1049-1291
	Motor frame size	184T	213T	213T	215T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15
Ultra High Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 2 / Belt	1 / 2 / Belt	N/A
	Max Bhp (208/230/460/575v)	9.9	13.6	13.6	N/A
	Rpm range	933-1113	1049-1291	1049-1291	N/A
	Motor frame size	213T	215T	215T	N/A
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	N/A
	Fan Diameter (in.)	15 x 15 / 15 X 15	15 x 15 / 15 X 15	15 x 15 / 15 X 15	N/A

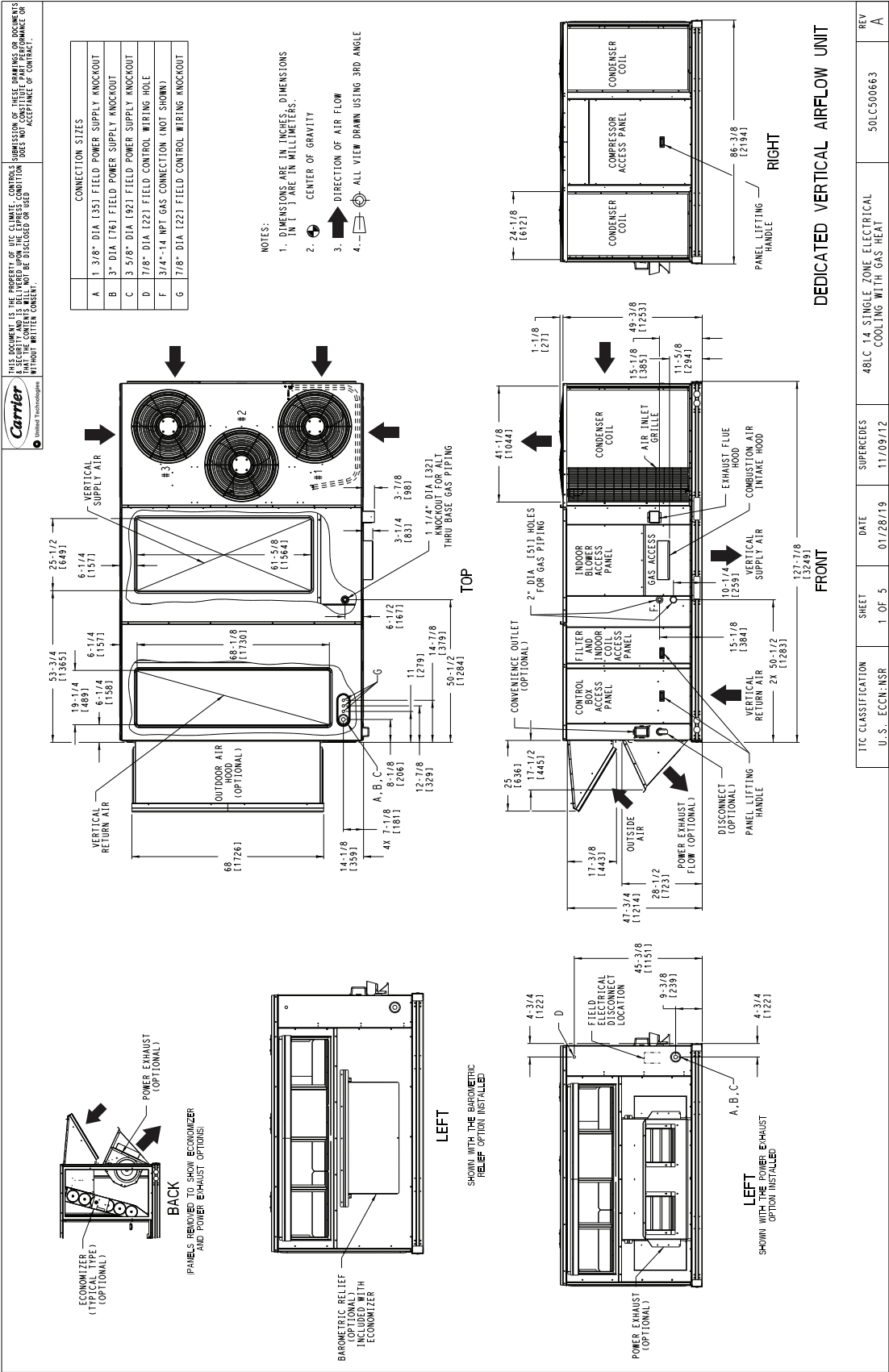
PHYSICAL DATA (COOLING) 12.5 TO 23 TONS (cont)

		48LC*14	48LC*17	48LC*20	48LC*24	48LC*26
EVAPORATOR FAN AND MOTOR, HORIZONTAL						
Standard Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt
	Max Bhp	2.9	2.9	2.9	7.4	7.4
	Rpm range	498-676	525-713	555-753	707-888	707-888
	Motor frame size	56	56	56HZ	184T	184T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11
Medium Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt
	Max Bhp	4.9	7.4	7.4	9.9	9.9
	Rpm range	644-808	707-888	707-888	859-1026	859-1026
	Motor frame size	145TZ	184T	184T	213T	213T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11
High Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 1 / Belt	1 / 1 / Belt	1 / 2 / Belt	1 / 2 / Belt
	Max Bhp	7.4	9.9	9.9	13.6	13.6
	Rpm range	782-963	872-1053	872-1053	948-1190	948-1190
	Motor frame size	184T	213T	213T	215T	215T
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11
Ultra High Static	Motor Qty. / Drive Type	1 / 1 / Belt	1 / 2 / Belt	1 / 2 / Belt	N/A	N/A
	Max Bhp (208/230/460/575v)	9.9	13.6	13.6	N/A	N/A
	Rpm range	933-1113	948-1190	948-1190	N/A	N/A
	Motor frame size	213T	215T	215T	N/A	N/A
	Fan Qty. / Type	2 / Centrifugal	2 / Centrifugal	2 / Centrifugal	N/A	N/A
	Fan Diameter (in.)	18 x 15 / 15 X 11	18 x 15 / 15 X 11	18 x 15 / 15 X 11	N/A	N/A
COND. COIL 1						
	Material	Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
	Coil Type	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF
	Coil Length (in.)	68	82	82	98	98
	Coil Height (in.)	44	52	52	52	52
	Rows / FPI	2/18	2 / 18	2/18	2 / 18	2 / 18
	Total face area (ft²)	20.8	29.6	29.6	35.4	35.4
COND. COIL 2						
	Material	Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
	Coil Type	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF	5/16 in. RTPF
	Coil Length (in.)	68	82	82	98	98
	Coil Height (in.)	44	52	52	52	52
	Rows / FPI	2/18	2 / 18	2/18	2 / 18	2 / 18
	Total face area (ft²)	20.8	29.6	29.6	35.4	35.4
COND. FAN / MOTOR						
	Qty. / Motor Drive Type	3 / direct	4 / direct	4 / direct	6 / direct	6 / Direct
	Motor HP / Rpm	1/3 / 1000	1/3 / 1000	1/3 / 1000	1/3 / 1000	1/3 / 1000
	Fan Diameter (in.)	22	22	22	22	22
FILTERS						
	RA Filter # / size (in.)	6 / 20 x 25 x 2	9/16x25x2	9/16x25x2	9/16x25x2	9 / 16x25x2
	OA inlet screen # / size (in.)	4 / 16 x 25 x 1	4/16x25x1	4/16x25x1	4/16x25x1	4 / 16x25x1

PHYSICAL DATA (HEATING) 12.5 TO 23 TONS

		48LC*14	48LC*17	48LC*20	48LC*24	48LC*26
GAS CONNECTION						
# of gas valves		1	1	1	1	1
Natural gas supply line pressure (in. wg) / (psig)		5-13 / 0.18 - 0.47	5-13 / 0.18 - 0.47	5-13 / 0.18 - 0.47	5-13 / 0.18 - 0.47	5-13 / 0.18 - 0.47
Liquid propane supply line pressure (in. wg) / (psig)		11-13 / 0.40-0.47	11-13 / 0.40-0.47	11-13 / 0.40-0.47	11-13 / 0.40-0.47	11-13 / 0.40-0.47
HEAT ANTICIPATOR SETTING (AMPS)						
First stage		0.14	0.14	0.14	0.14	0.14
Second stage		0.14	0.14	0.14	0.14	0.14
NATURAL GAS HEAT						
LOW	# of stages / # of burners (total)	1 or 2 / 4	1 or 2 / 5	1 or 2 / 5	1 or 2 / 5	1 or 2 / 5
	Connection size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
	Rollout switch opens / closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115	195 / 115
	Temperature rise (°F)	20 - 50	20 - 55	20 - 55	20 - 55	20 - 55
MED	# of stages / # of burners (total)	1 or 2 / 5	1 or 2 / 7	1 or 2 / 7	1 or 2 / 7	1 or 2 / 7
	Connection size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
	Rollout switch opens / closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115	195 / 115
	Temperature rise (°F)	20 - 55	30 - 60	30 - 60	30 - 60	30 - 60
HIGH	# of stages / # of burners (total)	1 or 2 / 7	1 or 2 / 9	1 or 2 / 9	1 or 2 / 9	1 or 2 / 9
	Connection size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
	Rollout switch opens / closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115	195 / 115
	Temperature rise (°F)	30 - 60	35 - 65	35 - 65	35 - 65	35 - 65
LIQUID PROPANE HEAT						
LOW	# of stages / # of burners (total)	1 or 2 / 4	1 or 2 / 5	1 or 2 / 5	1 or 2 / 5	1 or 2 / 5
	Connection size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
	Rollout switch opens / closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115	195 / 115
	Temperature rise (°F)	20 - 50	20 - 55	20 - 55	20 - 55	20 - 55
MED	# of stages / # of burners (total)	1 or 2 / 5	1 or 2 / 7	1 or 2 / 7	1 or 2 / 7	1 or 2 / 7
	Connection size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
	Rollout switch opens / closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115	195 / 115
	Temperature rise (°F)	20 - 55	30 - 60	30 - 60	30 - 60	30 - 60
HIGH	# of stages / # of burners (total)	1 or 2 / 7	1 or 2 / 9	1 or 2 / 9	1 or 2 / 9	1 or 2 / 9
	Connection size	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT	3/4 in. NPT
	Rollout switch opens / closes (°F)	195 / 115	195 / 115	195 / 115	195 / 115	195 / 115
	Temperature rise (°F)	30 - 60	35 - 65	35 - 65	35 - 65	35 - 65

48LC 14 VERTICAL AIRFLOW



ITC CLASSIFICATION U.S. ECCN: NSR	SHEET 1 OF 5	DATE 01/28/19	SUPERCEDS 11/09/12	48LC 14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	50LC500663	REV A
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Carrier Limited Technologies

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CONNECTION SIZES	
A	1 3/8" DIA [135] FIELD POWER SUPPLY KNOCKOUT
B	3" DIA [76] FIELD POWER SUPPLY KNOCKOUT
C	3 5/8" DIA [92] FIELD POWER SUPPLY KNOCKOUT
D	7/8" DIA [22] FIELD CONTROL WIRING HOLE
F	3/4" x 1/4" NPT GAS CONNECTION (NOT SHOWN)
G	7/8" DIA [22] FIELD CONTROL WIRING KNOCKOUT

NOTES:

1. DIMENSIONS ARE IN INCHES. DIMENSIONS IN [] ARE IN MILLIMETERS.
2. CENTER OF GRAVITY
3. DIRECTION OF AIR FLOW
4. ALL VIEW DRAWN USING 3RD ANGLE

LEGEND:

- HORIZONTAL RETURN AIR W/O ECONOMIZER
- HORIZONTAL SUPPLY AIR
- OUTDOOR AIR
- EXHAUST HOOD (OPTIONAL)
- FIELD SUPPLIED DUCTWORK
- FIELD SUPPLIED BAROMETRIC RELIEF DAMPER
- HOOD WITH ECONOMIZER OPTION
- ECONOMIZER (OPTIONAL)

TOP

FRONT

LEFT

RIGHT

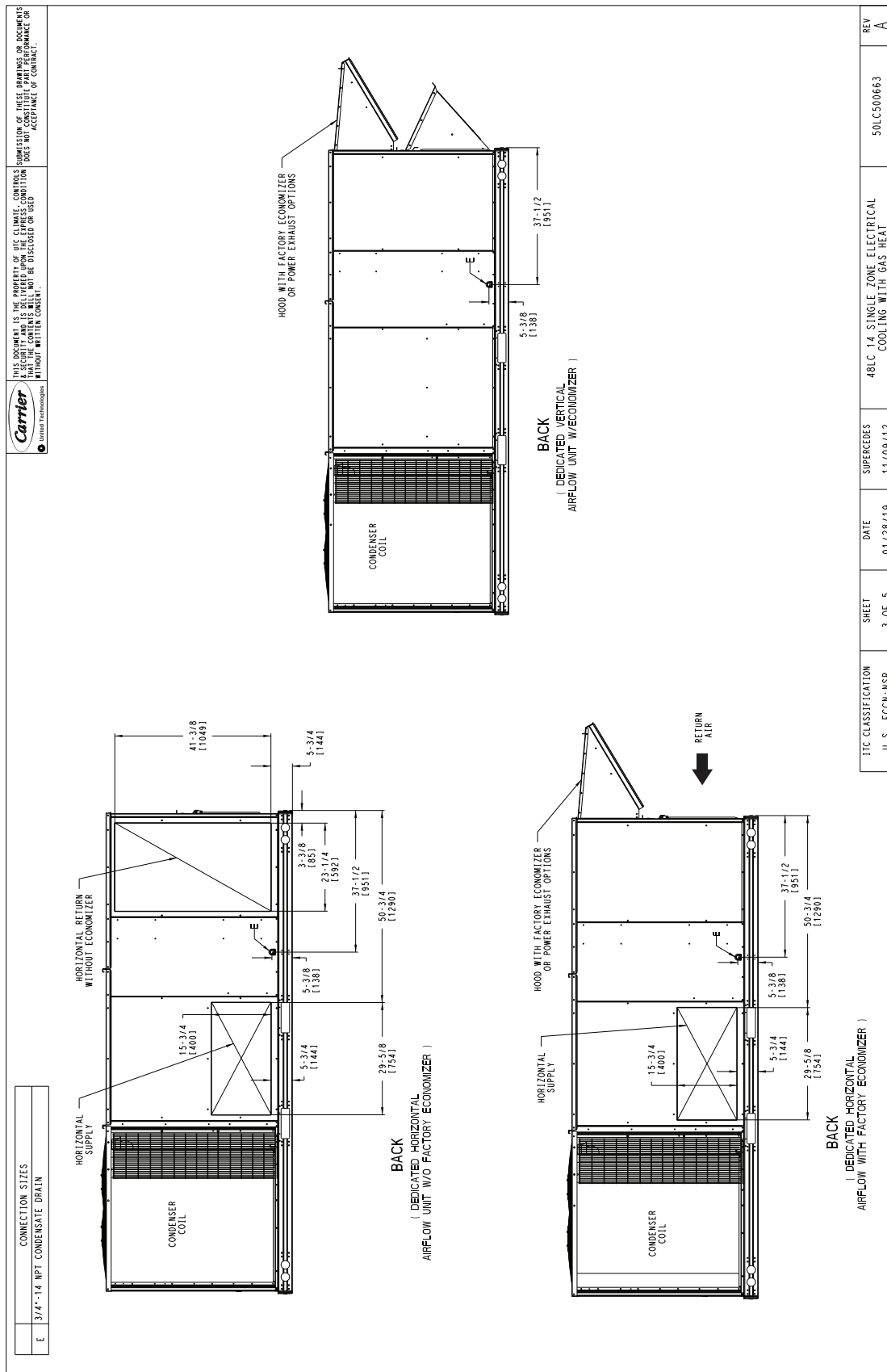
BACK

DEDICATED HORIZONTAL AIRFLOW UNIT

RETURN AIRFLOW WITH ECONOMIZER

RETURN AIRFLOW WITHOUT ECONOMIZER

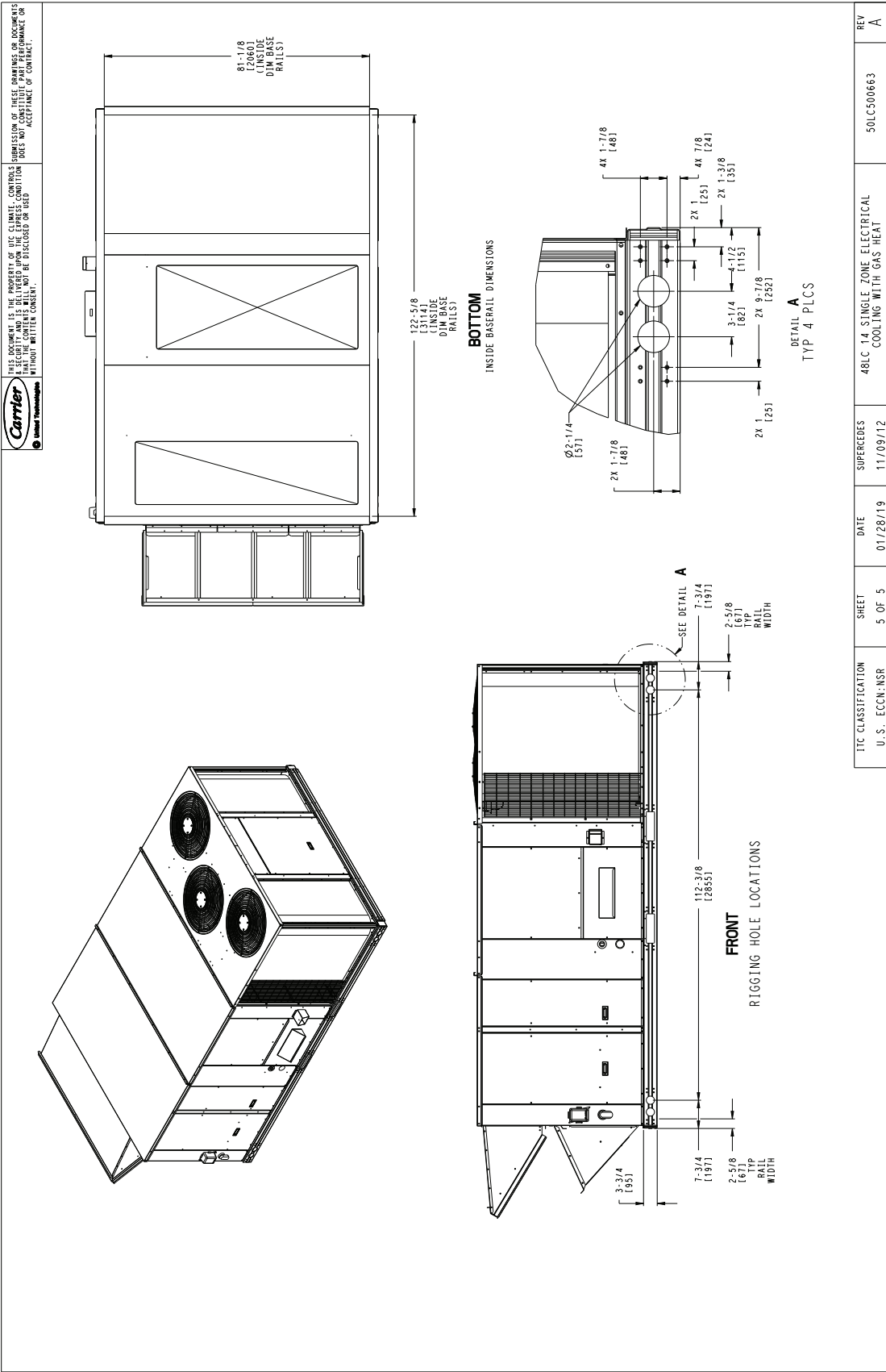
48LC 14 BACK VIEW AND CONDENSATE DRAIN LOCATION



[illegible]



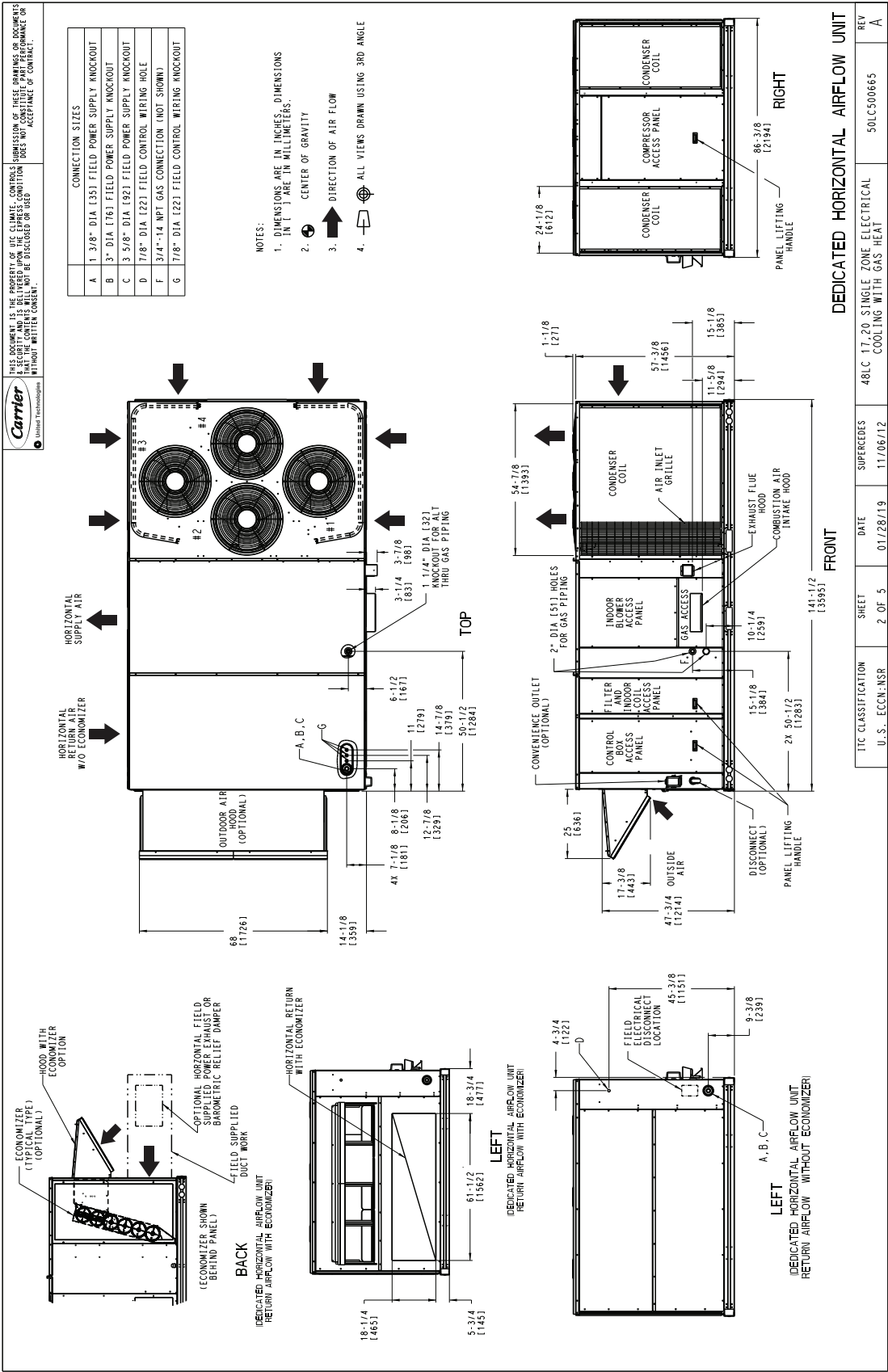
48LC 14 BOTTOM VIEW



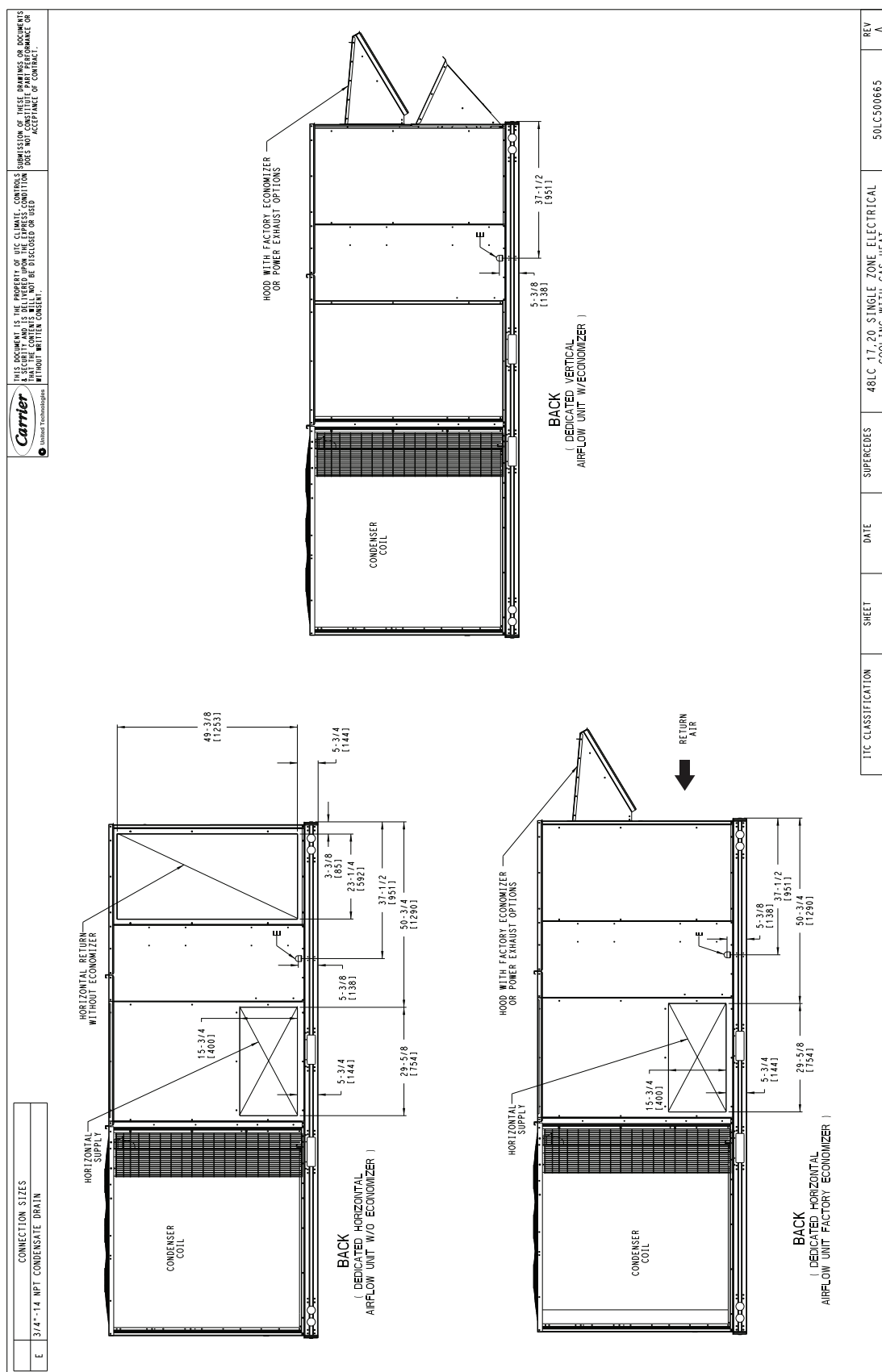
ITC CLASSIFICATION	SHEET	DATE	SUPERCEDES	REV
U.S. ECCN: NSR	5 OF 5	01/28/19	11/09/12	50LC500663
48LC 14 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT				A

[illegible]

