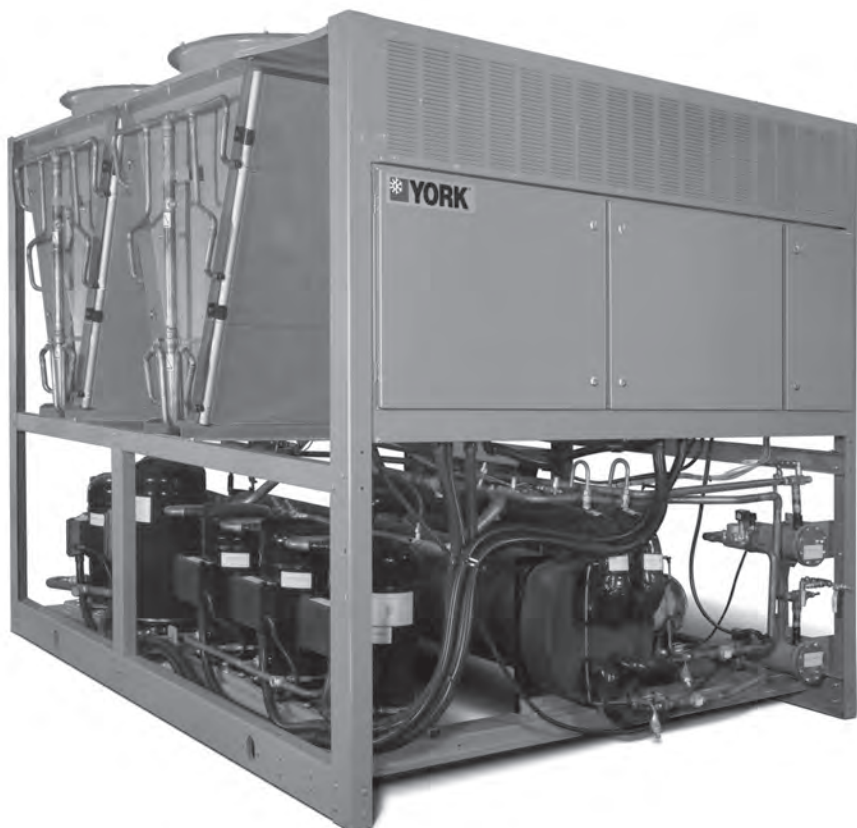




BY JOHNSON CONTROLS



***Model YLAA Air-Cooled Scroll Chillers with Shell-and-Tube
Heat Exchangers
Style A***

125 – 175 TON

439 – 527 kW

60 Hz

R-410A

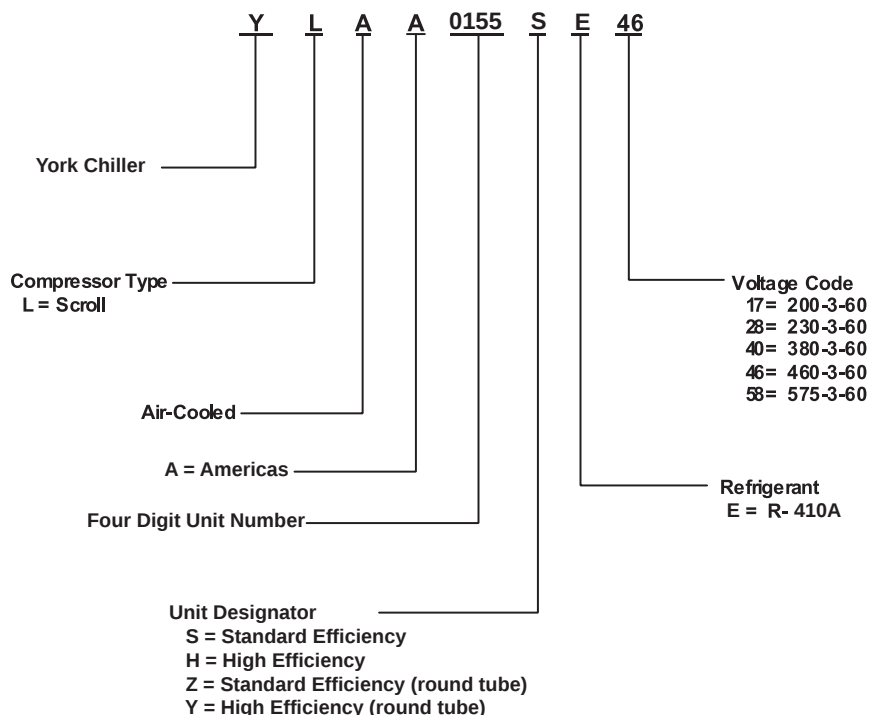


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NOMENCLATURE

The model number denotes the following characteristics of the unit:



