

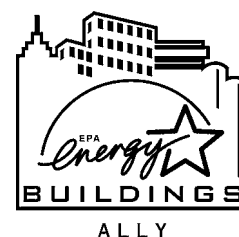


Millennium[®]
Air Cooled Screw Liquid Chillers
(STYLE G)



R-22

240 - 1200 kW
50 Hz

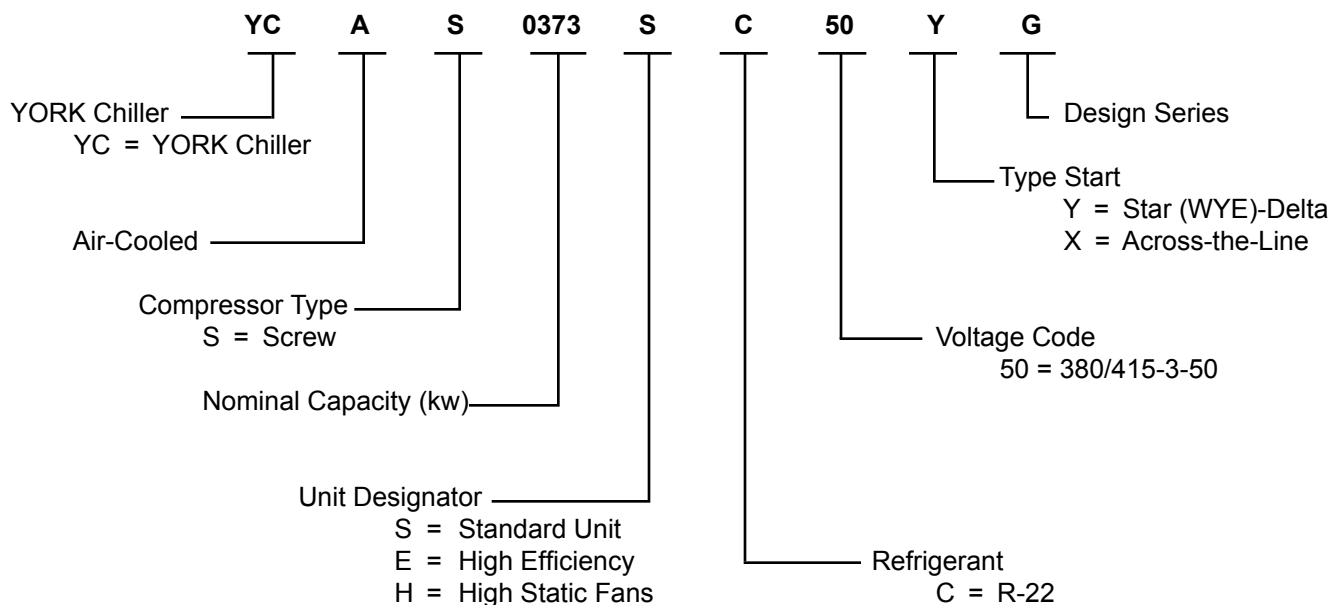


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NOMENCLATURE

The Model Number denotes the following characteristics of the unit:



Introduction

YORK *Millennium*® Air Cooled Screw Liquid Chillers



YORK Millennium Air Cooled Screw Compressor machines are the state-of-the-art in air-cooled chillers, providing chilled fluids for all air conditioning applications. Completely self-contained and designed for outdoor installation, these chillers employ new, low noise, energy efficient, serviceable, semi-hermetic screw compressors designed and manufactured specifically for this new product line. These compressors, with reliable twin-screw technology, are ideally matched to evaporators and condensers optimally configured for superior heat transfer and unit efficiency. Condenser coils are arranged to maximize airflow using full airfoil, high efficiency, low noise fans driven by low energy motors. The screw compressors, high efficiency evaporator, enhanced heat transfer condensers, and weather tight power and microprocessor control centers are mounted on a bolted, fully galvanized and powder painted, all steel base, for unsurpassed reliability and performance.