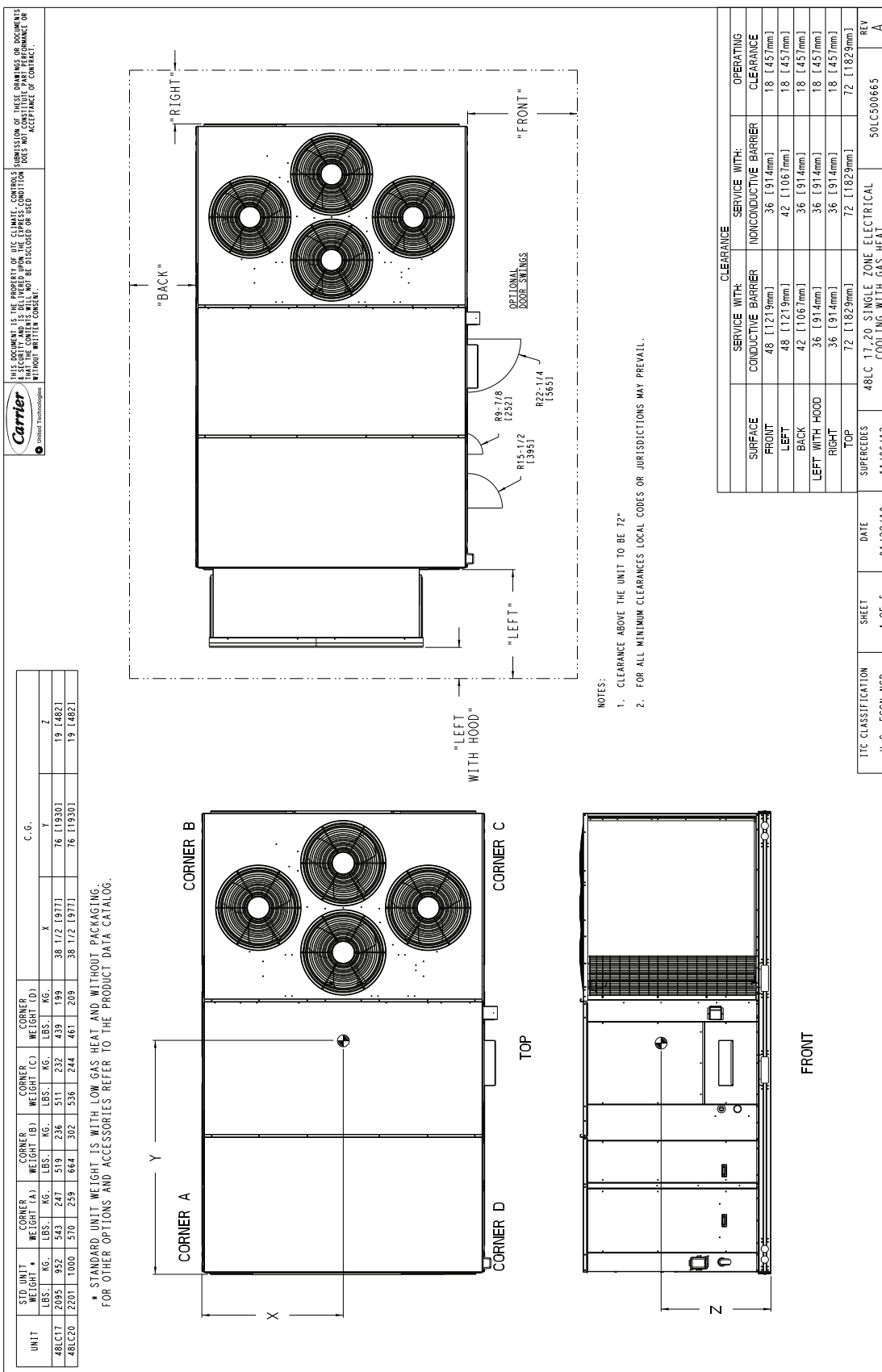
48LC 17, 20 HORIZONTAL AIRFLOW



48LC 17, 20 BACK VIEW AND CONDENSATE DRAIN LOCATION

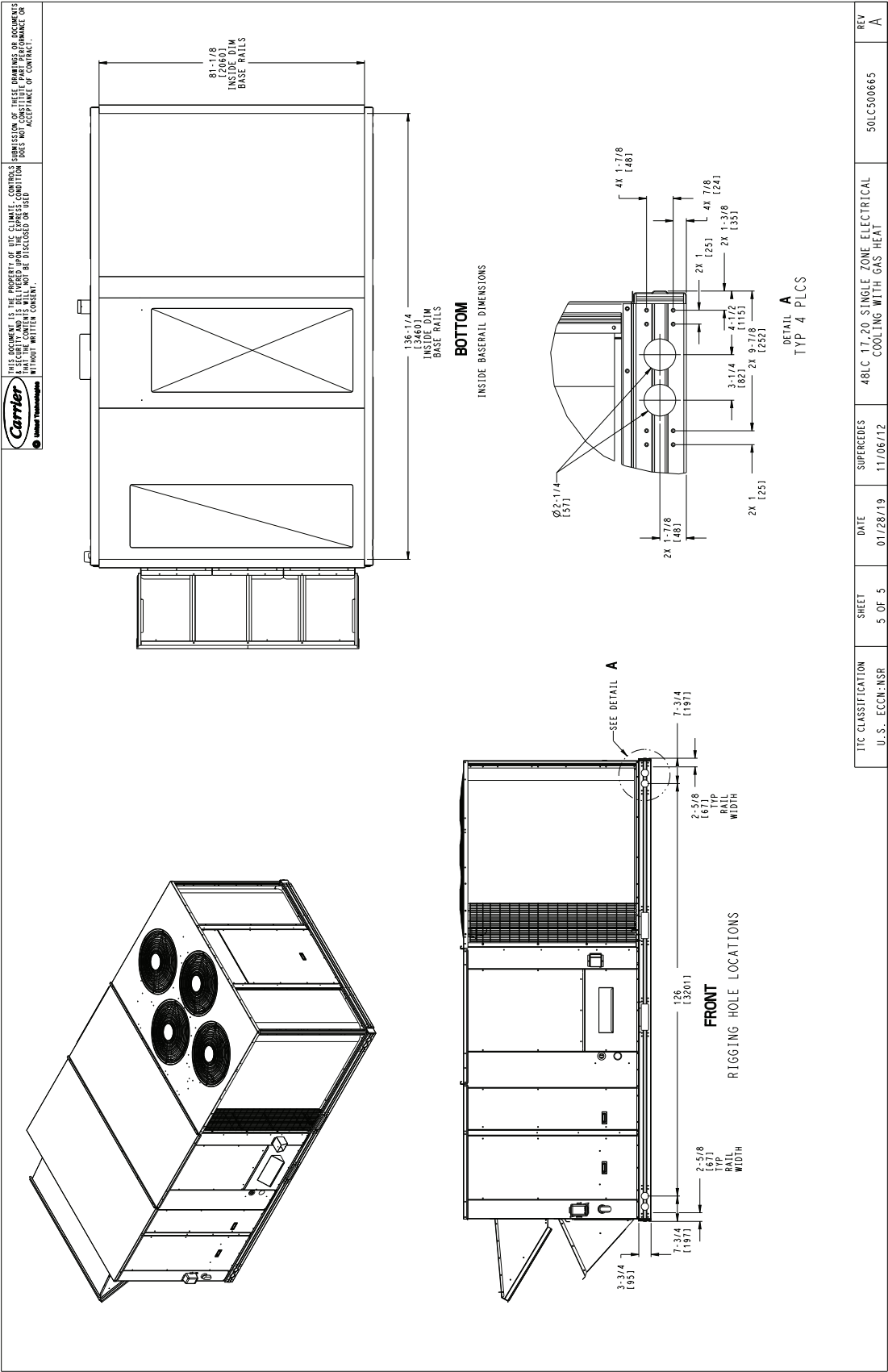


48LC 17, 20 CORNER WEIGHTS AND CLEARANCES



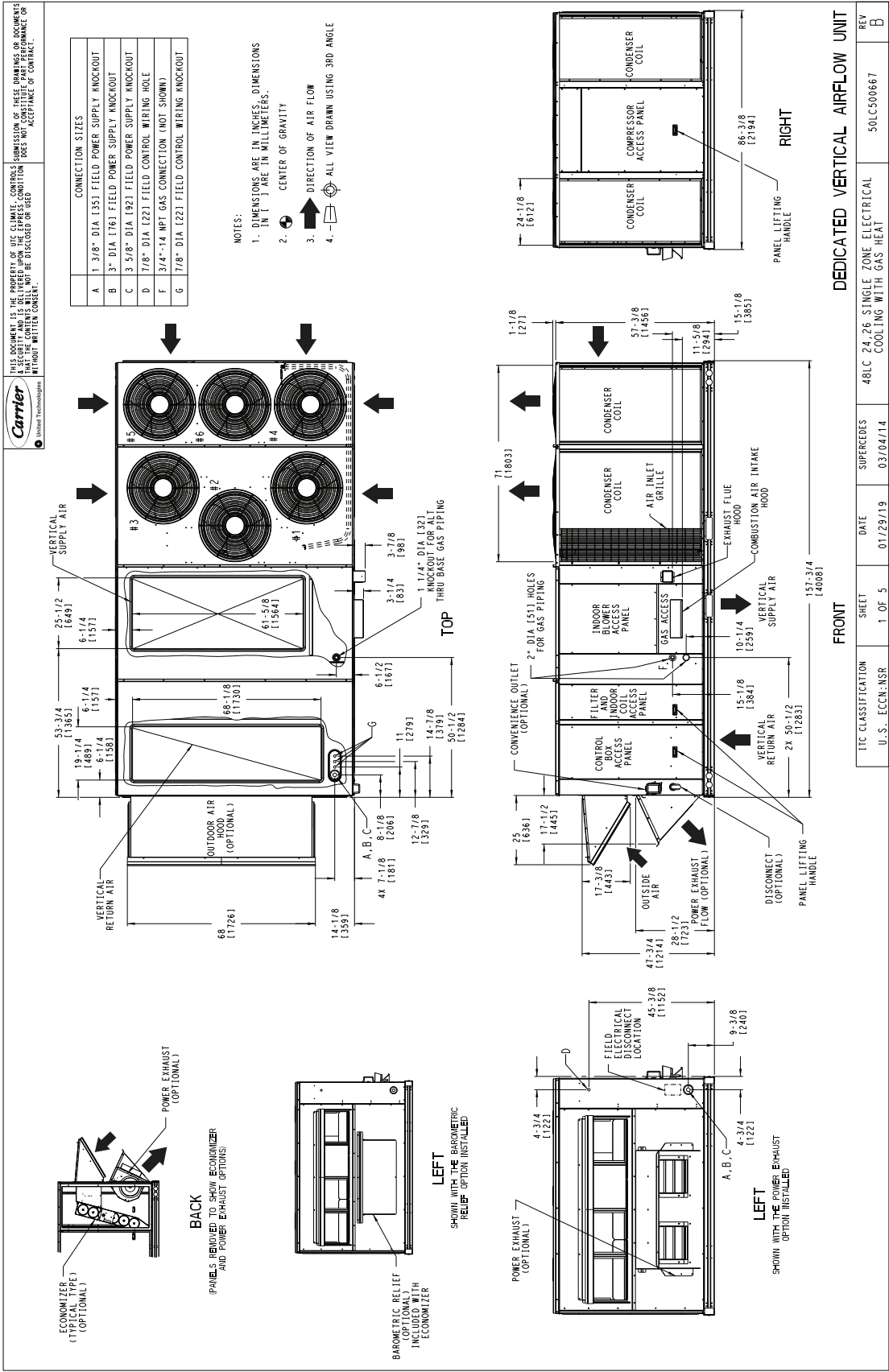


48LC 17, 20 BOTTOM VIEW

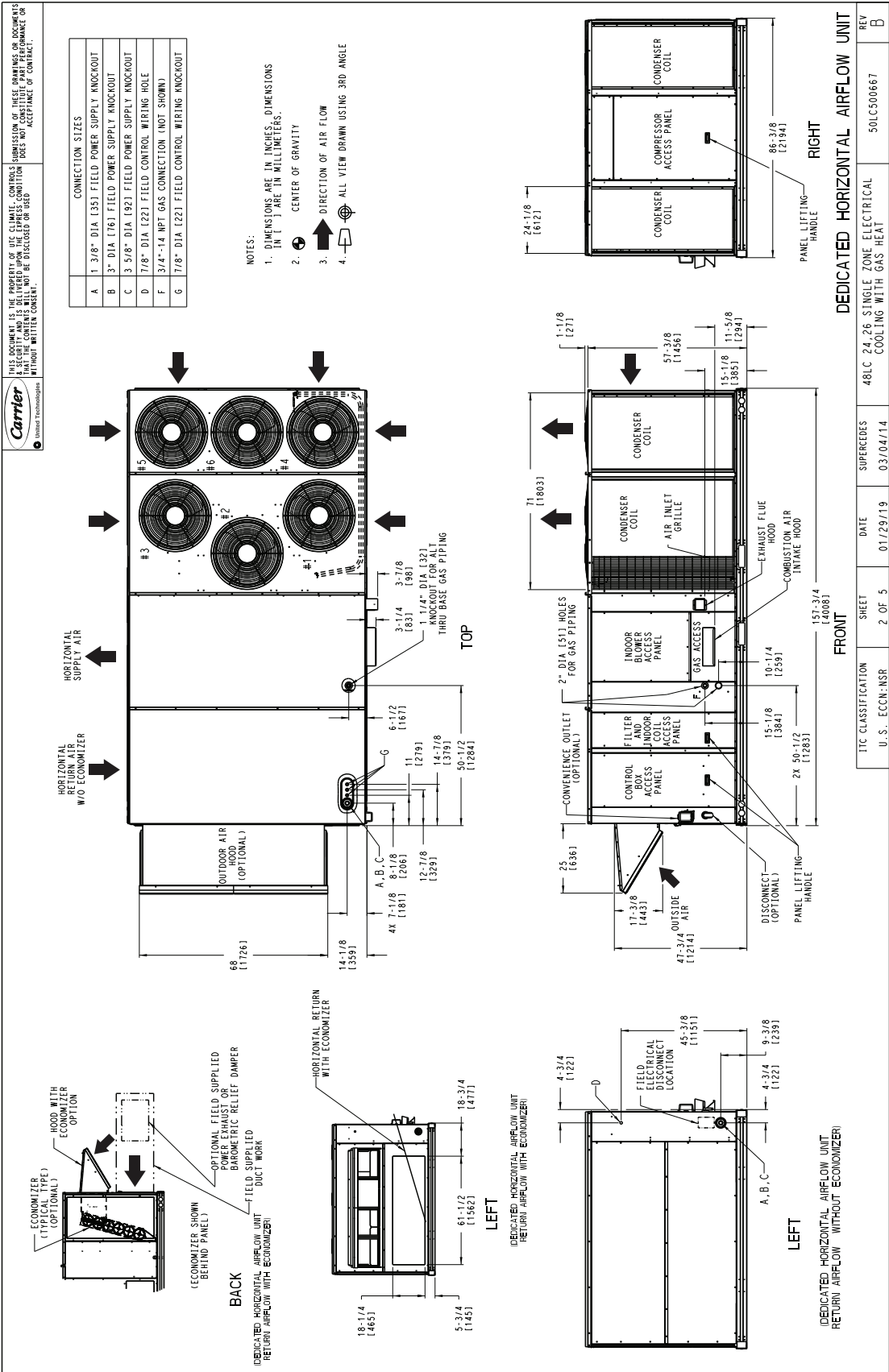




48LC 24, 26 VERTICAL AIRFLOW

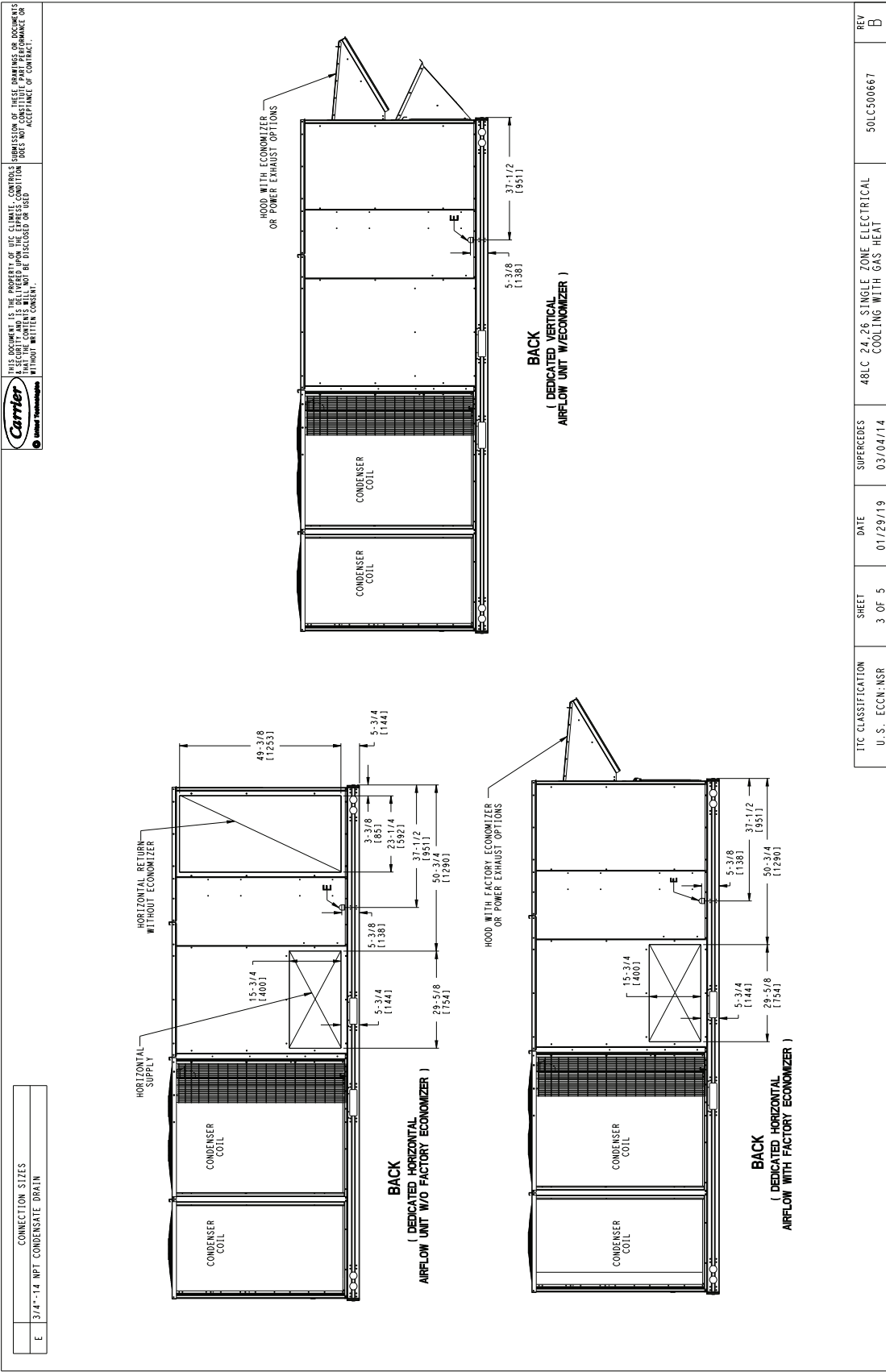


48LC 24, 26 HORIZONTAL AIRFLOW



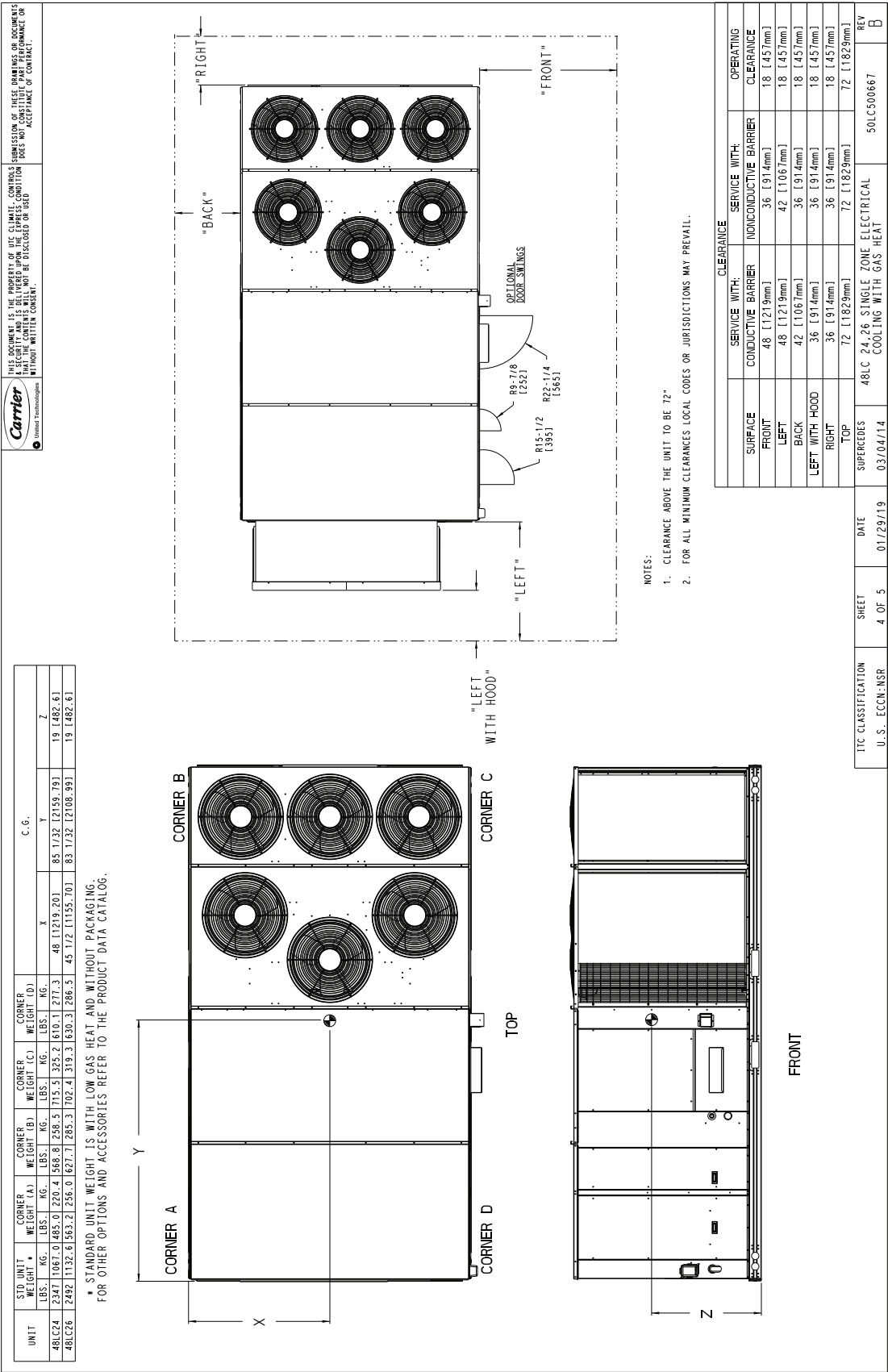


48LC 24, 26 BACK VIEW AND CONDENSATE DRAIN LOCATION



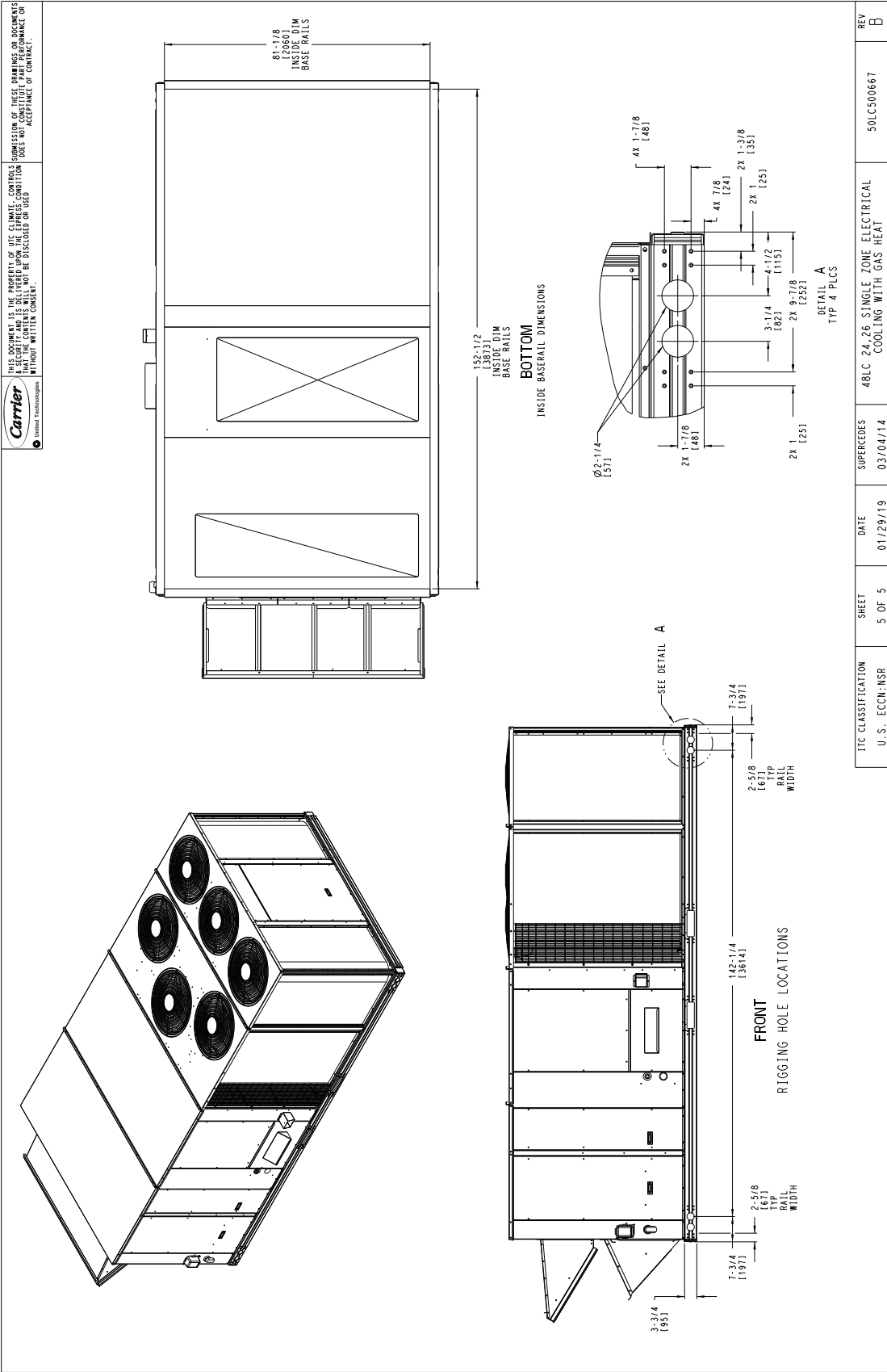


48LC 24, 26 CORNER WEIGHTS AND CLEARANCES





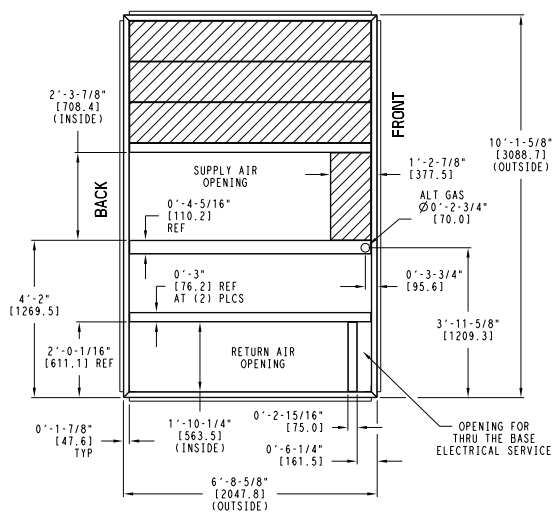
48LC 24, 26 BOTTOM VIEW



TIC CLASSIFICATION	SHEET	DATE	SUPERCEDES	50LC500667	REV
U.S. ECCN: NSR	5 OF 5	01/29/19	03/04/14	48LC 24, 26 SINGLE ZONE ELECTRICAL COOLING WITH GAS HEAT	B

ROOF CURB DETAILS FOR 48LC 14 UNITS

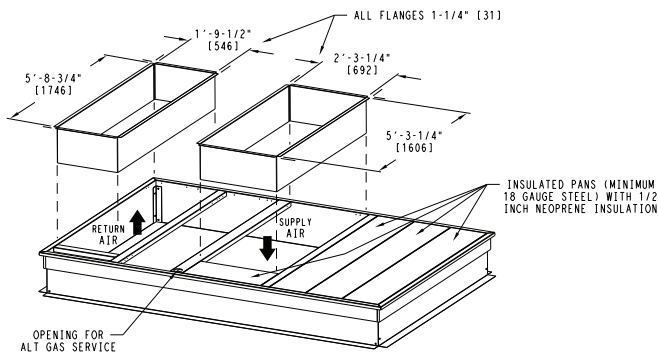
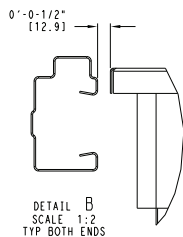
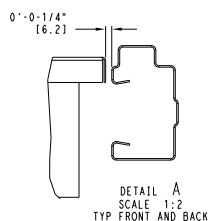
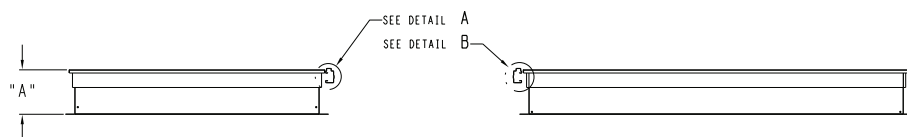
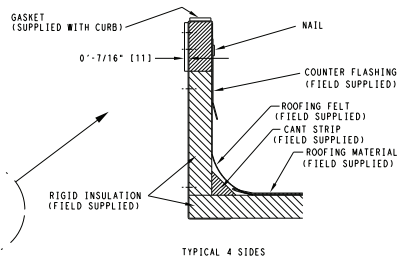
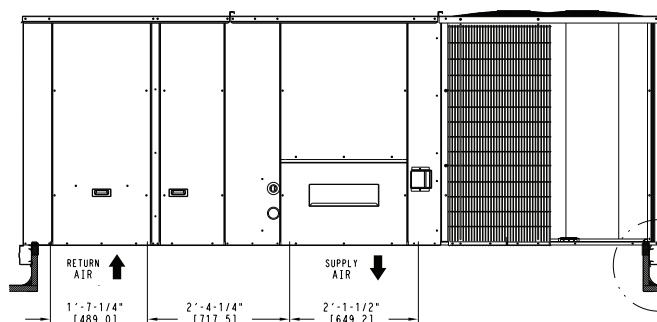
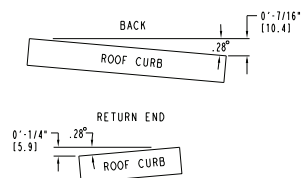
UNIT SIZE	"A"	ROOF CURB ACCESSORY
14	1'-2" [356.0] 2'-0" [610.0]	CRRFCURB045A00 CRRFCURB046A00



NOTES:

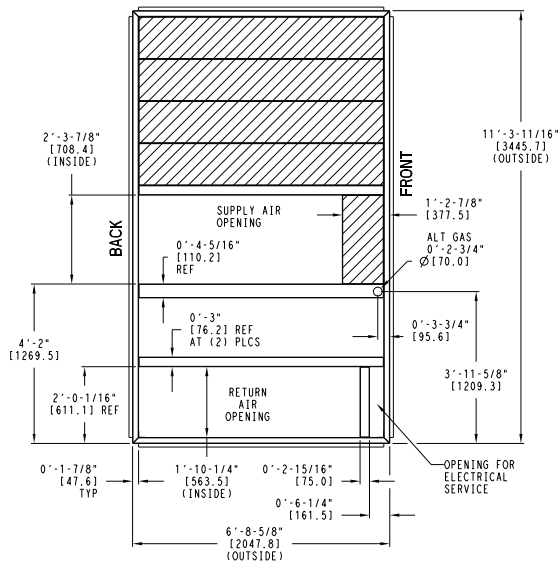
1. ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
2. DIMENSIONS IN [] ARE IN MILLIMETERS.
3. ROOF CURB GALVANIZED STEEL.
4. ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB).
5. SERVICE CLEARANCE 4 FT ON EACH SIDE

➔ DIRECTION OF AIR FLOW



ROOF CURB DETAILS FOR 48LC 17, 20 UNITS

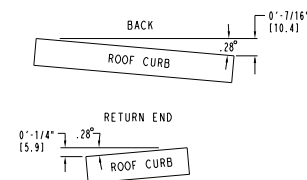
UNIT SIZE	"A"	ROOF CURB ACCESSORY
17, 20	1'-2" [356.0] 2'-0" [610.0]	CRRFCURB047A00 CRRFCURB048A00



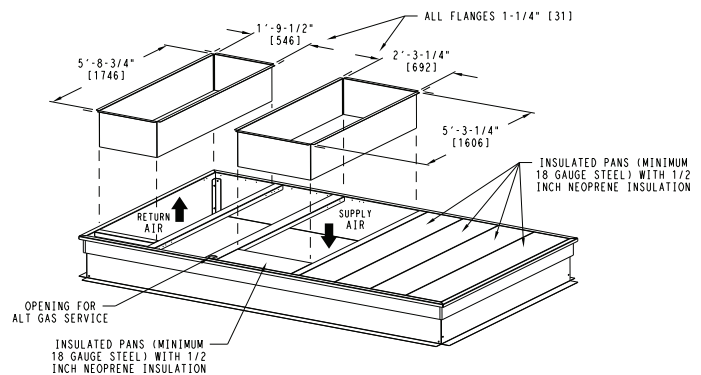
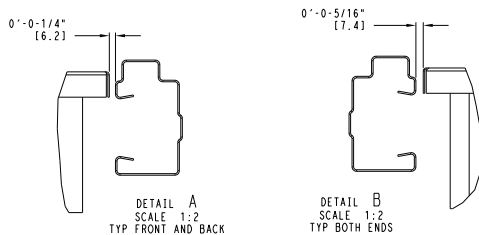
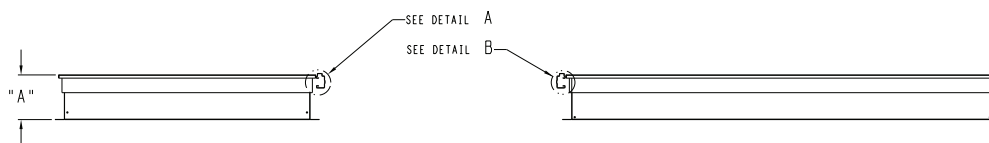
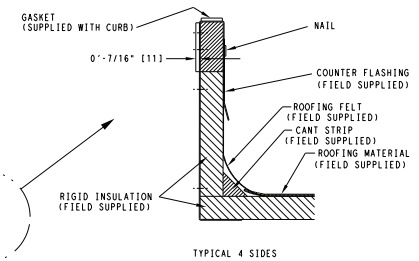
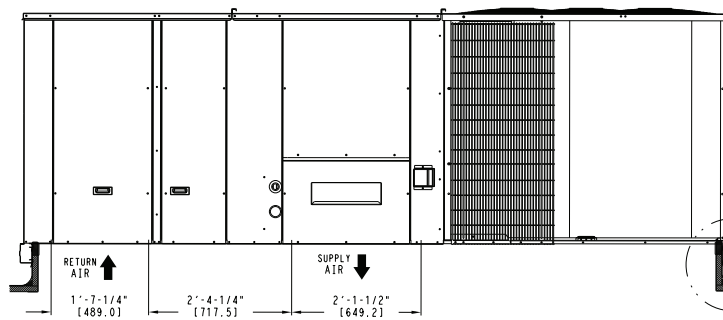
NOTES:

1. ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
2. DIMENSIONS IN () ARE IN MILLIMETERS.
3. ROOF CURB GALVANIZED STEEL.
4. ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB)
5. SERVICE CLEARANCE 4 ft ON EACH SIDE

➔ DIRECTION OF AIR FLOW

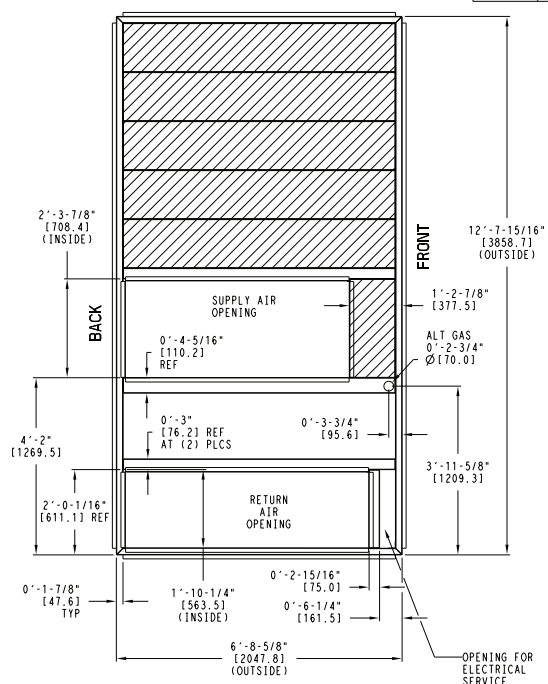


MAX CURB LEVELING TOLERANCES



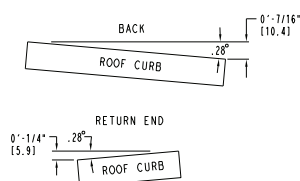
ROOF CURB DETAILS FOR 48LC 24, 26 UNITS

UNIT SIZE	"A"	ROOF CURB ACCESSORY
24, 26	1'-2" [356.0] 2'-0" [610.0]	CRRFCURB049A00 CRRFCURB050A00

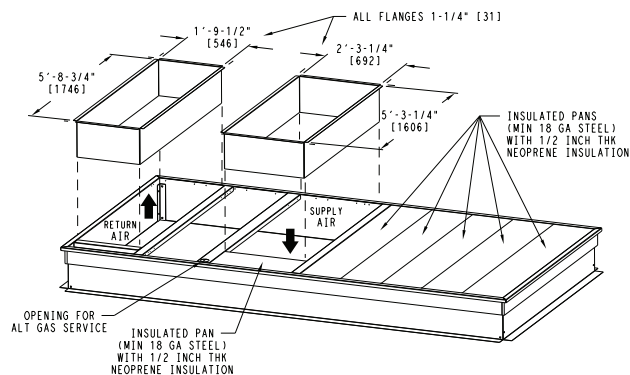
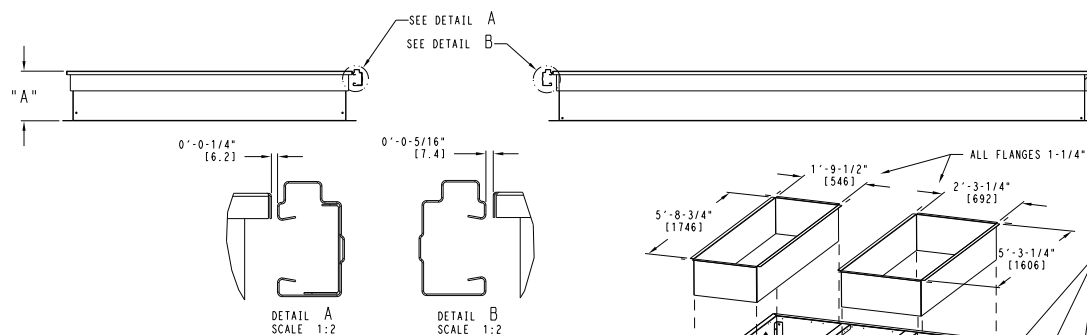
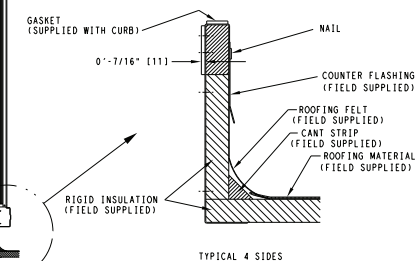
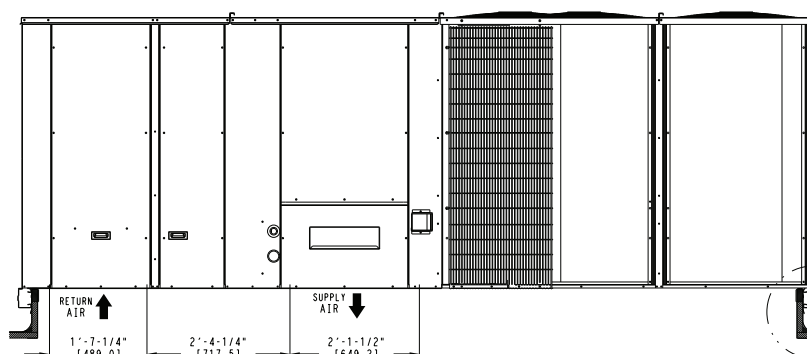


- NOTES:
1. ROOF CURB ACCESSORY IS SHIPPED UNASSEMBLED.
 2. BOLT HEADS TO BE ON INSIDE OF FLANGE. CLEARANCE IS (11) 0'-0-7/16" TYP ALL CORNERS.
 3. DIMENSIONS IN [] ARE IN MILLIMETERS.
 4. ROOF CURB GALVANIZED STEEL.
 5. ATTACH DUCTWORK TO CURB (FLANGES ON DUCT REST ON CURB).
 6. SERVICE CLEARANCE 4 ft ON EACH SIDE.
 7. GAS SERVICE PLATE IS PART OF A SEPARATELY SHIPPED ACCESSORY PACKAGE.
 8. GAS SERVICE PLATE CAN BE USED WITH EITHER ACCESSORY ROOFCURB.

➔ DIRECTION OF AIR FLOW



MAX CURB LEVELING TOLERANCES



Min operating ambient temp (cooling)

In mechanical cooling mode, your Carrier rooftop unit can safely operate down to an outdoor ambient temperature of 40°F (4°C). An economizer shall be the source of cooling in low ambient conditions. When the outside air temperature is below 40°F (4°C), to improve system reliability, reduce energy usage, and improve system efficiency, mechanical cooling shall not be utilized. Therefore, an economizer shall be used in these conditions to provide efficient low ambient cooling. Using an economizer for low ambient cooling merely requires fan energy to satisfy space requirements. The compressors shall not be required to run which will provide exceptional energy savings due to less power draw, improved system reliability due to fewer compressor run hours, improved reliability through fewer starts/stops, and lower life cycle costs due to reduced compressor maintenance.

Max operating ambient temp (cooling)

The maximum operating ambient temperature for cooling mode is 125°F (52°C). While cooling operation above 125°F (52°C) may be possible, it could cause either a reduction in performance, reliability, or a protective action by the unit's internal safety devices.

Min mixed air temp (heating)

Using the factory settings, the minimum temperatures for the mixed air (the combined temperature of the warm return air and the cold outdoor air) entering the dimpled, gas heat exchangers are:

ALUMINIZED	STAINLESS STEEL
50°F (10°C) continuous	40°F (4°C) continuous
45°F (7°C) continuous	35°F (2°C) continuous

Operating at lower mixed-air temperatures may be possible, if a field-supplied, outdoor air thermostat initiates both heat stages when the temperature is less than the minimum temperatures listed above. Please contact your local Carrier representative for assistance.

Min and max airflow (heating and cooling)

To maintain safe and reliable operation of your rooftop, operate within the heating airflow limits during heating mode and cooling airflow limits during cooling mode. Operating above the max may cause blow-off, undesired airflow noise, or airflow related problems with the rooftop unit. Operating below the min may cause problems with coil freeze-up and unsafe heating operation. For proper minimum and maximum cfm values, see the tables on page 11.

Heating-to-cooling changeover:

Your unit will automatically change from heating to cooling mode when using a thermostat or sensor with an auto-changeover feature.

Airflow:

All units are draw-through in cooling mode and blow-through in heating mode.

Outdoor air application strategies:

Economizers reduce operating expenses and compressor run time by providing a free source of cooling and a means of ventilation to match application changing needs. In fact, they should be considered for most applications. Also, consider the

various economizer control methods and their benefits, as well as sensors required to accomplish your application goals. Please contact your local Carrier representative for assistance.

Motor limits, break horsepower (Bhp)

Due to internal design of Carrier units, the air path, and specially designed motors, the full horsepower (maximum continuous bhp) band, as listed in the table on pages 12-14, can be used with the utmost confidence. There is no need for extra safety factors, as Carrier motors are designed and rigorously tested to use the entire, listed bhp range without either nuisance tripping or premature motor failure.

Propane heating

Propane has different physical qualities than natural gas. As a result, propane requires different fuel to air mixture. To optimize the fuel/air mixture for propane, Carrier sells different burner orifices in an easy to install accessory kit. To select the correct burner orifices or determine the heat capacity for a Propane application, use either the selection software, or the unit's service manual.

High altitude heating

High altitudes have less oxygen, which affects the fuel/air mixture in heat exchangers. In order to maintain a proper fuel/air mixture, heat exchangers operating in altitudes above 2000 ft (610 m) require different orifices. To select the correct burner orifices or determine the heat capacity for a high altitude application, use either the selection software, or the unit's service manual.

High altitudes have less oxygen, which means heat exchangers need less fuel. The new gas orifices in this field-installed kit make the necessary adjustment for high altitude applications. They restore the optimal fuel to air mixture and maintain healthy combustion on altitudes above 2000 ft (610 m).

NOTE: Typical natural gas heating value ranges from 975 to 1050 Btu/ft³ at sea level nationally. The heating value goes down approximately 1.7% per every thousand feet elevation. Standard factory orifices can typically be used up to 2000 ft (610 m) elevation without any operational issues.

Sizing a rooftop

Bigger isn't necessarily better. While an air conditioner needs to have enough capacity to meet the design loads, it doesn't need excess capacity. In fact, excess capacity typically results in very poor part load performance and humidity control.

Using higher design temperatures than ASHRAE recommends for your location, adding "safety factors" to the calculated load, are all signs of oversizing air conditioners. Oversizing the air conditioner leads to poor humidity control, reduced efficiency, higher utility bills, larger indoor temperature swings, excessive noise, and increased wear and tear on the air conditioner.

Rather than oversizing an air conditioner, engineers should "right-size" or even slightly undersize air conditioners. Correctly sizing an air conditioner controls humidity better; promotes efficiency; reduces utility bills; extends equipment life, and maintains even, comfortable temperatures. Please contact your local Carrier representative for assistance.

COOLING CAPACITIES - FIRST STAGE, PART LOAD (12.5 TONS)

48LC SIZE 14				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
2000 CFM	EAT (wb)	58	TC	58.0	58.0	66.0	54.1	54.1	61.9	50.2	50.2	57.6	46.0	46.0	53.1	41.7	41.7	48.6
			SHC	49.9	58.0	66.0	46.3	54.1	61.9	42.7	50.2	57.6	38.9	46.0	53.1	35.0	41.7	48.6
		62	TC	58.8	58.8	67.6	54.4	54.4	64.4	50.3	50.3	60.3	46.1	46.1	55.7	41.8	41.8	50.9
			SHC	46.7	57.1	67.6	43.7	54.0	64.4	40.3	50.3	60.3	36.7	46.1	55.7	32.8	41.8	50.9
		67	TC	65.8	65.8	65.8	60.9	60.9	60.9	56.1	56.1	56.1	50.9	50.9	50.9	45.6	45.6	46.8
			SHC	37.5	48.1	58.7	34.7	45.2	55.8	31.8	42.3	52.8	28.8	39.3	49.8	25.7	36.3	46.8
		72	TC	73.9	73.9	73.9	68.8	68.8	68.8	63.6	63.6	63.6	58.1	58.1	58.1	52.5	52.5	52.5
			SHC	28.1	38.7	49.3	25.2	35.8	46.4	22.3	32.9	43.5	19.3	29.9	40.6	16.4	26.9	37.5
		76	TC	—	80.9	80.9	—	75.5	75.5	—	69.9	69.9	—	64.2	64.2	—	58.2	58.2
			SHC	—	31.0	41.7	—	28.1	38.8	—	25.3	35.9	—	22.2	33.0	—	19.3	29.9
2350 CFM	EAT (wb)	58	TC	61.8	61.8	70.4	57.8	57.8	66.0	53.6	53.6	61.4	49.2	49.2	56.7	44.7	44.7	51.8
			SHC	53.3	61.8	70.4	49.6	57.8	66.0	45.7	53.6	61.4	41.7	49.2	56.7	37.6	44.7	51.8
		62	TC	61.9	61.9	73.3	57.9	57.9	68.8	53.7	53.7	64.2	49.3	49.3	59.3	44.8	44.8	54.2
			SHC	50.6	61.9	73.3	46.9	57.9	68.8	43.2	53.7	64.2	39.3	49.3	59.3	35.3	44.8	54.2
		67	TC	67.8	67.8	67.8	62.8	62.8	62.8	57.7	57.7	59.4	52.5	52.5	56.4	47.0	47.0	53.1
			SHC	40.8	53.0	65.3	37.8	50.1	62.4	34.9	47.1	59.4	31.9	44.1	56.4	28.8	41.0	53.1
		72	TC	76.1	76.1	76.1	70.7	70.7	70.7	65.2	65.2	65.2	59.6	59.6	59.6	53.7	53.7	53.7
			SHC	29.5	41.9	54.3	26.6	39.0	51.4	23.7	36.1	48.4	20.8	33.1	45.4	17.6	30.0	42.3
		76	TC	—	83.1	83.1	—	77.4	77.4	—	71.7	71.7	—	65.7	65.7	—	59.6	59.6
			SHC	—	32.9	45.3	—	29.9	42.4	—	27.0	39.4	—	24.0	36.4	—	21.0	33.3
2700 CFM	EAT (wb)	58	TC	65.0	65.0	73.9	60.8	60.8	69.3	56.5	56.5	64.5	51.9	51.9	59.6	47.1	47.1	54.4
			SHC	56.2	65.0	73.9	52.3	60.8	69.3	48.3	56.5	64.5	44.1	51.9	59.6	39.8	47.1	54.4
		62	TC	65.1	65.1	77.0	60.8	60.8	72.2	56.5	56.5	67.4	51.9	51.9	62.3	47.2	47.2	56.9
			SHC	53.3	65.1	77.0	49.5	60.8	72.2	45.6	56.5	67.4	41.5	51.9	62.3	37.3	47.2	56.9
		67	TC	69.3	69.3	71.8	64.3	64.3	68.7	59.0	59.0	65.6	53.6	53.6	62.4	48.2	48.2	59.1
			SHC	43.8	57.8	71.8	40.9	54.8	68.7	37.8	51.7	65.6	34.7	48.6	62.4	31.5	45.2	59.1
		72	TC	77.6	77.6	77.6	72.1	72.1	72.1	66.5	66.5	66.5	60.7	60.7	60.7	54.7	54.7	54.7
			SHC	30.9	45.0	59.1	28.0	42.0	56.1	25.0	39.0	53.0	21.9	36.0	50.0	18.9	32.9	46.9
		76	TC	—	84.6	84.6	—	78.8	78.8	—	72.9	72.9	—	66.9	66.9	—	60.5	60.5
			SHC	—	34.5	48.7	—	31.6	45.7	—	28.6	42.7	—	25.5	39.7	—	22.4	36.5
3050 CFM	EAT (wb)	58	TC	67.8	67.8	76.9	63.3	63.3	72.2	58.8	58.8	67.2	54.0	54.0	62.0	49.0	49.0	56.6
			SHC	58.6	67.8	76.9	54.5	63.3	72.2	50.3	58.8	67.2	46.0	54.0	62.0	41.5	49.0	56.6
		62	TC	67.9	67.9	80.0	63.4	63.4	75.2	58.8	58.8	70.1	54.1	54.1	64.7	49.1	49.1	59.3
			SHC	55.6	67.9	80.0	51.7	63.4	75.2	47.6	58.8	70.1	43.4	54.1	64.7	39.0	49.1	59.3
		67	TC	70.6	70.6	77.8	65.4	65.4	74.7	60.2	60.2	71.4	54.8	54.8	68.0	49.4	49.4	63.7
			SHC	46.7	62.2	77.8	43.7	59.2	74.7	40.6	56.0	71.4	37.3	52.7	68.0	33.8	48.8	63.7
		72	TC	78.8	78.8	78.8	73.2	73.2	73.2	67.5	67.5	67.5	61.5	61.5	61.5	55.5	55.5	55.5
			SHC	32.2	47.9	63.7	29.3	44.9	60.6	26.2	41.8	57.5	23.1	38.8	54.5	20.0	35.7	51.3
		76	TC	—	85.9	85.9	—	80.0	80.0	—	73.9	73.9	—	67.7	67.7	—	61.3	61.3
			SHC	—	36.1	51.9	—	33.2	48.8	—	30.1	45.8	—	27.0	42.7	—	23.9	39.6
3350 CFM	EAT (wb)	58	TC	69.7	69.7	79.1	65.1	65.1	74.2	60.5	60.5	69.0	55.6	55.6	63.8	50.5	50.5	58.3
			SHC	60.4	69.7	79.1	56.2	65.1	74.2	51.9	60.5	69.0	47.4	55.6	63.8	42.8	50.5	58.3
		62	TC	69.8	69.8	82.4	65.2	65.2	77.3	60.5	60.5	72.1	55.7	55.7	66.6	50.6	50.6	60.9
			SHC	57.2	69.8	82.4	53.2	65.2	77.3	49.0	60.5	72.1	44.8	55.7	66.6	40.3	50.6	60.9
		67	TC	71.6	71.6	82.7	66.4	66.4	79.5	61.1	61.1	75.9	55.9	55.9	71.8	50.7	50.7	66.2
			SHC	48.9	65.8	82.7	45.9	62.7	79.5	42.7	59.3	75.9	39.3	55.6	71.8	35.2	50.7	66.2
		72	TC	79.6	79.6	79.6	73.9	73.9	73.9	68.2	68.2	68.2	62.1	62.1	62.1	56.0	56.0	56.0
			SHC	33.2	50.3	67.4	30.2	47.3	64.4	27.1	44.2	61.2	24.1	41.1	58.1	21.0	37.9	54.9
		76	TC	—	86.8	86.8	—	80.7	80.7	—	74.6	74.6	—	68.3	68.3	—	61.8	61.8
			SHC	—	37.3	54.5	—	34.3	51.5	—	31.3	48.4	—	28.2	45.2	—	25.1	42.0

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES - SECOND STAGE, PART LOAD (12.5 TONS)