Products are produced at a facility whose quality-management systems are ISO9001 certified.

Introduction



*Johnson Controls, the leader in equipment controls and HVAC equipment is proud to offer the **YORK** air-cooled scroll chiller. This all-in-one package is a true plug and play system that provides superb efficiency and performance. The chiller is completely self-contained and is designed for outdoor (roof or ground level) installation. An optional hydronic pump kit makes service replacement or new building installations very convenient. Each unit includes zero-ozone-depletion refrigerant (R-410A), hermetic scroll compressors, a liquid evaporator, air cooled condenser, and a weather resistant microprocessor control center, all mounted on a formed steel base.*

ENVIRONMENTAL RESPONSIBILITY ...STANDARD

The YLAA makes you the leader in environmental practices through innovation, not added cost. With the combination of R-410A refrigerant and a 30-50% reduction of refrigerant used vs. similar chillers, the YLAA chiller provides you with the most ecologically friendly equipment. Partnered with its low sound properties (for noise pollution prevention), this chiller is a true earth-friendly offering.

REDUCED TOTAL COST OF OWNERSHIP...

Industry leading energy efficiency, easy maintenance and durability minimize your cost of ownership. Efficiency; environmentally responsibility that pays you back...

- Real world energy efficiency is measured in IPLV (part load) performance.
- YLAA's industry leading IPLV's deliver cash to your bottom line.
- Serviceability...Easier maintenance pays twice: sustained chiller efficiency and lower cost maintenance contracts.
- Corrosion resistant condenser coils extend life and improve performance.

MORE BUILDING...LESS CHILLER

The YLAA offers a lighter, smaller and quieter chiller minimizing your installed cost and maximizing usable building space.

- More space for you.
- Smaller chiller footprint saves valuable space.
- YLAA is the lowest weight chiller available, lighter than our previous generation chiller by 20-35%.
- Hydronic pump kit option can save both space and cost by integrating the chilled water pumps as a factory mounted chiller option.
- Standard low sound and affordable sound attenuation options allow flexibility in locating chiller and reduce cost for field constructed sound barriers.

MANY APPLICATIONS, ONE YLAA!

Performance, sound and hydronic pump kits are all configurable to suit your many needs... Performance can be configured with standard and high full-load efficiency models (an industry first)

- Multiple sound configurations...only spend on what you need.
- Pumps can be factory mounted.
- Hydronic pump kits can be configured for a wide range of flow and head pressure with single or dual (standby) pump.
- Standard corrosion resistance for coastal applications.
- Small weight and footprint allow you maximum choice in locating the chiller.

Equipment Overview

GENERAL

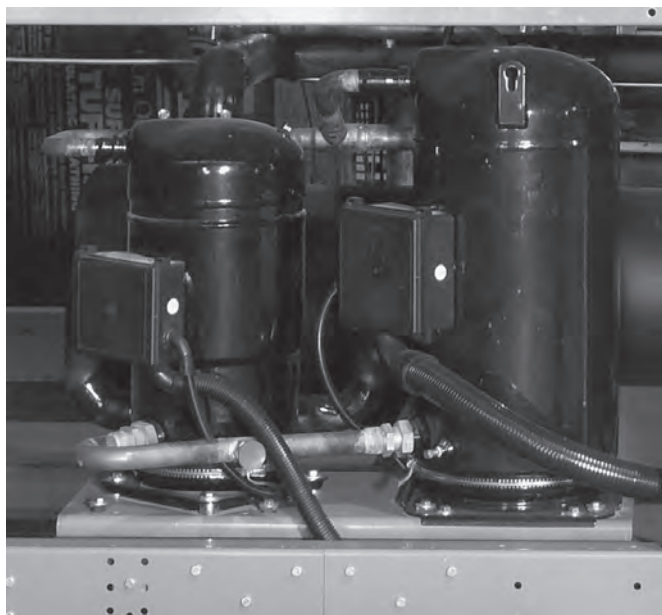
The 125 - 175 Ton (439 - 613) **YLAA** models are shipped complete from the factory ready for installation and use.