Specifications

These YORK air cooled chillers are shipped as a complete factory package. Each unit is completely assembled with all interconnecting refrigerant piping and internal wiring, ready for field installation:

COMPLETE FACTORY PACKAGE

- Each compressor is installed on its own independent refrigerant circuit, which is factory pressure tested, evacuated, then fully charged with refrigerant and oil.
- After assembly, an operational test is performed with water flowing through the cooler to ensure each circuit operates correctly.
- Cabinet and base frame are constructed of formed heavy gauge, galvanized steel.
- All external structural parts are covered with architecturally neutral "Desert Sand" (Munsell #10YR6-2) baked-on enamel powder paint. This provides a finish which, when subjected to ASTM B117, 500 hour, 5% salt spray conditions, shows breakdown of less than 1/8" either side of a scribed line (equivalent to ASTM D1654 rating of "6").
- Design is in accordance with applicable sections of ASME Pressure Vessel Code, NFPA 70 (National Electrical Code), U.L. and cU.L. Standards, and ASHRAE/ANSI-15 Safety Code for Mechanical Refrigeration.
- All exposed power wiring routed through liquid-tight, non-metallic conduit.
- An ideal synergy of expertise, sister division YORK Refrigeration Compressor Engineers as integral members on YORK Engineered System's Chiller Design Team, has resulted in a world class compressor with unequaled performance.
- Continuous function, microprocessor controlled, 3-way proportional Capacity Control Valve provides regulated output pressure independent of valve input pressure for a stable, smooth, and precise match of compressor capacity to cooling load to 10% of chiller capacity.
- Automatic spring return of capacity control valve to minimum load position ensures compressor starting at minimum motor load. Internal discharge check to prevent rotor backspin upon shut-down.
- Acoustically tuned, internal discharge gas muffler eliminates objectionable noise at the source, while optimizing flow for maximum performance.
- Reliable suction gas cooled, high efficiency, accessible hermetic motor with APT2000 type magnet

wire and redundant overload protection using both thermistor and current overload protection.

- Suction gas screen and serviceable, 0.5 micron full flow oil filter within the compressor housing.
- Some models equipped with tuned port economizer as appropriate for enhanced capacity and superior efficiency.
- Cast iron compressor housing precisely machined for optimal clearances and superb efficiency. Entire compressor, from suction to discharge has a Design Working Pressure of 31 bar (450 PSIG).
- 350W compressor body cartridge heater.

CONDENSER SECTION

- Condenser Fans with low noise, full airfoil cross section for maximum efficiency, statically and dynamically balanced for low vibration operation, and positioned in extended, formed steel orifices for low sound and maximum efficiency.
- Condenser fan motors are high efficiency, direct drive, 6-pole, 3-phase, Class-"F", current overload protected, totally enclosed (TEAO) type with double sealed, permanently lubricated, ball bearings.
- Fin and tube condenser coils of seamless, internally enhanced, high condensing coefficient, corrosion resistant copper tubes arranged in staggered rows and mechanically bonded to corrosion resistant aluminum alloy fins with full height fin collars. Design working pressure is 31 bar (450 PSIG).

EVAPORATOR

- High efficiency, direct-expansion type cooler with refrigerant in tubes and chilled liquid through the baffled shell. Independent circuits provided for each compressor.
- Design working pressure of the shell waterside is 10.3 bar(150 PSIG), and 24 bar (350 PSIG) for the refrigerant side. Constructed and tested in accordance with applicable sections of ASME Pressure Vessel Code, Section VIII, Division (1). Water side exempt per paragraph U-1, (c), (6).
- Water baffles fabricated from galvanized steel to resist corrosion. Removable heads allow access to internally-enhanced, seamless, copper tubes. Water vent and drain connections included.
- Cooler equipped with thermostatically controlled heater for protection to -29°C (-20°F) ambient, and insulated with 19mm (3/4") flexible, closed-cell foam ($k = 0.25$).

REFRIGERANT CIRCUIT

- Independent refrigerant circuits per compressor, each using copper refrigerant pipe formed on computer controlled bending machines. This eliminates over 60% of system piping brazed joints as compared to designs that use fittings, resulting in a highly reliable and leak resistant system.
- Liquid line components include: manual shut-off valve with charging port, high adsorption removable core filter-drier, solenoid valve, sight glass with moisture-indicator, and reliable electronic expansion valves for R22 and a thermostatic expansion valves for remote barrel units.
- Economizer is a refrigerant to refrigerant, compact plate-type heat exchanger to maximize chiller capacity and efficiency by subcooling liquid refrigerant delivered to the cooler expansion valve. Constructed of corrosion resistant stainless steel plates formed to induce turbulent flow and enhance heat transfer, then oven brazed and pressure tested for reliability. Designed and constructed in accordance with ASME for 31 bar (450 PSIG). U.L./CSA listed.
- Suction and discharge lines provided with manual compressor shutoff service valves (Factory Option). Suction line equipped with closed-cell insulation.
- Oil separators with Design Working Pressure of 450 PSIG (31 bar) and U.L. listing are high efficiency, augmented aerosol impingement type to maximize oil extraction without fragile media to break down. An oil charging valve is included with each refrigerant circuit.
- Oil cooling provided by dedicated air cooled finned tube type heat exchanger located in the condenser section of the machine.