48LC SIZE 14				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3000 CFM	EAT (wb)	58	TC	76.5	76.5	88.1	69.1	69.1	80.2	61.5	61.5	72.2	53.7	53.7	63.9	45.6	45.6	55.3
			SHC	64.9	76.5	88.1	57.9	69.1	80.2	50.8	61.5	72.2	43.5	53.7	63.9	36.0	45.6	55.3
		62	TC	76.6	76.6	92.1	69.2	69.2	84.1	61.6	61.6	75.9	53.8	53.8	67.5	45.7	45.7	58.7
			SHC	61.2	76.6	92.1	54.3	69.2	84.1	47.3	61.6	75.9	40.2	53.8	67.5	32.9	45.7	58.7
		67	TC	86.9	86.9	86.9	78.0	78.0	78.0	68.9	68.9	68.9	59.7	59.7	61.6	50.2	50.2	55.3
			SHC	48.4	64.3	80.0	42.2	58.1	74.0	36.1	52.0	67.9	29.9	45.7	61.6	23.6	39.5	55.3
		72	TC	99.1	99.1	99.1	89.8	89.8	89.8	80.2	80.2	80.2	70.5	70.5	70.5	60.5	60.5	60.5
			SHC	35.0	51.0	67.0	29.0	44.9	60.8	22.8	38.8	54.7	16.7	32.6	48.5	10.4	26.3	42.2
		76	TC	—	109.5	109.5	—	99.8	99.8	—	90.0	90.0	—	79.8	79.8	—	69.2	69.2
			SHC	—	40.2	56.3	—	34.1	50.2	—	28.0	44.1	—	21.8	37.8	—	15.5	31.6
3500 CFM	EAT (wb)	58	TC	82.1	82.1	94.3	74.3	74.3	86.0	66.3	66.3	77.5	58.1	58.1	68.7	49.7	49.7	59.8
			SHC	69.9	82.1	94.3	62.6	74.3	86.0	55.1	66.3	77.5	47.5	58.1	68.7	39.6	49.7	59.8
		62	TC	82.2	82.2	98.5	74.4	74.4	90.0	66.4	66.4	81.3	58.2	58.2	72.4	49.8	49.8	63.3
			SHC	66.0	82.2	98.5	58.8	74.4	90.0	51.5	66.4	81.3	44.0	58.2	72.4	36.3	49.8	63.3
		67	TC	89.6	89.6	89.8	80.4	80.4	83.6	71.2	71.2	77.3	61.7	61.7	70.9	52.0	52.0	64.4
			SHC	53.1	71.5	89.8	46.9	65.2	83.6	40.7	59.0	77.3	34.3	52.7	70.9	27.9	46.1	64.4
		72	TC	101.8	101.8	101.8	92.2	92.2	92.2	82.5	82.5	82.5	72.3	72.3	72.3	62.0	62.0	62.0
			SHC	37.3	55.8	74.2	31.1	49.6	68.1	24.9	43.4	61.8	18.6	37.1	55.5	12.3	30.6	49.0
		76	TC	—	112.4	112.4	—	102.4	102.4	—	92.2	92.2	—	81.7	81.7	—	70.9	70.9
			SHC	—	43.0	61.6	—	36.8	55.4	—	30.6	49.1	—	24.3	42.8	—	17.9	36.4
4000 CFM	EAT (wb)	58	TC	86.7	86.7	99.3	78.6	78.6	90.7	70.3	70.3	81.9	61.8	61.8	72.7	53.0	53.0	63.4
			SHC	74.1	86.7	99.3	66.5	78.6	90.7	58.7	70.3	81.9	50.8	61.8	72.7	42.6	53.0	63.4
		62	TC	86.8	86.8	103.6	78.7	78.7	94.9	70.4	70.4	85.9	61.9	61.9	76.6	53.1	53.1	67.0
			SHC	69.9	86.8	103.6	62.5	78.7	94.9	54.9	70.4	85.9	47.2	61.9	76.6	39.2	53.1	67.0
		67	TC	91.7	91.7	99.2	82.5	82.5	92.7	73.0	73.0	86.3	63.4	63.4	79.6	53.6	53.6	72.5
			SHC	57.6	78.4	99.2	51.3	72.1	92.7	44.9	65.6	86.3	38.5	59.0	79.6	31.9	52.2	72.5
		72	TC	103.9	103.9	103.9	94.1	94.1	94.1	84.1	84.1	84.1	73.8	73.8	73.8	63.3	63.3	63.3
			SHC	39.4	60.3	81.2	33.2	54.0	75.0	26.8	47.7	68.6	20.5	41.3	62.2	13.9	34.8	55.7
		76	TC	—	114.6	114.6	—	104.3	104.3	—	93.9	93.9	—	83.2	83.2	—	72.2	72.2
			SHC	—	45.5	66.6	—	39.3	60.4	—	33.0	53.9	—	26.5	47.5	—	20.1	41.0
4500 CFM	EAT (wb)	58	TC	90.6	90.6	103.5	82.2	82.2	94.7	73.6	73.6	85.5	64.8	64.8	76.1	55.8	55.8	66.5
			SHC	77.5	90.6	103.5	69.7	82.2	94.7	61.7	73.6	85.5	53.5	64.8	76.1	45.0	55.8	66.5
		62	TC	90.7	90.7	108.0	82.3	82.3	99.0	73.7	73.7	89.6	64.9	64.9	80.0	55.9	55.9	70.1
			SHC	73.3	90.7	108.0	65.6	82.3	99.0	57.8	73.7	89.6	49.8	64.9	80.0	41.5	55.9	70.1
		67	TC	93.6	93.6	107.9	84.2	84.2	101.3	74.8	74.8	94.5	65.3	65.3	87.0	56.2	56.2	76.8
			SHC	61.8	84.9	107.9	55.4	78.4	101.3	48.9	71.8	94.5	42.1	64.5	87.0	34.4	55.6	76.8
		72	TC	105.5	105.5	105.5	95.6	95.6	95.6	85.4	85.4	85.4	74.9	74.9	74.9	64.3	64.3	64.3
			SHC	41.2	64.5	87.9	34.9	58.2	81.5	28.6	51.9	75.2	22.1	45.3	68.6	15.6	38.8	62.0
		76	TC	—	116.2	116.2	—	105.9	105.9	—	95.2	95.2	—	84.2	84.2	—	73.0	73.0
			SHC	—	47.9	71.3	—	41.5	64.9	—	35.2	58.5	—	28.8	52.0	—	22.1	45.3
4950 CFM	EAT (wb)	58	TC	93.5	93.5	106.9	84.9	84.9	97.7	76.2	76.2	88.3	67.2	67.2	78.8	57.9	57.9	68.8
			SHC	80.2	93.5	106.9	72.2	84.9	97.7	64.1	76.2	88.3	55.7	67.2	78.8	47.0	57.9	68.8
		62	TC	93.6	93.6	111.4	85.1	85.1	102.1	76.3	76.3	92.5	67.3	67.3	82.7	58.0	58.0	72.5
			SHC	75.9	93.6	111.4	68.1	85.1	102.1	60.1	76.3	92.5	51.9	67.3	82.7	43.4	58.0	72.5
		67	TC	95.2	95.2	115.3	85.8	85.8	108.4	76.4	76.4	100.8	67.6	67.6	89.9	58.1	58.1	80.0
			SHC	65.4	90.4	115.3	58.9	83.7	108.4	52.1	76.4	100.8	44.1	67.0	89.9	36.3	58.1	80.0
		72	TC	106.7	106.7	106.7	96.6	96.6	96.6	86.3	86.3	86.3	75.8	75.8	75.8	64.9	64.9	67.6
			SHC	42.9	68.3	93.7	36.5	61.9	87.3	30.1	55.5	80.8	23.6	48.9	74.3	17.1	42.3	67.6
		76	TC	—	117.4	117.4	—	107.0	107.0	—	96.1	96.1	—	85.1	85.1	—	73.7	73.7
			SHC	—	49.9	75.4	—	43.5	69.0	—	37.1	62.5	—	30.5	55.9	—	24.0	49.1

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES - THIRD STAGE, FULL LOAD (12.5 TONS)

48LC SIZE 14				AMBIENT TEMPERATURE (°F)											
				85			95			105			115		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85
3750 CFM	EAT (wb)	58	TC	127.7	127.7	145.1	120.8	120.8	137.6	113.6	113.6	129.6	106.0	106.0	121.3
			SHC	110.4	127.7	145.1	104.0	120.8	137.6	97.5	113.6	129.6	90.6	106.0	121.3
		62	TC	133.7	133.7	138.8	125.3	125.3	133.7	116.6	116.6	128.3	107.6	107.6	122.8
			SHC	99.6	119.2	138.8	94.6	114.1	133.7	89.3	108.8	128.3	83.9	103.4	122.8
		67	TC	148.2	148.2	148.2	139.2	139.2	139.2	129.8	129.8	129.8	120.1	120.1	120.1
			SHC	81.6	101.3	121.0	76.5	96.2	115.9	71.4	91.1	110.8	66.1	85.8	105.4
		72	TC	164.3	164.3	164.3	154.8	154.8	154.8	144.9	144.9	144.9	134.6	134.6	134.6
			SHC	63.2	83.0	102.9	58.2	78.0	97.8	53.1	72.9	92.6	47.9	67.7	87.5
		76	TC	—	177.9	177.9	—	168.0	168.0	—	157.7	157.7	—	146.6	146.6
			SHC	—	68.0	88.0	—	63.1	83.2	—	58.0	78.1	—	52.8	72.9
4400 CFM	EAT (wb)	58	TC	136.2	136.2	154.5	128.8	128.8	146.4	121.1	121.1	138.0	113.0	113.0	129.1
			SHC	117.9	136.2	154.5	111.2	128.8	146.4	104.1	121.1	138.0	96.8	113.0	129.1
		62	TC	138.8	138.8	154.1	130.3	130.3	148.6	121.9	121.9	142.2	113.1	113.1	134.7
			SHC	108.9	131.5	154.1	103.5	126.1	148.6	97.9	120.0	142.2	91.6	113.1	134.7
		67	TC	152.9	152.9	152.9	143.5	143.5	143.5	133.8	133.8	133.8	123.6	123.6	123.6
			SHC	87.7	110.5	133.4	82.5	105.4	128.2	77.2	100.0	122.9	71.9	94.7	117.5
		72	TC	169.1	169.1	169.1	159.2	159.2	159.2	148.9	148.9	148.9	138.2	138.2	138.2
			SHC	66.0	89.0	111.9	60.9	83.9	106.9	55.8	78.7	101.7	50.5	73.4	96.3
		76	TC	—	182.8	182.8	—	172.5	172.5	—	161.8	161.8	—	150.5	150.5
			SHC	—	71.5	94.9	—	66.4	89.8	—	61.3	84.6	—	56.1	79.4
5000 CFM	EAT (wb)	58	TC	142.6	142.6	161.8	134.8	134.8	153.2	126.8	126.8	144.3	118.3	118.3	135.0
			SHC	123.6	142.6	161.8	116.5	134.8	153.2	109.2	126.8	144.3	101.5	118.3	135.0
		62	TC	143.2	143.2	166.7	135.0	135.0	159.5	126.9	126.9	150.4	118.5	118.5	140.8
			SHC	116.6	141.7	166.7	110.5	135.0	159.5	103.4	126.9	150.4	96.0	118.5	140.8
		67	TC	156.1	156.1	156.1	146.5	146.5	146.5	136.5	136.5	136.5	126.3	126.3	128.1
			SHC	92.8	118.6	144.3	87.7	113.4	139.0	82.3	107.9	133.7	76.8	102.5	128.1
		72	TC	172.4	172.4	172.4	162.2	162.2	162.2	151.6	151.6	151.6	140.6	140.6	140.6
			SHC	68.3	94.2	120.0	63.2	89.0	114.9	58.0	83.8	109.6	52.7	78.4	104.1
		76	TC	—	186.2	186.2	—	175.7	175.7	—	164.7	164.7	—	153.2	153.2
			SHC	—	74.3	100.5	—	69.3	95.5	—	64.2	90.2	—	58.8	84.9
5650 CFM	EAT (wb)	58	TC	148.5	148.5	168.3	140.3	140.3	159.3	131.9	131.9	150.1	123.0	123.0	140.4
			SHC	128.8	148.5	168.3	121.4	140.3	159.3	113.7	131.9	150.1	105.8	123.0	140.4
		62	TC	148.7	148.7	175.1	140.5	140.5	165.8	132.0	132.0	156.3	123.2	123.2	146.3
			SHC	122.3	148.7	175.1	115.1	140.5	165.8	107.7	132.0	156.3	100.0	123.2	146.3
		67	TC	159.0	159.0	159.0	149.3	149.3	150.2	139.0	139.0	144.8	128.5	128.5	139.1
			SHC	98.2	126.9	155.6	92.9	121.6	150.2	87.6	116.1	144.8	82.0	110.6	139.1
		72	TC	175.2	175.2	175.2	164.8	164.8	164.8	154.1	154.1	154.1	142.7	142.7	142.7
			SHC	70.6	99.5	128.3	65.5	94.3	123.1	60.3	89.0	117.8	54.8	83.6	112.3
		76	TC	—	189.2	189.2	—	178.3	178.3	—	167.1	167.1	—	155.4	155.4
			SHC	—	77.2	106.5	—	72.2	101.3	—	67.0	96.0	—	61.6	90.7
6250 CFM	EAT (wb)	58	TC	153.1	153.1	173.4	144.7	144.7	164.2	135.9	135.9	154.5	126.8	126.8	144.6
			SHC	132.8	153.1	173.4	125.2	144.7	164.2	117.3	135.9	154.5	109.0	126.8	144.6
		62	TC	153.2	153.2	180.3	144.9	144.9	170.9	136.0	136.0	161.0	126.9	126.9	150.6
			SHC	126.2	153.2	180.3	118.9	144.9	170.9	111.2	136.0	161.0	103.3	126.9	150.6
		67	TC	161.3	161.3	165.8	151.3	151.3	160.3	141.0	141.0	154.6	130.4	130.4	148.8
			SHC	103.0	134.4	165.8	97.6	129.0	160.3	92.1	123.4	154.6	86.6	117.7	148.8
		72	TC	177.4	177.4	177.4	166.8	166.8	166.8	155.8	155.8	155.8	144.3	144.3	144.3
			SHC	72.6	104.2	135.8	67.5	99.0	130.6	62.2	93.7	125.2	56.7	88.1	119.6
		76	TC	—	191.4	191.4	—	180.4	180.4	—	169.0	169.0	—	157.1	157.1
			SHC	—	79.9	111.7	—	74.7	106.6	—	69.4	101.3	—	64.1	95.8

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

48LC*A14 REHEAT MODE #1 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-1 (SUBCOOLER MODE)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F db)								
		3750/0.03			5000/0.06			6250/0.10		
		AIR ENTERING EVAPORATOR — Ewb (°F)								
TEMP (°F)		72	67	62	72	67	62	72	67	62
75	TC	165	148	135	173	158	146	179	164	153
	SHC	72	90	111	83	109	135	93	125	153
	kW	8.2	7.9	7.7	8.3	8.1	7.9	8.4	8.2	8.0
85	TC	156	142	130	163	149	138	168	155	144
	SHC	64	85	106	73	100	128	83	117	141
	kW	9.1	8.9	8.6	9.2	9.0	8.8	9.3	9.1	8.9
95	TC	147	132	123	154	140	129	158	144	135
	SHC	56	75	100	65	92	120	74	107	135
	kW	10.1	9.8	9.7	10.3	10.0	9.8	10.3	10.1	9.9
105	TC	138	123	114	145	131	121	148	134	126
	SHC	47	67	92	57	84	112	65	98	126
	kW	11.3	11.0	10.8	11.4	11.1	10.9	11.5	11.2	11.0
115	TC	129	116	107	133	122	112	137	125	117
	SHC	39	61	85	46	76	104	55	89	113
	kW	12.6	12.3	12.1	12.6	12.4	12.2	12.7	12.5	12.3
125	TC	119	108	99	124	112	104	127	115	108
	SHC	31	54	78	39	67	97	46	80	108
	kW	14.0	13.7	13.5	14.1	13.8	13.6	14.1	13.8	13.7

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

48LC*A14 REHEAT MODE #2 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-2 (HOT GAS REHEAT MODE)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F db)								
		3750/0.03			5000/0.06			6250/0.08		
		AIR ENTERING EVAPORATOR — Ewb (°F)								
TEMP (°F)		62.5	64	65.3	62.5	64	65.3	62.5	64	65.3
75	TC	52	53	54	54	55	56	55	56	58
	SHC	10	1	−6	20	9	1	31	19	8
	kW	11.2	11.4	11.5	11.3	11.4	11.6	11.3	11.5	11.6
85	TC	54	56	57	57	58	59	58	59	61
	SHC	12	4	−4	22	12	3	33	21	11
	kW	10.7	10.9	11.0	10.8	10.9	11.1	10.8	11.0	11.1
95	TC	57	58	60	59	61	62	61	62	63
	SHC	14	6	−1	25	14	6	36	24	14
	kW	10.2	10.4	10.5	10.3	10.5	10.6	10.4	10.5	10.6
105	TC	62	63	65	64	66	68	66	68	69
	SHC	19	11	4	29	19	11	40	29	19
	kW	9.4	9.5	9.6	9.4	9.6	9.7	9.5	9.6	9.8
115	TC	67	68	70	70	71	73	71	73	75
	SHC	23	15	8	34	24	16	45	34	24
	kW	8.6	8.7	8.8	8.7	8.8	8.9	8.7	8.9	9.0
125	TC	72	74	76	75	77	79	77	79	81
	SHC	28	20	14	39	30	21	51	40	30
	kW	7.9	8.0	8.1	8.0	8.1	8.2	8.1	8.2	8.3

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES — FIRST STAGE, PART LOAD (15 TONS)

48LC SIZE 17				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
2550 CFM	EAT (wb)	58	TC	75.1	75.1	88.1	71.3	71.3	80.9	67.2	67.2	76.3	62.7	62.7	71.5	57.8	57.8	66.1
			SHC	62.0	75.1	88.1	61.6	71.3	80.9	57.9	67.2	76.3	53.8	62.7	71.5	49.4	57.8	66.1
		62	TC	75.3	75.3	88.4	71.4	71.4	84.2	67.3	67.3	79.6	62.8	62.8	74.5	57.9	57.9	69.0
			SHC	61.7	75.1	88.4	58.5	71.4	84.2	54.9	67.3	79.6	51.0	62.8	74.5	46.8	57.9	69.0
		67	TC	83.4	83.4	83.4	78.5	78.5	78.5	73.3	73.3	73.3	67.7	67.7	68.4	61.5	61.5	65.3
			SHC	49.5	63.2	76.7	47.0	60.5	74.1	46.6	58.6	70.6	41.3	54.9	68.4	38.2	51.8	65.3
		72	TC	93.0	93.0	93.0	87.8	87.8	87.8	82.3	82.3	82.3	76.2	76.2	76.2	69.7	69.7	69.7
			SHC	37.0	50.6	64.3	34.3	48.0	61.7	31.7	45.3	59.0	28.8	42.4	56.1	25.7	39.4	53.0
		76	TC	—	101.4	101.4	—	96.0	96.0	—	90.2	90.2	—	83.9	83.9	—	76.9	76.9
			SHC	—	40.3	54.0	—	37.7	51.5	—	35.1	48.8	—	32.3	45.9	—	29.3	42.9
2950 CFM	EAT (wb)	58	TC	79.2	79.2	89.7	75.2	75.2	85.3	70.8	70.8	86.7	66.1	66.1	75.3	60.9	60.9	76.6
			SHC	68.7	79.2	89.7	65.0	75.2	85.3	55.0	70.8	86.7	56.8	66.1	75.3	45.2	60.9	76.6
		62	TC	79.3	79.3	93.3	75.3	75.3	88.8	70.9	70.9	83.9	66.2	66.2	78.5	61.0	61.0	72.6
			SHC	65.3	79.3	93.3	61.8	75.3	88.8	58.0	70.9	83.9	53.8	66.2	78.5	49.4	61.0	72.6
		67	TC	85.4	85.4	85.4	80.4	80.4	81.8	75.1	75.1	79.1	69.2	69.2	76.1	63.0	63.0	72.8
			SHC	53.2	68.9	84.5	50.6	66.2	81.8	47.9	63.5	79.1	44.9	60.5	76.1	41.7	57.3	72.8
		72	TC	95.2	95.2	95.2	89.9	89.9	89.9	84.0	84.0	84.0	77.9	77.9	77.9	71.1	71.1	71.1
			SHC	38.6	54.3	70.1	36.0	51.7	67.5	33.2	48.9	64.6	30.3	46.0	61.8	27.3	43.0	58.7
		76	TC	—	103.7	103.7	—	98.2	98.2	—	92.0	92.0	—	85.5	85.5	—	78.4	78.4
			SHC	—	42.4	58.2	—	39.9	55.7	—	37.1	52.9	—	34.3	50.1	—	31.3	47.1
3400 CFM	EAT (wb)	58	TC	83.1	83.1	94.0	78.9	78.9	89.4	74.3	74.3	84.3	69.3	69.3	78.9	63.9	63.9	72.9
			SHC	72.2	83.1	94.0	68.3	78.9	89.4	64.2	74.3	84.3	59.7	69.3	78.9	54.9	63.9	72.9
		62	TC	83.2	83.2	97.8	79.0	79.0	93.0	74.4	74.4	87.8	69.3	69.3	82.2	64.0	64.0	76.1
			SHC	68.5	83.2	97.8	64.8	79.0	93.0	60.8	74.4	87.8	56.6	69.3	82.2	51.9	64.0	76.1
		67	TC	87.3	87.3	92.9	82.2	82.2	90.2	76.7	76.7	87.3	70.8	70.8	84.1	64.5	64.5	80.6
			SHC	57.2	75.1	92.9	54.5	72.3	90.2	51.7	69.5	87.3	48.7	66.4	84.1	45.4	63.0	80.6
		72	TC	97.0	97.0	97.0	91.6	91.6	91.6	85.6	85.6	85.6	79.3	79.3	79.3	72.3	72.3	72.3
			SHC	40.4	58.3	76.3	37.7	55.7	73.7	34.9	52.9	70.9	32.0	50.0	68.0	28.9	46.9	64.8
		76	TC	—	105.6	105.6	—	99.9	99.9	—	93.7	93.7	—	87.0	87.0	—	79.7	79.7
			SHC	—	44.7	62.9	—	42.0	60.3	—	39.3	57.4	—	36.4	54.5	—	33.3	51.5
3800 CFM	EAT (wb)	58	TC	86.0	86.0	97.2	81.6	81.6	92.4	76.8	76.8	87.3	71.7	71.7	81.5	66.1	66.1	75.4
			SHC	74.7	86.0	97.2	70.7	81.6	92.4	66.4	76.8	87.3	61.8	71.7	81.5	56.7	66.1	75.4
		62	TC	86.1	86.1	101.1	81.7	81.7	96.2	76.9	76.9	90.8	71.8	71.8	84.9	66.2	66.2	78.6
			SHC	71.0	86.1	101.1	67.2	81.7	96.2	63.0	76.9	90.8	58.6	71.8	84.9	53.7	66.2	78.6
		67	TC	88.6	88.6	100.1	83.5	83.5	97.3	78.0	78.0	94.2	72.2	72.2	90.7	66.3	66.3	84.6
			SHC	60.5	80.3	100.1	57.8	77.6	97.3	54.9	74.6	94.2	51.8	71.2	90.7	47.6	66.1	84.6
		72	TC	98.3	98.3	98.3	92.7	92.7	92.7	86.7	86.7	86.7	80.1	80.1	80.1	73.1	73.1	73.1
			SHC	41.7	61.8	81.8	39.1	59.1	79.2	36.3	56.4	76.3	33.3	53.3	73.3	30.2	50.2	70.2
		76	TC	—	107.0	107.0	—	101.2	101.2	—	94.9	94.9	—	87.9	87.9	—	80.5	80.5
			SHC	—	46.5	66.7	—	43.9	64.1	—	41.1	61.3	—	38.2	58.3	—	35.1	55.3
4250 CFM	EAT (wb)	58	TC	88.7	88.7	100.3	84.2	84.2	95.4	79.3	79.3	90.0	73.9	73.9	84.0	68.2	68.2	77.7
			SHC	77.1	88.7	100.3	73.0	84.2	95.4	68.6	79.3	90.0	63.9	73.9	84.0	58.6	68.2	77.7
		62	TC	88.8	88.8	104.3	84.3	84.3	99.3	79.4	79.4	93.6	74.0	74.0	87.6	68.3	68.3	81.0
			SHC	73.3	88.8	104.3	69.4	84.3	99.3	65.1	79.4	93.6	60.5	74.0	87.6	55.5	68.3	81.0
		67	TC	90.1	90.1	107.7	84.9	84.9	104.6	79.6	79.6	100.7	74.1	74.1	94.4	68.3	68.3	87.5
			SHC	64.2	86.0	107.7	61.3	83.0	104.6	58.1	79.5	100.7	53.8	74.1	94.4	49.2	68.3	87.5
		72	TC	99.4	99.4	99.4	93.7	93.7	93.7	87.7	87.7	87.7	81.0	81.0	81.0	73.9	73.9	76.1
			SHC	43.3	65.5	87.8	40.7	62.9	85.1	37.8	60.1	82.3	34.8	57.0	79.3	31.7	53.8	76.1
		76	TC	—	108.1	108.1	—	102.3	102.3	—	95.8	95.8	—	88.8	88.8	—	81.3	81.3
			SHC	—	48.6	70.9	—	45.9	68.3	—	43.1	65.5	—	40.2	62.5	—	37.1	59.4

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES — SECOND STAGE, PART LOAD (15 TONS)

48LC SIZE 17			AMBIENT TEMPERATURE (°F)														
			85			95			105			115			125		
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3700 CFM	EAT (wb)	58 TC	110.2	110.2	124.5	104.9	104.9	118.7	99.6	99.6	112.8	94.2	94.2	106.7	88.3	88.3	100.2
		58 SHC	95.8	110.2	124.5	91.2	104.9	118.7	86.5	99.6	112.8	81.6	94.2	106.7	76.4	88.3	100.2
		62 TC	110.4	110.4	129.5	105.1	105.1	123.4	99.7	99.7	117.4	94.3	94.3	111.1	88.4	88.4	104.3
		62 SHC	91.3	110.4	129.5	86.7	105.1	123.4	82.2	99.7	117.4	77.5	94.3	111.1	72.5	88.4	104.3
		67 TC	120.7	120.7	120.7	113.8	113.8	113.8	107.0	107.0	107.0	100.0	100.0	102.4	92.6	92.6	99.0
		67 SHC	73.0	92.6	112.1	69.8	89.3	108.9	66.6	86.2	105.7	63.4	82.9	102.4	60.1	79.6	99.0
	EAT (db)	72 TC	133.5	133.5	133.5	125.9	125.9	125.9	118.5	118.5	118.5	110.9	110.9	110.9	102.9	102.9	102.9
		72 SHC	54.2	73.9	93.6	51.0	70.7	90.3	47.8	67.5	87.1	44.7	64.3	83.9	41.3	60.9	80.6
		76 TC	—	144.5	144.5	—	136.4	136.4	—	128.3	128.3	—	120.2	120.2	—	111.8	111.8
		76 SHC	—	58.6	78.5	—	55.4	75.3	—	52.3	72.1	—	49.0	68.8	—	45.8	65.5
4300 CFM	EAT (wb)	58 TC	115.8	115.8	130.8	110.2	110.2	124.5	104.4	104.4	118.2	98.6	98.6	111.7	92.4	92.4	104.8
		58 SHC	100.8	115.8	130.8	95.7	110.2	124.5	90.8	104.4	118.2	85.5	98.6	111.7	80.0	92.4	104.8
		62 TC	115.9	115.9	136.0	110.3	110.3	129.5	104.6	104.6	122.9	98.8	98.8	116.2	92.5	92.5	109.1
		62 SHC	95.9	115.9	136.0	91.1	110.3	129.5	86.2	104.6	122.9	81.2	98.8	116.2	76.0	92.5	109.1
		67 TC	123.5	123.5	123.5	116.3	116.3	120.0	109.3	109.3	116.7	102.1	102.1	113.3	94.6	94.6	109.7
		67 SHC	78.3	100.8	123.3	75.0	97.5	120.0	71.7	94.2	116.7	68.4	90.9	113.3	64.9	87.4	109.7
	EAT (db)	72 TC	136.3	136.3	136.3	128.4	128.4	128.4	120.6	120.6	120.6	112.8	112.8	112.8	104.6	104.6	104.6
		72 SHC	56.5	79.2	101.9	53.1	75.9	98.5	49.9	72.6	95.3	46.7	69.3	92.0	43.4	66.0	88.6
		76 TC	—	147.4	147.4	—	139.0	139.0	—	130.7	130.7	—	122.4	122.4	—	113.7	113.7
		76 SHC	—	61.5	84.4	—	58.2	81.0	—	55.0	77.8	—	51.8	74.6	—	48.5	71.2
4900 CFM	EAT (wb)	58 TC	120.4	120.4	136.0	114.5	114.5	129.4	108.4	108.4	122.7	102.3	102.3	115.8	95.7	95.7	108.5
		58 SHC	104.9	120.4	136.0	99.5	114.5	129.4	94.2	108.4	122.7	88.7	102.3	115.8	83.0	95.7	108.5
		62 TC	120.6	120.6	141.4	114.6	114.6	134.5	108.5	108.5	127.5	102.4	102.4	120.5	95.8	95.8	112.9
		62 SHC	99.8	120.6	141.4	94.7	114.6	134.5	89.5	108.5	127.5	84.3	102.4	120.5	78.8	95.8	112.9
		67 TC	125.7	125.7	134.1	118.4	118.4	130.7	111.2	111.2	127.1	103.9	103.9	123.4	96.4	96.4	119.3
		67 SHC	83.3	108.7	134.1	79.9	105.2	130.7	76.5	101.8	127.1	73.1	98.3	123.4	69.5	94.5	119.3
	EAT (db)	72 TC	138.5	138.5	138.5	130.3	130.3	130.3	122.3	122.3	122.3	114.3	114.3	114.3	105.9	105.9	105.9
		72 SHC	58.5	84.1	109.8	55.2	80.8	106.5	52.0	77.5	103.2	48.7	74.3	99.8	45.3	70.9	96.4
		76 TC	—	149.7	149.7	—	141.0	141.0	—	132.4	132.4	—	123.8	123.8	—	115.0	115.0
		76 SHC	—	64.2	90.0	—	60.8	86.7	—	57.6	83.4	—	54.3	80.0	—	51.0	76.7
5550 CFM	EAT (wb)	58 TC	124.7	124.7	140.8	118.4	118.4	133.7	112.0	112.0	126.7	105.6	105.6	119.5	98.8	98.8	111.9
		58 SHC	108.6	124.7	140.8	103.0	118.4	133.7	97.4	112.0	126.7	91.7	105.6	119.5	85.6	98.8	111.9
		62 TC	124.8	124.8	146.3	118.5	118.5	138.9	112.1	112.1	131.7	105.7	105.7	124.3	98.9	98.9	116.4
		62 SHC	103.4	124.8	146.3	97.9	118.5	138.9	92.5	112.1	131.7	87.1	105.7	124.3	81.2	98.9	116.4
		67 TC	127.7	127.7	145.2	120.3	120.3	141.4	113.0	113.0	137.5	106.0	106.0	132.8	99.2	99.2	124.5
		67 SHC	88.3	116.8	145.2	84.8	113.1	141.4	81.4	109.4	137.5	77.5	105.2	132.8	72.3	98.4	124.5
	EAT (db)	72 TC	140.2	140.2	140.2	131.8	131.8	131.8	123.6	123.6	123.6	115.4	115.4	115.4	107.0	107.0	107.0
		72 SHC	60.6	89.4	118.2	57.2	86.0	114.8	54.0	82.7	111.3	50.7	79.4	108.0	47.3	76.0	104.6
		76 TC	—	151.5	151.5	—	142.6	142.6	—	133.9	133.9	—	125.1	125.1	—	116.1	116.1
		76 SHC	—	67.0	95.8	—	63.6	92.4	—	60.3	89.1	—	56.9	85.8	—	53.6	82.4
6150 CFM	EAT (wb)	58 TC	128.0	128.0	144.4	121.4	121.4	137.1	114.9	114.9	129.8	108.1	108.1	122.4	101.1	101.1	114.6
		58 SHC	111.5	128.0	144.4	105.6	121.4	137.1	99.8	114.9	129.8	93.9	108.1	122.4	87.7	101.1	114.6
		62 TC	128.1	128.1	150.1	121.5	121.5	142.4	115.0	115.0	134.9	108.2	108.2	127.2	101.2	101.2	119.1
		62 SHC	106.1	128.1	150.1	100.4	121.5	142.4	94.9	115.0	134.9	89.2	108.2	127.2	83.2	101.2	119.1
		67 TC	129.5	129.5	154.6	122.1	122.1	150.3	115.2	115.2	144.2	108.5	108.5	136.0	101.3	101.3	128.2
		67 SHC	92.7	123.7	154.6	89.1	119.7	150.3	84.7	114.5	144.2	79.6	107.7	136.0	74.4	101.3	128.2
	EAT (db)	72 TC	141.5	141.5	141.5	133.0	133.0	133.0	124.7	124.7	124.7	116.4	116.4	116.4	107.7	107.7	111.9
		72 SHC	62.5	94.1	125.6	59.1	90.7	122.2	55.8	87.3	118.8	52.5	83.9	115.4	49.1	80.5	111.9
		76 TC	—	152.9	152.9	—	143.8	143.8	—	134.9	134.9	—	126.1	126.1	—	116.9	116.9
		76 SHC	—	69.3	101.1	—	66.0	97.6	—	62.7	94.3	—	59.3	90.9	—	56.0	87.5

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES — THIRD STAGE, FULL LOAD (15 TONS)

48LC SIZE 17				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
4500 CFM	EAT (wb)	58	TC	156.8	156.8	177.9	148.6	148.6	169.1	139.9	139.9	159.6	130.7	130.7	149.5	120.9	120.9	138.7
			SHC	135.6	156.8	177.9	128.1	148.6	169.1	120.3	139.9	159.6	111.9	130.7	149.5	103.1	120.9	138.7
		62	TC	164.6	164.6	169.4	154.6	154.6	163.2	144.2	144.2	157.0	133.3	133.3	150.3	121.8	121.8	143.0
			SHC	122.2	145.8	169.4	116.1	139.7	163.2	109.9	133.4	157.0	103.4	126.8	150.3	96.5	119.7	143.0
		67	TC	182.6	182.6	182.6	171.8	171.8	171.8	160.6	160.6	160.6	148.7	148.7	148.7	136.1	136.1	136.1
			SHC	100.4	124.1	147.8	94.4	118.1	141.8	88.2	111.9	135.6	81.9	105.5	129.2	75.3	98.9	122.6
		72	TC	202.4	202.4	202.4	191.0	191.0	191.0	179.0	179.0	179.0	166.4	166.4	166.4	153.0	153.0	153.0
			SHC	78.1	102.0	125.9	72.2	96.0	119.8	66.1	89.9	113.8	59.9	83.7	107.4	53.3	77.1	100.9
		76	TC	—	219.3	219.3	—	207.1	207.1	—	194.5	194.5	—	181.2	181.2	—	167.1	167.1
			SHC	—	83.8	107.9	—	77.9	102.0	—	71.9	96.0	—	65.6	89.8	—	59.3	83.5
5250 CFM	EAT (wb)	58	TC	166.9	166.9	189.3	158.1	158.1	179.8	149.0	149.0	169.7	139.2	139.2	159.0	128.8	128.8	147.5
			SHC	144.6	166.9	189.3	136.6	158.1	179.8	128.3	149.0	169.7	119.5	139.2	159.0	110.1	128.8	147.5
		62	TC	170.8	170.8	187.4	160.6	160.6	181.0	150.1	150.1	174.1	139.4	139.4	165.8	129.0	129.0	154.0
			SHC	133.0	160.2	187.4	126.8	153.9	181.0	120.3	147.2	174.1	113.1	139.4	165.8	103.9	129.0	154.0
		67	TC	188.4	188.4	188.4	177.2	177.2	177.2	165.4	165.4	165.4	153.1	153.1	153.1	140.0	140.0	140.0
			SHC	107.5	134.9	162.3	101.4	128.8	156.2	95.2	122.6	149.9	88.6	116.0	143.4	81.9	109.2	136.6
		72	TC	208.4	208.4	208.4	196.4	196.4	196.4	184.0	184.0	184.0	170.8	170.8	170.8	157.0	157.0	157.0
			SHC	81.5	109.1	136.6	75.5	103.0	130.6	69.3	96.8	124.3	62.9	90.4	117.9	56.4	83.8	111.2
		76	TC	—	225.1	225.1	—	212.6	212.6	—	199.5	199.5	—	185.5	185.5	—	170.9	170.9
			SHC	—	87.9	116.1	—	81.9	110.0	—	75.9	103.7	—	69.4	97.3	—	62.9	90.7
6000 CFM	EAT (wb)	58	TC	175.4	175.4	198.8	166.2	166.2	188.7	156.5	156.5	178.0	146.2	146.2	166.7	135.2	135.2	154.7
			SHC	152.1	175.4	198.8	143.7	166.2	188.7	134.9	156.5	178.0	125.7	146.2	166.7	115.7	135.2	154.7
		62	TC	176.5	176.5	204.0	166.3	166.3	196.4	156.7	156.7	185.4	146.3	146.3	173.8	135.4	135.4	161.4
			SHC	143.0	173.6	204.0	136.3	166.3	196.4	127.8	156.7	185.4	119.0	146.3	173.8	109.4	135.4	161.4
		67	TC	192.8	192.8	192.8	181.3	181.3	181.3	169.2	169.2	169.2	156.6	156.6	156.9	143.2	143.2	150.0
			SHC	114.2	145.2	176.2	108.0	138.9	169.9	101.6	132.6	163.5	95.1	126.0	156.9	88.2	119.1	150.0
		72	TC	212.8	212.8	212.8	200.5	200.5	200.5	187.7	187.7	187.7	174.2	174.2	174.2	159.9	159.9	159.9
			SHC	84.5	115.7	146.8	78.4	109.5	140.7	72.2	103.3	134.4	65.7	96.7	127.8	59.1	90.0	121.0
		76	TC	—	229.7	229.7	—	216.6	216.6	—	203.3	203.3	—	189.2	189.2	—	173.8	173.8
			SHC	—	91.7	123.3	—	85.6	117.1	—	79.4	110.9	—	72.9	104.3	—	66.2	97.5
6750 CFM	EAT (wb)	58	TC	182.5	182.5	206.7	172.8	172.8	196.1	162.6	162.6	185.0	152.0	152.0	173.3	140.6	140.6	160.7
			SHC	158.3	182.5	206.7	149.6	172.8	196.1	140.4	162.6	185.0	130.7	152.0	173.3	120.5	140.6	160.7
		62	TC	182.7	182.7	215.1	173.0	173.0	204.1	162.8	162.8	192.7	152.2	152.2	180.5	140.8	140.8	167.6
			SHC	150.4	182.7	215.1	142.0	173.0	204.1	133.1	162.8	192.7	123.8	152.2	180.5	114.0	140.8	167.6
		67	TC	196.4	196.4	196.4	184.5	184.5	184.5	172.3	172.3	176.7	159.4	159.4	169.8	145.8	145.8	162.7
			SHC	120.5	155.0	189.5	114.2	148.7	183.1	107.8	142.3	176.7	101.2	135.5	169.8	94.3	128.5	162.7
		72	TC	216.4	216.4	216.4	203.7	203.7	203.7	190.6	190.6	190.6	176.8	176.8	176.8	162.2	162.2	162.2
			SHC	87.3	122.0	156.6	81.1	115.7	150.3	74.8	109.4	143.9	68.3	102.8	137.3	61.5	96.0	130.5
		76	TC	—	233.3	233.3	—	220.0	220.0	—	206.1	206.1	—	191.7	191.7	—	176.1	176.1
			SHC	—	95.1	130.3	—	88.9	123.9	—	82.7	117.6	—	76.1	111.0	—	69.3	103.9
7500 CFM	EAT (wb)	58	TC	188.5	188.5	213.3	178.4	178.4	202.4	167.9	167.9	190.8	156.9	156.9	178.6	145.1	145.1	165.7
			SHC	163.6	188.5	213.3	154.5	178.4	202.4	145.1	167.9	190.8	135.1	156.9	178.6	124.5	145.1	165.7
		62	TC	188.7	188.7	221.9	178.6	178.6	210.6	168.1	168.1	198.7	157.1	157.1	186.1	145.3	145.3	172.8
			SHC	155.5	188.7	221.9	146.7	178.6	210.6	137.6	168.1	198.7	127.9	157.1	186.1	117.8	145.3	172.8
		67	TC	199.3	199.3	202.5	187.3	187.3	196.0	174.8	174.8	189.2	161.9	161.9	182.2	148.2	148.2	174.7
			SHC	126.6	164.5	202.5	120.2	158.1	196.0	113.7	151.5	189.2	107.0	144.6	182.2	99.8	137.3	174.7
		72	TC	219.2	219.2	219.2	206.3	206.3	206.3	193.0	193.0	193.0	178.9	178.9	178.9	164.1	164.1	164.1
			SHC	89.9	128.0	166.0	83.7	121.7	159.7	77.3	115.2	153.3	70.8	108.6	146.5	64.0	101.8	139.6
		76	TC	—	236.1	236.1	—	222.6	222.6	—	208.6	208.6	—	193.8	193.8	—	177.8	177.8
			SHC	—	98.4	136.9	—	92.1	130.5	—	85.8	124.0	—	79.3	117.3	—	72.3	110.2

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

48LC*A17 REHEAT MODE #1 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-1 (SUBCOOLER MODE)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F DB)								
		4500/0.05			6000/0.09			7500/0.12		
		AIR ENTERING EVAPORATOR — Ewb (°F)								
TEMP (°F)		72	67	62	72	67	62	72	67	62
75	TC	207	187	167	217	198	180	225	205	189
	SHC	95	116	137	107	137	164	120	155	189
	kW	10.1	9.9	9.6	10.1	10.0	9.8	10.2	10.0	9.9
85	TC	190	175	157	206	186	168	212	186	173
	SHC	79	106	128	98	126	154	109	138	173
	kW	11.0	10.9	10.7	11.3	11.0	10.8	11.3	10.9	10.8
95	TC	173	163	146	192	173	157	192	180	165
	SHC	64	95	117	85	114	143	90	132	165
	kW	12.1	12.1	11.9	12.5	12.2	12.0	12.3	12.3	12.1
105	TC	169	151	135	179	160	145	185	166	153
	SHC	61	84	107	73	102	132	84	120	153
	kW	13.7	13.4	13.2	13.8	13.6	13.4	13.9	13.6	13.5
115	TC	156	138	123	165	147	132	170	152	140
	SHC	49	72	96	60	90	120	71	107	140
	kW	15.2	14.9	14.7	15.3	15.1	14.8	15.4	15.1	15.0
125	TC	142	125	110	150	133	118	155	138	126
	SHC	37	60	85	47	78	108	57	94	126
	kW	16.9	16.6	16.3	17.0	16.7	16.5	17.1	16.8	16.6