The unit is pressure-tested, evacuated, and fully charged with a zero Ozone Depletion Potential Refrigerant R-410A and includes an initial oil charge. After assembly, a complete operational test is performed with water flowing through the evaporator to assure that the refrigeration circuit operates correctly.

The unit structure is heavy-gauge, galvanized steel. This galvanized steel is coated with baked-on powder paint, which, when subjected to ASTM B117 1000 hour, salt spray testing, yields a minimum ASTM 1654 rating of "6". Units are designed in accordance with NFPA 70 (National Electric Code), ASHRAE/ANSI 15 Safety code for mechanical refrigeration, ASME and rated in accordance with ARI Standard 550/590.

COMPRESSORS

The chiller has suction-gas cooled, hermetic scroll compressors. The YLAA compressors incorporate a compliant scroll design in both the axial and radial direction. All rotating parts are statically and dynamically balanced. A large internal volume and oil reservoir provides greater liquid tolerance. Compressor-crankcase heaters are also included for extra protection against liquid migration.



EVAPORATOR

The evaporator is equipped with a heater controlled by a separate thermostat. The heater provides freeze protection for the evaporator down to -20°F (-29°C) ambient. The evaporator is covered with 3/4" flexible, closed-cell, foam insulation (K=0.25).

The water baffles are constructed of galvanized steel to resist corrosion. The removable heads allow access to

the internally enhanced, seamless, copper tubes. Vent and drain connections are included.

Water inlet and outlet connections are grooved for com-

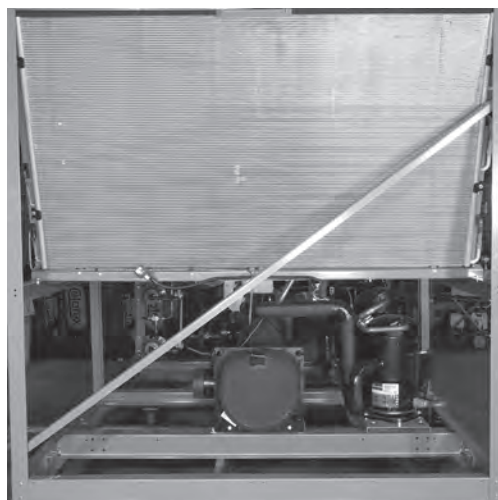


patibility with field supplied ANSI/AWWA C-606 couplings.

CONDENSER

Coils - Condenser coils are made of a single material to avoid galvanic corrosion due to dissimilar metals. Coils and headers are brazed as one piece. Integral sub cooling is included. The design working pressure of the coil is 650 PSIG (45 bar). Condenser coil shall be pressure washable up to 1500 psi (103 bar) washer.

Fans - The condenser fans are composed of corrosion



resistant aluminum hub and glass-fiber-reinforced polypropylene composite blades molded into a low-noise airfoil section. They are designed for maximum efficiency and are statically and dynamically balanced for vibration-free operation. They are directly driven by independent motors, and positioned for vertical air discharge. The fan guards are constructed of heavy-gauge, rust-resistant, coated steel. All blades are statically and dynamically balanced for vibration-free operation.

Motors - The fans are driven by Totally Enclosed Air-Over, squirrel-cage type, current protected motors. They feature ball bearings that are double-sealed and permanently lubricated.

High Ambient Control - Allows units are to operate when the ambient temperature is above 115°F (46°C). Includes discharge pressure transducers.