MICROPROCESSOR CONTROLS

- Controls housed in a powder painted steel cabinet enclosure, equivalent to NEMA 3R/12 (IP55), with hinged, latched, and gasket sealed, door.
- Liquid crystal 40 character display with text provided on two lines and light emitting diode backlighting for outdoor viewing.
- Color coded, 32 button, sealed keypad with sections for Display, Entry, Setpoints, Clock, Print, Program and Unit On/Off.
- Standard controls include: brine chilling or thermal storage, automatic pump down, run signal contacts, demand load limit from external building automation system input, remote liquid temperature reset input, unit alarm contacts, evaporator pump control, automatic reset after power failure, automatic system optimization to match operating conditions, software stored in non-volatile memory (EPROM) to eliminate

chiller failure due to AC power failure. Programmed setpoints retained in lithium battery backed RTC memory for a minimum 5 years.

- **Display** – In English (°F and psig) or Metric (°C and Bars) units, and for each circuit:
 - ◆ Return and leaving chilled liquid, and ambient temperature.
 - ◆ Day, date and time. Daily start/stop times. Holiday and Manual Override status.
 - ◆ Compressor operating hours and starts. Automatic or manual lead/lag. Lead compressor identification.
 - ◆ Run permissive status. No cooling load condition. Compressor run status.
 - ◆ Anti-recycle timer and anti-coincident start timer status per compressor.
 - ◆ Suction (and suction superheat), discharge, and oil pressures and temperatures per System.
 - ◆ Percent full load compressor motor current per phase and average per phase. Compressor capacity control valve input steps.
 - ◆ Cutout status and setpoints for: supply fluid temperature, low suction pressure, high discharge pressure and temperature, high oil temperature, low and high ambient, phase rotation safety, and low leaving liquid temperature.
 - ◆ Unloading limit set-points for high discharge pressure and compressor motor current.
 - ◆ Liquid pull-down rate sensitivity (0.5°F to 5°F/minute in 0.1°F increments).
 - ◆ Status of: evaporator heater, condenser fans, load and unload timers, chilled water pump.

Specifications (Continued)

- ◆ “Out of range” message.
- ◆ Up to 6 fault shut down conditions.
- ◆ Standard Display Language is English, with *Options* for: French and Spanish.
- **Entry** – Enter set point changes, cancel inputs, advance day, change AM/PM.
- **Setpoints** – Chilled liquid temperature, chilled liquid range, remote reset temperature range.
- **Clock** – Time, daily or holiday start/stop schedule, manual override for servicing.
- **Print** – Operating data or system fault shutdown history for last six faults, and software version. Printouts through an RS-232 port via a separate printer (by others).
- **Program** –
 - ◆ Low leaving liquid temperature cutout, 300 to 600 second anti-recycle timer, lag compressor start time delay, and average motor current unload point. Liquid temperature setpoint reset signal from **YORK ISN** or building automation system (by others) via:
 - ❖ Pulse width modulated (PWM) input for up to 40°F (22°C) total reset as standard.
 - ❖ *Optional* Building Automation System interface input card for up to 40°F (22°C) reset using a: 4 to 20 milliamp, 0 to 10VDC input, or discrete reset input. **[NOTE:** The Standard Micro Panel can be directly connected to a YORK ISN Building Automation System via the standard onboard RS485 communication port. This Option also provides open system compatibility with other communications networks (BACNET™ & LONMARK™) via interface through standard onboard 485 or 232 port and an external **YorkTalk Translator.**]
 - ◆ Additional functions (password protected) for programming by a qualified service technician:
 - ❖ Cut-outs for low and high ambient, low suction pressure, high discharge pressure, high oil temperature.
 - ❖ Refrigerant type.
 - ❖ High discharge pressure unload setpoint.
 - ❖ Fan control discharge pressure set point.
 - ❖ Fan ON/OFF pressure differential.
 - ❖ Compressor motor current percent limit.
- ◆ The Standard unit controls permit operation down to -18°C (0°F) outdoor ambient temperature.