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

48LC*A17 REHEAT MODE #2 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-2 (HOT GAS REHEAT MODE)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F DB)								
		4500/0.05			6000/0.08			7500/0.11		
		AIR ENTERING EVAPORATOR — Ewb (°F)								
TEMP (°F)		62.5	64	65.3	62.5	64	65.3	62.5	64	65.3
75	TC	69	72	74	72	75	77	74	77	79
	SHC	16	8	0	28	17	8	41	28	17
	kW	12.6	12.8	12.9	12.7	12.9	13.0	12.8	12.9	13.0
85	TC	74	77	79	77	80	83	79	82	85
	SHC	21	12	5	33	22	13	46	33	22
	kW	12.1	12.2	12.3	12.2	12.3	12.4	12.3	12.4	12.5
95	TC	79	82	84	82	85	88	85	87	90
	SHC	26	17	10	38	27	18	51	38	27
	kW	11.6	11.7	11.8	11.7	11.8	11.9	11.7	11.9	12.0
105	TC	88	91	94	92	96	98	95	98	101
	SHC	35	27	19	48	37	28	61	48	37
	kW	10.6	10.7	10.9	10.7	10.8	11.0	10.8	10.9	11.0
115	TC	98	102	104	103	106	109	106	109	112
	SHC	45	37	30	58	48	39	71	59	48
	kW	9.8	9.9	10.1	9.9	10.1	10.2	10.0	10.1	10.2
125	TC	108	112	115	113	117	120	116	120	123
	SHC	55	47	41	69	59	50	83	71	60
	kW	9.1	9.3	9.4	9.3	9.4	9.5	9.3	9.5	9.6

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES — FIRST STAGE, PART LOAD (17.5 TONS)

48LC SIZE 20				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
2750 CFM	EAT (wb)	58	TC	92.1	92.1	104.1	88.5	88.5	100.0	84.6	84.6	95.7	80.4	80.4	91.1	76.0	76.0	86.1
			SHC	80.1	92.1	104.1	76.9	88.5	100.0	73.5	84.6	95.7	69.8	80.4	91.1	65.8	76.0	86.1
		62	TC	95.0	95.0	102.0	90.5	90.5	99.5	85.8	85.8	96.9	80.9	80.9	93.9	76.1	76.1	89.6
			SHC	73.5	87.8	102.0	71.2	85.4	99.5	68.6	82.8	96.9	65.9	80.0	93.9	62.5	76.1	89.6
		67	TC	104.3	104.3	104.3	99.5	99.5	99.5	94.4	94.4	94.4	88.8	88.8	88.8	83.1	83.1	83.1
			SHC	59.9	74.2	88.6	57.6	72.0	86.3	55.3	69.6	83.9	52.7	67.1	81.4	50.1	64.4	78.8
		72	TC	115.1	115.1	115.1	109.9	109.9	109.9	104.4	104.4	104.4	98.5	98.5	98.5	92.2	92.2	92.2
			SHC	45.9	60.4	74.8	43.7	58.1	72.5	41.3	55.8	70.2	38.9	53.3	67.7	36.4	50.7	65.1
		76	TC	—	124.1	124.1	—	118.8	118.8	—	112.9	112.9	—	106.7	106.7	—	99.9	99.9
			SHC	—	49.0	63.8	—	46.8	61.5	—	44.5	59.2	—	42.1	56.6	—	39.5	54.1
3250 CFM	EAT (wb)	58	TC	97.5	97.5	110.2	93.7	93.7	105.9	89.5	89.5	101.2	85.0	85.0	96.2	80.2	80.2	90.9
			SHC	84.9	97.5	110.2	81.4	93.7	105.9	77.8	89.5	101.2	73.8	85.0	96.2	69.6	80.2	90.9
		62	TC	98.3	98.3	112.6	94.0	94.0	109.6	89.6	89.6	105.2	85.1	85.1	100.0	80.3	80.3	94.6
			SHC	80.0	96.3	112.6	77.2	93.4	109.6	73.9	89.6	105.2	70.1	85.1	100.0	66.1	80.3	94.6
		67	TC	107.3	107.3	107.3	102.3	102.3	102.3	96.9	96.9	96.9	91.2	91.2	91.2	85.1	85.1	87.6
			SHC	64.2	80.9	97.7	61.9	78.6	95.4	59.5	76.1	92.9	56.9	73.6	90.3	54.2	70.9	87.6
		72	TC	118.1	118.1	118.1	112.8	112.8	112.8	107.1	107.1	107.1	100.9	100.9	100.9	94.3	94.3	94.3
			SHC	47.8	64.6	81.4	45.6	62.4	79.2	43.2	60.0	76.7	40.8	57.5	74.2	38.1	54.9	71.6
		76	TC	—	127.3	127.3	—	121.7	121.7	—	115.5	115.5	—	109.1	109.1	—	102.1	102.1
			SHC	—	51.4	68.4	—	49.1	66.2	—	46.8	63.8	—	44.4	61.2	—	41.7	58.6
3700 CFM	EAT (wb)	58	TC	101.6	101.6	114.7	97.5	97.5	110.2	93.1	93.1	105.3	88.4	88.4	100.0	83.4	83.4	94.4
			SHC	88.4	101.6	114.7	84.8	97.5	110.2	80.9	93.1	105.3	76.7	88.4	100.0	72.3	83.4	94.4
		62	TC	101.7	101.7	119.1	97.6	97.6	114.5	93.2	93.2	109.5	88.4	88.4	104.0	83.5	83.5	98.2
			SHC	84.1	101.7	119.1	80.6	97.6	114.5	76.9	93.2	109.5	72.9	88.4	104.0	68.7	83.5	98.2
		67	TC	109.3	109.3	109.3	104.1	104.1	104.1	98.7	98.7	100.5	92.8	92.8	97.8	86.6	86.6	95.0
			SHC	67.9	86.7	105.5	65.5	84.3	103.1	63.1	81.8	100.5	60.5	79.1	97.8	57.7	76.3	95.0
		72	TC	120.2	120.2	120.2	114.7	114.7	114.7	108.8	108.8	108.8	102.5	102.5	102.5	95.7	95.7	95.7
			SHC	49.3	68.3	87.2	47.1	66.0	84.8	44.8	63.6	82.4	42.2	61.0	79.9	39.6	58.4	77.1
		76	TC	—	129.5	129.5	—	123.6	123.6	—	117.4	117.4	—	110.7	110.7	—	103.5	103.5
			SHC	—	53.3	72.4	—	51.1	70.2	—	48.8	67.7	—	46.2	65.1	—	43.6	62.4
4150 CFM	EAT (wb)	58	TC	105.0	105.0	118.6	100.7	100.7	113.8	96.1	96.1	108.7	91.3	91.3	103.3	86.0	86.0	97.4
			SHC	91.5	105.0	118.6	87.7	100.7	113.8	83.7	96.1	108.7	79.3	91.3	103.3	74.7	86.0	97.4
		62	TC	105.1	105.1	123.1	100.8	100.8	118.3	96.2	96.2	113.0	91.4	91.4	107.3	86.1	86.1	101.3
			SHC	87.0	105.1	123.1	83.4	100.8	118.3	79.6	96.2	113.0	75.4	91.4	107.3	71.0	86.1	101.3
		67	TC	111.0	111.0	112.9	105.7	105.7	110.5	100.1	100.1	107.8	94.2	94.2	105.0	87.9	87.9	102.0
			SHC	71.3	92.1	112.9	68.9	89.7	110.5	66.4	87.2	107.8	63.8	84.3	105.0	60.9	81.4	102.0
		72	TC	121.8	121.8	121.8	116.2	116.2	116.2	110.2	110.2	110.2	103.7	103.7	103.7	96.8	96.8	96.8
			SHC	50.8	71.8	92.6	48.6	69.4	90.3	46.1	67.0	87.8	43.6	64.4	85.2	41.0	61.7	82.5
		76	TC	—	131.1	131.1	—	125.2	125.2	—	118.8	118.8	—	111.9	111.9	—	104.6	104.6
			SHC	—	55.2	76.2	—	52.9	73.9	—	50.5	71.5	—	48.0	68.8	—	45.2	66.1
4600 CFM	EAT (wb)	58	TC	107.9	107.9	121.9	103.5	103.5	117.0	98.8	98.8	111.6	93.7	93.7	106.0	88.3	88.3	99.9
			SHC	94.0	107.9	121.9	90.2	103.5	117.0	85.9	98.8	111.6	81.4	93.7	106.0	76.6	88.3	99.9
		62	TC	108.0	108.0	126.7	103.6	103.6	121.6	98.9	98.9	116.0	93.8	93.8	110.2	88.3	88.3	103.9
			SHC	89.5	108.0	126.7	85.7	103.6	121.6	81.7	98.9	116.0	77.4	93.8	110.2	72.8	88.3	103.9
		67	TC	112.3	112.3	120.0	107.1	107.1	117.5	101.4	101.4	114.7	95.5	95.5	111.7	89.2	89.2	108.2
			SHC	74.6	97.3	120.0	72.2	94.9	117.5	69.6	92.1	114.7	66.9	89.3	111.7	63.9	86.1	108.2
		72	TC	123.1	123.1	123.1	117.4	117.4	117.4	111.2	111.2	111.2	104.7	104.7	104.7	97.7	97.7	97.7
			SHC	52.2	75.1	97.9	49.9	72.7	95.6	47.5	70.2	93.0	44.9	67.7	90.4	42.2	64.9	87.6
		76	TC	—	132.5	132.5	—	126.5	126.5	—	119.9	119.9	—	112.9	112.9	—	105.5	105.5
			SHC	—	56.9	80.0	—	54.6	77.5	—	52.2	75.0	—	49.6	72.3	—	46.9	69.5

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES — SECOND STAGE, PART LOAD (17.5 TONS)

48LC SIZE 20			AMBIENT TEMPERATURE (°F)														
			85			95			105			115			125		
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3250 CFM	EAT (wb)	58 TC	101.8	101.8	115.2	96.7	96.7	109.7	91.7	91.7	104.0	86.3	86.3	98.2	80.5	80.5	91.8
		58 SHC	88.3	101.8	115.2	83.8	96.7	109.7	79.2	91.7	104.0	74.4	86.3	98.2	69.2	80.5	91.8
		62 TC	103.9	103.9	115.2	97.9	97.9	111.5	92.0	92.0	107.5	86.4	86.4	102.3	80.6	80.6	95.7
		62 SHC	81.9	98.6	115.2	78.4	95.0	111.5	74.7	91.2	107.5	70.5	86.4	102.3	65.5	80.6	95.7
		67 TC	114.8	114.8	114.8	108.0	108.0	108.0	101.3	101.3	101.3	94.4	94.4	94.4	87.2	87.2	87.2
		67 SHC	66.3	83.2	100.0	62.8	79.7	96.6	59.5	76.3	93.2	56.0	72.8	89.7	52.5	69.2	86.1
	EAT (db)	72 TC	127.2	127.2	127.2	119.8	119.8	119.8	112.5	112.5	112.5	105.1	105.1	105.1	97.3	97.3	97.3
		72 SHC	50.2	67.2	84.2	46.8	63.8	80.7	43.4	60.4	77.3	40.0	56.9	73.8	36.5	53.3	70.3
		76 TC	—	137.8	137.8	—	129.8	129.8	—	122.0	122.0	—	114.1	114.1	—	105.7	105.7
		76 SHC	—	54.2	71.6	—	50.7	68.0	—	47.3	64.5	—	43.9	61.0	—	40.4	57.4
3800 CFM	EAT (wb)	58 TC	107.6	107.6	121.8	102.1	102.1	115.7	96.6	96.6	109.7	91.0	91.0	103.4	84.9	84.9	96.7
		58 SHC	93.4	107.6	121.8	88.5	102.1	115.7	83.6	96.6	109.7	78.5	91.0	103.4	73.0	84.9	96.7
		62 TC	107.9	107.9	126.2	102.3	102.3	120.4	96.7	96.7	114.2	91.1	91.1	107.7	85.0	85.0	100.8
		62 SHC	88.5	107.3	126.2	84.0	102.3	120.4	79.3	96.7	114.2	74.4	91.1	107.7	69.2	85.0	100.8
		67 TC	117.8	117.8	117.8	110.8	110.8	110.8	103.7	103.7	103.7	96.6	96.6	99.3	89.2	89.2	95.5
		67 SHC	71.0	90.5	109.9	67.5	86.9	106.4	64.0	83.4	102.9	60.5	79.9	99.3	56.8	76.1	95.5
	EAT (db)	72 TC	130.5	130.5	130.5	122.7	122.7	122.7	115.1	115.1	115.1	107.3	107.3	107.3	99.3	99.3	99.3
		72 SHC	52.4	71.9	91.5	48.8	68.3	87.8	45.3	64.8	84.3	41.9	61.3	80.8	38.3	57.7	77.2
		76 TC	—	141.0	141.0	—	132.7	132.7	—	124.5	124.5	—	116.2	116.2	—	107.6	107.6
		76 SHC	—	56.7	76.6	—	53.2	73.0	—	49.7	69.4	—	46.2	65.9	—	42.7	62.2
4300 CFM	EAT (wb)	58 TC	112.0	112.0	126.7	106.2	106.2	120.3	100.4	100.4	114.0	94.5	94.5	107.3	88.1	88.1	100.3
		58 SHC	97.3	112.0	126.7	92.1	106.2	120.3	87.0	100.4	114.0	81.6	94.5	107.3	76.0	88.1	100.3
		62 TC	112.1	112.1	131.7	106.3	106.3	125.2	100.5	100.5	118.6	94.6	94.6	111.7	88.2	88.2	104.5
		62 SHC	92.4	112.1	131.7	87.5	106.3	125.2	82.5	100.5	118.6	77.3	94.6	111.7	72.0	88.2	104.5
		67 TC	120.0	120.0	120.0	112.7	112.7	114.8	105.6	105.6	111.2	98.4	98.4	107.4	90.8	90.8	103.5
		67 SHC	75.0	96.7	118.5	71.4	93.1	114.8	67.9	89.5	111.2	64.3	85.8	107.4	60.5	82.0	103.5
	EAT (db)	72 TC	132.6	132.6	132.6	124.6	124.6	124.6	116.8	116.8	116.8	108.9	108.9	108.9	100.6	100.6	100.6
		72 SHC	54.0	75.9	97.7	50.5	72.2	94.1	47.0	68.7	90.5	43.5	65.2	86.9	39.9	61.5	83.2
		76 TC	—	143.2	143.2	—	134.6	134.6	—	126.2	126.2	—	117.7	117.7	—	109.0	109.0
		76 SHC	—	58.9	81.0	—	55.3	77.3	—	51.8	73.6	—	48.2	70.0	—	44.6	66.2
4850 CFM	EAT (wb)	58 TC	116.1	116.1	131.3	110.0	110.0	124.6	103.9	103.9	117.9	97.7	97.7	111.0	91.1	91.1	103.6
		58 SHC	100.9	116.1	131.3	95.5	110.0	124.6	90.0	103.9	117.9	84.4	97.7	111.0	78.6	91.1	103.6
		62 TC	116.2	116.2	136.5	110.1	110.1	129.6	104.0	104.0	122.7	97.8	97.8	115.5	91.2	91.2	107.9
		62 SHC	95.9	116.2	136.5	90.7	110.1	129.6	85.4	104.0	122.7	80.0	97.8	115.5	74.4	91.2	107.9
		67 TC	122.0	122.0	127.4	114.6	114.6	123.6	107.3	107.3	119.8	99.9	99.9	115.9	92.3	92.3	111.6
		67 SHC	79.1	103.3	127.4	75.5	99.5	123.6	71.9	95.8	119.8	68.2	92.0	115.9	64.4	87.9	111.6
	EAT (db)	72 TC	134.6	134.6	134.6	126.4	126.4	126.4	118.3	118.3	118.3	110.3	110.3	110.3	101.8	101.8	101.8
		72 SHC	55.8	80.0	104.2	52.2	76.3	100.5	48.7	72.7	96.9	45.0	69.2	93.3	41.4	65.4	89.5
		76 TC	—	145.2	145.2	—	136.3	136.3	—	127.7	127.7	—	119.0	119.0	—	110.1	110.1
		76 SHC	—	61.1	85.5	—	57.4	81.7	—	53.8	78.0	—	50.2	74.3	—	46.5	70.4
5400 CFM	EAT (wb)	58 TC	119.6	119.6	135.2	113.2	113.2	128.2	107.0	107.0	121.2	100.4	100.4	114.1	93.6	93.6	106.5
		58 SHC	103.9	119.6	135.2	98.3	113.2	128.2	92.6	107.0	121.2	86.9	100.4	114.1	80.7	93.6	106.5
		62 TC	119.7	119.7	140.6	113.3	113.3	133.3	107.1	107.1	126.1	100.5	100.5	118.7	93.7	93.7	110.9
		62 SHC	98.9	119.7	140.6	93.4	113.3	133.3	87.9	107.1	126.1	82.4	100.5	118.7	76.5	93.7	110.9
		67 TC	123.7	123.7	135.8	116.2	116.2	131.8	108.8	108.8	127.9	101.5	101.5	123.5	94.1	94.1	118.1
		67 SHC	83.1	109.5	135.8	79.3	105.6	131.8	75.6	101.8	127.9	71.8	97.7	123.5	67.5	92.7	118.1
	EAT (db)	72 TC	136.0	136.0	136.0	127.7	127.7	127.7	119.5	119.5	119.5	111.3	111.3	111.3	102.8	102.8	102.8
		72 SHC	57.4	83.9	110.6	53.7	80.2	106.8	50.2	76.6	103.1	46.6	73.0	99.4	42.9	69.2	95.6
		76 TC	—	146.6	146.6	—	137.7	137.7	—	128.9	128.9	—	120.0	120.0	—	111.0	111.0
		76 SHC	—	63.1	89.8	—	59.4	86.0	—	55.8	82.2	—	52.1	78.3	—	48.4	74.4

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES — THIRD STAGE, FULL LOAD (17.5 TONS)

48LC SIZE 20				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
5250 CFM	EAT (wb)	58	TC	177.4	177.4	201.2	168.6	168.6	191.6	159.3	159.3	181.4	149.7	149.7	170.8	139.3	139.3	159.4
			SHC	153.6	177.4	201.2	145.6	168.6	191.6	137.2	159.3	181.4	128.5	149.7	170.8	119.1	139.3	159.4
		62	TC	184.4	184.4	192.2	173.9	173.9	185.7	163.0	163.0	179.1	151.7	151.7	172.2	140.0	140.0	164.5
			SHC	138.4	165.3	192.2	132.0	158.9	185.7	125.6	152.4	179.1	118.9	145.5	172.2	111.7	138.1	164.5
		67	TC	202.7	202.7	202.7	191.4	191.4	191.4	179.6	179.6	179.6	167.2	167.2	167.2	154.2	154.2	154.2
			SHC	112.7	139.7	166.8	106.5	133.6	160.6	100.2	127.2	154.2	93.6	120.6	147.6	87.0	113.9	140.9
		72	TC	223.1	223.1	223.1	211.2	211.2	211.2	198.6	198.6	198.6	185.4	185.4	185.4	171.8	171.8	171.8
			SHC	86.6	113.9	141.1	80.5	107.7	135.0	74.3	101.5	128.7	67.9	95.1	122.2	61.3	88.4	115.5
		76	TC	—	240.5	240.5	—	228.1	228.1	—	215.0	215.0	—	200.9	200.9	—	186.7	186.7
			SHC	—	92.8	121.0	—	86.9	115.0	—	80.7	108.7	—	74.3	102.1	—	67.8	95.6
6150 CFM	EAT (wb)	58	TC	187.8	187.8	212.8	178.4	178.4	202.6	168.6	168.6	191.8	158.2	158.2	180.5	147.4	147.4	168.5
			SHC	162.7	187.8	212.8	154.2	178.4	202.6	145.4	168.6	191.8	136.1	158.2	180.5	126.4	147.4	168.5
		62	TC	190.8	190.8	211.8	180.2	180.2	205.0	169.3	169.3	197.5	158.5	158.5	188.2	147.6	147.6	175.7
			SHC	150.1	181.0	211.8	143.6	174.3	205.0	136.7	167.1	197.5	128.9	158.5	188.2	119.4	147.6	175.7
		67	TC	208.3	208.3	208.3	196.5	196.5	196.5	184.3	184.3	184.3	171.5	171.5	171.5	158.2	158.2	158.2
			SHC	120.3	151.5	182.7	114.1	145.3	176.5	107.6	138.8	170.0	101.0	132.1	163.3	94.2	125.3	156.4
		72	TC	228.8	228.8	228.8	216.5	216.5	216.5	203.3	203.3	203.3	189.8	189.8	189.8	175.8	175.8	175.8
			SHC	90.1	121.5	152.9	83.9	115.2	146.6	77.5	108.8	140.2	71.1	102.4	133.6	64.4	95.6	126.8
		76	TC	—	246.4	246.4	—	233.5	233.5	—	220.0	220.0	—	205.3	205.3	—	190.6	190.6
			SHC	—	97.1	129.4	—	91.1	123.1	—	84.8	116.8	—	78.3	110.1	—	71.7	103.4
7000 CFM	EAT (wb)	58	TC	195.8	195.8	221.7	186.0	186.0	211.0	175.7	175.7	199.7	164.9	164.9	187.8	153.6	153.6	175.3
			SHC	169.7	195.8	221.7	161.0	186.0	211.0	151.7	175.7	199.7	142.0	164.9	187.8	131.7	153.6	175.3
		62	TC	196.4	196.4	228.2	186.1	186.1	219.6	175.9	175.9	208.0	165.1	165.1	195.7	153.8	153.8	182.8
			SHC	160.0	194.1	228.2	152.7	186.1	219.6	143.8	175.9	208.0	134.5	165.1	195.7	124.6	153.8	182.8
		67	TC	212.4	212.4	212.4	200.4	200.4	200.4	187.9	187.9	187.9	174.8	174.8	177.5	161.2	161.2	170.3
			SHC	127.1	162.1	197.2	120.8	155.8	190.8	114.3	149.3	184.3	107.5	142.4	177.5	100.7	135.5	170.3
		72	TC	233.0	233.0	233.0	220.4	220.4	220.4	206.8	206.8	206.8	193.0	193.0	193.0	178.6	178.6	178.6
			SHC	93.0	128.2	163.4	86.9	122.0	157.1	80.3	115.4	150.5	73.8	108.8	143.8	67.2	102.1	137.1
		76	TC	—	250.8	250.8	—	237.4	237.4	—	223.2	223.2	—	208.7	208.7	—	193.5	193.5
			SHC	—	100.8	136.8	—	94.7	130.6	—	88.2	124.0	—	81.8	117.4	—	75.2	110.6
7900 CFM	EAT (wb)	58	TC	202.8	202.8	229.6	192.7	192.7	218.4	181.9	181.9	206.7	170.7	170.7	194.3	158.9	158.9	181.4
			SHC	176.0	202.8	229.6	166.8	192.7	218.4	157.2	181.9	206.7	147.1	170.7	194.3	136.5	158.9	181.4
		62	TC	203.1	203.1	238.9	192.9	192.9	227.3	182.1	182.1	215.2	170.8	170.8	202.4	159.0	159.0	189.0
			SHC	167.2	203.1	238.9	158.3	192.9	227.3	149.1	182.1	215.2	139.3	170.8	202.4	129.1	159.0	189.0
		67	TC	215.9	215.9	215.9	203.7	203.7	205.4	190.9	190.9	198.7	177.6	177.6	191.6	163.9	163.9	184.2
			SHC	134.0	173.0	212.0	127.6	166.5	205.4	121.0	159.8	198.7	114.2	152.9	191.6	107.2	145.7	184.2
		72	TC	236.6	236.6	236.6	223.7	223.7	223.7	209.7	209.7	209.7	195.6	195.6	195.6	181.0	181.0	181.0
			SHC	95.9	135.0	174.1	89.7	128.7	167.8	83.1	122.1	161.1	76.5	115.4	154.3	69.8	108.6	147.4
		76	TC	—	254.1	254.1	—	240.5	240.5	—	226.3	226.3	—	211.5	211.5	—	196.0	196.0
			SHC	—	104.4	144.3	—	98.2	138.0	—	91.8	131.4	—	85.3	124.7	—	78.5	117.7
8750 CFM	EAT (wb)	58	TC	208.5	208.5	236.0	197.9	197.9	224.3	187.0	187.0	212.3	175.3	175.3	199.4	163.2	163.2	186.1
			SHC	181.1	208.5	236.0	171.5	197.9	224.3	161.7	187.0	212.3	151.1	175.3	199.4	140.3	163.2	186.1
		62	TC	208.7	208.7	245.4	198.1	198.1	233.4	187.1	187.1	220.9	175.4	175.4	207.7	163.3	163.3	193.9
			SHC	172.0	208.7	245.4	162.8	198.1	233.4	153.3	187.1	220.9	143.2	175.4	207.7	132.7	163.3	193.9
		67	TC	218.7	218.7	225.2	206.3	206.3	218.5	193.4	193.4	211.6	180.0	180.0	204.2	166.1	166.1	196.4
			SHC	140.1	182.7	225.2	133.7	176.1	218.5	126.9	169.3	211.6	120.0	162.0	204.2	112.8	154.5	196.4
		72	TC	239.3	239.3	239.3	226.1	226.1	226.1	212.4	212.4	212.4	197.5	197.5	197.5	182.8	182.8	182.8
			SHC	98.5	141.2	183.9	92.1	134.8	177.5	85.7	128.3	170.8	79.0	121.4	163.9	72.2	114.6	156.9
		76	TC	—	256.9	256.9	—	243.1	243.1	—	228.5	228.5	—	213.5	213.5	—	197.8	197.8
			SHC	—	107.7	151.1	—	101.5	144.7	—	95.0	138.1	—	88.3	131.2	—	81.6	124.1

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

48LC*A20 REHEAT MODE #1 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-1 (SUBCOOLER MODE)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F DB)								
		5250/0.03			7000/0.06			8750/0.10		
		AIR ENTERING EVAPORATOR — Ewb (°F)								
TEMP (°F)		72	67	62	72	67	62	72	67	62
75	TC	234	210	189	246	223	202	254	231	215
	SHC	106	131	157	123	157	189	138	180	215
	kW	11.6	11.2	10.9	11.8	11.4	11.1	11.9	11.5	11.3
85	TC	219	196	176	230	208	189	238	215	200
	SHC	93	119	145	109	143	176	123	165	200
	kW	12.7	12.4	12.1	12.9	12.6	12.3	13.0	12.7	12.5
95	TC	204	182	163	214	193	175	221	199	184
	SHC	79	106	132	94	129	163	108	150	184
	kW	14.0	13.7	13.4	14.2	13.9	13.6	14.3	14.0	13.7
105	TC	188	167	149	197	177	160	204	183	170
	SHC	64	91	120	78	114	149	92	135	170
	kW	15.5	15.1	14.8	15.7	15.3	15.0	15.8	15.4	15.2
115	TC	172	152	135	180	161	145	186	166	154
	SHC	50	78	106	62	99	135	75	120	154
	kW	17.2	16.8	16.5	17.3	17.0	16.7	17.4	17.1	16.9
125	TC	155	137	120	163	144	129	168	148	138
	SHC	35	64	93	47	84	120	59	103	138
	kW	19.0	18.6	18.3	19.2	18.8	18.5	19.3	18.9	18.7

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

48LC*A20 REHEAT MODE #2 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-2 (HOT GAS REHEAT MODE)		AIR ENTERING EVAPORATOR — SCFM/BF (80°F DB)								
		5250/0.03			7000/0.05			8750/0.08		
		AIR ENTERING EVAPORATOR — Ewb (°F)								
TEMP (°F)		62.5	64	65.3	62.5	64	65.3	62.5	64	65.3
75	TC	77	80	82	80	83	85	81	84	87
	SHC	18	8	−1	33	20	9	49	34	20
	kW	11.8	12.0	12.2	12.0	12.1	12.3	12.1	12.2	12.4
85	TC	82	86	88	86	89	91	88	91	93
	SHC	24	14	5	39	26	15	55	40	26
	kW	11.3	11.5	11.6	11.5	11.6	11.8	11.6	11.7	11.9
95	TC	88	91	94	92	95	98	94	97	100
	SHC	29	19	10	45	32	21	61	46	32
	kW	10.8	11.0	11.1	11.0	11.1	11.3	11.1	11.2	11.4
105	TC	99	103	106	103	107	110	106	109	112
	SHC	40	30	22	56	43	33	72	58	45
	kW	10.0	10.1	10.2	10.1	10.3	10.4	10.2	10.4	10.5
115	TC	111	114	118	115	119	122	118	122	125
	SHC	51	42	33	68	55	45	84	70	57
	kW	9.2	9.3	9.5	9.3	9.5	9.6	9.5	9.6	9.7
125	TC	122	126	129	127	131	134	130	134	137
	SHC	63	53	45	80	68	57	97	83	70
	kW	8.5	8.7	8.8	8.7	8.8	9.0	8.8	9.0	9.1

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES - FIRST STAGE, PART LOAD (20 TONS)

48LC SIZE 24				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3150 CFM	EAT (wb)	58	TC	87.9	87.9	101.5	79.4	79.4	92.4	70.7	70.7	83.3	61.7	61.7	73.7	52.6	52.6	64.0
			SHC	74.4	87.9	101.5	66.3	79.4	92.4	58.1	70.7	83.3	49.7	61.7	73.7	41.1	52.6	64.0
		62	TC	91.3	91.3	101.0	81.4	81.4	93.7	71.6	71.6	86.2	61.9	61.9	77.9	52.7	52.7	67.9
			SHC	68.1	84.5	101.0	60.8	77.2	93.7	53.5	69.8	86.2	45.8	61.9	77.9	37.4	52.7	67.9
		67	TC	104.6	104.6	104.6	94.1	94.1	94.1	83.5	83.5	83.5	72.6	72.6	72.6	61.4	61.4	61.4
			SHC	54.7	71.4	87.9	47.5	64.2	80.7	40.3	56.9	73.5	33.0	49.6	66.2	25.5	42.2	58.8
		72	TC	119.6	119.6	119.6	108.6	108.6	108.6	97.4	97.4	97.4	86.0	86.0	86.0	74.1	74.1	74.1
			SHC	41.1	57.8	74.6	33.9	50.6	67.4	26.7	43.4	60.2	19.4	36.2	52.8	12.1	28.8	45.4
		76	TC	—	132.6	132.6	—	121.1	121.1	—	109.4	109.4	—	97.4	97.4	—	85.0	85.0
			SHC	—	46.8	63.7	—	39.6	56.6	—	32.4	49.3	—	25.2	42.0	—	17.7	34.6
3650 CFM	EAT (wb)	58	TC	94.8	94.8	109.0	85.7	85.7	99.5	76.5	76.5	89.7	67.2	67.2	79.8	57.5	57.5	69.4
			SHC	80.4	94.8	109.0	72.0	85.7	99.5	63.4	76.5	89.7	54.7	67.2	79.8	45.6	57.5	69.4
		62	TC	95.6	95.6	112.7	85.9	85.9	104.2	76.7	76.7	94.3	67.4	67.4	84.1	57.6	57.6	73.5
			SHC	75.4	94.1	112.7	67.6	85.9	104.2	59.2	76.7	94.3	50.6	67.4	84.1	41.7	57.6	73.5
		67	TC	108.2	108.2	108.2	97.4	97.4	97.4	86.5	86.5	86.5	75.3	75.3	75.8	63.8	63.8	68.2
			SHC	59.8	78.9	98.0	52.5	71.6	90.7	45.0	64.2	83.3	37.6	56.6	75.8	30.0	49.1	68.2
		72	TC	123.4	123.4	123.4	112.0	112.0	112.0	100.5	100.5	100.5	88.6	88.6	88.6	76.4	76.4	76.4
			SHC	43.7	63.0	82.2	36.4	55.6	74.9	29.1	48.3	67.5	21.5	40.8	60.0	14.0	33.2	52.5
		76	TC	—	136.5	136.5	—	124.7	124.7	—	112.6	112.6	—	100.2	100.2	—	87.5	87.5
			SHC	—	49.9	69.4	—	42.6	62.1	—	35.3	54.7	—	27.9	47.2	—	20.3	39.7
4200 CFM	EAT (wb)	58	TC	101.0	101.0	115.9	91.6	91.6	105.9	82.0	82.0	95.7	72.2	72.2	85.3	62.1	62.1	74.5
			SHC	86.1	101.0	115.9	77.2	91.6	105.9	68.3	82.0	95.7	59.2	72.2	85.3	49.7	62.1	74.5
		62	TC	101.2	101.2	121.1	91.7	91.7	110.9	82.2	82.2	100.5	72.3	72.3	89.8	62.2	62.2	78.8
			SHC	81.2	101.2	121.1	72.5	91.7	110.9	63.9	82.2	100.5	54.9	72.3	89.8	45.6	62.2	78.8
		67	TC	111.4	111.4	111.4	100.2	100.2	101.0	89.0	89.0	93.4	77.6	77.6	85.8	65.8	65.8	77.9
			SHC	64.9	86.8	108.5	57.5	79.3	101.0	50.0	71.8	93.4	42.4	64.2	85.8	34.7	56.4	77.9
		72	TC	126.8	126.8	126.8	115.0	115.0	115.0	103.1	103.1	103.1	90.9	90.9	90.9	78.3	78.3	78.3
			SHC	46.2	68.2	90.1	38.8	60.7	82.6	31.3	53.2	75.2	23.8	45.6	67.6	16.1	38.0	59.9
		76	TC	—	139.9	139.9	—	127.7	127.7	—	115.2	115.2	—	102.6	102.6	—	89.4	89.4
			SHC	—	53.0	75.2	—	45.6	67.8	—	38.1	60.3	—	30.6	52.7	—	22.9	44.9
4700 CFM	EAT (wb)	58	TC	105.9	105.9	121.3	96.1	96.1	110.9	86.2	86.2	100.3	76.1	76.1	89.5	65.6	65.6	78.3
			SHC	90.5	105.9	121.3	81.3	96.1	110.9	72.1	86.2	100.3	62.6	76.1	89.5	52.8	65.6	78.3
		62	TC	106.0	106.0	126.7	96.2	96.2	116.0	86.4	86.4	105.2	76.1	76.1	94.2	65.7	65.7	82.8
			SHC	85.4	106.0	126.7	76.4	96.2	116.0	67.5	86.4	105.2	58.2	76.1	94.2	48.7	65.7	82.8
		67	TC	113.8	113.8	117.7	102.5	102.5	110.0	91.1	91.1	102.3	79.4	79.4	94.4	67.5	67.5	86.3
			SHC	69.4	93.6	117.7	61.8	85.9	110.0	54.2	78.3	102.3	46.5	70.5	94.4	38.7	62.5	86.3
		72	TC	129.0	129.0	129.0	117.0	117.0	117.0	104.9	104.9	104.9	92.4	92.4	92.4	79.7	79.7	79.7
			SHC	48.4	72.6	97.0	40.9	65.1	89.4	33.2	57.5	81.8	25.6	49.8	74.1	17.8	42.1	66.4
		76	TC	—	142.4	142.4	—	129.9	129.9	—	117.2	117.2	—	104.2	104.2	—	90.9	90.9
			SHC	—	55.6	80.1	—	48.1	72.6	—	40.6	65.0	—	32.9	57.3	—	25.2	49.5
5250 CFM	EAT (wb)	58	TC	110.5	110.5	126.3	100.3	100.3	115.5	90.2	90.2	104.7	79.7	79.7	93.5	68.9	68.9	82.0
			SHC	94.6	110.5	126.3	85.1	100.3	115.5	75.7	90.2	104.7	65.9	79.7	93.5	55.9	68.9	82.0
		62	TC	110.6	110.6	131.8	100.5	100.5	120.8	90.3	90.3	109.7	79.9	79.9	98.3	69.0	69.0	86.5
			SHC	89.4	110.6	131.8	80.1	100.5	120.8	70.9	90.3	109.7	61.3	79.9	98.3	51.6	69.0	86.5
		67	TC	115.9	115.9	127.3	104.5	104.5	119.4	92.9	92.9	111.4	81.2	81.2	103.2	69.7	69.7	93.6
			SHC	74.1	100.7	127.3	66.4	92.9	119.4	58.7	85.0	111.4	50.7	76.9	103.2	42.4	68.0	93.6
		72	TC	131.0	131.0	131.0	118.9	118.9	118.9	106.5	106.5	106.5	93.9	93.9	93.9	80.8	80.8	80.8
			SHC	50.5	77.3	104.2	42.9	69.7	96.5	35.2	62.1	88.9	27.5	54.3	81.1	19.7	46.5	73.2
		76	TC	—	144.4	144.4	—	131.7	131.7	—	118.9	118.9	—	105.7	105.7	—	92.1	92.1
			SHC	—	58.2	85.3	—	50.7	77.7	—	43.0	70.1	—	35.3	62.3	—	27.5	54.5

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES - SECOND STAGE, PART LOAD (20 TONS)

48LC SIZE 24			AMBIENT TEMPERATURE (°F)														
			85			95			105			115			125		
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
3900 CFM	EAT (wb)	58 TC	128.8	128.8	146.4	121.7	121.7	138.6	114.1	114.1	130.4	105.8	105.8	121.3	96.9	96.9	111.5
		58 SHC	111.2	128.8	146.4	104.7	121.7	138.6	97.8	114.1	130.4	90.3	105.8	121.3	82.2	96.9	111.5
		62 TC	134.0	134.0	141.8	125.6	125.6	136.5	116.5	116.5	130.7	106.8	106.8	124.5	97.0	97.0	116.6
		62 SHC	101.1	121.4	141.8	95.8	116.1	136.5	90.3	110.5	130.7	84.3	104.4	124.5	77.4	97.0	116.6
		67 TC	148.8	148.8	148.8	139.8	139.8	139.8	130.1	130.1	130.1	119.5	119.5	119.5	108.2	108.2	108.2
		67 SHC	82.5	103.0	123.4	77.3	97.8	118.3	71.9	92.3	112.8	66.1	86.6	107.1	60.1	80.5	101.0
	EAT (db)	72 TC	165.6	165.6	165.6	156.1	156.1	156.1	145.9	145.9	145.9	134.6	134.6	134.6	122.7	122.7	122.7
		72 SHC	63.5	84.1	104.7	58.4	79.0	99.6	53.0	73.6	94.2	47.4	68.0	88.5	41.4	62.0	82.6
		76 TC	—	179.7	179.7	—	169.8	169.8	—	159.1	159.1	—	147.5	147.5	—	134.8	134.8
		76 SHC	—	68.5	89.5	—	63.6	84.4	—	58.3	79.2	—	52.7	73.6	—	46.9	67.7
4500 CFM	EAT (wb)	58 TC	136.4	136.4	154.8	129.0	129.0	146.7	120.9	120.9	138.0	112.1	112.1	128.4	102.8	102.8	118.1
		58 SHC	118.0	136.4	154.8	111.2	129.0	146.7	103.8	120.9	138.0	95.9	112.1	128.4	87.5	102.8	118.1
		62 TC	138.6	138.6	155.8	130.2	130.2	150.1	121.0	121.0	143.8	112.3	112.3	134.1	103.0	103.0	123.4
		62 SHC	109.5	132.7	155.8	104.0	127.0	150.1	98.2	121.0	143.8	90.7	112.3	134.1	82.5	103.0	123.4
		67 TC	153.0	153.0	153.0	143.7	143.7	143.7	133.7	133.7	133.7	122.9	122.9	122.9	111.2	111.2	112.1
		67 SHC	88.0	111.4	134.9	82.8	106.3	129.7	77.3	100.7	124.1	71.5	94.9	118.3	65.4	88.7	112.1
	EAT (db)	72 TC	169.9	169.9	169.9	160.2	160.2	160.2	149.5	149.5	149.5	138.0	138.0	138.0	125.5	125.5	125.5
		72 SHC	66.1	89.7	113.3	60.9	84.5	108.1	55.5	79.1	102.6	49.8	73.3	96.8	43.8	67.4	90.9
		76 TC	—	184.1	184.1	—	173.9	173.9	—	162.8	162.8	—	150.8	150.8	—	137.9	137.9
		76 SHC	—	71.9	95.7	—	66.7	90.6	—	61.3	85.2	—	55.8	79.6	—	49.8	73.6
5150 CFM	EAT (wb)	58 TC	143.3	143.3	162.5	135.5	135.5	154.1	127.0	127.0	144.8	118.0	118.0	134.8	108.1	108.1	124.0
		58 SHC	124.0	143.3	162.5	117.0	135.5	154.1	109.3	127.0	144.8	101.0	118.0	134.8	92.1	108.1	124.0
		62 TC	143.4	143.4	169.2	135.7	135.7	160.5	127.2	127.2	151.0	118.1	118.1	140.7	108.2	108.2	129.5
		62 SHC	117.7	143.4	169.2	110.9	135.7	160.5	103.4	127.2	151.0	95.6	118.1	140.7	87.0	108.2	129.5
		67 TC	156.6	156.6	156.6	147.0	147.0	147.0	136.8	136.8	136.8	125.7	125.7	129.9	113.7	113.7	123.5
		67 SHC	93.8	120.3	146.8	88.4	115.0	141.5	82.9	109.4	135.9	77.0	103.4	129.9	70.8	97.2	123.5
	EAT (db)	72 TC	173.6	173.6	173.6	163.4	163.4	163.4	152.5	152.5	152.5	140.6	140.6	140.6	127.8	127.8	127.8
		72 SHC	68.6	95.4	122.1	63.5	90.1	116.8	58.0	84.6	111.3	52.2	78.8	105.5	46.1	72.7	99.4
		76 TC	—	187.8	187.8	—	177.3	177.3	—	165.9	165.9	—	153.7	153.7	—	140.3	140.3
		76 SHC	—	75.0	102.1	—	69.8	96.8	—	64.4	91.4	—	58.8	85.7	—	52.7	79.7
5800 CFM	EAT (wb)	58 TC	149.2	149.2	169.1	141.1	141.1	160.2	132.3	132.3	150.6	122.8	122.8	140.2	112.5	112.5	129.0
		58 SHC	129.2	149.2	169.1	121.9	141.1	160.2	113.9	132.3	150.6	105.3	122.8	140.2	96.1	112.5	129.0
		62 TC	149.3	149.3	175.9	141.2	141.2	166.8	132.4	132.4	157.0	122.9	122.9	146.3	112.7	112.7	134.6
		62 SHC	122.7	149.3	175.9	115.5	141.2	166.8	107.9	132.4	157.0	99.6	122.9	146.3	90.7	112.7	134.6
		67 TC	159.4	159.4	159.4	149.8	149.8	152.9	139.2	139.2	147.1	127.9	127.9	141.0	115.8	115.8	134.5
		67 SHC	99.2	128.7	158.2	93.8	123.3	152.9	88.1	117.6	147.1	82.2	111.6	141.0	75.9	105.2	134.5
	EAT (db)	72 TC	176.3	176.3	176.3	165.9	165.9	165.9	154.8	154.8	154.8	142.7	142.7	142.7	129.8	129.8	129.8
		72 SHC	71.0	100.7	130.5	65.7	95.5	125.2	60.3	89.9	119.6	54.4	84.0	113.7	48.3	77.9	107.5
		76 TC	—	190.6	190.6	—	179.9	179.9	—	168.3	168.3	—	155.8	155.8	—	142.3	142.3
		76 SHC	—	77.9	108.0	—	72.7	102.8	—	67.3	97.3	—	61.6	91.6	—	55.6	85.4
6450 CFM	EAT (wb)	58 TC	154.1	154.1	174.6	145.8	145.8	165.6	136.7	136.7	155.6	126.9	126.9	144.9	116.3	116.3	133.2
		58 SHC	133.7	154.1	174.6	126.1	145.8	165.6	117.9	136.7	155.6	109.0	126.9	144.9	99.5	116.3	133.2
		62 TC	154.3	154.3	181.6	146.0	146.0	172.3	136.9	136.9	162.1	127.0	127.0	151.0	116.5	116.5	139.0
		62 SHC	126.9	154.3	181.6	119.5	146.0	172.3	111.6	136.9	162.1	103.2	127.0	151.0	93.9	116.5	139.0
		67 TC	161.9	161.9	169.3	152.0	152.0	163.7	141.5	141.5	157.9	130.1	130.1	151.4	117.9	117.9	144.4
		67 SHC	104.3	136.8	169.3	98.9	131.3	163.7	93.2	125.5	157.9	87.2	119.3	151.4	80.6	112.5	144.4
	EAT (db)	72 TC	178.5	178.5	178.5	168.0	168.0	168.0	156.7	156.7	156.7	144.4	144.4	144.4	131.1	131.1	131.1
		72 SHC	73.2	105.9	138.5	67.9	100.5	133.2	62.3	95.0	127.6	56.5	89.1	121.7	50.3	82.9	115.4
		76 TC	—	192.9	192.9	—	182.0	182.0	—	170.2	170.2	—	157.5	157.5	—	143.8	143.8
		76 SHC	—	80.7	113.7	—	75.5	108.5	—	70.0	103.0	—	64.3	97.1	—	58.2	91.1