Microcomputer Control Center

All controls are contained in a NEMA 3R/12 cabinet with hinged outer door and includes:

Liquid Crystal Display with Light Emitting Diode backlighting for outdoor viewing:

- Two display lines
- Twenty characters per line

Color coded 12-button non-tactile keypad with sections for **DISPLAY/PRINT** of typical information:

- Chilled liquid temperatures
- Ambient temperature
- System pressures (each circuit)
- Operating hours and starts (each compressor)

PRINT calls up to the liquid crystal display:

- Operating data for the systems
- History of fault shutdown data for up to the last six fault shutdown conditions

An RS-232 port, in conjunction with this press-to-print button, is provided to permit the capability of hard copy print-outs via a separate printer (by others).

ENTRY section to:

- ENTER setpoints or modify system values

SETPOINTS updating can be performed to:

- Chilled liquid temperature setpoint and range
- Remote reset temperature range
- Set daily schedule/holiday for start/stop
- Manual override for servicing
- Low and high ambient cutouts
- Number of compressors
- Low liquid temperature cutout
- Low suction pressure cutout
- High discharge pressure cutout
- Anti-recycle timer (compressor start cycle time)
- Anti-coincident timer (delay compressor starts)

UNIT section to:

- Set time
- Set unit options

UNIT ON/OFF switch

The microprocessor control center is capable of displaying the following:

- Return and leaving liquid temperature
- Low leaving liquid temperature cutout setting
- Low ambient temperature cutout setting
- Outdoor air temperature
- English or Metric data
- Suction pressure cutout setting
- Each system suction pressure
- Discharge pressure (optional)
- Liquid Temperature Reset via a Johnson Controls ISN DDC or Building Automation System (by others) via:
 - a 4-20 milliamp or 0 -10 VDC input
- Anti-recycle timer status for each system
- Anti-coincident system start timer condition
- Compressor run status
- No cooling load condition
- Day, date and time
- Daily start/stop times
- Holiday status
- Automatic or manual system lead/lag control

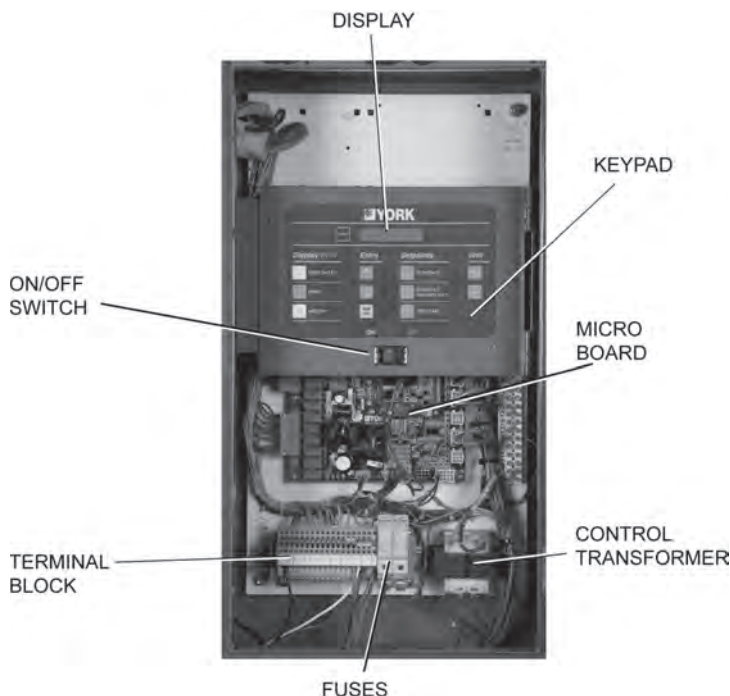


FIG.1 – CONTROL PANEL COMPONENTS

Microcomputer Control Center

- Lead system definition
- Compressor starts & operating hours (each compressor)
- Status of hot gas valves, evaporator heater and fan operation
- Run permissive status
- Number of compressors running
- Liquid solenoid valve status
- Load & unload timer status
- Water pump status

Provisions are included for: pumpdown at shutdown; optional remote chilled water temperature reset and two steps of demand load limiting from an external building automation system. Unit alarm contacts are standard. The operating program is stored in non-volatile memory (EPROM) to eliminate chiller failure due to AC powered failure/battery discharge. Programmed setpoints are retained in lithium battery-backed RTC memory for 5 years minimum.