POWER PANEL

- Power panel housed in NEMA 3R/12 (IP55) rain/dust tight, powder painted steel cabinets with hinged, latched, and gasket sealed outer doors equipped with wind struts for safer servicing. Two motor control center cabinets are provided, with independent doors and separated by a steel barrier panel.
- Current transformers sense each phase, as an input to the microprocessor, to protect compressor motors from damage due to: low input current, high input current, unbalanced current, single phasing, phase reversal, and compressor locked rotor.
- Control Current Terminal Strip provides power input terminals to field provided power input (models 0373 - 0653). Control circuit transformer provides 115V60/1Ø power to the unit control system for models 0693 - 1263. Includes factory primary wiring from Circuit #2 Motor Control Center via lockable disconnect on panel door separate from the motor control centers, and secondary wiring supply to the 24V, fused Microprocessor panel transformer.
- Individual fan motor contactors & external overloads per condenser fan motor.
- Exposed compressor and fan motor power wiring routed through liquid tight conduit.

Accessories and Options

- **CONTROL CIRCUIT TERMINAL STRIP – (Models 0693 - 1263)** – Provides power input terminals for field provided power input in lieu of factory mounted control circuit transformer. 115V, 1Ø Control Circuit Power Terminal Strip located in the Microprocessor Panel to accept a field provided control power circuit with appropriate branch circuit protection in accordance with applicable Local and National codes. Provides unit control circuit power, including supply to the 24V, fused Microprocessor panel transformer.
- **CONTROL CIRCUIT TRANSFORMER (Models 0373 - 0653)** - Control circuit transformer provides 115V60/1Ø power to the unit control system.
- **BUILDING AUTOMATION SYSTEM (BAS) INTERFACE** – Provides means to reset the leaving chilled liquid temperature or percent full load amps (current limiting) from the BAS (Factory Mounted):
 - ◆ Printed circuit board to accept 4 to 20 milliamp, 0 to 10VDC, or dry contact closure input from the BAS.
 - ◆ A YORK ISN Building Automation System can provide a Pulse Width Modulated (PWM) signal direct to the standard control panel via the standard on-board RS485 port.
- **PRIMARY CHILLER POWER CONNECTIONS**
 - See Electrical Data on pages 42 through 47 for specific voltage and options availability. Separate external branch circuit protection and disconnecting means must be supplied by others in accordance with applicable Local and National codes. (Factory mounted)
- ① **Multiple Point Supply – Standard** field power wiring connection on all models is Multiple Point Power Connection to factory provided Terminal Blocks. Two field supplied electrical power circuits with appropriate branch circuit protection provide power to each of two motor control center cabinets, located adjacent to each other at one end of the chiller. Each cabinet contains starter elements for one or two compressors and their associated fan motor starters.

Optional to the Terminal Blocks for field power connection are Non-Fused Disconnects with external lockable handles, or (on two compressor machines only) Circuit Breakers with external lockable handles. Also **Optional** (on 3 & 4 compressor machines equipped with multiple point power supply) are individual system circuit breakers per each compressor with external lockable handles.
- ② **Single-Point Supply – Optional** to the Multiple Point power connection configurations are Single-Point Supply arrangements. A wide variety of these single-point **Options** are offered to satisfy most any customer connection requirement:
 - ◆ **Single-Point with Individual System Breakers** – These options consist of field connection to either a unit mounted Terminal Block, or a Non-Fused Disconnect Switch with external, lockable handle (in compliance with Article 440-14 of N.E.C., to isolate unit power supply for service). Factory wiring is provided from the Terminal Block or Disconnect Switch to factory supplied Individual System Circuit Breakers with external, lockable handles in each of the two compressor motor control centers.
 - ◆ **Single-Point Supply** – Also optional (on two compressor machines only) are Single-Point Supply configurations for field connection of a single electrical circuit to: Terminal Block, Non-Fused Disconnect Switch with lockable external handle (in compliance with Article 440-14 of N.E.C., to isolate unit power supply for service), or Circuit Breaker with lockable external handle. Factory wiring is provided from the Terminal Block, Disconnect Switch, or Breaker directly to the starter components in each of the two compressor motor control centers.
 - **STAR (WYE)-DELTA COMPRESSOR MOTOR STARTER** – Provides smooth starting and approximately 65% reduced inrush current compared to across the line type start. Two compressor units equipped with any of the Single-Point Power connection options and Star-Delta starters must also be equipped with Individual System Circuit Breakers option. Three and four compressor units with Star-Delta starters must also include Individual System Circuit Breakers option. (Factory mounted) See Electrical Data (pages 48-54) for availability and coordination with individual system short circuit protection.
 - **CONTAINERIZATION SHIPPING KIT** - Additional factory fitted components for added unit strength. For container shipping (Factory Installed).
 - **CONDENSER COIL PROTECTION** – Standard condenser coil construction materials include aluminum fins, copper tubes, and galvanized tube supports for generally good corrosion resistance. However, these materials are not adequate for all environments. The system designer can take steps to inhibit coil corrosion in harsh applications and enhance equipment life by choosing from these options based on project design parameters and related environmental factors. For additional application recommendations refer to Form 150.12-ES1. (Factory mounted)
 - ◆ **PRE-COATED FIN CONDENSER COILS** – The air-cooled condenser coils are constructed of black epoxy-coated aluminum fins. This can provide corrosion resistance comparable to copper-fin coils in typical seashore locations. Either these or the post-coated coils (below), are recommended for units being installed at the seashore or where salt