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES - THIRD STAGE, FULL LOAD (20 TONS)

48LC SIZE 24				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
6000 CFM	EAT (wb)	58	TC	217.4	217.4	245.6	208.3	208.3	235.6	198.5	198.5	224.7	188.0	188.0	213.0	176.6	176.6	200.3
			SHC	189.2	217.4	245.6	181.1	208.3	235.6	172.4	198.5	224.7	163.0	188.0	213.0	152.9	176.6	200.3
		62	TC	227.3	227.3	230.2	216.2	216.2	224.2	204.4	204.4	217.6	191.7	191.7	210.8	178.2	178.2	203.0
			SHC	169.0	199.6	230.2	162.9	193.5	224.2	156.6	187.1	217.6	149.9	180.4	210.8	142.6	172.9	203.0
		67	TC	248.8	248.8	248.8	236.8	236.8	236.8	224.1	224.1	224.1	210.2	210.2	210.2	195.4	195.4	195.4
			SHC	139.0	169.8	200.7	133.2	164.0	194.7	127.0	157.8	188.6	120.5	151.2	182.0	113.7	144.4	175.1
		72	TC	273.6	273.6	273.6	260.9	260.9	260.9	247.1	247.1	247.1	232.2	232.2	232.2	216.4	216.4	216.4
			SHC	108.9	140.0	171.0	103.3	134.3	165.3	97.1	128.1	159.1	90.8	121.7	152.7	84.0	115.0	145.9
		76	TC	—	294.8	294.8	—	281.4	281.4	—	266.8	266.8	—	251.1	251.1	—	234.3	234.3
			SHC	—	115.5	147.7	—	110.0	142.2	—	103.9	135.9	—	97.7	129.4	—	91.1	122.7
7000 CFM	EAT (wb)	58	TC	229.4	229.4	259.1	219.7	219.7	248.3	209.2	209.2	236.7	198.0	198.0	224.2	185.9	185.9	210.7
			SHC	199.7	229.4	259.1	191.1	219.7	248.3	181.7	209.2	236.7	171.8	198.0	224.2	161.1	185.9	210.7
		62	TC	234.9	234.9	252.1	223.4	223.4	245.7	211.3	211.3	238.8	199.3	199.3	229.8	186.2	186.2	219.4
			SHC	182.0	217.1	252.1	175.8	210.8	245.7	169.3	204.0	238.8	161.7	195.7	229.8	153.1	186.2	219.4
		67	TC	256.2	256.2	256.2	243.2	243.2	243.2	229.8	229.8	229.8	215.6	215.6	215.6	200.3	200.3	200.3
			SHC	147.7	183.1	218.5	141.6	177.0	212.3	135.3	170.6	206.0	128.7	164.1	199.4	121.8	157.1	192.4
		72	TC	281.0	281.0	281.0	267.6	267.6	267.6	253.2	253.2	253.2	237.7	237.7	237.7	221.3	221.3	221.3
			SHC	112.8	148.5	184.2	107.1	142.6	178.2	100.8	136.4	172.0	94.4	129.9	165.4	87.6	123.0	158.5
		76	TC	—	302.4	302.4	—	288.3	288.3	—	273.1	273.1	—	256.7	256.7	—	239.4	239.4
			SHC	—	120.4	157.2	—	114.7	151.3	—	108.6	145.1	—	102.2	138.5	—	95.5	131.6
8000 CFM	EAT (wb)	58	TC	239.2	239.2	270.1	228.9	228.9	258.8	217.9	217.9	246.5	206.2	206.2	233.4	193.5	193.5	219.3
			SHC	208.3	239.2	270.1	199.2	228.9	258.8	189.4	217.9	246.5	179.0	206.2	233.4	167.8	193.5	219.3
		62	TC	241.3	241.3	272.3	229.9	229.9	265.0	218.1	218.1	256.1	206.6	206.6	242.9	193.7	193.7	228.1
			SHC	194.0	233.1	272.3	187.4	226.2	265.0	180.0	218.1	256.1	170.1	206.5	242.9	159.3	193.7	228.1
		67	TC	261.6	261.6	261.6	248.2	248.2	248.2	234.5	234.5	234.5	219.8	219.8	219.8	204.0	204.0	208.7
			SHC	155.7	195.6	235.5	149.5	189.3	229.2	143.1	183.0	222.8	136.5	176.4	216.2	129.4	169.1	208.7
		72	TC	286.7	286.7	286.7	272.9	272.9	272.9	258.0	258.0	258.0	242.1	242.1	242.1	225.0	225.0	225.0
			SHC	116.4	156.5	196.7	110.5	150.5	190.7	104.2	144.3	184.4	97.7	137.7	177.6	90.8	130.7	170.6
		76	TC	—	308.3	308.3	—	293.8	293.8	—	278.1	278.1	—	261.1	261.1	—	243.3	243.3
			SHC	—	124.9	166.0	—	119.0	160.1	—	112.9	153.8	—	106.4	147.1	—	99.6	140.2
9000 CFM	EAT (wb)	58	TC	247.4	247.4	279.2	236.7	236.7	267.4	225.3	225.3	254.8	213.0	213.0	241.1	199.9	199.9	226.4
			SHC	215.4	247.4	279.2	206.0	236.7	267.4	195.9	225.3	254.8	185.1	213.0	241.1	173.4	199.9	226.4
		62	TC	247.7	247.7	290.4	236.9	236.9	278.0	225.5	225.5	264.8	213.2	213.2	250.7	200.1	200.1	235.5
			SHC	205.0	247.7	290.4	195.9	236.9	278.0	186.2	225.5	264.8	175.8	213.2	250.7	164.7	200.1	235.5
		67	TC	266.1	266.1	266.1	252.2	252.2	252.2	238.3	238.3	239.0	223.3	223.3	232.0	207.2	207.2	224.3
			SHC	163.4	207.6	251.8	157.1	201.2	245.4	150.6	194.8	239.0	143.9	187.9	232.0	136.7	180.5	224.3
		72	TC	291.1	291.1	291.1	277.0	277.0	277.0	261.8	261.8	261.8	245.4	245.4	245.4	228.1	228.1	228.1
			SHC	119.6	164.1	208.7	113.7	158.1	202.6	107.3	151.8	196.2	100.7	145.1	189.3	93.8	138.1	182.3
		76	TC	—	313.0	313.0	—	298.1	298.1	—	281.9	281.9	—	264.6	264.6	—	246.3	246.3
			SHC	—	129.0	174.4	—	123.1	168.5	—	116.9	162.1	—	110.4	155.4	—	103.5	148.4
10000 CFM	EAT (wb)	58	TC	254.8	254.8	287.6	243.4	243.4	275.0	231.6	231.6	261.8	218.8	218.8	247.6	205.1	205.1	232.2
			SHC	222.0	254.8	287.6	211.9	243.4	275.0	201.4	231.6	261.8	190.1	218.8	247.6	177.9	205.1	232.2
		62	TC	255.1	255.1	298.9	243.6	243.6	285.8	231.8	231.8	272.1	219.0	219.0	257.4	205.2	205.2	241.5
			SHC	211.2	255.1	298.9	201.4	243.6	285.8	191.5	231.8	272.1	180.7	219.0	257.4	169.1	205.2	241.5
		67	TC	269.3	269.3	269.3	255.9	255.9	261.1	241.5	241.5	254.3	226.2	226.2	247.0	210.1	210.1	239.0
			SHC	170.4	218.9	267.3	164.3	212.7	261.1	157.8	206.0	254.3	150.8	198.9	247.0	143.4	191.2	239.0
		72	TC	294.7	294.7	294.7	280.4	280.4	280.4	264.8	264.8	264.8	248.0	248.0	248.0	230.4	230.4	230.4
			SHC	122.7	171.4	220.2	116.7	165.4	214.0	110.4	158.9	207.6	103.6	152.2	200.8	96.7	145.1	193.5
76	TC	—	316.8	316.8	—	301.5	301.5	—	285.1	285.1	—	267.4	267.4	—	248.7	248.7		
	SHC	—	133.0	182.6	—	127.0	176.6	—	120.8	170.1	—	114.2	163.4	—	107.3	156.3		

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

48LC*A24 REHEAT MODE #1 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-1 (SUBCOOLER MODE)		AIR ENTERING EVAPORATOR – SCFM/BF (80°F DB)								
		6000/0.05			8000/0.08			10000/0.12		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
TEMP (°F)		72	67	62	72	67	62	72	67	62
75	TC	274	246	221	292	263	238	281	273	250
	SHC	120	148	176	140	176	213	136	202	244
	kW	13.5	13.2	12.9	13.7	13.4	13.1	13.4	13.5	13.3
85	TC	261	233	208	277	249	225	287	258	237
	SHC	107	136	164	126	163	201	142	188	231
	kW	14.9	14.6	14.3	15.1	14.8	14.5	15.3	14.9	14.7
95	TC	245	219	196	261	232	211	270	243	222
	SHC	93	123	153	111	148	188	127	174	217
	kW	16.5	16.2	15.8	16.8	16.3	16.1	16.9	16.5	16.2
105	TC	230	205	182	244	218	196	253	226	209
	SHC	80	110	141	96	135	175	111	159	197
	kW	18.4	18.0	17.7	18.6	18.2	17.9	18.7	18.3	18.1
115	TC	213	189	168	226	201	181	234	209	191
	SHC	65	97	128	80	121	161	95	143	187
	kW	20.4	20.1	19.7	20.6	20.2	19.9	20.8	20.4	20.1
125	TC	196	173	153	207	183	164	214	190	173
	SHC	50	83	115	64	105	146	77	127	173
	kW	22.7	22.4	22.0	22.9	22.5	22.2	23.0	22.6	22.4

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

48LC*A24 REHEAT MODE #2 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-2 (HOT GAS REHEAT MODE)		AIR ENTERING EVAPORATOR – SCFM/BF (80°F DB)								
		6000/0.05			8000/0.08			10000/0.11		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
TEMP (°F)		62.5	64	65.3	62.5	64	65.3	62.5	64	65.3
75	TC	89	93	96	92	96	99	94	98	101
	SHC	17	5	–5	32	17	5	48	31	16
	kW	19.6	19.9	20.2	19.9	20.2	20.4	20.0	20.3	20.6
85	TC	96	100	103	100	103	107	102	105	109
	SHC	24	12	2	39	24	12	55	38	23
	kW	18.7	19.0	19.3	19.0	19.3	19.5	19.2	19.5	19.7
95	TC	103	107	110	107	111	114	109	113	116
	SHC	30	18	8	46	31	19	62	45	30
	kW	17.9	18.2	18.4	18.2	18.5	18.7	18.4	18.6	18.9
105	TC	117	121	124	121	125	129	124	128	132
	SHC	43	32	22	59	45	33	76	59	45
	kW	16.4	16.7	16.9	16.7	16.9	17.2	16.9	17.1	17.4
115	TC	131	135	139	136	140	144	139	143	147
	SHC	56	45	35	73	59	47	91	74	59
	kW	15.1	15.3	15.6	15.4	15.6	15.9	15.6	15.8	16.0
125	TC	145	149	153	150	155	159	154	158	162
	SHC	70	59	49	87	74	62	105	89	75
	kW	14.0	14.2	14.4	14.3	14.5	14.7	14.4	14.7	14.9

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES - FIRST STAGE, PART LOAD (23 TONS)

48LC SIZE 26			AMBIENT TEMPERATURE (°F)														
			85			95			105			115			125		
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
4050 CFM	EAT (wb)	58 TC	125.3	125.3	141.0	122.3	122.3	137.4	118.9	118.9	133.4	115.1	115.1	129.0	110.8	110.8	123.9
		58 SHC	109.6	125.3	141.0	107.2	122.3	137.4	104.3	118.9	133.4	101.1	115.1	129.0	97.5	110.8	123.9
		62 TC	126.7	126.7	142.1	122.9	122.9	140.4	119.0	119.0	138.5	115.1	115.1	133.8	110.9	110.9	128.5
		62 SHC	102.4	122.3	142.1	101.1	120.7	140.4	99.5	119.0	138.5	96.5	115.1	133.8	93.2	110.9	128.5
		67 TC	137.1	137.1	137.1	132.6	132.6	127.7	127.7	127.7	127.7	122.4	122.4	122.4	116.5	116.5	117.5
		67 SHC	82.5	102.7	122.9	81.4	101.6	121.8	80.1	100.4	120.6	78.8	99.0	119.1	77.2	97.3	117.5
	EAT (db)	72 TC	149.9	149.9	149.9	144.8	144.8	144.8	139.3	139.3	139.3	133.4	133.4	133.4	126.8	126.8	126.8
		72 SHC	61.8	82.2	102.5	60.8	81.1	101.4	59.7	80.0	100.2	58.3	78.6	98.8	56.7	77.0	97.2
		76 TC	—	160.7	160.7	—	155.1	155.1	—	149.2	149.2	—	142.7	142.7	—	135.6	135.6
		76 SHC	—	65.5	86.4	—	64.4	85.2	—	63.3	84.0	—	62.0	82.6	—	60.5	81.0
4750 CFM	EAT (wb)	58 TC	130.8	130.8	147.2	127.4	127.4	143.2	123.7	123.7	138.9	119.5	119.5	134.1	114.9	114.9	128.6
		58 SHC	114.4	130.8	147.2	111.5	127.4	143.2	108.5	123.7	138.9	105.0	119.5	134.1	101.0	114.9	128.6
		62 TC	130.9	130.9	152.9	127.5	127.5	148.7	123.8	123.8	144.1	119.6	119.6	139.0	114.9	114.9	133.3
		62 SHC	108.9	130.9	152.9	106.4	127.5	148.7	103.4	123.8	144.1	100.2	119.6	139.0	96.5	114.9	133.3
		67 TC	139.8	139.8	139.8	135.1	135.1	135.1	130.1	130.1	131.2	124.5	124.5	129.7	118.5	118.5	127.8
		67 SHC	87.4	110.6	133.8	86.2	109.4	132.6	84.9	108.1	131.2	83.5	106.6	129.7	81.8	104.8	127.8
	EAT (db)	72 TC	152.8	152.8	152.8	147.4	147.4	141.8	141.8	141.8	135.5	135.5	135.5	128.7	128.7	128.7	128.7
		72 SHC	63.8	87.1	110.4	62.7	85.9	109.2	61.4	84.7	107.9	60.1	83.3	106.5	58.5	81.6	104.8
		76 TC	—	163.7	163.7	—	158.0	158.0	—	151.7	151.7	—	144.9	144.9	—	137.5	137.5
		76 SHC	—	68.1	91.8	—	67.0	90.7	—	65.7	89.4	—	64.4	87.9	—	62.8	86.2
5400 CFM	EAT (wb)	58 TC	135.0	135.0	152.1	131.4	131.4	147.8	127.4	127.4	143.1	122.9	122.9	138.0	118.0	118.0	132.1
		58 SHC	118.1	135.0	152.1	115.1	131.4	147.8	111.7	127.4	143.1	107.9	122.9	138.0	103.7	118.0	132.1
		62 TC	135.1	135.1	157.9	131.5	131.5	153.4	127.5	127.5	148.5	123.0	123.0	143.0	118.0	118.0	137.0
		62 SHC	112.4	135.1	157.9	109.6	131.5	153.4	106.5	127.5	148.5	103.0	123.0	143.0	99.1	118.0	137.0
		67 TC	141.9	141.9	143.3	137.0	137.0	142.0	131.8	131.8	140.6	126.2	126.2	138.8	120.0	120.0	136.7
		67 SHC	91.7	117.5	143.3	90.4	116.2	142.0	89.1	114.9	140.6	87.7	113.2	138.8	85.8	111.2	136.7
	EAT (db)	72 TC	154.8	154.8	154.8	149.3	149.3	149.3	143.4	143.4	143.4	137.0	137.0	137.0	130.0	130.0	130.0
		72 SHC	65.4	91.4	117.3	64.3	90.2	116.0	63.0	88.9	114.8	61.6	87.5	113.2	60.1	85.8	111.5
		76 TC	—	165.9	165.9	—	159.9	159.9	—	153.4	153.4	—	146.4	146.4	—	138.8	138.8
		76 SHC	—	70.2	96.6	—	69.1	95.4	—	67.9	94.1	—	66.4	92.5	—	64.8	90.8
6100 CFM	EAT (wb)	58 TC	138.9	138.9	156.5	135.0	135.0	151.9	130.7	130.7	146.9	126.1	126.1	141.5	120.7	120.7	135.3
		58 SHC	121.4	138.9	156.5	118.2	135.0	151.9	114.6	130.7	146.9	110.7	126.1	141.5	106.2	120.7	135.3
		62 TC	139.0	139.0	162.4	135.1	135.1	157.7	130.8	130.8	152.5	126.1	126.1	146.7	120.8	120.8	140.3
		62 SHC	115.5	139.0	162.4	112.6	135.1	157.7	109.2	130.8	152.5	105.5	126.1	146.7	101.3	120.8	140.3
		67 TC	143.7	143.7	153.1	138.7	138.7	151.6	133.5	133.5	150.1	127.7	127.7	148.0	121.6	121.6	145.4
		67 SHC	95.9	124.5	153.1	94.8	123.2	151.6	93.4	121.7	150.1	91.7	119.8	148.0	89.7	117.6	145.4
	EAT (db)	72 TC	156.6	156.6	156.6	150.8	150.8	150.8	144.8	144.8	144.8	138.3	138.3	138.3	131.0	131.0	131.0
		72 SHC	67.1	95.6	124.3	65.9	94.5	123.1	64.6	93.2	121.7	63.2	91.7	120.1	61.6	90.0	118.4
		76 TC	—	167.8	167.8	—	161.6	161.6	—	154.9	154.9	—	147.8	147.8	—	139.9	139.9
		76 SHC	—	72.4	101.5	—	71.3	100.2	—	70.0	98.9	—	68.5	97.3	—	66.9	95.4
6750 CFM	EAT (wb)	58 TC	142.0	142.0	159.9	137.9	137.9	155.1	133.4	133.4	150.0	128.4	128.4	144.2	122.9	122.9	137.8
		58 SHC	124.0	142.0	159.9	120.6	137.9	155.1	116.9	133.4	150.0	112.7	128.4	144.2	108.0	122.9	137.8
		62 TC	142.1	142.1	166.0	138.0	138.0	161.0	133.5	133.5	155.6	128.5	128.5	149.6	122.9	122.9	142.8
		62 SHC	118.1	142.1	166.0	114.9	138.0	161.0	111.3	133.5	155.6	107.4	128.5	149.6	103.1	122.9	142.8
		67 TC	145.2	145.2	161.6	140.2	140.2	160.0	134.8	134.8	158.0	129.2	129.2	155.5	123.1	123.1	151.9
		67 SHC	99.8	130.7	161.6	98.5	129.3	160.0	97.0	127.5	158.0	95.2	125.4	155.5	92.7	122.4	151.9
	EAT (db)	72 TC	157.9	157.9	157.9	152.1	152.1	152.1	145.9	145.9	145.9	139.1	139.1	139.1	131.8	131.8	131.8
		72 SHC	68.5	99.6	130.7	67.4	98.4	129.4	66.1	97.0	127.9	64.6	95.5	126.4	63.0	93.8	124.5
		76 TC	—	169.2	169.2	—	162.7	162.7	—	156.0	156.0	—	148.7	148.7	—	140.7	140.7
		76 SHC	—	74.4	105.9	—	73.2	104.6	—	71.9	103.2	—	70.4	101.5	—	68.7	99.5

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

COOLING CAPACITIES - SECOND STAGE, PART LOAD (23 TONS)

48LC SIZE 26			AMBIENT TEMPERATURE (°F)														
			85			95			105			115			125		
			EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
			75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
4850 CFM	EAT (wb)	58 TC	157.5	157.5	178.5	149.6	149.6	169.9	141.2	141.2	160.8	132.3	132.3	151.0	122.7	122.7	140.4
		58 SHC	136.4	157.5	178.5	129.3	149.6	169.9	121.7	141.2	160.8	113.7	132.3	151.0	105.0	122.7	140.4
		62 TC	164.0	164.0	170.5	154.5	154.5	164.7	144.7	144.7	158.5	134.4	134.4	151.9	123.3	123.3	144.5
		62 SHC	123.0	146.7	170.5	117.3	141.0	164.7	111.3	134.9	158.5	105.0	128.4	151.9	98.3	121.4	144.5
		67 TC	181.1	181.1	181.1	170.7	170.7	159.8	159.8	159.8	148.2	148.2	148.2	135.8	135.8	135.8	135.8
		67 SHC	100.8	124.6	148.5	95.1	119.0	142.8	89.2	113.1	136.9	83.1	107.0	130.7	76.7	100.5	124.3
	EAT (db)	72 TC	200.2	200.2	200.2	189.0	189.0	189.0	177.2	177.2	177.2	164.8	164.8	164.8	151.4	151.4	151.4
		72 SHC	78.1	102.2	126.3	72.4	96.5	120.5	66.5	90.6	114.7	60.5	84.5	108.5	54.2	78.1	102.1
		76 TC	—	216.2	216.2	—	204.3	204.3	—	191.9	191.9	—	178.6	178.6	—	164.6	164.6
		76 SHC	—	83.8	109.0	—	78.1	103.2	—	72.3	97.2	—	66.2	91.0	—	60.0	84.5
5700 CFM	EAT (wb)	58 TC	167.0	167.0	189.2	158.5	158.5	179.9	149.7	149.7	170.1	140.1	140.1	159.6	129.8	129.8	148.3
		58 SHC	144.8	167.0	189.2	137.2	158.5	179.9	129.1	149.7	170.1	120.5	140.1	159.6	111.2	129.8	148.3
		62 TC	170.0	170.0	187.4	160.4	160.4	181.1	150.4	150.4	174.2	140.2	140.2	166.3	130.0	130.0	154.6
		62 SHC	133.3	160.3	187.4	127.2	154.1	181.1	121.0	147.6	174.2	114.1	140.2	166.3	105.2	130.0	154.6
		67 TC	186.5	186.5	186.5	175.4	175.4	175.4	164.1	164.1	164.1	152.1	152.1	152.1	139.2	139.2	139.2
		67 SHC	107.5	134.9	162.3	101.7	129.0	156.4	95.6	123.0	150.4	89.5	116.8	144.2	83.0	110.3	137.6
	EAT (db)	72 TC	205.5	205.5	205.5	193.9	193.9	193.9	181.6	181.6	181.6	168.7	168.7	168.7	154.9	154.9	154.9
		72 SHC	81.2	108.8	136.5	75.5	103.1	130.7	69.5	97.0	124.6	63.4	90.9	118.4	56.9	84.4	111.8
		76 TC	—	221.7	221.7	—	209.3	209.3	—	196.5	196.5	—	182.6	182.6	—	168.1	168.1
		76 SHC	—	87.7	116.2	—	81.9	110.3	—	76.0	104.2	—	69.8	98.0	—	63.5	91.5
6500 CFM	EAT (wb)	58 TC	174.4	174.4	197.4	165.5	165.5	187.7	156.0	156.0	177.3	146.0	146.0	166.2	135.1	135.1	154.3
		58 SHC	151.3	174.4	197.4	143.3	165.5	187.7	134.7	156.0	177.3	125.7	146.0	166.2	116.0	135.1	154.3
		62 TC	175.2	175.2	201.4	165.5	165.5	195.1	156.2	156.2	184.6	146.1	146.1	173.2	135.3	135.3	160.9
		62 SHC	142.0	171.7	201.4	135.9	165.5	195.1	127.8	156.2	184.6	119.0	146.1	173.2	109.7	135.3	160.9
		67 TC	190.1	190.1	190.1	178.8	178.8	178.8	167.2	167.2	167.2	154.9	154.9	156.0	141.9	141.9	149.4
		67 SHC	113.3	143.9	174.4	107.3	137.9	168.5	101.3	131.8	162.4	95.1	125.6	156.0	88.5	119.0	149.4
	EAT (db)	72 TC	209.4	209.4	209.4	197.4	197.4	197.4	184.9	184.9	184.9	171.5	171.5	171.5	157.4	157.4	157.4
		72 SHC	83.9	114.7	145.4	78.0	108.7	139.4	72.0	102.7	133.4	65.8	96.4	127.0	59.3	89.9	120.4
		76 TC	—	225.7	225.7	—	213.0	213.0	—	199.8	199.8	—	185.4	185.4	—	170.6	170.6
		76 SHC	—	90.9	122.6	—	85.1	116.6	—	79.1	110.6	—	72.8	104.1	—	66.4	97.6
7300 CFM	EAT (wb)	58 TC	180.5	180.5	204.3	171.0	171.0	193.8	161.2	161.2	183.0	150.7	150.7	171.6	139.5	139.5	159.2
		58 SHC	156.8	180.5	204.3	148.2	171.0	193.8	139.3	161.2	183.0	130.0	150.7	171.6	119.9	139.5	159.2
		62 TC	180.7	180.7	212.4	171.2	171.2	201.6	161.4	161.4	190.5	150.9	150.9	178.7	139.6	139.6	165.8
		62 SHC	148.9	180.7	212.4	140.7	171.2	201.6	132.2	161.4	190.5	123.1	150.9	178.7	113.4	139.6	165.8
		67 TC	193.2	193.2	193.2	181.7	181.7	181.7	170.0	170.0	173.7	157.4	157.4	167.4	144.1	144.1	160.4
		67 SHC	119.0	152.6	186.2	112.9	146.5	180.2	106.8	140.2	173.7	100.4	134.0	167.4	93.7	127.0	160.4
	EAT (db)	72 TC	212.6	212.6	212.6	200.3	200.3	200.3	187.4	187.4	187.4	173.8	173.8	173.8	159.4	159.4	159.4
		72 SHC	86.3	120.2	154.1	80.4	114.3	148.0	74.3	108.1	141.9	68.1	101.8	135.4	61.5	95.2	128.8
		76 TC	—	228.9	228.9	—	216.1	216.1	—	202.5	202.5	—	187.8	187.8	—	172.7	172.7
		76 SHC	—	94.0	128.7	—	88.1	122.8	—	82.1	116.6	—	75.8	110.1	—	69.3	103.5
8100 CFM	EAT (wb)	58 TC	185.6	185.6	209.9	175.8	175.8	199.2	165.7	165.7	188.0	154.8	154.8	176.1	143.2	143.2	163.3
		58 SHC	161.3	185.6	209.9	152.4	175.8	199.2	143.3	165.7	188.0	133.6	154.8	176.1	123.1	143.2	163.3
		62 TC	185.8	185.8	218.3	176.0	176.0	207.2	165.8	165.8	195.7	154.9	154.9	183.4	143.3	143.3	170.1
		62 SHC	153.3	185.8	218.3	144.7	176.0	207.2	135.9	165.8	195.7	126.6	154.9	183.4	116.5	143.3	170.1
		67 TC	195.9	195.9	197.6	184.3	184.3	191.3	172.2	172.2	185.0	159.5	159.5	178.1	146.2	146.2	170.6
		67 SHC	124.2	160.9	197.6	118.1	154.7	191.3	111.9	148.5	185.0	105.4	141.8	178.1	98.6	134.6	170.6
	EAT (db)	72 TC	215.2	215.2	215.2	202.6	202.6	202.6	189.5	189.5	189.5	175.7	175.7	175.7	161.0	161.0	161.0
		72 SHC	88.6	125.5	162.3	82.7	119.4	156.2	76.5	113.3	150.1	70.2	106.9	143.5	63.6	100.2	136.8
		76 TC	—	231.7	231.7	—	218.5	218.5	—	204.7	204.7	—	189.7	189.7	—	174.4	174.4
		76 SHC	—	96.9	134.6	—	91.0	128.6	—	84.9	122.4	—	78.5	115.8	—	72.0	109.2

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btu/h) Gross
TC	Total Capacity (1000 Btu/h) Gross

COOLING CAPACITIES - THIRD STAGE, FULL LOAD (23 TONS)

48LC SIZE 26				AMBIENT TEMPERATURE (°F)														
				85			95			105			115			125		
				EAT (db)			EAT (db)			EAT (db)			EAT (db)			EAT (db)		
				75	80	85	75	80	85	75	80	85	75	80	85	75	80	85
6750 CFM	EAT (wb)	58	TC	236.0	236.0	267.5	224.8	224.8	255.5	212.8	212.8	242.3	200.0	200.0	228.2	186.1	186.1	212.9
			SHC	204.3	236.0	267.5	194.3	224.8	255.5	183.4	212.8	242.3	171.8	200.0	228.2	159.3	186.1	212.9
		62	TC	249.9	249.9	249.9	236.2	236.2	236.6	222.1	222.1	228.0	206.8	206.8	218.7	190.5	190.5	208.8
			SHC	180.1	212.6	245.0	171.7	204.2	236.6	163.1	195.6	228.0	154.1	186.4	218.7	144.5	176.7	208.8
		67	TC	275.4	275.4	275.4	260.8	260.8	260.8	245.4	245.4	245.4	228.7	228.7	228.7	210.9	210.9	210.9
			SHC	149.4	181.9	214.6	141.1	173.6	206.3	132.5	165.1	197.6	123.5	156.1	188.6	114.1	146.6	179.1
		72	TC	304.3	304.3	304.3	288.6	288.6	288.6	271.7	271.7	271.7	254.1	254.1	254.1	234.9	234.9	234.9
			SHC	118.3	151.4	184.6	110.1	143.2	176.3	101.5	134.6	167.6	92.7	125.7	158.5	83.5	116.3	149.2
		76	TC	—	328.7	328.7	—	312.0	312.0	—	294.3	294.3	—	275.2	275.2	—	255.1	255.1
			SHC	—	126.5	162.7	—	118.4	154.2	—	109.8	145.3	—	100.9	135.9	—	91.7	126.4
7900 CFM	EAT (wb)	58	TC	249.9	249.9	283.1	237.8	237.8	269.9	225.1	225.1	256.0	211.5	211.5	241.0	196.9	196.9	224.9
			SHC	216.6	249.9	283.1	205.7	237.8	269.9	194.3	225.1	256.0	181.9	211.5	241.0	168.8	196.9	224.9
		62	TC	258.9	258.9	268.2	244.8	244.8	259.5	230.2	230.2	250.4	214.6	214.6	240.4	198.1	198.1	229.5
			SHC	194.1	231.2	268.2	185.6	222.6	259.5	176.8	213.5	250.4	167.3	203.9	240.4	157.2	193.3	229.5
		67	TC	284.4	284.4	284.4	269.0	269.0	269.0	252.8	252.8	252.8	235.5	235.5	235.5	216.8	216.8	216.8
			SHC	158.7	196.1	233.3	150.2	187.5	224.7	141.6	178.7	216.0	132.4	169.6	206.7	122.8	159.9	197.0
		72	TC	313.6	313.6	313.6	297.1	297.1	297.1	279.6	279.6	279.6	261.0	261.0	261.0	241.1	241.1	241.1
			SHC	122.9	160.8	198.5	114.7	152.3	190.0	105.9	143.5	181.2	96.9	134.5	172.0	87.5	124.9	162.3
		76	TC	—	338.2	338.2	—	320.7	320.7	—	302.2	302.2	—	282.4	282.4	—	261.4	261.4
			SHC	—	132.1	172.5	—	123.7	163.8	—	115.1	154.8	—	106.0	145.5	—	96.6	135.8
9000 CFM	EAT (wb)	58	TC	260.7	260.7	295.1	248.1	248.1	281.5	234.9	234.9	266.9	220.4	220.4	251.1	205.1	205.1	234.1
			SHC	226.2	260.7	295.1	214.9	248.1	281.5	202.9	234.9	266.9	189.9	220.4	251.1	176.1	205.1	234.1
		62	TC	266.1	266.1	288.6	251.9	251.9	279.4	237.0	237.0	269.4	221.2	221.2	258.1	205.2	205.2	244.0
			SHC	206.5	247.6	288.6	197.6	238.6	279.4	188.4	228.8	269.4	178.2	218.1	258.1	166.5	205.2	244.0
		67	TC	291.0	291.0	291.0	275.2	275.2	275.2	258.3	258.3	258.3	240.4	240.4	240.4	221.2	221.2	221.2
			SHC	167.0	208.6	250.1	158.4	199.9	241.4	149.5	190.9	232.3	140.2	181.5	223.0	130.5	171.8	213.1
		72	TC	320.5	320.5	320.5	303.5	303.5	303.5	285.4	285.4	285.4	266.1	266.1	266.1	245.6	245.6	245.6
			SHC	126.9	169.0	211.0	118.5	160.4	202.3	109.6	151.5	193.3	100.4	142.3	184.0	90.9	132.5	174.1
		76	TC	—	345.2	345.2	—	327.2	327.2	—	308.0	308.0	—	287.6	287.6	—	266.1	266.1
			SHC	—	136.9	181.3	—	128.4	172.5	—	119.6	163.4	—	110.5	154.0	—	100.9	144.2
10150 CFM	EAT (wb)	58	TC	270.4	270.4	306.0	257.3	257.3	291.6	243.4	243.4	276.4	228.5	228.5	260.0	212.6	212.6	242.4
			SHC	234.8	270.4	306.0	223.0	257.3	291.6	210.4	243.4	276.4	197.0	228.5	260.0	182.6	212.6	242.4
		62	TC	272.9	272.9	307.7	258.6	258.6	297.6	243.4	243.4	287.3	228.8	228.8	270.9	212.7	212.7	252.6
			SHC	218.1	263.0	307.7	208.8	253.2	297.6	199.4	243.4	287.3	186.7	228.8	270.9	172.9	212.7	252.6
		67	TC	296.7	296.7	296.7	280.3	280.3	280.3	263.0	263.0	263.0	244.5	244.5	244.5	225.1	225.1	229.2
			SHC	175.0	220.8	266.7	166.3	212.1	257.9	157.3	203.0	248.7	147.8	193.5	239.3	138.1	183.6	229.2
		72	TC	326.3	326.3	326.3	308.8	308.8	308.8	290.2	290.2	290.2	270.4	270.4	270.4	249.5	249.5	249.5
			SHC	130.7	177.0	223.3	122.1	168.3	214.5	113.1	159.2	205.3	103.8	149.9	195.9	94.2	140.1	185.9
		76	TC	—	351.3	351.3	—	332.7	332.7	—	313.0	313.0	—	292.1	292.1	—	270.0	270.0
			SHC	—	141.5	189.9	—	132.9	181.2	—	123.9	172.0	—	114.8	162.5	—	105.1	152.6
11250 CFM	EAT (wb)	58	TC	278.5	278.5	314.9	264.8	264.8	300.1	250.5	250.5	284.3	235.1	235.1	267.3	218.6	218.6	249.1
			SHC	241.9	278.5	314.9	229.6	264.8	300.1	216.6	250.5	284.3	202.8	235.1	267.3	188.0	218.6	249.1
		62	TC	278.4	278.4	327.1	264.9	264.9	311.9	250.8	250.8	295.9	235.4	235.4	278.4	218.8	218.8	259.5
			SHC	229.6	278.4	327.1	217.9	264.9	311.9	205.5	250.8	295.9	192.3	235.4	278.4	177.9	218.8	259.5
		67	TC	301.0	301.0	301.0	284.3	284.3	284.3	266.6	266.6	266.6	248.0	248.0	254.0	228.2	228.2	243.8
			SHC	182.2	232.1	281.8	173.5	223.2	272.9	164.3	214.0	263.7	154.8	204.5	254.0	144.9	194.3	243.8
		72	TC	330.8	330.8	330.8	313.0	313.0	313.0	293.9	293.9	293.9	273.8	273.8	273.8	252.4	252.4	252.4
			SHC	133.9	184.2	234.4	125.3	175.4	225.5	116.2	166.2	216.3	106.9	156.8	206.7	97.1	146.9	196.7
		76	TC	—	356.0	356.0	—	337.0	337.0	—	316.8	316.8	—	295.5	295.5	—	273.0	273.0
			SHC	—	145.6	197.9	—	136.9	189.1	—	127.9	179.8	—	118.6	170.2	—	108.8	160.3

LEGEND

—	Do not operate
CFM	Cubic Feet per Minute (supply air)
EAT (db)	Entering Air Temperature (dry bulb)
EAT (wb)	Entering Air Temperature (wet bulb)
SHC	Sensible Heat Capacity (1000 Btuh) Gross
TC	Total Capacity (1000 Btuh) Gross

48LC*A26 REHEAT MODE #1 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-1 (SUBCOOLER MODE)		AIR ENTERING EVAPORATOR – SCFM/BF (80°F DB)								
		6750/0.06			9000/0.10			11250/0.13		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
TEMP (°F)		72	67	62	72	67	62	72	67	62
75	TC	291	288	259	337	303	274	344	310	284
	SHC	116	171	203	157	198	239	170	220	270
	kW	30.0	20.3	19.8	22.7	22.1	21.4	24.7	24.0	23.2
85	TC	301	270	242	316	284	257	323	290	265
	SHC	123	155	187	139	180	223	151	201	252
	kW	22.6	22.0	21.5	24.4	23.8	23.2	26.4	25.8	24.9
95	TC	282	252	225	294	264	238	301	270	246
	SHC	105	138	171	119	162	206	131	183	234
	kW	24.6	24.0	23.4	26.3	25.7	25.1	28.4	27.7	26.8
105	TC	261	233	208	273	244	219	278	248	226
	SHC	86	121	155	100	144	188	110	163	215
	kW	26.8	26.2	25.6	28.6	27.9	27.3	30.6	29.9	29.0
115	TC	240	213	189	250	223	200	254	226	206
	SHC	68	103	138	79	124	170	89	143	196
	kW	29.2	28.6	28.1	31.0	30.4	29.7	33.0	32.3	31.4
125	TC	218	192	170	227	200	179	229	203	184
	SHC	48	84	121	59	105	151	67	122	176
	kW	32.0	31.4	30.8	33.8	33.1	32.4	35.7	35.0	34.1

LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

48LC*A26 REHEAT MODE #2 CAPACITIES (MBtuh), STANDARD UNITS

REHEAT-2 (HOT GAS REHEAT MODE)		AIR ENTERING EVAPORATOR – SCFM/BF (80°F DB)								
		6750/0.06			9000/0.09			11250/0.12		
		AIR ENTERING EVAPORATOR – Ewb (°F)								
TEMP (°F)		62.5	64	65.3	62.5	64	65.3	62.5	64	65.3
75	TC	119	124	128	125	130	133	129	133	137
	SHC	31	18	7	49	33	19	67	48	31
	kW	22.3	22.7	23.0	22.8	23.1	23.4	23.0	23.4	23.6
85	TC	127	132	136	133	138	142	137	141	145
	SHC	38	26	15	56	40	26	75	56	39
	kW	21.3	21.7	21.9	21.8	22.1	22.4	22.1	22.3	22.6
95	TC	134	139	143	141	146	150	145	150	154
	SHC	45	33	22	64	48	34	82	63	47
	kW	20.4	20.7	21.0	20.8	21.1	21.4	21.1	21.4	21.7
105	TC	149	154	159	157	162	166	161	166	170
	SHC	60	47	36	78	63	49	98	79	63
	kW	18.6	18.9	19.2	19.1	19.4	19.6	19.4	19.7	19.9
115	TC	164	169	174	172	178	182	177	182	187
	SHC	74	62	51	94	78	65	113	95	79
	kW	17.1	17.4	17.6	17.5	17.8	18.1	17.8	18.1	18.4
125	TC	179	185	190	188	194	199	193	199	204
	SHC	89	77	67	109	94	81	129	111	96
	kW	15.7	16.0	16.3	16.2	16.5	16.7	16.5	16.7	17.0

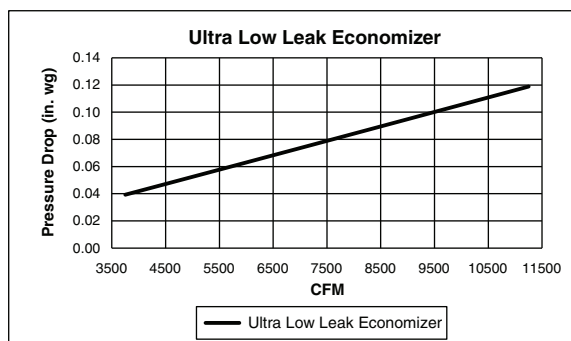
LEGEND

BF	— Bypass Factor
Ewb	— Entering Wet Bulb
kW	— Compressor Power Input
SHC	— Sensible Heat Capacity (1000 Btuh) Gross
TC	— Total Capacity (1000 Btuh) Gross

STATIC PRESSURE ADDERS (IN. WG) (FACTORY OPTIONS AND/OR ACCESSORIES)

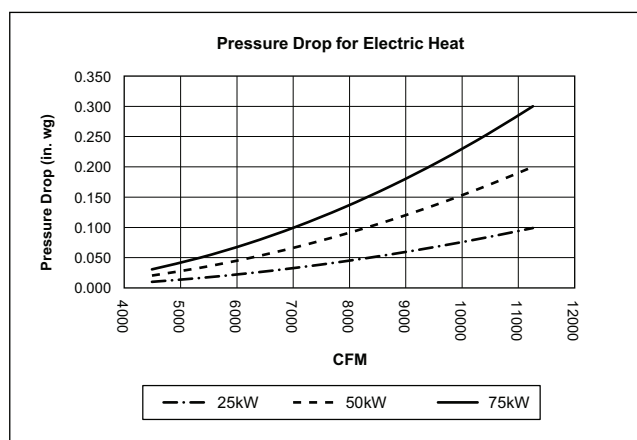
ULTRA LOW LEAK ECONOMIZERS

12.5 to 23 tons								
CFM	3750	4250	4750	5250	5750	6250	6750	7250
Pressure Drop (in. wg)	0.04	0.04	0.05	0.06	0.06	0.07	0.07	0.08
CFM	7750	8250	8750	9250	9750	10250	10750	11250
Pressure Drop (in. wg)	0.08	0.09	0.09	0.10	0.10	0.11	0.11	0.12



ELECTRIC HEATERS

12.5 TO 23 TONS																
CFM	3750	4250	4750	5250	5750	6250	6750	7250	7750	8250	8750	9250	9750	10250	10750	11250
25kW	0.00	0.01	0.01	0.01	0.02	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06	0.07	0.08	0.08
50kW	0.01	0.01	0.02	0.03	0.03	0.04	0.05	0.06	0.07	0.08	0.10	0.11	0.12	0.14	0.15	0.17
75kW	0.01	0.02	0.03	0.04	0.05	0.06	0.08	0.09	0.11	0.13	0.14	0.16	0.18	0.21	0.23	0.25

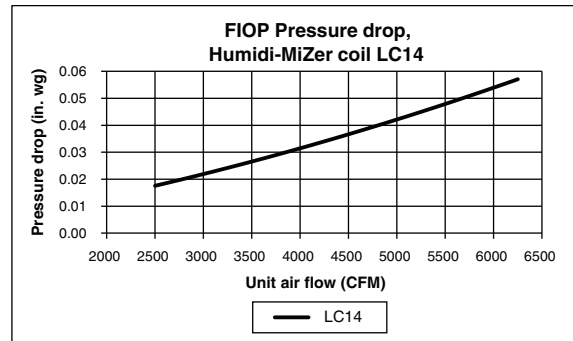


STATIC PRESSURE ADDERS (IN. WG) (FACTORY OPTIONS AND/OR ACCESSORIES) (CONT)

HUMIDI-MIZER COIL

12.5 tons

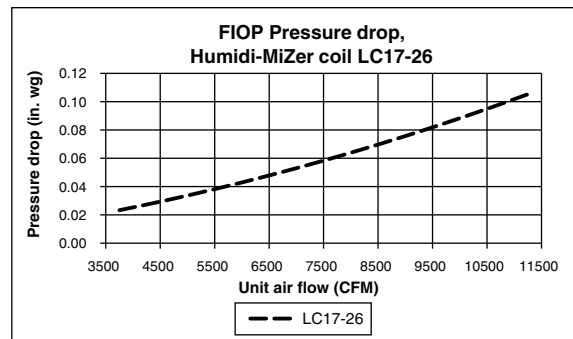
CFM	2500	2750	3000	3250	3500	3750	4000	4250
Pressure Drop (in. wg)	0.02	0.02	0.02	0.02	0.03	0.03	0.03	0.03
CFM	4500	4750	5000	5250	5500	5750	6000	6250
Pressure Drop (in. wg)	0.04	0.04	0.04	0.04	0.05	0.05	0.05	0.06



HUMIDI-MIZER COIL

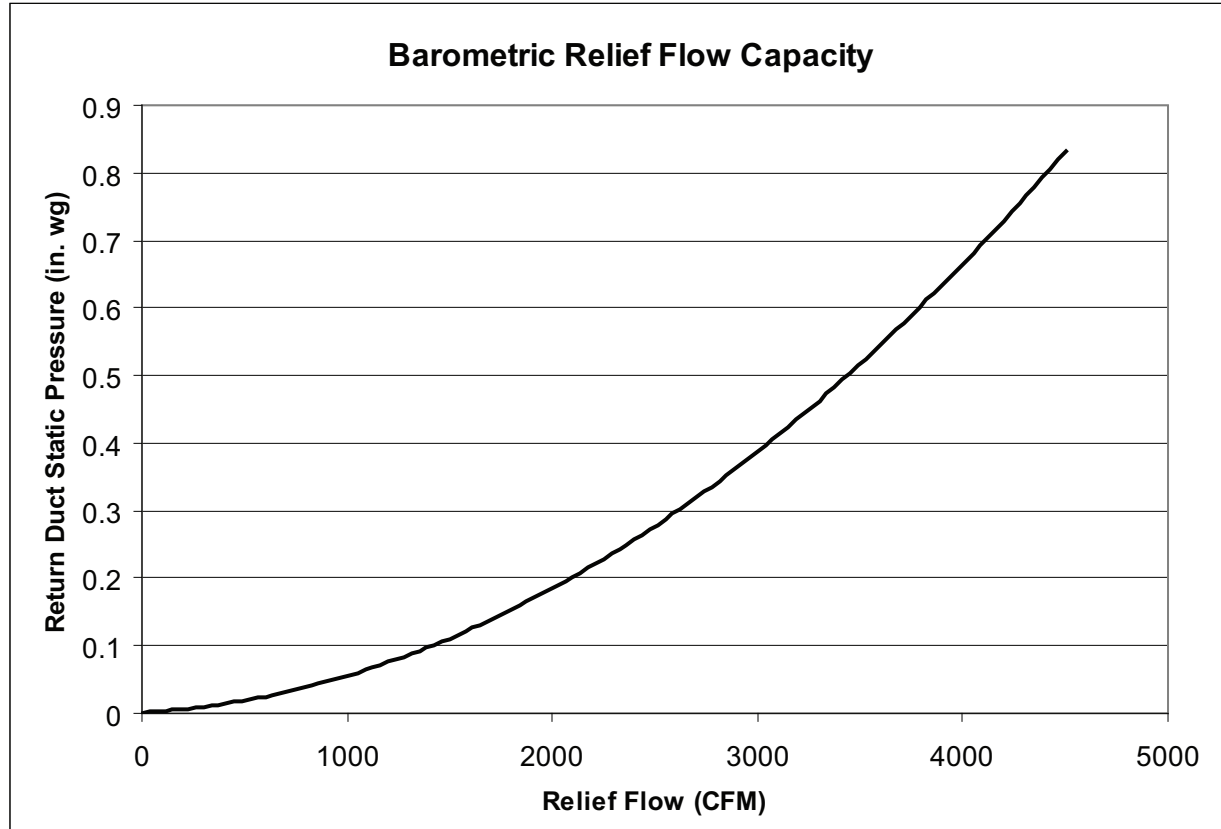
15 TO 23 tons

CFM	3750	4250	4750	5250	5750	6250	6750	7250
Pressure Drop (in. wg)	0.02	0.03	0.03	0.04	0.04	0.05	0.05	0.06
CFM	7750	8250	8750	9250	9750	10250	10750	11250
Pressure Drop (in. wg)	0.06	0.07	0.07	0.08	0.09	0.09	0.10	0.11



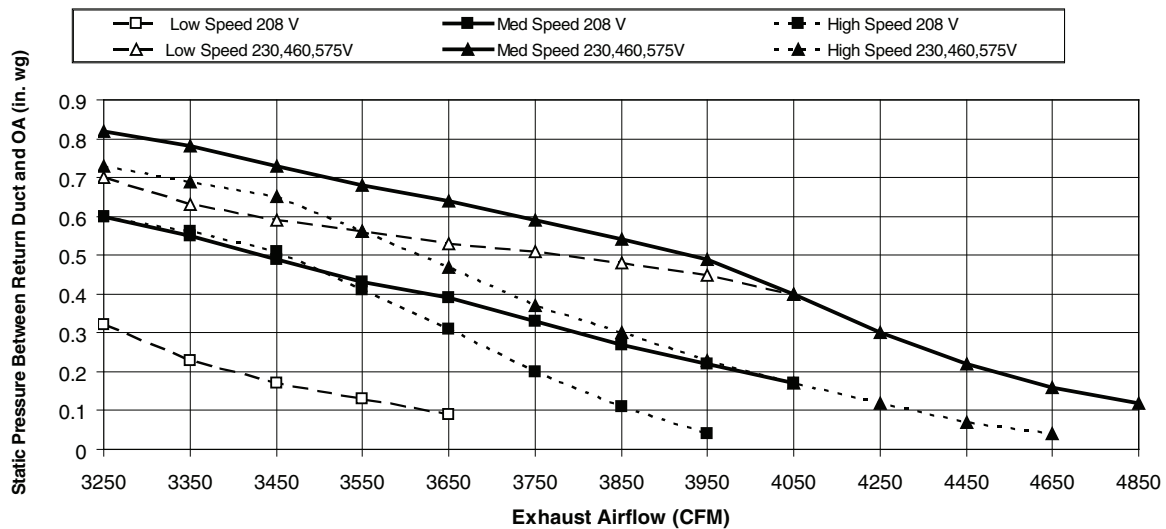
ECONOMIZER, BAROMETRIC RELIEF, AND POWER EXHAUST PERFORMANCE

BAROMETRIC PRESSURE DROP



POWER EXHAUST FAN PERFORMANCE

Power Exhaust Fan Performance



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, and wet coils. Factory options and accessories may add static pressure losses. Selection software is available, through your salesperson, to help you select the best motor/drive combination for your application.
4. The Fan Performance tables offer motor/drive recommendations. In cases when 2 motor/drive combinations would work, Carrier recommends the lower horsepower option.
5. For information on the electrical properties of Carrier motors, please see the electrical information section of this book.
6. For more information on the performance limits of Carrier motors, see the application data section of this book.
7. The EPACT (Energy Policy Act) regulates energy requirements for specific types of indoor fan motors. Motors regulated by EPACT include any general purpose, T-frame (3-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.

48LC**14 — 12.5 TON HORIZONTAL SUPPLY

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
3750	461	0.76	541	1.16	609	1.61	669	2.08	724	2.59
4063	485	0.90	562	1.32	628	1.79	687	2.28	741	2.81
4375	510	1.05	584	1.50	648	1.98	706	2.50	759	3.05
4688	535	1.23	606	1.70	669	2.20	725	2.75	777	3.32
5000	561	1.42	629	1.92	690	2.45	745	3.01	796	3.60
5313	587	1.64	652	2.16	711	2.71	765	3.30	815	3.91
5625	614	1.89	677	2.42	734	3.00	786	3.61	835	4.24
5938	641	2.16	701	2.72	756	3.32	808	3.95	855	4.60
6250	668	2.45	726	3.04	780	3.66	830	4.31	876	4.99

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
3750	774	3.12	820	3.68	864	4.26	905	4.86	944	5.49
4063	790	3.37	836	3.94	880	4.55	921	5.17	959	5.81
4375	807	3.63	853	4.23	896	4.85	936	5.50	975	6.16
4688	825	3.91	870	4.53	912	5.18	953	5.84	991	6.53
5000	843	4.22	888	4.86	930	5.53	969	6.21	1007	6.92
5313	862	4.55	906	5.21	947	5.90	986	6.61	1024	7.33
5625	881	4.91	924	5.59	965	6.30	1004	7.03	1041	7.78
5938	900	5.29	943	6.00	983	6.72	1022	7.47	1059	8.24
6250	920	5.70	962	6.43	1002	7.18	1040	7.95	1077	8.74

	Standard Static (498-676 rpm) 2.9 Max bhp
	Medium Static (644-808 rpm) 4.9 Max bhp
	High Static (782-963 rpm) 7.4 Max bhp
	Ultra High Static (933-1113 rpm) 9.9 Max bhp
Boldface	indicates field-supplied drive is required (Standard motor, motor pulley P/N KR11HY163, blower pulley P/N KR51BM415, belt P/N KR29AF049) for a 368-509 rpm range

48LC**14 — 12.5 TON VERTICAL SUPPLY

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
3750	453	0.48	547	0.69	630	0.91	704	1.13	771	1.36
4063	474	0.58	564	0.80	644	1.03	716	1.27	782	1.52
4375	497	0.69	582	0.92	659	1.16	730	1.42	794	1.68
4688	520	0.81	601	1.05	675	1.31	744	1.58	807	1.86
5000	544	0.95	620	1.21	692	1.48	759	1.76	821	2.05
5313	568	1.11	641	1.38	710	1.66	774	1.95	835	2.26
5625	593	1.29	662	1.56	728	1.86	791	2.17	850	2.48
5938	619	1.48	685	1.77	748	2.08	808	2.40	866	2.73
6250	644	1.70	707	2.00	768	2.32	826	2.65	882	2.99

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
3750	832	1.60	889	1.85	942	2.09	992	2.35	1040	2.60
4063	843	1.77	899	2.03	952	2.29	1002	2.56	1049	2.83
4375	854	1.95	910	2.22	962	2.50	1012	2.78	1059	3.07
4688	866	2.14	921	2.43	973	2.72	1022	3.02	1069	3.32
5000	878	2.35	933	2.65	984	2.96	1033	3.27	1080	3.59
5313	892	2.57	945	2.89	996	3.21	1044	3.54	1090	3.87
5625	905	2.81	958	3.14	1008	3.48	1056	3.82	1102	4.17
5938	920	3.07	972	3.41	1021	3.77	1068	4.12	<i>1114</i>	<i>4.48</i>
6250	935	3.35	986	3.71	1035	4.07	1081	4.44	<i>1126</i>	<i>4.82</i>

- Standard Static (498-676 rpm) 2.9 Max bhp
- Medium Static (682-861 rpm) 4.9 Max bhp
- High Static (782-963 rpm) 7.4 Max bhp
- Ultra High Static (933-1113 rpm) 9.9 Max bhp

Boldface Indicates field-supplied drive is required (Standard motor, motor pulley P/N KR11HY163, blower pulley P/N KR51BM415, belt P/N KR29AF049) 368-509 rpm range

Italics Indicate field-supplied drive is required (super static motor, motor pulley P/N KR12HY167, blower pulley P/N KR52BH615, belts P/N BX41) for a 948-1190 rpm range

48LC**17 — 15 TON HORIZONTAL SUPPLY

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
4500	526	1.35	601	1.89	667	2.50	726	3.14	779	3.81
4875	557	1.62	628	2.19	692	2.83	749	3.50	802	4.20
5250	589	1.93	656	2.53	717	3.20	774	3.90	825	4.64
5625	621	2.28	685	2.91	744	3.61	798	4.34	849	5.12
6000	654	2.68	714	3.34	771	4.07	824	4.83	873	5.64
6375	687	3.13	745	3.82	799	4.57	850	5.37	899	6.21
6750	721	3.63	775	4.35	828	5.13	877	5.96	924	6.83
7125	755	4.19	807	4.94	857	5.75	905	6.60	951	7.50
7500	789	4.80	839	5.58	887	6.42	933	7.31	977	8.23

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
4500	828	4.50	873	5.22	915	5.95	954	6.71	992	7.48
4875	850	4.93	895	5.69	937	6.46	976	7.26	1013	8.06
5250	873	5.41	917	6.20	959	7.01	998	7.84	1035	8.68
5625	896	5.92	940	6.74	981	7.59	1020	8.46	1058	9.34
6000	920	6.47	963	7.33	1004	8.22	1043	9.12	1080	10.04
6375	944	7.08	987	7.97	1027	8.89	1066	9.83	—	—
6750	969	7.73	1011	8.65	1051	9.61	1089	10.58	—	—
7125	994	8.43	1035	9.39	1075	10.38	—	—	—	—
7500	1020	9.19	1060	10.19	1099	11.21	—	—	—	—

- Standard Static (575-713 rpm) 2.9 Max bhp
- Medium Static (707-888 rpm) 7.4 Max bhp
- High Static (872-1053 rpm) 9.9 Max bhp
- Ultra High Static (948-1190 rpm) 13.6 Max bhp
- Boldface** Indicates field-supplied drive is required (Mid static motor, motor pulley P/N KR11HY232, blower pulley P/N KR51BQ415, belt P/N KR29BF059) for a 583-717 rpm range

48LC**17 — 15 TON VERTICAL SUPPLY

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
4500	508	0.79	603	1.12	679	1.44	745	1.76	806	2.09
4875	532	0.94	626	1.31	701	1.65	765	1.99	825	2.34
5250	556	1.11	649	1.51	723	1.89	787	2.25	845	2.62
5625	581	1.30	672	1.73	746	2.14	809	2.54	866	2.93
6000	607	1.51	695	1.98	768	2.42	831	2.85	887	3.27
6375	634	1.75	719	2.24	791	2.73	854	3.19	909	3.63
6750	662	2.02	743	2.54	815	3.05	876	3.55	932	4.03
7125	690	2.33	767	2.86	838	3.41	899	3.94	954	4.45
7500	719	2.66	791	3.20	861	3.79	922	4.35	977	4.90

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
4500	863	2.43	918	2.79	971	3.16	1022	3.55	1071	3.96
4875	880	2.70	933	3.07	984	3.46	1033	3.86	1081	4.28
5250	899	3.00	950	3.39	999	3.79	1047	4.20	1093	4.63
5625	918	3.33	968	3.73	1016	4.15	1062	4.58	1107	5.02
6000	939	3.69	988	4.11	1035	4.55	1079	4.99	1123	5.45
6375	960	4.08	1008	4.53	1054	4.98	1098	5.44	1140	5.91
6750	982	4.50	1029	4.97	1074	5.45	1117	5.93	1159	6.41
7125	1004	4.95	1051	5.45	1095	5.95	1138	6.45	—	—
7500	1027	5.43	1073	5.96	1117	6.48	1159	7.01	—	—

	Standard Static (575-753 rpm) 2.9 Max bhp
	Medium Static (707-888 rpm) 7.4 Max bhp
	High Static (872-1053 rpm) 9.9 Max bhp
	Ultra High Static (1049-1291 rpm) 13.6 Max bhp
Boldface	Indicates field-supplied drive is required (Standard motor, motor pulley P/N KR11HY216, blower pulley P/N KR51BM415, belt P/N KR30BE050) for a 435-570 rpm range

48LC**20 — 17.5 TON HORIZONTAL SUPPLY

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
5250	589	1.93	656	2.53	717	3.20	774	3.90	825	4.64
5688	626	2.34	690	2.98	748	3.68	803	4.42	853	5.20
6125	665	2.82	724	3.50	780	4.23	833	5.01	882	5.82
6563	704	3.37	760	4.08	813	4.84	864	5.66	911	6.51
7000	743	4.00	796	4.74	847	5.53	896	6.38	942	7.27
7438	783	4.70	833	5.47	882	6.30	928	7.18	973	8.11
7875	823	5.48	871	6.29	917	7.15	962	8.07	1005	9.03
8313	864	6.35	909	7.19	953	8.09	996	9.04	1038	10.03
8750	905	7.31	948	8.19	990	9.13	1031	10.11	1071	11.13

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
5250	873	5.41	917	6.20	959	7.01	998	7.84	1035	8.68
5688	900	6.01	944	6.84	985	7.69	1024	8.57	1061	9.46
6125	928	6.67	971	7.54	1012	8.43	1050	9.35	1087	10.29
6563	956	7.39	999	8.31	1039	9.24	1077	10.20	—	—
7000	985	8.19	1027	9.14	1067	10.12	—	—	—	—
7438	1015	9.06	1056	10.05	1095	11.06	—	—	—	—
7875	1046	10.02	1086	11.04	—	—	—	—	—	—
8313	1078	11.06	—	—	—	—	—	—	—	—
8750	—	—	—	—	—	—	—	—	—	—

Standard Static (575-753 rpm) 2.9 Max bhp
 Medium Static (707-888 rpm) 7.4 Max bhp
 High Static (872-1053 rpm) 9.9 Max bhp
 Ultra High Static (948-1190 rpm) 13.6 Max bhp
Boldface Indicates field-supplied drive is required (Mid static motor (HD60FK657), motor pulley P/N KR11HY232, blower pulley P/N KR51BQ415, belt P/N KR29BF059) for a 583-717 rpm range

48LC**20 — 17.5 TON VERTICAL SUPPLY

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
5250	556	1.11	649	1.51	723	1.89	787	2.25	845	2.62
5688	586	1.33	676	1.77	749	2.19	812	2.59	869	2.99
6125	616	1.59	703	2.06	776	2.52	838	2.96	894	3.39
6563	648	1.89	731	2.39	803	2.89	865	3.36	920	3.83
7000	681	2.22	759	2.75	830	3.29	892	3.80	947	4.30
7438	714	2.60	787	3.14	857	3.72	918	4.28	973	4.82
7875	748	3.03	817	3.58	884	4.20	945	4.80	1000	5.38
8313	783	3.50	847	4.07	912	4.72	972	5.36	1027	5.98
8750	819	4.03	878	4.61	941	5.28	1000	5.96	1054	6.63

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
5250	899	3.00	950	3.39	999	3.79	1047	4.20	1093	4.63
5688	922	3.39	972	3.80	1019	4.21	1065	4.64	1109	5.09
6125	946	3.81	995	4.25	1041	4.69	1085	5.14	1128	5.60
6563	971	4.28	1019	4.74	1064	5.21	1107	5.68	1149	6.16
7000	997	4.80	1044	5.28	1088	5.78	1131	6.27	1172	6.77
7438	1023	5.35	1069	5.87	1113	6.39	1155	6.91	—	—
7875	1049	5.95	1095	6.50	1139	7.05	—	—	—	—
8313	1076	6.59	1122	7.18	1165	7.76	—	—	—	—
8750	1103	7.27	1148	7.90	—	—	—	—	—	—

-  Standard Static (676-854 rpm) 2.9 Max bhp
-  Medium Static (782-963 rpm) 7.4 Max bhp
-  High Static (933-1113 rpm) 9.9 Max bhp
-  Ultra High Static (1049-1291 rpm) 13.6 Max bhp
- Boldface** Indicates field-supplied drive is required (Mid static motor (HD60FK657), motor pulley P/N KR11HY232, blower pulley P/N KR51BQ415, belt P/N KR29BF059) for a 583-717 rpm range
- Italics* Indicates field-supplied drive is required (medium static motor P/N HD60FK657, motor pulley P/N KR11HY194, blower pulley P/N KR51BM419, belt P/N KR28BF051) for a 651-818 rpm range

48LC**24 — 20 TON HORIZONTAL SUPPLY

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
6,000	654	2.68	714	3.34	771	4.07	824	4.83	873	5.64
6,500	698	3.29	755	3.99	809	4.75	859	5.56	907	6.41
7,000	743	4.00	796	4.74	847	5.53	896	6.38	942	7.27
7,500	789	4.80	839	5.58	887	6.42	933	7.31	977	8.23
8,000	835	5.72	882	6.54	928	7.41	972	8.34	1014	9.31
8,500	881	6.75	926	7.61	969	8.53	1011	9.49	1052	10.49
9,000	928	7.91	970	8.81	1011	9.76	1052	10.76	1091	11.81
9,500	975	9.20	1015	10.14	1054	11.13	1093	12.17	1130	13.25
10,000	1022	10.62	1060	11.60	1098	12.64	—	—	—	—

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
6,000	920	6.47	963	7.33	1004	8.22	1043	9.12	1080	10.04
6,500	952	7.29	995	8.19	1035	9.12	1073	10.07	1110	11.04
7,000	985	8.19	1027	9.14	1067	10.12	1104	11.11	1140	12.13
7,500	1020	9.19	1060	10.19	1099	11.21	1136	12.25	1172	13.31
8,000	1055	10.31	1094	11.34	1132	12.40	1169	13.49	—	—
8,500	1092	11.53	1130	12.61	—	—	—	—	—	—
9,000	1129	12.89	—	—	—	—	—	—	—	—
9,500	—	—	—	—	—	—	—	—	—	—
10,000	—	—	—	—	—	—	—	—	—	—

Standard Static (707-888 rpm) 7.4 Max bhp
 Medium Static (859-1026 rpm) 9.9 Max bhp
 High Static (948-1190 rpm) 13.6 Max bhp
Boldface Indicates field-supplied drive is required (Standard motor (HD60FK657), motor pulley P/N KR11HY232, blower pulley P/N KR51BQ415, belt P/N KR29BF059) for a 583-717 rpm range

48LC**24 — 20 TON VERTICAL SUPPLY

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
6,000	607	1.51	695	1.98	768	2.42	831	2.85	887	3.27
6,500	643	1.84	727	2.34	799	2.83	861	3.30	917	3.76
7,000	681	2.22	759	2.75	830	3.29	892	3.81	947	4.30
7,500	719	2.66	791	3.20	861	3.79	922	4.35	977	4.90
8,000	758	3.16	825	3.72	893	4.34	953	4.96	1008	5.55
8,500	798	3.72	860	4.30	924	4.95	984	5.61	1038	6.25
9,000	839	4.35	896	4.94	957	5.62	1016	6.33	1069	7.01
9,500	880	5.06	933	5.66	990	6.36	1047	7.10	1100	7.84
10,000	922	5.84	970	6.45	1025	7.17	1079	7.94	1131	8.72

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
6,000	939	3.69	988	4.11	1034	4.55	1079	4.99	1123	5.45
6,500	968	4.22	1015	4.67	1061	5.13	1104	5.60	1146	6.07
7,000	997	4.80	1044	5.28	1088	5.78	1131	6.27	1172	6.77
7,500	1027	5.43	1073	5.96	1117	6.48	1159	7.01	1199	7.54
8,000	1057	6.13	1103	6.69	1146	7.25	1187	7.81	1227	8.37
8,500	1088	6.88	1133	7.48	1176	8.08	1217	8.68	1255	9.27
9,000	1118	7.68	1164	8.34	1206	8.98	1246	9.61	1285	10.24
9,500	1149	8.56	1194	9.26	1237	9.94	1277	10.62	—	—
10,000	1180	9.49	1225	10.24	1267	10.97	—	—	—	—

Standard Static (707-888 rpm) 7.4 Max bhp
 Medium Static (872-1053 rpm) 9.9 Max bhp
 High Static (1049-1291 rpm) 13.6 Max bhp
Boldface Indicates field-supplied drive is required (Standard motor (HD60FK657), motor pulley P/N KR11HY232, blower pulley P/N KR51BQ415, belt P/N KR29BF059) for a 583-717 rpm range

48LC**26 — 23 TON HORIZONTAL SUPPLY

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
6,750	719	3.61	774	4.33	826	5.10	876	5.93	923	6.79
7,313	770	4.46	821	5.22	870	6.04	918	6.91	963	7.82
7,875	822	5.45	870	6.25	916	7.12	960	8.03	1003	8.98
8,438	874	6.58	919	7.43	962	8.33	1005	9.29	1046	10.28
9,000	926	7.87	968	8.76	1010	9.71	1050	10.70	1089	11.74
9,563	979	9.31	1019	10.25	1058	11.25	1096	12.29	1133	13.37
10,125	1032	10.94	1070	11.93	1107	12.96	—	—	—	—
10,688	1085	12.75	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—

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
6,750	967	7.69	1009	8.62	1049	9.57	1087	10.53	1124	11.52
7,313	1005	8.76	1046	9.74	1085	10.73	1123	11.76	1158	12.80
7,875	1045	9.97	1084	10.99	1122	12.03	1159	13.11	—	—
8,438	1085	11.32	1124	12.38	1160	13.48	—	—	—	—
9,000	1127	12.82	—	—	—	—	—	—	—	—
9,563	—	—	—	—	—	—	—	—	—	—
10,125	—	—	—	—	—	—	—	—	—	—
10,688	—	—	—	—	—	—	—	—	—	—
11,250	—	—	—	—	—	—	—	—	—	—

Standard Static (707-888 rpm) 7.4 Max bhp

Medium Static (859-1026 rpm) 9.9 Max bhp

High Static (948-1190 rpm) 13.6 Max bhp

48LC**26 — 23 TON VERTICAL SUPPLY

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
6,750	662	2.02	743	2.54	815	3.05	876	3.55	932	4.03
7,313	705	2.49	779	3.03	849	3.60	911	4.14	966	4.67
7,875	749	3.03	817	3.59	885	4.20	945	4.80	1000	5.38
8,438	793	3.65	856	4.22	920	4.87	980	5.53	1034	6.16
9,000	839	4.35	896	4.94	957	5.62	1016	6.33	1069	7.01
9,563	885	5.15	937	5.75	995	6.46	1051	7.20	1104	7.95
10,125	932	6.05	980	6.66	1033	7.38	1088	8.17	1139	8.96
10,688	979	7.05	1023	7.67	1073	8.41	1125	9.22	1175	10.06
11,250	1026	8.16	1067	8.79	1114	9.55	1163	10.38	1211	11.26

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
6,750	982	4.50	1029	4.97	1074	5.45	1117	5.93	1159	6.41
7,313	1016	5.19	1062	5.70	1106	6.21	1148	6.72	1188	7.24
7,875	1050	5.95	1096	6.50	1139	7.05	1180	7.60	1219	8.15
8,438	1084	6.78	1129	7.38	1172	7.97	1213	8.57	1252	9.16
9,000	1118	7.68	1164	8.34	1206	8.98	1246	9.61	1285	10.24
9,563	1153	8.67	1198	9.38	1240	10.07	1280	10.75	—	—
10,125	1188	9.74	1233	10.50	1275	11.24	—	—	—	—
10,688	1223	10.89	1267	11.71	—	—	—	—	—	—
11,250	1258	12.14	—	—	—	—	—	—	—	—

Standard Static (707-888 rpm) 7.4 Max bhp
Medium Static (872-1053 rpm) 9.9 Max bhp
High Static (1049-1291 rpm) 13.6 Max bhp
Boldface Indicates field-supplied drive is required (Standard motor (HD60FK657), motor pulley P/N KR11HY232, blower pulley P/N KR51BQ415, belt P/N KR29BF059) for a 583-717 rpm range

PULLEY ADJUSTMENT - VERTICAL UNITS

48LC UNIT		MOTOR/DRIVE COMBO	MOTOR PULLEY TURNS OPEN												
			0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
14	3 phase	Standard static	N/A	N/A	676	658	640	623	605	587	569	551	534	516	498
		Medium static	N/A	N/A	861	843	825	807	789	772	754	736	718	700	682
		High static	963	948	933	918	903	888	873	857	842	827	812	797	782
		Ultra static	1113	1098	1083	1068	1053	1038	1023	1008	993	978	963	948	933
17	3 phase	Standard static	N/A	N/A	753	733	713	694	674	654	634	614	595	575	555
		Medium static	888	873	858	843	828	813	798	782	767	752	737	722	707
		High static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		Ultra static	1291	1271	1251	1231	1210	1190	1170	1150	1130	1110	1089	1069	1049
20	3 phase	Standard static	N/A	N/A	854	836	818	801	783	765	747	729	712	694	676
		Medium static	963	948	933	918	903	888	873	857	842	827	812	797	782
		High static	1113	1098	1083	1068	1053	1038	1023	1008	993	978	963	948	933
		Ultra static	1291	1271	1251	1231	1210	1190	1170	1150	1130	1110	1089	1069	1049
24	3 phase	Standard static	888	873	858	843	828	813	798	782	767	752	737	722	707
		Medium static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		High static	1291	1271	1251	1231	1210	1190	1170	1150	1130	1110	1089	1069	1049
26	3 phase	Standard static	888	873	858	843	828	813	798	782	767	752	737	722	707
		Medium static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		High static	1291	1271	1251	1231	1210	1190	1170	1150	1130	1110	1089	1069	1049

Factory setting

PULLEY ADJUSTMENT - HORIZONTAL UNITS

48LC UNIT		MOTOR/DRIVE COMBO	MOTOR PULLEY TURNS OPEN												
			0	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
14	3 phase	Standard static	N/A	N/A	676	658	640	623	605	587	569	551	534	516	498
		Medium static	808	794	781	767	753	740	726	712	699	685	671	658	644
		High static	963	948	933	918	903	888	873	857	842	827	812	797	782
		Ultra static	1113	1098	1083	1068	1053	1038	1023	1008	993	978	963	948	933
17	3 phase	Standard static	N/A	N/A	713	694	675	657	638	619	600	581	563	544	525
		Medium static	888	873	858	843	828	813	798	782	767	752	737	722	707
		High static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		Ultra static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
20	3 phase	Standard static	N/A	N/A	753	733	713	694	674	654	634	614	595	575	555
		Medium static	888	873	858	843	828	813	798	782	767	752	737	722	707
		High static	1053	1038	1023	1008	993	978	963	947	932	917	902	887	872
		Ultra static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
24	3 phase	Standard static	888	873	858	843	828	813	798	782	767	752	737	722	707
		Medium static	1026	1012	998	984	970	956	943	929	915	901	887	873	859
		High static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948
26	3 phase	Standard static	888	873	858	843	828	813	798	782	767	752	737	722	707
		Medium static	1026	1012	998	984	970	956	943	929	915	901	887	873	859
		High static	1190	1170	1150	1130	1109	1089	1069	1049	1029	1009	988	968	948

Factory setting

48LC*014-026 ELECTRICAL DATA

48LC UNIT	V-PH-HZ	VOLTAGE RANGE		COMP 1		COMP 2		OFM (EA)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	TYPE	EFF AT FULL LOAD	FLA
14	208-3-60	187	253	17.6	123	23.2	164	185	1.8	STD	85.0%	8.6
										MED	83.6%	13.6
										HIGH	89.5%	21.2
										ULTRA	91.7%	28.0
	230-3-6	187	253	17.6	123	23.2	164	185	1.8	STD	85.0%	7.8
										MED	83.6%	12.7
										HIGH	89.5%	21.2
										ULTRA	91.7%	28.0
	460-3-60	414	506	9.6	62	11.2	75	185	1.3	STD	85.0%	3.8
										MED	83.6%	6.4
										HIGH	89.5%	9.7
										ULTRA	91.7%	13.7
	575-3-60	518	633	6.1	40	7.9	54	185	1.3	STD	81.1%	4.5
										MED	83.6%	6.2
										HIGH	89.5%	7.2
										ULTRA	91.7%	8.9
17	208-3-60	187	253	19.1	123	27.6	191	185	1.8	STD	85.0%	8.6
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										ULTRA	91.7%	37.3
	230-3-6	187	253	19.1	123	27.6	191	185	1.8	STD	85.0%	7.8
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										ULTRA	91.7%	37.3
	460-3-60	414	506	9.8	62	12.8	100	185	1.3	STD	85.0%	3.8
										MED	89.5%	9.7
										HIGH	91.7%	13.7
										ULTRA	91.7%	16.9
	575-3-60	518	633	7.5	50	10.2	78	185	1.3	STD	81.1%	4.5
										MED	89.5%	7.2
										HIGH	91.7%	8.9
										ULTRA	91.7%	12.6
20	208-3-60	187	253	25.0	164	27.6	191	185	1.8	STD	85.0%	8.6
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										ULTRA	91.7%	37.3
	230-3-6	187	253	25.0	164	27.6	191	185	1.8	STD	85.0%	7.8
										MED	89.5%	21.2
										HIGH	91.7%	28.0
										ULTRA	91.7%	37.3
	460-3-60	414	506	12.2	100	12.8	100	185	1.3	STD	85.0%	3.8
										MED	89.5%	9.7
										HIGH	91.7%	13.7
										ULTRA	91.7%	16.9
	575-3-60	518	633	9.3	78	10.2	78	185	1.3	STD	81.1%	4.5
										MED	89.5%	7.2
										HIGH	91.7%	8.9
										ULTRA	91.7%	12.6

48LC*014-026 ELECTRICAL DATA (cont)

48LC UNIT	V-PH-HZ	VOLTAGE RANGE		COMP 1		COMP 2		OFM (EA)		IFM		
		MIN	MAX	RLA	LRA	RLA	LRA	WATTS	FLA	TYPE	EFF AT FULL LOAD	FLA
24	208-3-60	187	253	29.5	195	33.3	239	190	1.8	STD	89.5%	21.2
										MED	91.7%	28.0
										HIGH	91.7%	37.3
	230-3-6	187	253	29.5	195	33.3	239	190	1.8	STD	89.5%	21.2
										MED	91.7%	28.0
										HIGH	91.7%	37.3
	460-3-60	414	506	14.8	95	18.0	125	190	1.6	STD	89.5%	9.7
										MED	91.7%	13.7
										HIGH	91.7%	16.9
	575-3-60	518	633	12.2	80	12.8	80	190	1.6	STD	89.5%	7.2
										MED	91.7%	8.9
										HIGH	91.7%	12.6
26	208-3-60	187	253	30.1	225	51.2	300	190	1.8	STD	89.5%	21.2
										MED	91.7%	28.0
										HIGH	91.7%	37.3
	230-3-6	187	253	30.1	225	51.2	300	190	1.8	STD	89.5%	21.2
										MED	91.7%	28.0
										HIGH	91.7%	37.3
	460-3-60	414	506	16.7	114	23.1	150	190	1.6	STD	89.5%	9.7
										MED	91.7%	13.7
										HIGH	91.7%	16.9
	575-3-60	518	633	12.2	80	19.9	109	190	1.6	STD	89.5%	7.2
										MED	91.7%	8.9
										HIGH	91.7%	12.6

See Legend and Notes on page 76.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (12.5 TO 23 TONS, NO CO)

UNIT SIZE	NOM. V-PH-HZ	IFM TYPE	NO C.O. OR UNPWR C.O.							
			NO PE				W/ PE (PWRD FR/UNIT)			
			MCA	FUSE OR HACR BREAKER	DISC. SIZE		MCA	FUSE OR HACR BREAKER	DISC. SIZE	
					FLA	LRA			FLA	LRA
48LC*014	208/230-3-60	STD	60.6/59.8	80/80	63/62	346	72.4/71.6	90/90	77/76	366
		MED	65.6/64.7	80/80	69/68	381	77.4/76.5	100/90	82/81	401
		HIGH	73.2	90	78	385	85.0	100	91	405
		ULTRA	81.2	100	85	459	93.0	110	99	479
	460-3-60	STD	31.3	40	33	167	37.5	45	40	179
		MED	33.9	45	36	184	40.1	50	43	196
		HIGH	37.2	45	40	186	43.4	50	47	198
		ULTRA	41.8	50	44	223	48.0	60	51	235
	575-3-60	STD	24.4	30	26	119	29.2	35	31	127
		MED	26.1	30	28	133	30.9	35	33	141
		HIGH	27.1	30	29	131	31.9	35	34	139
		ULTRA	29.0	35	31	158	33.8	40	36	166
48LC*017	208/230-3-60	STD	69.4/68.6	90/90	72/71	375	81.2/80.4	100/100	85/85	395
		MED	82.0	100	86	414	93.8	110	100	434
		HIGH	88.9	100	94	488	100.7	125	108	508
		ULTRA	100.5	125	105	528	112.3	125	118	548
	460-3-60	STD	34.8	45	36	193	41.0	50	43	205
		MED	40.7	50	43	212	46.9	60	50	224
		HIGH	44.9	50	48	249	51.1	60	55	261
		ULTRA	48.9	60	51	269	55.1	60	59	281
	575-3-60	STD	30.0	40	32	154	34.8	40	37	162
		MED	32.7	40	35	166	37.5	45	40	174
		HIGH	34.4	40	37	193	39.2	45	42	201
		ULTRA	38.7	50	41	204	43.5	50	46	212
48LC*020	208/230-3-60	STD	75.3/74.5	100/100	79/78	416	87.1/86.3	100/100	92/91	436
		MED	87.9	100	93	455	99.7	125	107	475
		HIGH	94.8	110	101	529	106.6	125	115	549
		ULTRA	106.4	125	112	569	118.2	150	125	589
	460-3-60	STD	37.2	50	39	231	43.4	50	46	243
		MED	43.1	50	46	250	49.3	60	53	262
		HIGH	47.3	60	50	287	53.5	60	58	299
		ULTRA	51.3	60	54	307	57.5	70	61	319
	575-3-60	STD	31.8	40	34	182	36.6	45	39	190
		MED	34.5	40	37	194	39.3	45	42	202
		HIGH	36.2	45	39	221	41.0	50	44	229
		ULTRA	40.5	50	43	232	45.3	50	48	240
48LC*024	208/230-3-60	STD	103.1	125	109	538	114.9	125	123	558
		MED	109.9	125	117	612	121.7	150	130	632
		HIGH	120.2	150	128	652	132.0	150	141	672
	460-3-60	STD	56.6	70	60	278	62.8	80	67	290
		MED	60.6	70	65	315	66.8	80	72	327
		HIGH	63.8	80	68	335	70.0	80	75	347
	575-3-60	STD	45.0	50	48	206	49.8	60	54	214
		MED	46.7	50	50	233	51.5	60	56	241
		HIGH	50.4	60	54	244	55.2	60	60	252
		ULTRA	54.1	70	60	278	60.4	80	72	327
48LC*026	208/230-3-60	STD	126.1	175	130	629	137.9	175	144	649
		MED	132.9	175	138	703	144.7	175	152	723
		HIGH	142.2	175	149	743	154.0	200	162	763
	460-3-60	STD	64.9	80	68	322	71.1	90	75	334
		MED	68.9	90	73	359	75.1	90	80	371
		HIGH	72.1	90	76	379	78.3	100	83	391
	575-3-60	STD	53.9	60	56	235	58.7	70	62	243
		MED	55.6	70	58	262	60.4	80	64	270
		HIGH	59.3	70	62	273	64.1	80	68	281
		ULTRA	62.8	80	70	315	66.8	80	72	327

See Legend and Notes on page 76.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA (12.5 TO 23 TONS, WITH POWERED CO)

UNIT SIZE	NOM. V-PH-HZ	IFM TYPE	W/ PWRD C.O.							
			NO PE				W/ PE (PWRD FR/UNIT)			
			MCA	FUSE OR HACR BREAKER	DISC. SIZE		MCA	FUSE OR HACR BREAKER	DISC. SIZE	
					FLA	LRA			FLA	LRA
48LC*014	208/230-3-60	STD	65.4/64.6	80/80	69/68	351	77.2/76.4	100/90	82/81	371
		MED	70.4/69.5	90/90	74/73	386	82.2/81.3	100/100	88/87	406
		HIGH	78.0	100	83	390	89.8	100	97	410
		ULTRA	86.0	100	91	464	97.8	125	104	484
	460-3-60	STD	33.5	40	35	169	39.7	50	42	181
		MED	36.1	45	38	186	42.3	50	45	198
		HIGH	39.4	50	42	188	45.6	50	49	200
		ULTRA	44.0	50	47	225	50.2	60	54	237
	575-3-60	STD	26.1	30	28	121	30.9	35	33	129
		MED	27.8	30	30	135	32.6	40	35	143
		HIGH	28.8	35	31	133	33.6	40	36	141
		ULTRA	30.7	35	33	160	35.5	40	38	168
48LC*017	208/230-3-60	STD	74.2/73.4	100/100	77/76	380	86.0/85.2	100/100	91/90	400
		MED	86.8	100	92	419	98.6	125	105	439
		HIGH	93.7	110	100	493	105.5	125	113	513
		ULTRA	105.3	125	110	533	117.1	150	124	553
	460-3-60	STD	37.0	45	39	195	43.2	50	46	207
		MED	42.9	50	46	214	49.1	60	53	226
		HIGH	47.1	60	50	251	53.3	60	57	263
		ULTRA	51.1	60	54	271	57.3	70	61	283
	575-3-60	STD	31.7	40	33	156	36.5	45	39	164
		MED	34.4	40	37	168	39.2	45	42	176
		HIGH	36.1	45	39	195	40.9	50	44	203
		ULTRA	40.4	50	43	206	45.2	50	48	214
48LC*020	208/230-3-60	STD	80.1/79.3	100/100	84/83	421	91.9/91.1	100/100	98/97	441
		MED	92.7	100	99	460	104.5	125	112	480
		HIGH	99.6	125	106	534	111.4	125	120	554
		ULTRA	111.2	125	117	574	123.0	150	131	594
	460-3-60	STD	39.4	50	42	233	45.6	50	49	245
		MED	45.3	50	48	252	51.5	60	56	264
		HIGH	49.5	60	53	289	55.7	60	60	301
		ULTRA	53.5	60	57	309	59.7	70	64	321
	575-3-60	STD	33.5	40	36	184	38.3	45	41	192
		MED	36.2	45	39	196	41.0	50	44	204
		HIGH	37.9	45	41	223	42.7	50	46	231
		ULTRA	42.2	50	45	234	47.0	60	50	242
48LC*024	208/230-3-60	STD	107.9	125	115	543	119.7	150	128	563
		MED	114.7	125	122	617	126.5	150	136	637
		HIGH	125.0	150	133	657	136.8	150	147	677
	460-3-60	STD	58.8	70	62	280	65.0	80	70	292
		MED	62.8	80	67	317	69.0	80	74	329
		HIGH	66.0	80	71	337	72.2	90	78	349
	575-3-60	STD	46.7	50	50	208	51.5	60	56	216
		MED	48.4	60	52	235	53.2	60	58	243
		HIGH	52.1	60	56	246	56.9	70	62	254
48LC*026	208/230-3-60	STD	130.9	175	136	634	142.7	175	149	654
		MED	137.7	175	144	708	149.5	200	157	728
		HIGH	147.0	175	154	748	158.8	200	168	768
	460-3-60	STD	67.1	90	70	324	73.3	90	78	336
		MED	71.1	90	75	361	77.3	100	82	373
		HIGH	74.3	90	79	381	80.5	100	86	393
	575-3-60	STD	55.6	70	58	237	60.4	80	64	245
		MED	57.3	70	60	264	62.1	80	66	272
		HIGH	61.0	80	64	275	65.8	80	70	283

See Legend and Notes on page 76.

UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (12.5 TO 23 TONS, NO CO)

UNIT SIZE	NOM. V-PH-HZ	IFM TYPE	NO C.O. OR UNPWR C.O.							
			NO PE				W/ PE (PWRD FR/UNIT)			
			MCA	HACR BREAKER	DISC. SIZE		MCA	HACR BREAKER	DISC. SIZE	
					FLA	LRA			FLA	LRA
48LC*014	208/230-3-60	STD	60.6/60.6	80/80	63/62	346	72.4/72.4	90/90	77/76	366
		MED	65.6/65.6	80/80	69/68	381	77.4/77.4	100/100	82/81	401
		HIGH	73.2	90	78	385	85.0	100	91	405
		ULTRA	81.2	100	85	459	93.0	110	99	479
	460-3-60	STD	31.3	40	33	167	37.5	45	40	179
		MED	33.9	45	36	184	40.1	50	43	196
		HIGH	37.2	45	40	186	43.4	50	47	198
		ULTRA	41.8	50	44	223	48.0	60	51	235
	575-3-60	STD	24.4	30	26	119	29.2	35	31	127
		MED	26.1	30	28	133	30.9	35	33	141
		HIGH	27.1	30	29	131	31.9	35	34	139
		ULTRA	29.0	35	31	158	33.8	40	36	166
48LC*017	208/230-3-60	STD	69.4/69.4	90/90	72/71	375	81.2/81.2	100/100	85/85	395
		MED	82.0	100	86	414	93.8	110	100	434
		HIGH	88.9	100	94	488	100.7	125	108	508
		ULTRA	100.5	125	105	528	112.3	125	118	548
	460-3-60	STD	34.8	45	36	193	41.0	50	43	205
		MED	40.7	50	43	212	46.9	60	50	224
		HIGH	44.9	50	48	249	51.1	60	55	261
		ULTRA	48.9	60	51	269	55.1	60	59	281
	575-3-60	STD	30.0	40	32	154	34.8	40	37	162
		MED	32.7	40	35	166	37.5	45	40	174
		HIGH	34.4	40	37	193	39.2	45	42	201
		ULTRA	38.7	50	41	204	43.5	50	46	212
48LC*020	208/230-3-60	STD	75.3/75.3	100/100	79/78	416	87.1/87.1	100/100	92/91	436
		MED	87.9	100	93	455	99.7	125	107	475
		HIGH	94.8	110	101	529	106.6	125	115	549
		ULTRA	106.4	125	112	569	118.2	150	125	589
	460-3-60	STD	37.2	50	39	231	43.4	50	46	243
		MED	43.1	50	46	250	49.3	60	53	262
		HIGH	47.3	60	50	287	53.5	60	58	299
		ULTRA	51.3	60	54	307	57.5	70	61	319
	575-3-60	STD	31.8	40	34	182	36.6	45	39	190
		MED	34.5	40	37	194	39.3	45	42	202
		HIGH	36.2	45	39	221	41.0	50	44	229
		ULTRA	40.5	50	43	232	45.3	50	48	240
48LC*024	208/230-3-60	STD	103.1	125	109	538	114.9	125	123	558
		MED	109.9	125	117	612	121.7	150	130	632
		HIGH	120.2	150	128	652	132.0	150	141	672
	460-3-60	STD	56.6	70	60	278	62.8	80	67	290
		MED	60.6	70	65	315	66.8	80	72	327
		HIGH	63.8	80	68	335	70.0	80	75	347
	575-3-60	STD	45.0	50	48	206	49.8	60	54	214
		MED	46.7	50	50	233	51.5	60	56	241
		HIGH	50.4	60	54	244	55.2	60	60	252
48LC*026	208/230-3-60	STD	126.1	175	130	629	137.9	175	144	649
		MED	132.9	175	138	703	144.7	175	152	723
		HIGH	142.2	175	149	743	154.0	200	162	763
	460-3-60	STD	64.9	80	68	322	71.1	90	75	334
		MED	68.9	90	73	359	75.1	90	80	371
		HIGH	72.1	90	76	379	78.3	100	83	391
	575-3-60	STD	53.9	60	56	235	58.7	70	62	243
		MED	55.6	70	58	262	60.4	80	64	270
		HIGH	59.3	70	62	273	64.1	80	68	281

See Legend and Notes on page 76.

UNIT WIRE SIZING DATA WITH FACTORY-INSTALLED HACR BREAKER (12.5 TO 23 TONS, WITH POWERED CO)

UNIT SIZE	NOM. V-PH-HZ	IFM TYPE	W/ PWRD C.O.							
			NO PE				W/ PE (PWRD FR/UNIT)			
			MCA	HACR BREAKER	DISC. SIZE		MCA	HACR BREAKER	DISC. SIZE	
					FLA	LRA			FLA	LRA
48LC*014	208/230-3-60	STD	65.4/65.4	80/80	69/68	351	77.2/77.2	100/100	82/81	371
		MED	70.4/70.4	90/90	74/73	386	82.2/82.2	100/100	88/87	406
		HIGH	78.0	100	83	390	89.8	100	97	410
		ULTRA	86.0	100	91	464	97.8	125	104	484
	460-3-60	STD	33.5	40	35	169	39.7	50	42	181
		MED	36.1	45	38	186	42.3	50	45	198
		HIGH	39.4	50	42	188	45.6	50	49	200
		ULTRA	44.0	50	47	225	50.2	60	54	237
	575-3-60	STD	26.1	30	28	121	30.9	35	33	129
		MED	27.8	30	30	135	32.6	40	35	143
		HIGH	28.8	35	31	133	33.6	40	36	141
		ULTRA	30.7	35	33	160	35.5	40	38	168
48LC*017	208/230-3-60	STD	74.2/74.2	100/100	77/76	380	86.0/86.0	100/100	91/90	400
		MED	86.8	100	92	419	98.6	125	105	439
		HIGH	93.7	110	100	493	105.5	125	113	513
		ULTRA	105.3	125	110	533	117.1	150	124	553
	460-3-60	STD	37.0	45	39	195	43.2	50	46	207
		MED	42.9	50	46	214	49.1	60	53	226
		HIGH	47.1	60	50	251	53.3	60	57	263
		ULTRA	51.1	60	54	271	57.3	70	61	283
	575-3-60	STD	31.7	40	33	156	36.5	45	39	164
		MED	34.4	40	37	168	39.2	45	42	176
		HIGH	36.1	45	39	195	40.9	50	44	203
		ULTRA	40.4	50	43	206	45.2	50	48	214
48LC*020	208/230-3-60	STD	80.1/80.1	100/100	84/83	421	91.9/91.9	100/100	98/97	441
		MED	92.7	100	99	460	104.5	125	112	480
		HIGH	99.6	125	106	534	111.4	125	120	554
		ULTRA	111.2	125	117	574	123.0	150	131	594
	460-3-60	STD	39.4	50	42	233	45.6	50	49	245
		MED	45.3	50	48	252	51.5	60	56	264
		HIGH	49.5	60	53	289	55.7	60	60	301
		ULTRA	53.5	60	57	309	59.7	70	64	321
	575-3-60	STD	33.5	40	36	184	38.3	45	41	192
		MED	36.2	45	39	196	41.0	50	44	204
		HIGH	37.9	45	41	223	42.7	50	46	231
		ULTRA	42.2	50	45	234	47.0	60	50	242
48LC*024	208/230-3-60	STD	107.9	125	115	543	119.7	150	128	563
		MED	114.7	125	122	617	126.5	150	136	637
		HIGH	125.0	150	133	657	136.8	150	147	677
	460-3-60	STD	58.8	70	62	280	65.0	80	70	292
		MED	62.8	80	67	317	69.0	80	74	329
		HIGH	66.0	80	71	337	72.2	90	78	349
	575-3-60	STD	46.7	50	50	208	51.5	60	56	216
		MED	48.4	60	52	235	53.2	60	58	243
		HIGH	52.1	60	56	246	56.9	70	62	254
48LC*026	208/230-3-60	STD	130.9	175	136	634	142.7	175	149	654
		MED	137.7	175	144	708	149.5	200	157	728
		HIGH	147.0	175	154	748	158.8	200	168	768
	460-3-60	STD	67.1	90	70	324	73.3	90	78	336
		MED	71.1	90	75	361	77.3	100	82	373
		HIGH	74.3	90	79	381	80.5	100	86	393
	575-3-60	STD	55.6	70	58	237	60.4	80	64	245
		MED	57.3	70	60	264	62.1	80	66	272
		HIGH	61.0	80	64	275	65.8	80	70	283

See Legend and Notes on page 76.

3-STAGE COOLING WITH 3-SPEED INDOOR FAN MOTOR, SIZES 14-26 (12.5-23 TONS) — HIGH SCCR

48LC** UNIT	V-Ph-Hz	VOLTAGE RANGE		HIGH SCCR kA	COMP 1		COMP 2		OFM (ea)		IFM		
		MIN	MAX		RLA	LRA	RLA	LRA	WATTS	FLA	TYPE	EFF AT FULL LOAD	FLA
14	208-3-60	253	187	60	17.6	123	23.2	164	185	1.3	STD	85.0%	8.6
											MED	83.6%	13.6
											HIGH	89.5%	21.2
											SUPER	91.7%	28.0
	230-3-60	253	187	60	17.6	123	23.2	164	185	1.3	STD	85.0%	7.8
											MED	83.6%	12.7
											HIGH	89.5%	21.2
											SUPER	91.7%	28.0
	460-3-60	506	414	65	9.6	62	11.2	75	185	1.3	STD	85.0%	3.8
											MED	83.6%	6.4
											HIGH	89.5%	9.7
											SUPER	91.7%	13.7
17	208-3-60	253	187	60	19.1	123	27.6	191	185	1.3	STD	85.0%	8.6
											MED	89.5%	21.2
											HIGH	91.7%	28.0
											SUPER	91.7%	37.3
	230-3-60	253	187	60	19.1	123	27.6	191	185	1.3	STD	85.0%	7.8
											MED	89.5%	21.2
											HIGH	91.7%	28.0
											SUPER	91.7%	37.3
	460-3-60	506	414	65	9.8	62	12.8	100	185	1.3	STD	85.0%	3.8
											MED	89.5%	9.7
											HIGH	91.7%	13.7
											SUPER	91.7%	16.9
20	208-3-60	253	187	60	25.0	164	27.6	191	185	1.3	STD	85.0%	8.6
											MED	89.5%	21.2
											HIGH	91.7%	28.0
											SUPER	91.7%	37.3
	230-3-60	253	187	60	25.0	164	27.6	191	185	1.3	STD	85.0%	7.8
											MED	89.5%	21.2
											HIGH	91.7%	28.0
											SUPER	91.7%	37.3
	460-3-60	506	414	65	12.2	100	12.8	100	185	1.3	STD	85.0%	3.8
											MED	89.5%	9.7
											HIGH	91.7%	13.7
											SUPER	91.7%	16.9
24	208-3-60	253	187	60	29.5	195	33.3	239	190	1.6	STD	89.5%	21.2
											MED	91.7%	28.0
											HIGH	91.7%	37.3
											STD	89.5%	21.2
	230-3-60	253	187	60	29.5	195	33.3	239	190	1.6	MED	91.7%	28.0
											HIGH	91.7%	37.3
											STD	89.5%	9.7
											MED	91.7%	13.7
	460-3-60	506	414	65	14.8	95	18.0	125	190	1.6	HIGH	91.7%	16.9
											STD	89.5%	21.2
											MED	91.7%	28.0
											HIGH	91.7%	37.3
26	208-3-60	253	187	60	30.1	225	51.2	300	190	1.6	STD	89.5%	21.2
											MED	91.7%	28.0
											HIGH	91.7%	37.3
											STD	89.5%	21.2
	230-3-60	253	187	60	30.1	225	51.2	300	190	1.6	MED	91.7%	28.0
											HIGH	91.7%	37.3
											STD	89.5%	9.7
											MED	91.7%	13.7
	460-3-60	506	414	65	16.7	114	23.1	150	190	1.6	HIGH	91.7%	16.9
											STD	89.5%	21.2
											MED	91.7%	28.0
											HIGH	91.7%	37.3

See Legend and Notes on page 76.

NOTE: High SCCR is not available for units with 575v.

UNIT WIRE/FUSE OR HACR BREAKER SIZING DATA, 3-SPEED INDOOR FAN MOTOR, SIZES 14-26 (12.5-23 TONS) — HIGH SCCR

48LC** UNIT	NOM. V-Ph-Hz	IFM TYPE	HIGH SCCR kA	NO CO OR UNPWR CO							
				NO PE				W/ PE (PWRD FR/UNIT)			
				MCA	FUSE OR HACR BRKR	DISC. SIZE		MCA	FUSE OR HACR BRKR	DISC. SIZE	
						FLA	LRA			FLA	LRA
14	208/230-3-60	STD	60	59.1/58.3	80/80	61/60	343	70.9/70.1	90/90	75/74	363
		MED		64.1/63.2	80/80	67/66	378	75.9/75.0	90/90	81/80	398
		HIGH		71.7	90	76	382	83.5	100	89	402
		SUPER		79.7	100	84	456	91.5	100	97	476
	460-3-60	STD	65	31.3	40	33	167	37.5	45	40	179
		MED		33.9	45	36	184	40.1	50	43	196
		HIGH		37.2	45	40	186	43.4	50	47	198
		SUPER		41.8	50	44	223	48.0	60	51	235
17	208/230-3-60	STD	60	67.4/66.6	90/90	70/69	371	79.2/78.4	100/100	83/82	391
		MED		80.0	100	84	410	91.8	100	98	430
		HIGH		86.9	100	92	484	98.7	125	105	504
		SUPER		98.5	125	103	524	110.3	125	116	544
	460-3-60	STD	65	34.8	45	36	193	41.0	50	43	205
		MED		40.7	50	43	212	46.9	60	50	224
		HIGH		44.9	50	48	249	51.1	60	55	261
		SUPER		48.9	60	51	269	55.1	60	59	281
20	208/230-3-60	STD	60	73.3/72.5	100/100	76/75	412	85.1/84.3	100/100	90/89	432
		MED		85.9	100	91	451	97.7	125	104	471
		HIGH		92.8	100	99	525	104.6	125	112	545
		SUPER		104.4	125	109	565	116.2	150	123	585
	460-3-60	STD	65	37.2	50	39	231	43.4	50	46	243
		MED		43.1	50	46	250	49.3	60	53	262
		HIGH		47.3	60	50	287	53.5	60	58	299
		SUPER		51.3	60	54	307	57.5	70	61	319
24	208/230-3-60	STD	60	101.9	125	108	538	113.7	125	121	558
		MED		108.7	125	115	612	120.5	150	129	632
		HIGH		119.0	150	126	652	130.8	150	140	672
	460-3-60	STD	65	56.6	70	60	278	62.8	80	67	290
		MED		60.6	70	65	315	66.8	80	72	327
		HIGH		63.8	80	68	335	70.0	80	75	347
26	208/230-3-60	STD	60	124.9	175	129	629	136.7	175	142	649
		MED		131.7	175	137	703	143.5	175	150	723
		HIGH		141.0	175	147	743	152.8	200	161	763
	460-3-60	STD	65	64.9	80	68	322	71.1	90	75	334
		MED		68.9	90	73	359	75.1	90	80	371
		HIGH		72.1	90	76	379	78.3	100	83	391

See Legend and Notes on page 76.

NOTE: High SCCR is not available for units with 575v.

Legend and notes

Applicable for Electrical Data Tables on pages 68-75

LEGEND

BREAKER	— Circuit Breaker
CO	— Convenience Outlet
DISC	— Disconnect
FLA	— Full Load Amps
HACR	— Heating, Air Conditioning, and Refrigeration
IFM	— Indoor Fan Motor
LRA	— Locked rotor amps
MCA	— Minimum Circuit Amps
PE	— Power Exhaust
PWRD CO	— Powered Convenience Outlet
PWRD FR/ UNIT	— Powered from Unit
SCCR	— Short Circuit Current Rating
UNPWR CO	— Unpowered Convenience Outlet

NOTES:

1. In compliance with NEC requirements for multimotor and combination load equipment (refer to NEC Articles 430 and 440), the over-current protective device for the unit shall be fuse or HACR breaker. Canadian units may be fuse or circuit breaker.
2. For 208/230 v units, where one value is shown it is the same for either 208 or 230 volts.
3. 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



$$AB = 224 \text{ v}$$

$$BC = 231 \text{ v}$$

$$AC = 226 \text{ v}$$

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

Determine maximum deviation from average voltage.

$$(AB) 227 - 224 = 3 \text{ v}$$

$$(BC) 231 - 227 = 4 \text{ v}$$

$$(AC) 227 - 226 = 1 \text{ v}$$

Maximum deviation is 4 v.

Determine percent of voltage imbalance.

$$\% \text{ Voltage Imbalance} = 100 \times \frac{4}{227} = 1.78\%$$

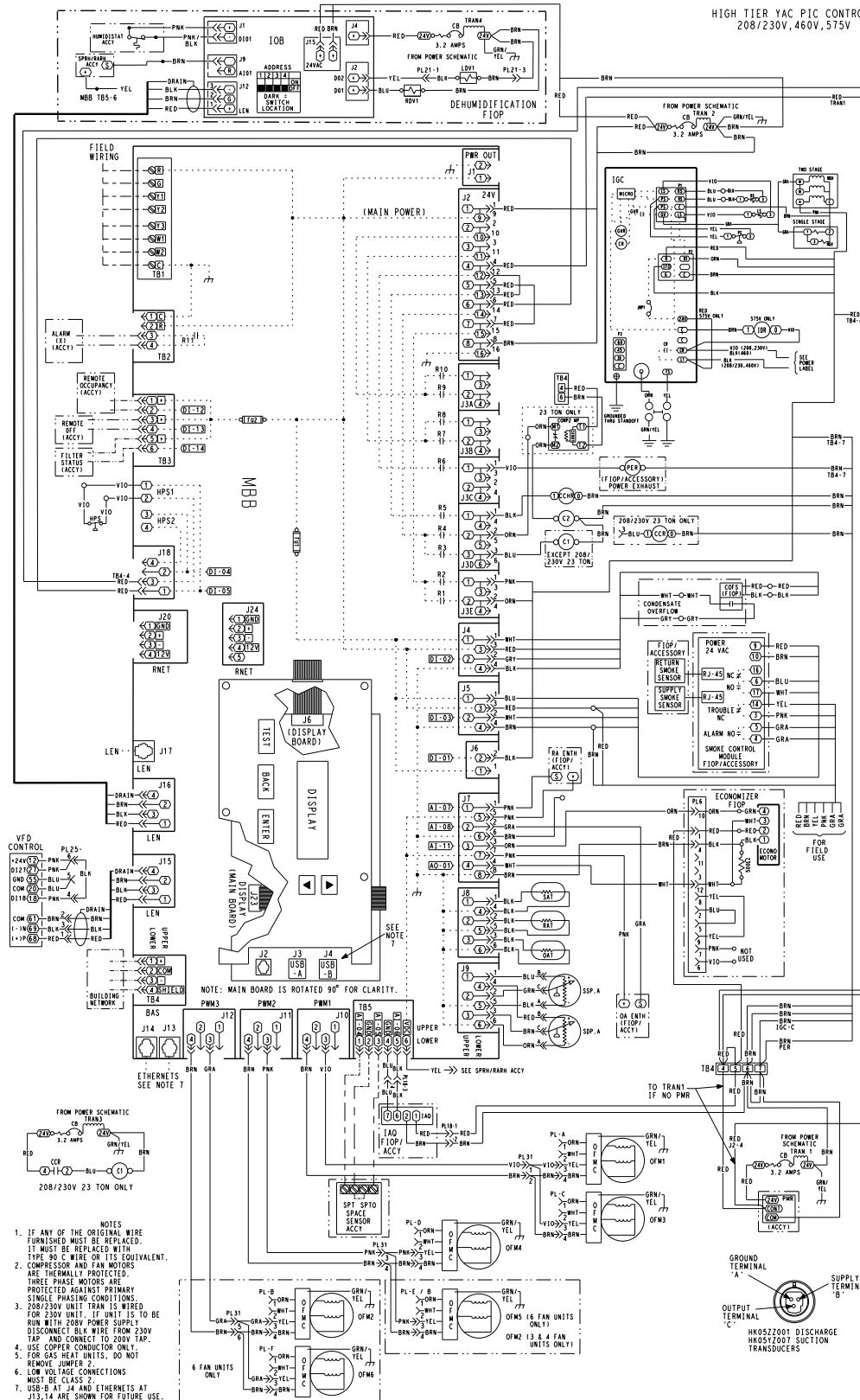
This amount of phase imbalance is satisfactory as it is below the maximum allowable 2%.

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

[illegible]

48LC 14-26 SYSTEMVU CONTROL SCHEMATIC

HIGH TIER YAC PIC CONTROL
208/230V, 460V, 575V



50LC000063 F

HIGH TIER YAC CONTROL 208/230V, 460V, 575V

FIELD WIRING

RTU Open (F1OP)

ECONOMIZER (F1OP/ACCESSORY)

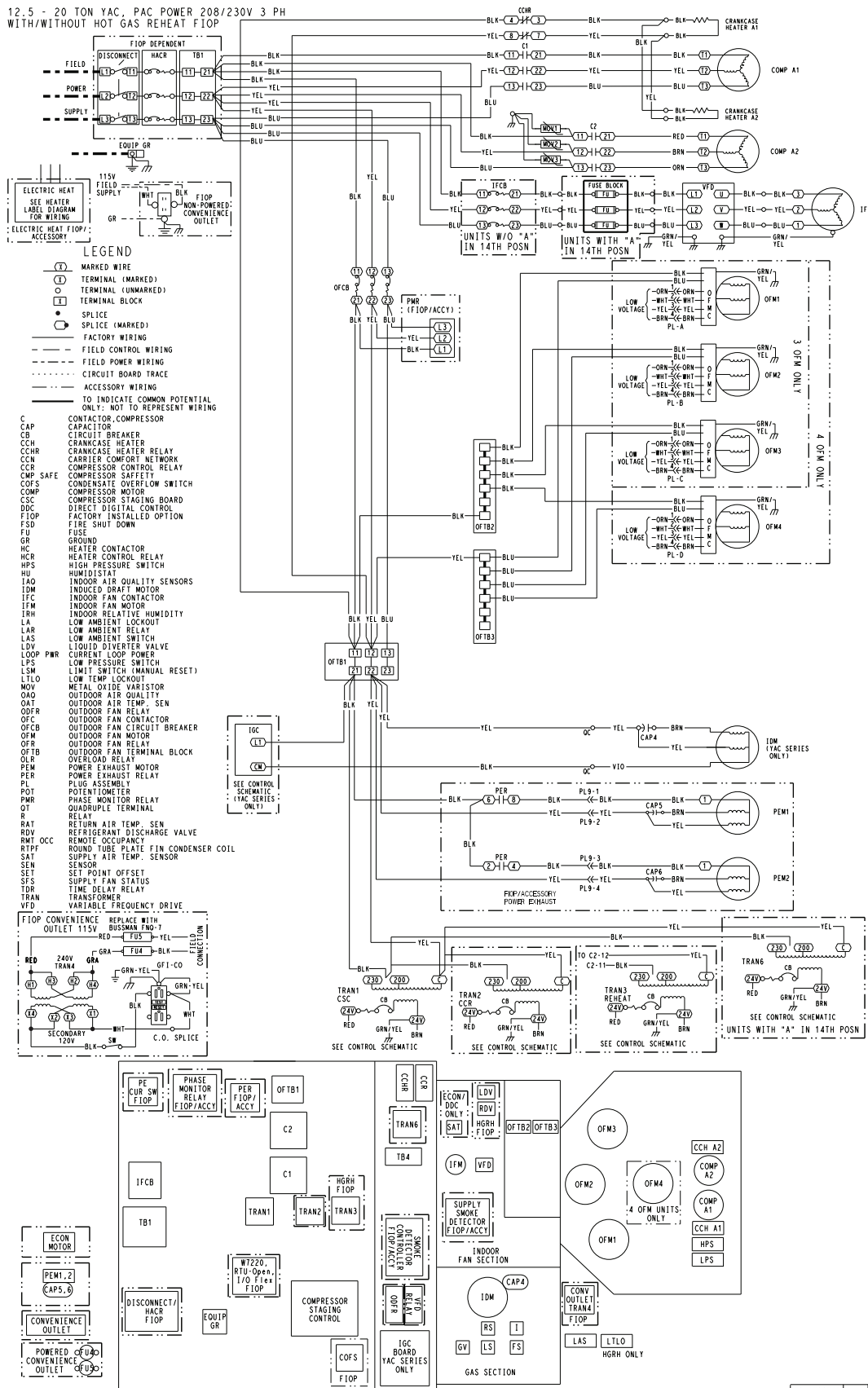
DEHUMIDIFICATION (F1OP)

NOTES

- IF ANY OF THE ORIGINAL WIRE FURNISHED MUST BE REPLACED. IT MUST BE REPLACED WITH TYPE NO. C WIRE OR ITS EQUIVALENT.
- COMPRESSOR AND FAN MOTORS ARE THERMALLY PROTECTED. THREE PHASE MOTORS ARE PROTECTED AGAINST PRIMARY SINGLE PHASING CONDITIONS.
- 208/230V UNIT TRANS IS WIRED FOR 230V UNIT. IF UNIT IS TO BE RUN WITH 208V POWER SUPPLY DISCONNECT BLK WIRE FROM 230V TAP AND CONNECT TO 200V TAP.
- USE COPPER CONDUCTOR ONLY.
- IF M.O. IS NOT USED ON ALL MODELS, IF NOT USED, THEN RED LEADS ARE CONNECTED TOGETHER.
- FOR GAS HEAT UNITS, DO NOT REMOVE JUMPER 2.
- LOW VOLTAGE CONNECTIONS MUST BE CLASS 2.
- FOR ENTHALPHY SENSOR CONNECTION, DISCONNECT GRAY WIRE FROM PLUG HARNESS AND CONNECT AS SHOWN.

TYPICAL POWER WIRING DIAGRAM (48LC 14-20, 208/230-V SHOWN)

12.5 - 20 TON YAC, PAC POWER 208/230V 3 PH
WITH/WITHOUT HOT GAS REHEAT FIOP



NOTE: This power wiring diagram is typical for electromechanical, SystemVu, and RTU Open units.

Sequence of operation



General

The Carrier Integrated Staging Control Board (ISC) is intended for use with a standard thermostat capable of 3 cooling stages. After initial power to the board, a Green LED will blink with a 1 second duty cycle indicating the unit is running properly. When the unit is not running properly, the Green LED will blink along with Red LED lights. The Red LED light configuration will indicate the type of error the board has identified.

The ISC board can be remotely shutdown by removing Jumper 4 and wiring to the Remote Shutdown terminal. The Smoke Control Module can shutdown the unit by removing Jumper 3 and wiring to the Smoke Shutdown terminal. A smoke alarm can be obtained by wiring to the Smoke Alarm terminal.

The crankcase heater will run at all times except when the compressors are running. An auxiliary power supply (24 vac) available at TB-4 Terminal is provided to power auxiliary equipment. An optional Phase Monitor Relay can be wired to the PMR terminal by removing Jumper 5.

Ventilation

In the Ventilation/Fan Mode (G on the thermostat), the indoor fan will run at low speed and the damper will operate at minimum position.

Cooling

In the Cooling Mode, the small and large compressors will be sequenced to maintain the thermostat/DDC temperature setpoint. The table below shows the cooling operation based on the following conditions.

The outdoor fan and VFD-controlled indoor fan will operate at low, medium and high speed. The indoor fan

speed (rpm) is factory set by the cfm and static pressure requirements for the unit installed.

Humidi-MiZer (Optional)

In the Dehumidification Mode, both compressors will run and indoor airflow will rise to high speed.

In subcooling mode (reheat-1), during part load conditions when the room temperature and humidity are above the set point, the unit initiates the sub-cooling mode of operation; a call for cooling and dehumidification. RDV (Reheat Discharge Valve) and TWV (Three Way Valve) close; Indoor and Outdoor airflow will rise until reaching 100% of Speed.

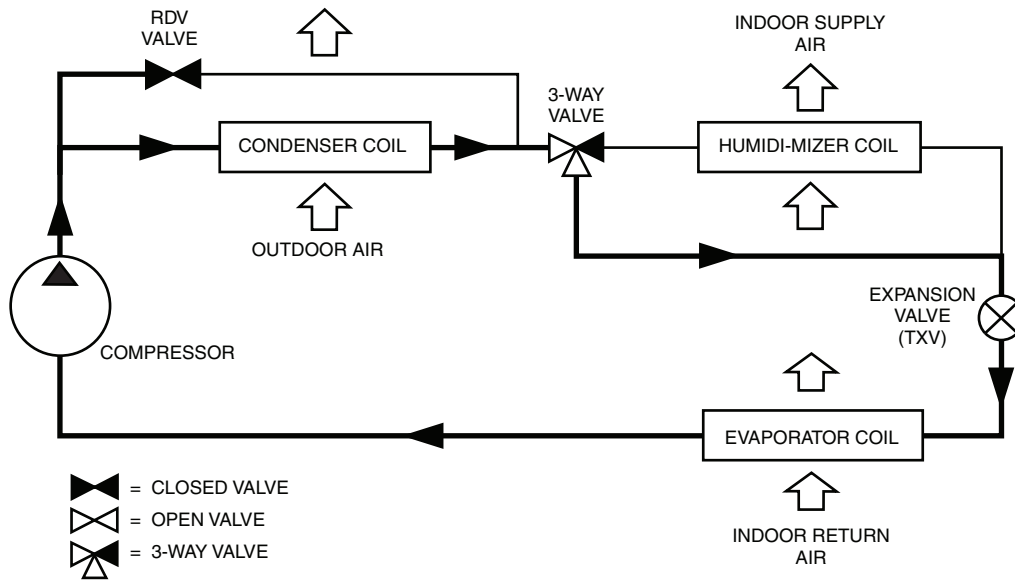
In hot gas reheat mode (reheat-2), when there is a call for dehumidification without a call for cooling, a portion of the hot gas from the compressor bypasses the condenser coil when RDV opens and hot gas is fed into the liquid line, TWV closes in this mode and the system provides mainly latent cooling. Indoor airflow will rise until reaching 100% of Speed, Outdoor airflow will run at High speed as long as outdoor temperature is above 80°F (26.7°C); when operating in this mode below 80°F (26.7°C) OAT, the system outdoor fan will operate as shown in the table below based on size.

48LC SIZE	RPM	NUMBER OF FANS ON	NUMBER OF FANS OFF
14	250	3	0
17	250	4	0
20	160	4	0
24	250	6	0
26	250	6	0

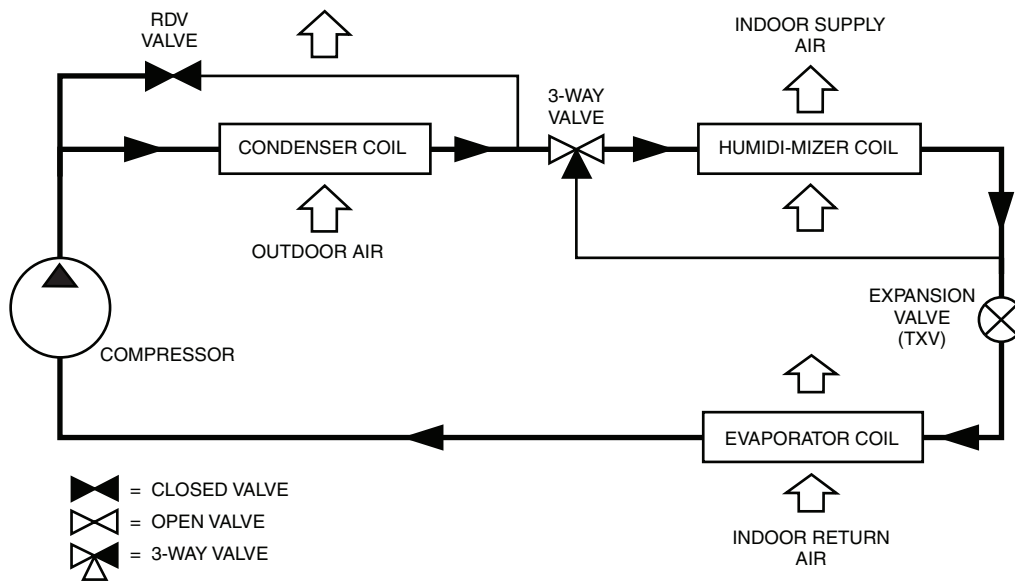
COOLING OPERATION

INPUT	OUTPUT			
THERMOSTAT	COMPRESSOR C1	COMPRESSOR C2	INDOOR FAN SPEED	OUTDOOR FAN SPEED
First stage cooling (Y1)	On	Off	Low	Low (700 rpm)
Second stage cooling (Y2)	Off	On	Medium	Medium (800 rpm)
Third stage cooling (Y3)	On	On	High	High (1,000 rpm)

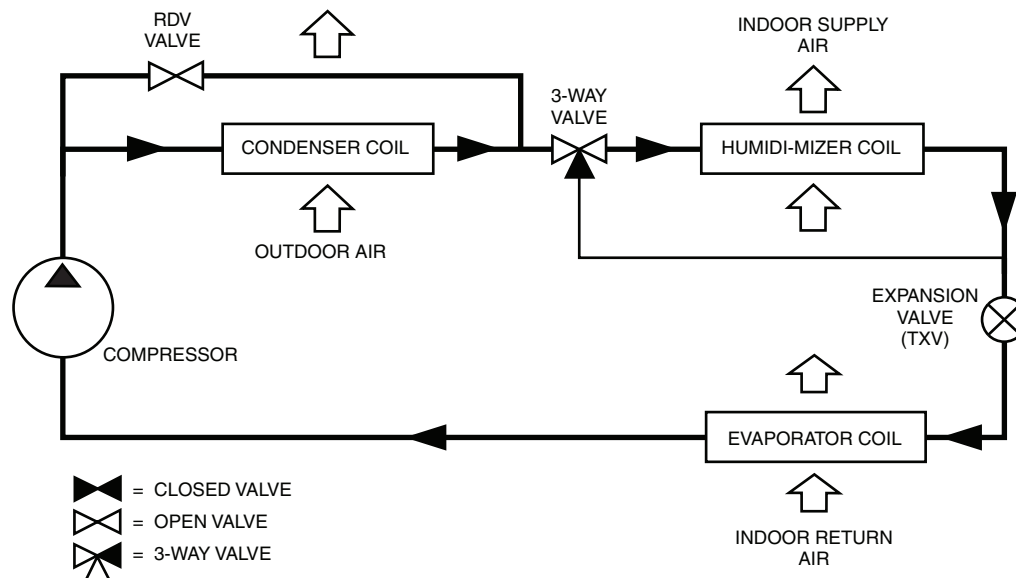
HUMIDI-MIZER PIPING SCHEMATIC — NORMAL COOLING



HUMIDI-MIZER PIPING SCHEMATIC — SUBCOOLING MODE (REHEAT 1)



HUMIDIFIER PIPING SCHEMATIC — HOT GAS REHEAT MODE (REHEAT 2)



Economizer (Optional)

When the Economizer DDC is in Free Cooling Mode and a demand for cooling exist (Y1 on the thermostat), the Economizer DDC will modulate the outdoor-air damper to provide a 50°F (10°C) to 55°F (13°C) mixed-air temperature into the zone and run the indoor-fan at high speed. As mixed-air temperature fluctuates above 55°F (13°C) or below 50°F (10°C) dampers will be modulated (open or close) to bring the mixed-air temperature back within control. Upon more call for cooling (Y2 on the thermostat), the outdoor-air damper will maintain its current position, compressor C1 will run and the outdoor-fan will run at low speed. If there is further demand for cooling, the outdoor-air damper will maintain its current position, only compressor C2 will run and the outdoor fan will run at medium speed. The VFD-controlled indoor fan will operate at high speed regardless of the cooling demand.