COMMUNICATIONS

- Native communication capability for BACnet (MS/TP) and Modbus
- Optional communication available for N2 and LON via eLink option

HIGH AMBIENT KIT

Allows units to operate when the ambient temperature is above 115°F (46°C). Includes sun shield panels and discharge pressure transducers.

BUILDING AUTOMATION SYSTEM INTERFACE

The addition of a Printed Circuit Board to accept a 4-20 milliamp or 0-10VDC input allows the resetting of the leaving chiller liquid temperature via a Building Automation System. The standard unit capabilities include remote start-stop, remote water temperature reset via up to two steps of demand (load) limiting depending on model. The standard control panel can be directly connected to a Johnson Controls Building Automated System via the standard on-board RS232 communication port. **(Factory-installed)**

POWER PANEL

Each panel contains:

- Compressor power terminals
- Compressor motor starting contactors per I.E.C.
- Control power terminals to accept incoming for 115-1-60 control power
- Fan contactors & overload current protection

The power wiring is routed through liquid-tight conduit to the compressors and fans.

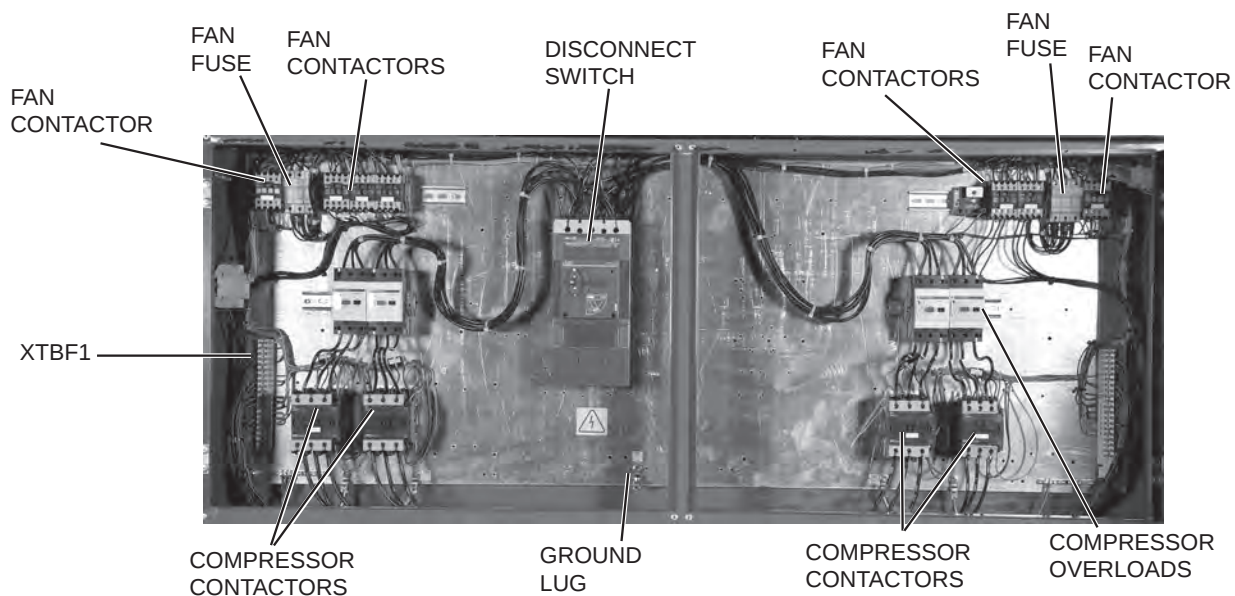
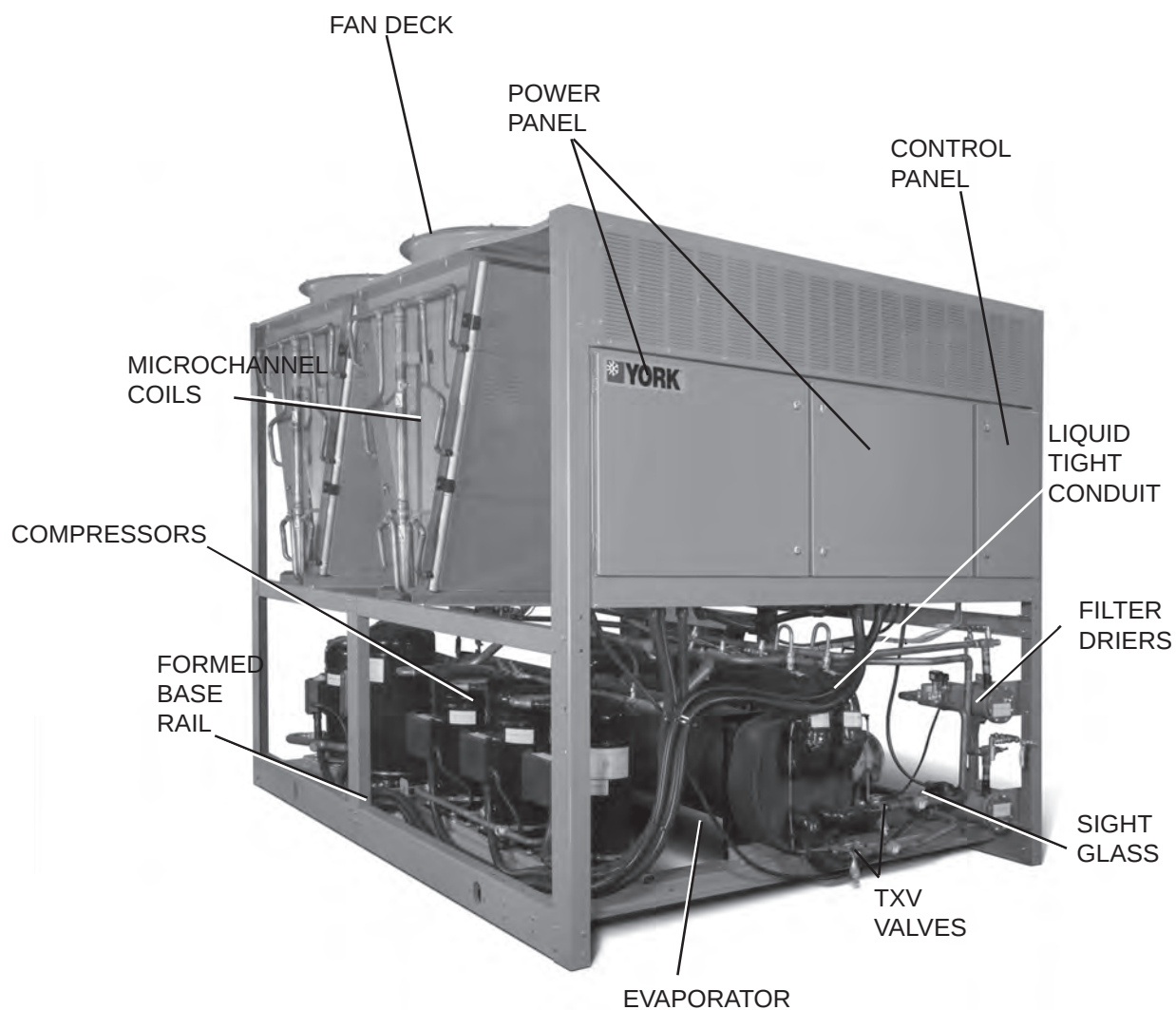