Accessories and Options (Continued)

- ♦ **POST-COATED EPOXY DIPPED CONDENSER COILS** – The unit is built with dipped-cured epoxy condenser coils. This is another choice for sea-shore and other corrosive applications (with the exception of strong alkalis, oxidizers and wet bromine, chlorine and fluorine in concentrations greater than 100 ppm).
- ♦ **COPPER FIN CONDENSER COILS** – The unit constructed with condenser coils which have copper fins. (This is not recommended for units in areas where they may be exposed to acid rain.)
- **SERVICE ISOLATION VALVE:** Service suction isolation valve added to unit per system (Factory Mounted)
- **DX COOLER OPTIONS**
 - ♦ **21 bar (300 PSIG) Waterside Design Working Pressure** – The DX Cooler Waterside is designed and constructed for 21 bar (300 PSIG) working pressure. (Factory mounted)
 - ♦ **38mm (1-1/2") Insulation** – Double thickness insulation provided for enhanced efficiency.
 - ♦ **Flange Accessory** – Consists of raised face flanges to convert grooved water nozzles to flanged cooler connections. Includes companion flanges. (Field mounted)
- **REMOTE DX COOLER** – Includes: ① Main condensing unit /less cooler, refrigerant, and liquid line mechanical devices; ② Separate, insulated cooler; and ③ Field Accessory Kit (per refrigerant circuit: filter-drier shell and cores, liquid line solenoid valve, sight glass with moisture indicator, and Thermostatic Expansion Valve; also entering and leaving water temperature transducers) for use in the interconnecting system piping and wiring as designed and installed by others. Field connections made at the condensing unit liquid stub (after the sub-cooler, or the economizer if the system is so equipped) and at the compressor suction stub. Condensing Unit and DX Cooler ships with a nitrogen holding charge. System erection, leak testing, refrigerant, and charging are by others. See Engineering Supplement 201.10-ES2 for additional information. Remote cooler configuration available with R-22 only.
- **FLOW SWITCH ACCESSORY** – Vapor-proof SPDT, NEMA 4X switch, 150 PSIG (10.3 bar) DWP, -20°F to 250°F (-29°C to 121°C), with 1" NPT (IPS) connection for upright mounting in horizontal pipe. (This flow switch or equivalent must be furnished with each unit). (Field mounted)
- **VIBRATION ISOLATION**
 - ♦ **Neoprene Isolation** – Recommended for normal installations. Provides very good performance in most applications for the least cost. (Field mounted)
 - ♦ **1" Spring Isolators** – Level adjustable, spring and cage type isolators for mounting under the unit base rails. 1" nominal deflection may vary slightly by application. (Field mounted)
 - ♦ **2" Seismic Spring Isolators** – Restrained Spring-Flex Mountings incorporate a rugged welded steel housing with vertical and horizontal limit stops. Housings designed to withstand a minimum 1.0g accelerated force in all directions to 50mm. Level adjustable, deflection may vary slightly by application. (Field mounted)
- **ALTERNATIVE CHILLED FLUID APPLICATIONS**

Standard water chilling application range is 4°C to 13°C (40°F to 55°F) Leaving Chilled Water Temperature. To protect against nuisance safety trips below 4°C (40°F) and reduce the possibility of cooler damage due to freezing during chiller operation, the unit Micro-Processor will automatically unload the compressors at abnormally low suction temperature (pressure) conditions, prior to a safety shut down.