If the increase in cooling capacity causes the mixed-air temperature to drop below 45°F, the outdoor-air damper will return to the minimum position. If the mixed-air temperature continues to fall, the outdoor-air damper will close. Control returns to normal once the mixed air temperature rises above 48°F (9°C). The power exhaust fans will be energized and de-energized, if installed, as the outdoor-air damper opens and closes.

If field-installed accessory CO₂ sensors are connected to the Economizer DDC, a demand controlled ventilation strategy will begin to operate. As the CO₂ level in the zone increases above the CO₂ setpoint, the minimum position of the damper will be increased proportionally. As the CO₂

level decreases because of the increase of fresh air, the outdoor-air damper will be proportionally closed. For economizer operation, there must be a thermostat call for the fan (G). If the unit is occupied and the fan is on, the damper will operate at minimum position. Otherwise, the damper will be closed.

Low Ambient

In Low Ambient RTU conditions when the temperature is less than 55°F (13°C), the Low Ambient Switch (LAS) will be active and the outdoor-fans will run to the pre-set factory outdoor-fan speed. When the temperature is greater than 65°F (18°C), the Low Ambient Switch will deactivate and the outdoor-fans will run in the standard cooling mode. If the Outdoor Fan Select Switch is in the up position, the outdoor fans will run in the Fan Cycle Speed Mode (FCS) set to 250 rpm. If the Outdoor Fan Select Switch is in the down position, the outdoor fans will run in the Minimum Fan Speed Mode (MIN) set to 160 rpm regardless of the cooling demand.

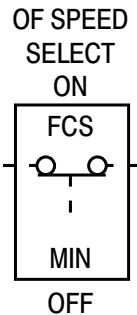
48LC Size 14 through 26 units have a SPST normally open Low Ambient Switch wired across the TS and OF terminal and a jumper placed across the PS terminal. When the LAS is active, the switch will close making contact to the OF terminal. This is done for units that require all outdoor fans to run at the same pre-set factory Low Ambient Speed.

The Low Ambient Outdoor Fan Control chart on page 84 shows the operation of the outdoor fans for each unit.

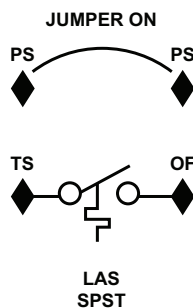
LOW AMBIENT TEMPERATURE OUTDOOR FAN CONTROL

48LC SIZE	NUMBER OF FANS ON	NUMBER OF FANS OFF	SWITCH	OUTDOOR FAN SELECT SWITCH	RPM
14	3	0	(1) SPST	Up	250
17	4	0	(1) SPST	Up	250
20	4	0	(1) SPST	Up	160
24	6	0	(1) SPST	Up	250
26	6	0	(1) SPST	Up	250

OUTDOOR FAN SPEED SELECT SWITCH



SCHEMATIC OF SPST LOW AMBIENT SWITCH



Heating

In the Heating Mode (W1 on the thermostat), the ISC board sends power to W on the IGC board. The ISC board sees W1=ON and also expects IFO=ON. However, the IFO is not ON immediately as the Integrated Gas Controller (IGC) board has to work through its operating sequence. Thus, the ISC board will turn on a momentary LED (light-emitting diode). The indoor fan is not turned on by the ISC board.

The IGC board starts its gas ignition process. An LED on the IGC board turns on and remains on during normal operation. A check is made to ensure that the rollout switch and limit switch are closed. If the check was successful, the induced draft motor is energized, and when its speed is satisfactory, as proven by the flue gas pressure switch, the ignition activation period begins. The burners will ignite within 5 seconds. If the burners do not light, there is a 22 second delay before another 5 second attempt. This sequence is repeated for 15 minutes or until the burners light. If, after the 15 minutes, the burners still have not lit, heating is locked out. To reset the control, break 24 vac power to the thermostat.

When gas ignition occurs, the IGC board will continue to monitor the condition of the rollout switch, the limit

switches, the flue gas pressure switch, as well as the flame sensor. Once gas ignition is confirmed, the IGC board has a 45 second built in delay before it sends an IFO=ON signal to the ISC board. Assuming the unit is controlled through a room thermostat set for fan auto, the indoor-fan motor will energize and the outdoor-air dampers will open to their minimum position. The delay will allow for the gas section to come to temperature before turning on the indoor fan. This will prevent the unit from blowing cold air into the space. Once the ISC board sees IFO=ON, the VFD controlled indoor fan is set to high speed and the LED error is cleared. If, for some reason the over temperature limit opens prior to the start of the indoor fan blower, the unit will shorten the 45 second delay to 5 seconds less than the time from initiation of heat to when the limit tripped. Gas will not be interrupted to the burners and heating will continue. Once the fan ON delay has been modified, it will not change back to 45 seconds until power is reset to the control.

When W1 is turned OFF, the IGC board turns off the gas valve. The IGC board has a delay time before it turns IFO=OFF. At this time, the ISC board sees W1=OFF and IFO=ON. The ISC will keep the indoor fan ON. Once the IGC board delay times out, the ISC board will see W1=OFF and IFO=OFF, which then turns the indoor fan OFF.

If the call for W1 lasted less than 1 minute, the heating cycle will not terminate until 1 minute after W1 became active. If the unit is controlled through a room thermostat set for fan auto, the indoor fan motor will continue to operate for an additional 45 seconds then stop. If the over temperature limit opens after the indoor motor is stopped, but within 10 minutes of W1 becoming inactive, on the next cycle the time will be extended by 15 seconds. The maximum delay is 3 minutes. Once modified, the fan OFF delay will not change back to 45 seconds unless power is reset to the control. A LED indicator is provided on the IGC to monitor operation.

When additional heat is required, W2 closes and initiates power to the second stage of the main gas valve. When the thermostat is satisfied, the gas valve closes, interrupting the flow of gas to the main burners.

SystemVu Control (Factory Option)

For details on operating 48LC units equipped with the factory installed SystemVu controls option, refer to *48/50LC 07-26 Single Package Rooftop Units with SystemVu Controls Version 1.X and Puron® (R-410A) Refrigerant Controls, Start-Up, Operation and Troubleshooting*.

RTU Open (Factory Option)

For details on operating 48LC units equipped with the factory installed RTU Open option, refer to *48/50LC-07-26 Factory Installed Option RTU Open Multi-Protocol Controller Controls, Start-Up, Operation and Troubleshooting*.

Note about this specification:

This specification is in the “Masterformat” as published by the Construction Specification Institute. Please feel free to copy this specification directly into your building spec.

WeatherExpert Ultra High-Efficiency Gas Heat/ Electric Cooling Packaged Rooftop

HVAC Guide Specifications:

Size Range: **12.5 to 23 Nominal Tons**

Carrier Model Number: **48LC**

Part 1 — 23 06 80 Schedules for Decentralized HVAC Equipment

1.01 23 06 80.13 Decentralized Unitary HVAC Equipment Schedule:

A. 23 06 80.13.A. Rooftop unit schedule:

1. Schedule is per the project specification requirements.

Part 2 — 23 07 16 HVAC Equipment Insulation

2.01 23 07 16.13 Decentralized, Rooftop Units:

A. 23 07 16.13.A. Evaporator fan compartment:

1. Interior cabinet surfaces shall be insulated with a minimum 1/2 in. thick, minimum 1-1/2 lb density aluminum foil-faced insulation on the air side.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
3. Unit internal insulation linings shall be resistant to mold growth in accordance with “mold growth and humidity” test in ASTM C1338, G21, and UL 181 or comparable test method. Air stream surfaces shall be evaluated in accordance with the “Erosion Test” in UL 181, as part of ASTM C1071.

B. 23 07 16.13.B. Gas heat compartment:

1. Aluminum foil-faced fiberglass insulation shall be used.
2. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.

Part 3 — 23 09 13 Instrumentation and Control Devices for HVAC

3.01 23 09 13.23 Sensors and Transmitters:

A. 23 09 13.23.A. Thermostats:

1. Thermostat must
 - a. energize both “W” and “G” when calling for heat.
 - b. have capability to energize 3 different stages of cooling, and 2 different stages of heating.
 - c. include capability for occupancy scheduling.

Part 4 — 23 09 23 Direct Digital Control (DDC) System for HVAC

4.01 23 09 23.13 Decentralized, Rooftop Units:

A. 23 09 23.13.A. SystemVu™ intelligent integrated Direct Digital Control (DDC) shall provide:

1. Integrated unit operation for comfort cooling, heating ventilation as well as all monitoring, recording and reporting capabilities. Controller shall also provide diagnostics and alarms of abnormal unit operation through the controller. Controller shall have an intuitive user display and be able to be used in a standalone operation or via building automation system (BAS).
2. Quick Unit Status LEDs of: Run – meaning all systems are go, ALERT - that indicates there is currently a non-critical issue with the unit, like filters need to be replaced and FAULT – that indicates the unit has a critical issue and will possibly shut down.
3. Six large navigation keys for easy access. Navigation keys shall consist of: TEST, BACK, ENTER, and MENU along with UP and DOWN arrows.
4. Full back lit user display with 4 line by 30 character text capabilities. Display menu shall be designed to provide guided major menus and sub menus main menus provided below:
 - a. Shutdown Unit
 - b. Run Status
 - c. Settings
 - d. Alerts/Faults
 - e. Service
 - f. Inputs
 - g. Outputs
 - h. USB
5. The capability for standalone operation with conventional thermostat/sensor or use with building automation systems (BAS) of Carrier i-Vu®, BACnet¹ and Carrier Comfort Network® (CCN) systems. No special modules or boards are required for these capabilities.
6. The ability to read refrigerant pressures at display or via BAS network of; Discharge Pressure and Suction Pressure. The need for traditional refrigerant gauges is not required.
7. USB Data Port for flash drive interaction. This will allow the transfer of data for uploads, downloads, perform software upgrades, back-up and restore data and file transfer data such as component number of starts and run hours.
8. Reverse Rotation Protection of compressors if field 3 phase wiring is misapplied.
9. Provide Service Capabilities of:
 - a. Auto run test

1. BACnet is a trademark of ASHRAE.

- b. Manual run test
- c. Component run hours and starts
- d. Commissioning reports
- e. Data logging
- f. Alarm history
- 10. Economizer control and diagnostics. Set up economizer operation, receive feedback from actuator. Also meets the most recent California Title 24 Fault Detection and Diagnostic (FDD) requirements.
- 11. Unit cooling operation down to 0°F (–18°C)
- 12. Controller shall have easy access connections around the controller perimeter area and consist of Mate-N-Lok, terminal block and RJ style modular jack connections.
- 13. 365 day real time clock, 20 holiday schedules along with occupied and unoccupied scheduling.
- 14. Auto-Recognition for easy installation and commissioning of devices like economizers, space sensors, etc.
- 15. A 5°F temperature difference between cooling and heating set points to meet the latest ASHRAE 90.1-2013 Energy Standard.
- 16. Contain return air sensor, supply air sensor and outdoor air sensor to help monitor and provide data for the unit comfort operation, diagnostic and alarms.
- 17. Use of Carrier's field accessory hand-held Navigator™ display.
- 18. Control of the operation of unit VFD (Variable Frequency Drive) to work in conjunction with the cooling, heating and ventilation modes.
- 19. 3-year limited part warranty
- B. 23 09 23.13.B. RTU Open - multi-protocol, direct digital controller:
 - 1. Shall be ASHRAE 62 compliant.
 - 2. Shall accept 18-30VAC, 50-60Hz, and consume 15VA or less power.
 - 3. Shall have an operating temperature range from –40°F (–40°C) to 130°F (54°C), 10-90% RH (non-condensing).
 - 4. Shall include built-in protocol for BACnet (MS/TP and PTP modes), Modbus¹ (RTU and ASCII), Johnson N2 and LonWorks². LonWorks Echelon processor required for all Lon applications shall be contained in separate communication board.

- 5. Shall allow access of up to 62 network variables (SNVT). Shall be compatible with all open controllers.
- 6. Baud rate Controller shall be selectable using a dipswitch.
- 7. Shall have an LED display independently showing the status of serial communication, running, errors, power, all digital outputs, and all analog inputs.
- 8. Shall accept the following inputs: space temperature, setpoint adjustment, outdoor air temperature, indoor air quality, outdoor air quality, compressor lock-out, fire shutdown, enthalpy switch, and fan status/filter status/humidity/ remote occupancy.
- 9. Shall provide the following outputs: economizer, fan, cooling stage 1, cooling stage 2, heat stage 1, heat stage 2, heat stage 3/ exhaust/ reversing valve.
- 10. Shall have built-in surge protection circuitry through solid state polyswitches. Polyswitches shall be used on incoming power and network connections. Polyswitches will return to normal when the "trip" condition clears.
- 11. Shall have a battery back-up capable of a minimum of 10,000 hours of data and time clock retention during power outages.
- 12. Shall have built-in support for Carrier technician tool.
- 13. Shall include an RS-485 protocol communication port, an access port for connection of either a computer or a Carrier technician tool, an EIA-485 port for network communication to intelligent space sensors and displays, and a port to connect an optional LonWorks communications card.
- 14. Software upgrades will be accomplished by either local or remote download. No software upgrades through chip replacements are allowed.

Part 5 — 23 09 33 Integrated Staging Control (ISC) Board System for HVAC (Electro-Mechanical units)

5.01 23 09 33.13 Decentralized, Rooftop Units:

A. 23 09 33.13.A. General:

- 1. Shall be complete with self-contained low-voltage control circuit protected by a resettable circuit breaker on the 24-v transformer side. Transformer shall have 75VA capability.
- 2. Shall utilize color-coded wiring.

1. Modbus is a registered trademark of Schneider Electric.

2. LonWorks is a registered trademark of Echelon Corporation.

3. Shall include an ISC electro-mechanical control board, to conveniently and safely provide connection points for vital control functions such as: smoke detectors, phase monitor, gas controller, economizer, thermostat, and safety switches. Shall control all 3 stages of compressor logic, 2 or 3 stages of the indoor fan motor logic as well as staging of the outdoor fan motor. Shall also have a green LED indicator to indicate GO operation as well as a fault LED indicator for thermostat mis-wiring, no fan operation and safety.

NOTE: Does not apply to units equipped with SystemVu™ controls.

4. The heat exchanger shall be controlled by an integrated gas controller (IGC) microprocessor. See heat exchanger section of this specification.

B. 23 09 33.13.B. Safeties:

1. Compressor over-temperature, over-current. High internal pressure differential.
2. Low-pressure Protection.
 - a. Low-pressure switch shall use different color wire than the high-pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.

NOTE: Does not apply to units equipped with SystemVu controls.
3. High-pressure Protection.
 - a. High-pressure switch shall use different color wire than the low-pressure switch. The purpose is to assist the installer and service technician to correctly wire and or troubleshoot the rooftop unit.
4. Automatic reset, motor thermal overload protector.
5. Heating section shall be provided with the following minimum protections:
 - a. High-temperature limit switches.
 - b. Induced draft motor speed sensor.
 - c. Flame rollout switch.
 - d. Flame proving controls.

Part 6 — 23 09 93 Sequence of Operations for HVAC Controls

6.01 23 09 93.13 Decentralized, Rooftop Units:

- A. 23 09 93.13.A. INSERT SEQUENCE OF OPERATION

Part 7 — 23 40 13 Panel Air Filters

7.01 23 40 13.13 Decentralized, Rooftop Units:

- A. 23 40 13.13.A. Standard filter section:
 1. Shall consist of factory-installed, low velocity, disposable 2 in. thick fiberglass filters of commercially available sizes.
 2. Unit shall use only one filter size. Multiple sizes are not acceptable.

3. Filters shall be accessible through a dedicated, weather tight access panel.
4. 4 in. filter capabilities shall be capable with pre-engineered and approved Carrier filter track field-installed accessory. This kit requires field furnished filters.

Part 8 — 23 81 19 Self-Contained Air Conditioners

8.01 23 81 19.13 Medium-Capacity Self-Contained Air Conditioners (48LC**14-26)

A. 23 81 19.13.A. General:

1. Outdoor, rooftop mounted, DDC electrically controlled, heating and cooling unit utilizing fully hermetic scroll compressors for cooling duty and gas combustion for heating duty.
2. Factory assembled, single-piece heating and cooling rooftop unit. Contained within the unit enclosure shall be all factory wiring, piping, controls, and special features required prior to field start-up.
3. Unit shall use Puron® (R-410A) refrigerant.
4. Unit shall be installed in accordance with the manufacturer's instructions.
5. Unit must be selected and installed in compliance with local, state, and federal codes.

B. 23 81 19.13.B. Quality Assurance:

1. Unit meets and exceeds ASHRAE 90.1-2013 minimum efficiency requirements.
2. Unit shall be rated in accordance with AHRI Standard 340/360.
3. Unit shall be designed to conform to ASHRAE 15.
4. Unit shall be ETL-tested and certified in accordance with ANSI Z21.47 Standards and ETL-listed and certified under Canadian standards as a total package for safety requirements.
5. Insulation and adhesive shall meet NFPA 90A requirements for flame spread and smoke generation.
6. Unit internal insulation linings shall be resistant to mold growth in accordance with "mold growth and humidity" test in ASTM C1338, G21, and UL 181 or comparable test method. Air stream surfaces shall be evaluated in accordance with the "Erosion Test" in UL 181, as part of ASTM C1071.
7. Unit casing shall be capable of withstanding 500-hour salt spray exposure per ASTM B117 (scribed specimen).
8. Roof curb shall be designed to conform to NRCA Standards.
9. Unit shall be subjected to a completely automated run test on the assembly line. The data for each unit will be stored at the factory, and must be available upon request.

10. Unit shall be designed in accordance with UL Standard 1995, ETL listed including tested to withstand rain.
 11. Unit shall be constructed to prevent intrusion of snow and tested to prevent snow intrusion into the control box up to 40 mph.
 12. Unit shake tested to assurance level 1, ASTM D4169 to ensure shipping reliability.
 13. High-Efficiency Motors listed shall meet section 313 of the Energy Independence and Security Act of 2007 (EISA 2007).
- C. 23 81 19.13.C. Delivery, Storage, and Handling:
1. Unit shall be stored and handled per manufacturer's recommendations.
 2. Lifted by crane requires either shipping top panel or spreader bars.
 3. Unit shall only be stored or positioned in the upright position.
- D. 23 81 19.13.D. Project Conditions:
1. As specified in the contract.
- E. 23 81 19.13.E. Operating Characteristics:
1. Unit shall be capable of starting and running at 125°F (52°C) ambient outdoor temperature, meeting maximum load criteria of AHRI Standard 340/360 at $\pm 10\%$ voltage.
 2. Compressor with standard controls shall be capable of operation down to 40°F (4°C), ambient outdoor temperatures. For lower operation, an integrated economizer shall be utilized to allow lower temperatures and accommodate indoor air quality initiatives.
 3. Unit shall discharge supply air vertically or horizontally as shown on contract drawings.
 4. Unit shall be factory configured and ordered for vertical supply and return configurations.
 5. Unit shall be factory furnished for either vertical or horizontal configuration without the use of special conversion kits. No field conversion is possible.
- F. 23 81 19.13.F. Electrical Requirements:
1. Main power supply voltage, phase, and frequency must match those required by the manufacturer.
- G. 23 81 19.13.G. Unit Cabinet:
1. Unit cabinet shall be constructed of galvanized steel, and shall be bonderized and coated with a pre-painted baked enamel finish on all externally exposed surfaces.
 2. Unit cabinet exterior paint shall be: film thickness, (dry) 0.003 in. minimum, gloss (per ASTM D523, 60°F / 16°C): 60, Hardness: H-2H Pencil hardness.
 3. Evaporator fan compartment interior cabinet insulation shall conform to AHRI Standard 340/360 minimum exterior sweat criteria. Interior surfaces shall be insulated with a minimum 1/2 in. thick, 1 lb density, aluminum foil-faced fiberglass insulation. Aluminum foil-faced fiberglass insulation shall also be used in the gas heat compartment.
4. Unit internal insulation linings shall be resistant to mold growth in accordance with "mold growth and humidity" test in ASTM C1338, G21, and UL 181 or comparable test method. Air stream surfaces shall be evaluated in accordance with the "Erosion Test" in UL 181, as part of ASTM C1071.
 5. Base of unit shall have a minimum of 4 locations for thru-the-base gas and electrical connections standard. Both gas and electric connections shall be internal to the cabinet to protect from environmental issues.
 6. Base Rail:
 - a. Unit shall have base rails on a minimum of 2 sides.
 - b. Holes shall be provided in the base rails for rigging shackles to facilitate maneuvering and overhead rigging.
 - c. Holes shall be provided in the base rail for moving the rooftop by fork truck.
 - d. Base rail shall be a minimum of 16 gauge thickness.
 7. Condensate Pan and Connections:
 - a. Shall be a sloped condensate drain pan made of a non-corrosive material.
 - b. Shall comply with ASHRAE Standard 62.
 - c. Shall use a 3/4 in. 14 NPT drain connection, through the side of the drain pan. Connection shall be made per manufacturer's recommendations.
 8. Top Panel:
 - a. Shall be a multi-piece top panel linked with water tight flanges and locking systems.
 9. Gas Connections:
 - a. All gas piping connecting to unit gas valve shall enter the unit cabinet at a single location on side of unit (horizontal plane).
 - b. Thru-the-base capability
 - 1) Standard unit shall have a thru-the-base gas-line location using a raised, embossed portion of the unit basepan.
 - 2) Thru-the-base provisions/connections are available as standard with every unit. When bottom connections are required, field furnished couplings are required.
 - 3) No basepan penetration, other than those authorized by the manufacturer, is permitted.
 10. Electrical Connections:
 - a. All unit power wiring shall enter unit cabinet at a single, factory-prepared, knockout location.

- b. Thru-the-base capability.
 - 1) Thru-the-base provisions/connections are available as standard with every unit. When bottom connections are required, field furnished couplings are required.
 - 2) No basepan penetration, other than those authorized by the manufacturer, is permitted.

11. Component Access Panels (standard):

- a. Cabinet panels shall be easily removable for servicing.
- b. Unit shall have one factory installed, toolless, removable, filter access panel.
- c. Panels covering control box and filter shall have molded composite handles while the blower access door shall have an integrated flange for easy removal.
- d. Handles shall be UV modified, composite, permanently attached, and recessed into the panel.
- e. Screws on the vertical portion of all removable access panel shall engage into heat resistant, molded composite collars.
- f. Collars shall be removable and easily replaceable using manufacturer recommended parts.

H. 23 81 19.13.H. Gas Heat:

1. General:

- a. Heat exchanger shall be an induced draft design. Positive pressure heat exchanger designs shall not be allowed.
- b. Shall incorporate a direct-spark ignition system and redundant main gas valve.
- c. Gas supply pressure at the inlet to the rooftop unit gas valve must match that required by the manufacturer.

2. The heat exchanger shall be controlled by an integrated gas controller (IGC) microprocessor.

- a. IGC board shall notify users of fault using an LED (light-emitting diode).
- b. The LED shall be visible without removing the control box access panel.
- c. IGC board shall contain algorithms that modify evaporator-fan operation to prevent future cycling on high temperature limit switch.
- d. Unit shall be equipped with anti-cycle protection with one short cycle on unit flame rollout switch or 4 continuous short cycles on the high temperature limit switch. Fault indication shall be made using an LED.

3. Standard Heat Exchanger Construction:

- a. Heat exchanger shall be of the tubular-section type constructed of a minimum of 20 gauge steel coated with a nominal 1.2 mil

aluminum-silicone alloy for corrosion resistance.

- b. Burners shall be of the in-shot type constructed of aluminum-coated steel.

- c. Burners shall incorporate orifices for rated heat output up to 2000 ft (610 m) elevation. Additional accessory kits may be required for applications above 2000 ft (610 m) elevation, depending on local gas supply conditions.

- d. Each heat exchanger tube shall contain multiple dimples for increased heating effectiveness.

4. Optional Stainless Steel Heat Exchanger Construction:

- a. Use energy saving, direct-spark ignition system.
- b. Use a redundant main gas valve.
- c. Burners shall be of the in-shot type constructed of aluminum-coated steel.
- d. All gas piping shall enter the unit cabinet at a single location on side of unit (horizontal plane).
- e. The optional stainless steel heat exchanger shall be of the tubular-section type, constructed of a minimum of 20 gauge type 409 stainless steel.
- f. Type 409 stainless steel shall be used in heat exchanger tubes and vestibule plate.
- g. Complete stainless steel heat exchanger allows for greater application flexibility.

5. Induced Draft Combustion Motor and Blower:

- a. Shall be a direct-drive, single inlet, forward-curved centrifugal type.
- b. Shall be made from steel with a corrosion-resistant finish.
- c. Shall have permanently lubricated sealed bearings.
- d. Shall have inherent thermal overload protection.
- e. Shall have an automatic reset feature.

I. 23 81 19.13.I. Coils:

1. Standard Aluminum Fin/Copper Tube Coils:

- a. Standard evaporator and condenser coils shall have aluminum lanced plate fins mechanically bonded to seamless internally grooved 5/16 in. diameter copper tubes with all joints brazed.
- b. Evaporator coils shall be leak tested to 150 psig, pressure tested to 450 psig, and qualified to UL 1995 burst test at 1775 psig.
- c. Condenser coils shall be leak tested to 150 psig, pressure tested to 650 psig, and qualified to UL 1995 burst test at 1980 psig.

2. Optional Pre-coated Aluminum-Fin Condenser Coils:

- a. Shall have a durable epoxy-phenolic coating to provide protection in mildly corrosive coastal environments.
- b. 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.
- c. Epoxy-phenolic barrier shall minimize galvanic action between dissimilar metals.
- d. Corrosion durability of fin stock shall be confirmed through testing to be no less than 1000 hours salt spray per ASTM B117-90.
- e. Corrosion durability of fin stock shall be confirmed through testing to have no visible corrosion after 48 hour immersion in a room temperature solution of 5% salt, 1% acetic acid.
- f. Fin stock coating shall pass 2000 hours of the following: one week exposure in the prohesion chamber followed by one week of accelerated ultraviolet light testing. Prohesion chamber: the solution shall contain 3.5% sodium chloride and 0.35% ammonium sulfate. The exposure cycle is one hour of salt fog application at ambient followed by one hour drying at 95°F (35°C).

3. Optional Copper-Fin Evaporator and Condenser Coils:

- a. Shall be constructed of copper fins mechanically bonded to copper tubes and copper tube sheets.
- b. Galvanized steel tube sheets shall not be acceptable.
- c. A polymer strip shall prevent coil assembly from contacting the sheet metal coil pan to minimize potential for galvanic corrosion between coil and pan.

4. Optional e-coated Aluminum-Fin Evaporator and Condenser Coils:

- a. Shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins.
- b. Coating process shall ensure complete coil encapsulation of tubes, fins and headers.
- c. Color shall be high gloss black with gloss per ASTM D523-89.
- d. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges.
- e. Superior hardness characteristics of 2H per ASTM D3363-92A and cross-hatch adhesion of 4B-5B per ASTM D3359-93.
- f. Impact resistance shall be up to 160 in. lb. (ASTM D2794-93).

- g. Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92).

- h. Corrosion durability shall be confirmed through testing to be no less than 6000 hours salt spray per ASTM B117-90.

J. 23 81 19.13.J. Refrigerant Components:

1. Refrigerant circuit shall include the following control, safety, and maintenance features:

- a. Thermostatic Expansion Valve (TXV) shall help provide optimum performance across the entire operating range. Shall contain removable power element to allow change out of power element and bulb without removing the valve body.
- b. Refrigerant filter drier - Solid core design.
- c. Service gauge connections on suction and discharge lines.
- d. Pressure gauge access through a specially designed access screen on the side of the unit.
- e. Single circuit design with tandem compressor and fully activated evaporator coil.

2. Compressors:

- a. Models shall use fully hermetic tandem scroll compressors optimized for comfort staging and IEER energy savings.
- b. Models shall be available with a single refrigerant circuit and 3-stage cooling operation on all models.
- c. Compressor motors shall be cooled by refrigerant gas passing through motor windings.
- d. Compressors shall be internally protected from high discharge temperature conditions.
- e. Compressors shall be protected from an over-temperature and over-ampereage conditions by an internal, motor overload device.
- f. Compressor shall be factory mounted on rubber grommets.
- g. Compressor motors shall have internal line break thermal, current overload and high pressure differential protection.
- h. Crankcase heaters shall be standard on each compressor and deactivated whenever the compressor is in operation.

K. 23 81 19.13.K. Filter Section:

1. Filters access is specified in the unit cabinet section of this specification.
2. Filters shall be held in place by a preformed, slide-out filter tray, facilitating easy removal and installation.
3. Shall consist of factory-installed, low velocity, throw-away 2 in. thick fiberglass filters.

4. Filters shall be standard, commercially available sizes.
 5. Only one size filter per unit is allowed.
 6. 4 in. filter capability is possible with a field-installed pre-engineered slide out filter track accessory. 4 in. filters are field furnished.
- L. 23 81 19.13.L. Evaporator Fan and Motor:
1. Evaporator Fan Motor:
 - a. Shall have permanently lubricated bearings.
 - b. Shall have inherent automatic-reset thermal overload protection or circuit breaker.
 - c. Shall have a maximum continuous bhp rating for continuous duty operation; no safety factors above that rating shall be required.
 - d. Shall be Variable Frequency duty to match the 3-stage compression logic.
 - e. 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). For indoor fan motor Staged Air Volume (SAV™) operation:
 - 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) waveform, 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 conformal coated.
 - i. Shall not contain visual display to adjust internal setting. Available only as field-installed kit.
 3. Belt-Driven Evaporator Fan:
 - a. Belt drive shall include an adjustable-pitch motor pulley.
 - b. Shall use sealed, permanently lubricated ball bearing type.
 - c. Blower fan shall be double-inlet type with forward-curved blades.
 - d. Shall be constructed from steel with a corrosion resistant finish and dynamically balanced.
- M. 23 81 19.13.M. Condenser Fans and Motors:
1. Condenser Fan Motors:
 - a. Shall be a totally enclosed, multi speed ECM motor.
 - b. Shall use permanently lubricated bearings.
 - c. Shall have inherent thermal overload protection with an automatic reset feature.
 - d. Shall use a shaft-down design.
 2. Condenser Fans:
 - a. Shall be a direct-driven propeller type fan.
 - b. Shall have galvanized aluminum (galvalume) blades riveted to corrosion-resistant steel spiders and shall be dynamically balanced.
- N. 23 81 19.13.N. Special Features Options and Accessories:
1. Low Leak Economizers:
 - a. Available as factory-installed option (vertical or horizontal) or field-installed accessory (vertical or horizontal) on all electro-mechanical, RTU Open, and SystemVu™ models.
 - b. Low leak economizers are available with EconoMi\$er X controls for electro-mechanical units, or EconoMi\$er2 controls for RTU Open or SystemVu units.
 - c. Integrated, gear driven opposed blade design type capable of simultaneous economizer and compressor operation.
 - d. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
 - e. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
 - f. Low leak rate models shall be equipped with leakage dampers, not to exceed 2% leakage at 1 in. wg pressure differential.
 - g. Shall be capable of introducing up to 100% outdoor air.
 - h. Economizer's barometric relief dampers shall be sized to allow up to 100% relief (actual results will be based on specific job conditions).
 2. Ultra-Low Leak Economizers:
 - a. Available as a factory-installed option (vertical or horizontal) or field-installed accessory (vertical or horizontal) on all models including: electro-mechanical, RTU Open, and SystemVu.
 - b. Ultra-Low Leak economizer dampers meet California's Title 24 section 140.4 prescriptive requirements for leakage, reliability testing, etc., and ASHRAE 90.1-2013 requirements for damper leakage.
 - c. Economizers are available with EconoMi\$er X controls for electro-mechanical units, or

- EconoMi\$er2 controls for RTU Open or SystemVu units.
- d. Integrated, gear driven opposed blade design type capable of simultaneous economizer and compressor operation.
- e. Damper blades shall be galvanized steel with composite gears. Plastic or composite blades on intake or return shall not be acceptable.
- f. Shall be equipped with gear driven dampers for both the outdoor ventilation air and the return air for positive air stream control.
- g. Shall be capable of introducing up to 100% outdoor air.
- h. Economizer's barometric relief dampers shall be sized to allow up to 100% relief (actual results will be based on specific job conditions).
- 3. EconoMi\$er X Economizer Controls:
 - a. For use with factory-installed (vertical or horizontal) or field-installed accessory (vertical or horizontal) on electromechanical units with low leak or ultra-low leak economizers.
 - b. Meets California's Title 24 section 120.2 mandatory requirements for economizer Fault Detection and Diagnosis (FDD).
 - c. Economizer controller shall be Honeywell W7220 that provides:
 - 1) 2-line LCD interface screen for setup, configuration and troubleshooting.
 - 2) On-board FDD detects and alerts when economizer is not operating properly.
 - 3) Sensor failure loss of communication identification.
 - 4) Automatic sensor detection.
 - 5) Capabilities for use with multi-speed indoor fan units.
 - d. Compressor lockout temperature on W7220 is adjustable from -45°F to 80°F (-43°C to 27°C), set at a factory default of 32°F (0°C).
 - e. Shall be designed to spring return close outside air damper during loss of power.
 - f. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
 - g. Utilizes digital dry bulb or enthalpy outside air sensors. Factory-installed economizers available with dry bulb or enthalpy. Dry bulb sensors installed on all field-installed economizer accessories.
- 4. EconoMi\$er2 Economizer Controls:
 - a. For use with factory-installed (vertical or horizontal) or field-installed accessory (vertical or horizontal) on RTU Open or SystemVu units with low leak or ultra-low leak economizers. NOTE: Factory-installed EconoMi\$er2 is available on SystemVu units with Ultra-Low Leak economizers only.
 - b. EconoMi\$er2 economizers are controlled by RTU Open or SystemVu unit controllers, which shall be 4 to 20mA design.
 - c. RTU Open and SystemVu controls meet California's Title 24 section 120.2 mandatory requirements for economizer Fault Detection and Diagnosis.
 - d. Available on factory-installed (vertical only) economizers with dry bulb or enthalpy outside air sensors. Field-installed accessories (vertical or horizontal) are available with dry bulb outside air sensors only.
 - e. Outdoor air sensor setpoint shall be adjustable and shall range from 40°F to 100°F (4°C to 38°C). Additional sensor options shall be available as accessories.
 - f. Shall be designed to spring return close outside air damper during loss of power.
 - g. Actuator shall be direct coupled to economizer gear. No linkage arms or control rods shall be acceptable.
 - h. The economizer controller shall also provide control of an accessory power exhaust unit function. Factory set at 100%, with a range of 0% to 100%.
 - i. The economizer shall maintain minimum air-flow into the building during occupied period and provide design ventilation rate for full occupancy.
 - j. Controller shall drive outside air dampers completely closed when the unit is in the unoccupied mode.
 - k. Economizer controller shall accept a 4 to 20mA CO₂ sensor input for IAQ/DCV control. In this mode, dampers shall modulate the outdoor air damper to provide ventilation based on the sensor input.
 - l. Economizer controller shall provide indications when in free cooling mode, in the DCV mode, or the exhaust fan contact is closed.
- 5. Propane Conversion Kit:
 - a. Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit for use with liquefied propane. Kits shall be available for elevations from 0 up to 14,000 ft (4,276 m).
- 6. Condenser Coil Hail Guard Assembly:
 - a. Shall protect against damage from hail.
 - b. Shall be louvered style design.
- 7. Unit-Mounted, Non-Fused Disconnect Switch:
 - a. Switch shall be factory-installed, internally mounted.
 - b. National Electric Code (NEC) and ETL approved non-fused switch shall provide unit power shutoff.
 - c. Shall be accessible from outside the unit.

- d. Shall provide local shutdown and lockout capability.
 - e. Sized only for the unit as ordered from the factory. Does not accommodate field-installed devices.
8. HACR Breaker:
- a. These manual reset devices provide overload and short circuit protection for the unit. Factory wired and mounted with the units, with access cover to help provide environmental protection. On 575V applications, HACR breaker can only be used with WYE power distribution systems. Use on Delta power distribution systems is prohibited.
 - b. Sized only for the unit as ordered from the factory. Does not accommodate field-installed devices.
9. 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 of disconnect by installing contractor, as required by code. If outlet is powered from load side of disconnect, unit electrical ratings shall be ETL 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.
10. Flue Discharge Deflector:
- a. Flue discharge deflector shall direct unit exhaust vertically instead of horizontally.
 - b. Deflector shall be defined as a "natural draft" device by the National Fuel and Gas (NFG) code.
11. Centrifugal Propeller Power Exhaust:
- a. Power exhaust shall be used in conjunction with an integrated economizer.
 - b. Independent modules for vertical or horizontal return configurations shall be available.
 - c. Horizontal power exhaust is shall be mounted in return ductwork.
 - d. Power exhaust shall be controlled by economizer controller operation. Exhaust fans shall be energized when dampers open past the 0 to 100% adjustable set point on the economizer control.
12. Roof Curbs (Vertical):
- a. Full perimeter roof curb with exhaust capability providing separate air streams for energy recovery from the exhaust air without supply air contamination.
 - b. Formed galvanized steel with wood nailer strip and shall be capable of supporting entire unit weight.
 - c. Permits installation and securing of ductwork to curb prior to mounting unit on the curb.
13. High-Static Indoor Fan Motor(s) and Drive(s):
- a. High-static motor(s) and drive(s) shall be factory-installed to provide additional performance range.
14. High Altitude Gas Conversion Kit:
- a. Package shall contain all the necessary hardware and instructions to convert a standard natural gas unit to operate from 3,000 to 10,000 ft (914 to 3048 m) elevation and 10,001 to 14,000 ft (3049 to 4267 m) elevation.
15. Outdoor Air Enthalpy Sensor:
- a. The outdoor air enthalpy sensor shall be used to provide single enthalpy control. When used in conjunction with a return air enthalpy sensor, the unit will provide differential enthalpy control. The sensor allows the unit to determine if outside air is suitable for free cooling.
16. Return Air Enthalpy Sensor:
- a. The return air enthalpy sensor shall be used in conjunction with an outdoor air enthalpy sensor to provide differential enthalpy control.
17. Indoor Air Quality (CO₂) Sensor:
- a. Shall be able to provide demand ventilation indoor air quality (IAQ) control.
 - b. The IAQ sensor shall be available in duct mount, wall mount, or wall mount with LED display. The set point shall have adjustment capability.

18. Smoke Detectors:
 - a. Shall be a 4-wire controller and detector.
 - b. Shall be environmental compensated with differential sensing for reliable, stable, and drift-free sensitivity.
 - c. Shall use magnet-activated test/reset sensor switches.
 - d. Shall have tool-less connection terminal access.
 - e. Shall have a recessed momentary switch for testing and resetting the detector.
 - f. Controller shall include:
 - 1) One set of normally open alarm initiation contacts for connection to an initiating device circuit on a fire alarm control panel.
 - 2) Two Form-C auxiliary alarm relays for interface with rooftop unit or other equipment.
 - 3) One Form-C supervision (trouble) relay to control the operation of the Trouble LED on a remote test/reset station.
 - 4) Capable of direct connection to 2 individual detector modules.
 - 5) Can be wired to up to 14 other duct smoke detectors for multiple fan shutdown applications
19. Horn/Strobe Annunciator:
 - a. Provides an audible/visual signaling device for use with factory-installed option or field-installed accessory smoke detectors.
 - 1) Requires installation of a field-supplied 24-v transformer suitable for 4.2 VA (AC) or 3.0 VA (DC) per horn/strobe accessory.
 - 2) Requires field-supplied electrical box, North American 1-gang box, 2 in. (51 mm) x 4 in. (102 mm).
 - 3) Shall have a clear colored lens.
20. Time Guard Device:
 - a. Shall prevent compressor short cycling by providing a 5 minute delay ($\pm$ 2 minutes) before restarting a compressor after shutdown for any reason.
 - b. One device shall be required per compressor.
21. Barometric Hood (Horizontal Economizer Applications):
 - a. Shall be required when a horizontal economizer and barometric relief are required. Barometric relief damper must be installed in the return air (horizontal) duct work. This hood provides weather protection.
22. Hinged Access Panels:
 - a. Shall provide easy access through integrated quarter turn latches.
- b. Shall be on major panels of: filter, control box, fan motor and compressor.
23. 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 communication cable.
 - c. Display Kit can be permanently installed in the unit or used on any SAV™ system VFD controller as needed.
24. Thermostat:
 - a. Due to the 3-stage cooling capacity design of these units, a 3-stage cooling thermostat is required for the unit to perform at listed operating efficiencies.
 - b. Carrier offers a Honeywell branded T7350D (3 Cool/3 Heat) Commercial Programmable Thermostat. This provides:
 - 1) 7-day programmable 365-day clock with holiday programming
 - 2) Automatic Daylight Saving Time adjustment
 - 3) Backlit display
 - 4) Changeover selections: automatic or manual
 - 5) Fan configurable: continuous or intermittent during occupied
25. Humidi-MiZer® Adaptive Dehumidification System:
 - a. The Humidi-MiZer Adaptive Dehumidification System shall be factory installed, certified and tested to provide greater dehumidification of the occupied space by providing 2 distinct models of dehumidification operation in addition to its normal design cooling mode:
 - 1) Subcooling mode further sub cools the hot liquid refrigerant leaving the condenser coil as well as reheat leaving air stream. It can provide both better cooling capacity as well as dehumidification process when both temperature and humidity in the space are not satisfied.
 - 2) Hot gas reheat mode shall mix a portion of the hot gas from the discharge of compressor with the hot liquid refrigerant leaving the condenser coil to create a 2-phase warm refrigerant in the reheat coil which results in a neutral leaving air temperature when only humidity in the space is not satisfied.
26. High Short Circuit Current Rating (SCCR):
 - a. An optional SCCR of 65kA shall be provided for 460 volt and 60kA for 208/230 volt units.