FIG. 2 – POWER PANEL COMPONENTS

**FIG.3 – GENERAL UNIT COMPONENTS**

Physical Data - English

REFRIGERANT R-410A	MODEL NUMBER YLAA			
	STANDARD EFFICIENCY UNITS			
	0135SE	0150SE	0155SE	0170SE
GENERAL UNIT DATA				
NOMINAL TONS, R-410A	127.3	140.4	143.1	167.9
LENGTH	187.7	187.7	187.7	232.7
WIDTH	88	88	88	88
HEIGHT	94.2	94.2	94.2	94.2
NUMBER OF REFRIGERANT CIRCUITS	2	2	2	2
REFRIGERANT CHARGE, OPERATING				
R-410A, CKT1 / CKT2, LBS	81 / 71	81 / 73	83 / 76	90 / 87
OIL CHARGE, CKT1 / CKT2, GALLONS	4.99 / 2.76	4.99 / 3.33	4.99 / 3.33	4.99 / 4.99
SHIPPING WEIGHT	6803	6958	7152	7972
OPERATING WEIGHT	7260	7415	7705	8429
COMPRESSORS, SCROLL TYPE				
COMPRESSORS PER CIRCUIT	3/2	3/2	3/2	3/3
COMPRESSORS PER UNIT	5	5	5	6
NOMINAL TONS PER COMPRESSOR				
CIRCUIT 1	32	32	32	32
CIRCUIT 2	15/32	32	32	32
CONDENSER				
TOTAL FACE AREA FT ²	213.8	213.8	213.8	267.2
NUMBER OF ROWS	1	1	1	1
FINS PER INCH	20	20	20	20
CONDENSER FANS, LOW SOUND				
NUMBER OF FANS, CKT1./CKT2.	4/4	4/4	4/4	5/5
FAN HP	2	2	2	2
FAN RPM	1160	1160	1160	1160
TOTAL CHILLER CFM	124800	124800	124800	156000
EVAPORATOR				
WATER VOLUME, GALLONS	55	55	66	55
MAXIMUM WATER SIDE PRESSURE, PSIG	150	150	150	150
MAXIMUM REFRIGERANT SIDE PRESSURE, PSIG	450	450	450	450
MINIMUM CHILLER WATER FLOW RATE, GPM	120	120	150	120
MAXIMUM CHILLER WATER FLOW RATE, GPM	625	625	625	625
WATER CONNECTIONS SIZE, INCHES	8	8	8	8