 - ♦ **Process Brine Option** – Process or other applications requiring chilled fluid below 4°C (40°F) risk water freezing in the evaporator, which is typically overcome with anti-freeze. For these applications, the chiller performance rating incorporates 'brine' (typically ethylene or propylene glycol solution), and the system design Leaving Chilled Fluid Temperature must be provided on the order form to ensure proper factory configuration. Liquid injection included with this option.
 - ♦ **Thermal Storage Option** – Thermal Storage requires special capabilities from a chiller, including the ability to 'charge' an ice storage tank, then possibly automatically reset for operation at elevated Leaving Chilled Fluid Temperatures as required by automatic building controls. The Thermal Storage Option provides Ice Storage duty Leaving Chilled Fluid set-points to -10°C minimum (15°F minimum) during charge cycle, with a Reset range to normal supply fluid temperature. Liquid injection included with this option.
- **REMOTE CONTROL PANEL AND WALL ADAPTER** – See Form 201.00-SG11 for more information. *(Only one of the following options can be offered on a unit at one time: BAS, Remote Control Panel or Multi-Unit Sequence Control).* (Factory mounted)

- **MULTI-UNIT SEQUENCING** – A separate Sequencing Control Center is provided to handle sequencing control of up to eight chillers in parallel based on mixed liquid temperature (interconnecting wiring by others). *See Form 150.00-SG2 for more information. (Only one of the following options can be offered on a unit at a time: BAS, Remote Control Panel or Multi-unit Sequence Control). (Factory mounted)*

- **UNIT ENCLOSURES**

- ◆ **Wire Panel Enclosure (Full Unit)** – UV stabilized black polyvinylchloride coated, heavy gauge, welded wire mesh guards mounted on the exterior of the unit. Protects condenser coil faces and prevents unauthorized access to refrigerant components (compressors, pipes, cooler, etc.), yet provides free air flow. This can cut installation cost by eliminating the need for separate, expensive fencing. (Factory mounted)
- ◆ **Louvered Panel Enclosure (Full Unit)** – Heavy gauge louver panels, galvanized and painted just as the main unit cabinet, provide liberal free air flow area. Cover coils and around the bottom of the unit to protect condenser coils, visually screen mechanical elements, and prevent unauthorized access to refrigerant components. (Factory mounted)
- ◆ **Louvered Panels (Condenser Coil Only)** – Louvered panels are mounted over the exterior condenser coil faces on the sides of the unit to visually screen and protect coils. (Factory mounted)
- ◆ **Louvered (Condensers) / Wire (Mechanicals)** – Louvered panels mounted over the exterior condenser coil faces, and heavy gauge welded wire mesh guards mounted around the bottom of the unit. Visually screens and protects coils, and prevents unauthorized access to refrigerant components. (Factory mounted)

- **HIGH STATIC FANS** –

Fans and motors suitable for High External Static conditions to 0.4 inches of water (100 Pa). Since

these require higher power motors and therefore slightly reduce chiller efficiency, select only if the installation conditions will impose additional air flow resistance resulting from such things as field installed: ducts, filters, sound enclosures, or similar obstructions to airflow. Contact the factory for performance or electrical implications.

- **SOUND REDUCTION OPTIONS** –

Standard unit includes acoustically tuned, internal discharge gas muffler to eliminate objectionable compressor noise. For additional sound reduction, one or both options may be employed by the system designer as normally generated machine noise is considered in the overall project design. See Form 201.18-ES1 for additional information.

- ◆ **Low Speed Fans** – With this option, the basic chiller is equipped with 8-pole condenser fan motors in lieu of the standard 6-pole motors, plus special fans matched to these optional slower motors to retain appropriate airflow. The net result is reduced fan generated noise with no adverse effect on the chiller capacity or efficiency performance.
- ◆ **Compressor Sound Blanket** – Black, high-strength, rip-resistant, two-piece acoustic compressor sound blanket, offering 1dBa overall “A” weighted unit sound power reduction when fitted with the Low Noise fan option and the Condenser Perimeter Panel Enclosure. Material is both UV and mildew protected, waterproof and fire resistant (meeting California fire marshal flame specification)(Factory Fit Option).
- ◆ **Acoustic Silencer Kit** – Acoustical enclosures surrounding perimeter of unit to attenuate compressor noise.

Temperatures and Flows

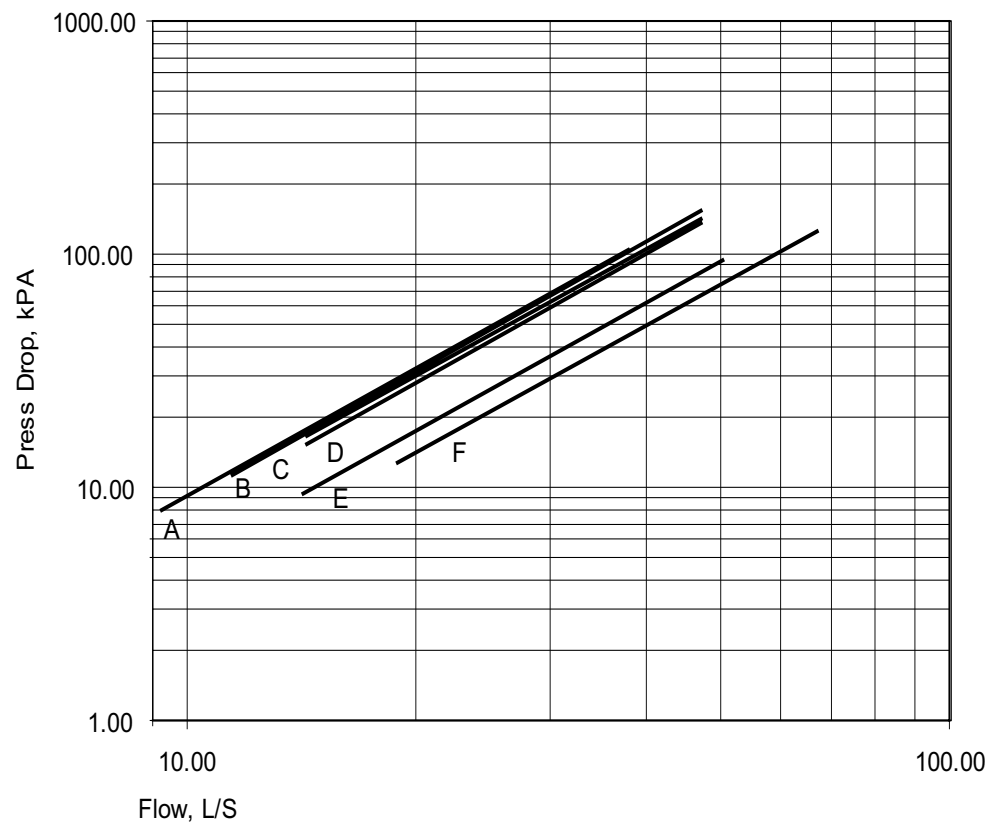
MODEL NUMBER YCAS	LEAVING WATER TEMPERATURE (°C)		COOLER FLOW (L/S) ³		AIR ON CONDENSER (°C)	
	MIN. ¹	MAX. ²	MIN.	MAX.	MIN.	MAX
0373	4.4	13.0	8.7	33.1	-17.7	51.7
0403	4.4	13.0	8.7	33.1	-17.7	51.7
0453	4.4	13.0	12.6	37.9	-17.7	51.7
0503	4.4	13.0	12.6	37.9	-17.7	51.7
0623	4.4	13.0	12.6	37.9	-17.7	51.7
0653	4.4	13.0	12.6	37.9	-17.7	51.7
0543	4.4	13.0	15.8	47.3	-17.7	51.7
0573	4.4	13.0	15.8	47.3	-17.7	51.7
0693	4.4	13.0	15.8	47.3	-17.7	51.7
0773	4.4	13.0	14.0	50.0	-17.7	51.7
0783	4.4	13.0	14.0	50.0	-17.7	51.7
0873	4.4	13.0	16.0	50.0	-17.7	51.7
0953	4.4	13.0	16.0	50.0	-17.7	51.7
1063	4.4	13.0	19.0	67.0	-17.7	51.7
1093	4.4	13.0	21.0	67.0	-17.7	51.7
1163	4.4	13.0	21.0	67.0	-17.7	51.7
1263	4.4	13.0	21.0	67.0	-17.7	51.7

NOTES:

1. For leaving brine temperature below 4.4°C, contact your nearest YORK office for application requirements.
2. For leaving water temperature higher than 13°C, contact the nearest YORK office for application guidelines.
3. The evaporator is protected against freeze-up to -28.8°C with an electrical heater as standard.