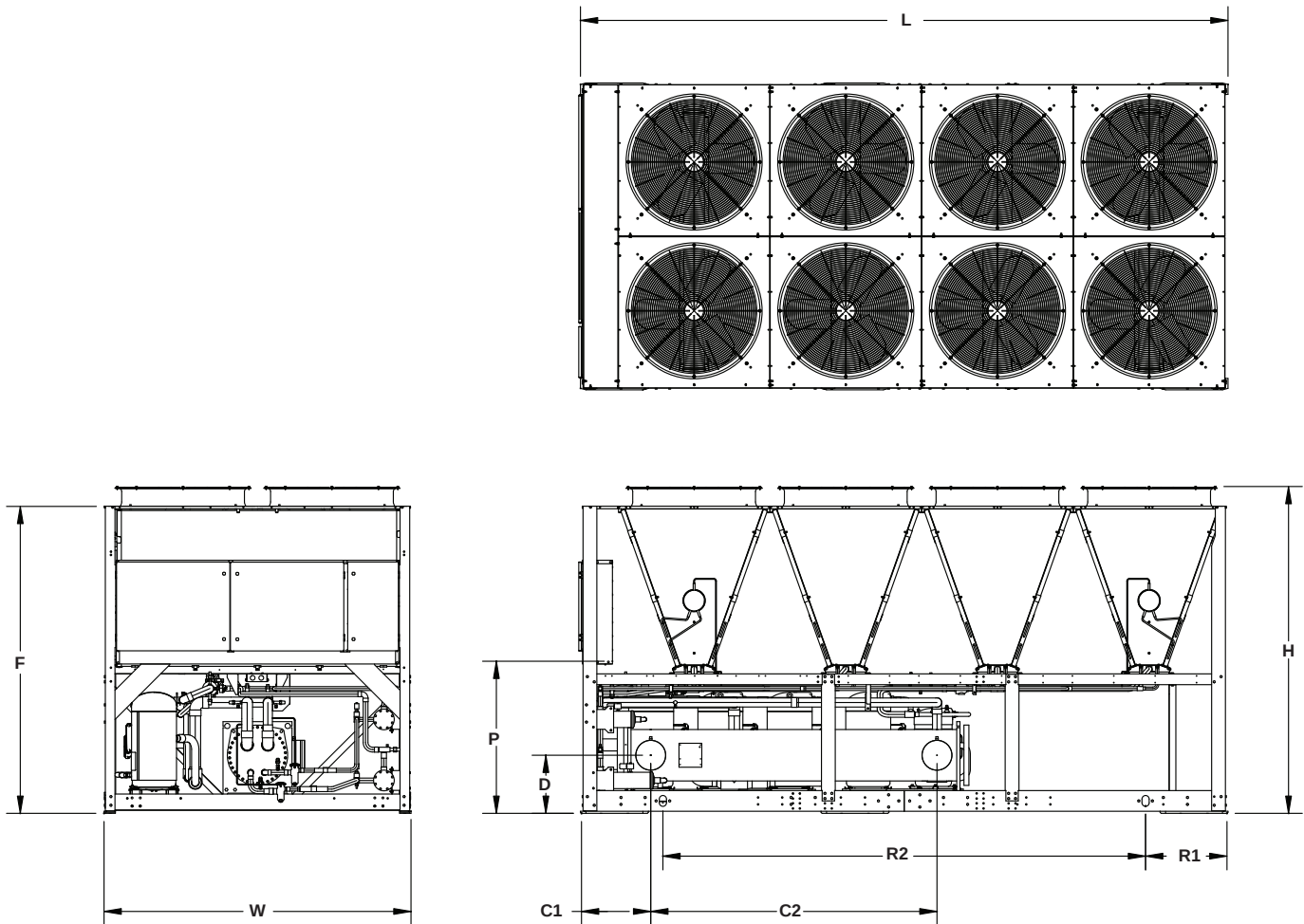
Design Parameters

NOMINAL EVAPORATOR WATER FLOW						
UNIT DESIGNATION	TEMPERATURE (°F)		WATER FLOW (GPM)		AIR ON CONDENSER (°F)	
	MIN ¹	MAX ²	MIN	MAX	MIN ³	MAX ⁴
YLAA0135SE	40	55	120	625	0	125
YLAA0150SE	40	55	120	625	0	125
YLAA0155SE	40	55	150	625	0	125
YLAA0170SE	40	55	120	625	0	125
High Efficiency						
YLAA0125HE	40	55	100	385	0	125
YLAA0141HE	40	55	150	625	0	125
YLAA0156HE	40	55	120	625	0	125
YLAA0175HE	40	55	180	650	0	125

NOTES:

1. For leaving brine temperature below 40°F (4°C), contact your nearest Johnson Controls Office for application requirements.
2. For leaving water temperature higher than 55°F (13°C), contact the nearest Johnson Controls Office for application guidelines. 3. The evaporator is protected against freezing to -20°F (-29°C) with an electric heater as standard.
3. For operation at temperatures below 30°F (-1°C), the optional Low Ambient Kit will need to be installed on the system (for YLAA00140080 models only).
4. For operation at temperatures above 115°F (46°C), the optional High Ambient Kit will need to be installed on the system.

Dimensions - Eight Fan Units



YLA A MODEL	L	W	H	F	P	D	C1	C2	R4	R3	R2	R1
0125HE	187.5	88.3	94.2	88.5	42.8	15	18.6	85	NA	58	66	39
0135SE	187.5	88.3	94.2	88.5	42.8	16.3	19.6	83	NA	58	66	39
0141HE	187.5	88.3	94.2	88.5	42.8	17.3	22.1	102	NA	58	66	39
0150SE	187.5	88.3	94.2	88.5	42.8	16.3	19.6	83	NA	58	66	39
0155SE	187.5	88.3	94.2	88.5	42.8	17.3	22	102	NA	58	66	39

NOTE:

Placement on a level surface of free of obstructions (including snow, for winter operation) or air circulation ensures rated performance, reliable operation, and ease of maintenance. Site restrictions may compromise minimum clearances indicated below, resulting in unpredictable airflow patterns and possible diminished performance. Johnson Controls's unit controls will optimize operation without nuisance high-pressure safety cutouts; however, the system designer must consider potential performance degradation. Access to the unit control center assumes the unit is no higher than on spring isolators. Recommended minimum clearances: Side to wall – 6'; rear to wall – 6'; control panel to end wall – 4'0"; top – no obstructions allowed; distance between adjacent units – 10'. No more than one adjacent wall may be higher than the unit.