Water Pressure Drop

YCAS0373 - 1263 Water Press Drop, SI Units



MODEL NUMBER YCAS	COOLER
0373, 0403	A
0453, 0503, 0543	B
0573, 0623	C
0653	D
0693, 0773, 0783, 0873, 0953	E
1063, 1093, 1163, 1263	F

LD04153

Ratings – R-22

MODEL: YCAS0373SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	376.4	89.9	3.8	354.0	100.9	3.2	333.4	113.5	2.7	314.9	127.8	2.3	297.9	143.8	1.9	276.6	158.4	1.7
6.0	387.9	91.0	3.9	364.9	102.3	3.3	343.8	115.1	2.8	324.7	129.7	2.3	307.3	146.0	2.0	278.7	157.4	1.7
7.0	399.4	92.2	3.9	375.7	103.6	3.3	354.3	116.8	2.8	334.6	131.6	2.4	316.8	148.2	2.0	281.2	156.5	1.7
8.0	411.1	93.4	4.0	386.9	105.0	3.4	364.8	118.4	2.9	344.7	133.5	2.4	326.6	150.4	2.0	283.1	155.6	1.7
9.0	422.8	94.5	4.1	398.1	106.4	3.4	375.3	120.0	2.9	354.9	135.4	2.5	336.4	152.6	2.1	285.0	154.7	1.7
10.0	434.7	95.6	4.1	409.4	107.8	3.5	386.2	121.6	3.0	365.1	137.3	2.5	346.3	154.9	2.1	286.8	153.8	1.8
11.0	446.8	96.8	4.2	420.5	109.1	3.6	397.0	123.2	3.0	375.5	139.2	2.5	356.3	157.2	2.1	288.5	152.9	1.8
12.0	458.9	97.9	4.3	432.3	110.5	3.6	408.0	124.9	3.0	386.0	141.2	2.6	366.4	159.5	2.2	290.1	152.1	1.8
13.0	471.2	99.0	4.4	444.0	111.8	3.7	419.1	126.6	3.1	396.6	143.2	2.6	372.9	160.0	2.2	291.6	151.4	1.8

MODEL: YCAS0403SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	390.4	92.7	3.8	374.7	106.4	3.2	362.0	122.4	2.8	351.9	140.9	2.3	339.9	160.0	2.0	281.8	158.3	1.7
6.0	402.0	93.5	3.9	385.5	107.3	3.3	372.2	123.4	2.8	361.6	142.1	2.4	345.9	160.0	2.0	283.4	157.1	1.7
7.0	413.7	94.2	4.0	396.6	108.1	3.4	382.7	124.4	2.9	371.6	143.4	2.4	352.0	160.0	2.1	285.4	155.9	1.7
8.0	425.7	95.0	4.1	407.9	108.9	3.5	393.4	125.4	2.9	381.8	144.6	2.5	358.3	160.0	2.1	287.3	154.7	1.8
9.0	438.0	95.7	4.2	419.5	109.7	3.5	404.4	126.4	3.0	392.2	145.8	2.5	364.3	160.0	2.2	289.3	153.4	1.8
10.0	450.4	96.4	4.3	431.2	110.6	3.6	415.5	127.4	3.0	402.9	147.0	2.6	371.3	160.0	2.2	291.2	152.2	1.8
11.0	463.1	97.1	4.4	443.2	111.4	3.7	426.9	128.4	3.1	413.8	148.1	2.6	378.2	160.0	2.2	293.1	151.0	1.8
12.0	476.0	97.8	4.4	455.5	112.2	3.8	438.6	129.3	3.2	425.0	149.2	2.7	385.3	160.0	2.3	295.0	149.8	1.9
13.0	489.2	98.4	4.5	468.0	112.9	3.8	450.5	130.2	3.2	436.3	150.3	2.7	392.5	160.0	2.3	296.8	148.6	1.9

MODEL: YCAS0453SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	467.8	125.9	3.5	441.3	141.4	2.9	417.0	159.1	2.5	394.9	178.8	2.1	374.9	201.0	1.8	266.2	176.0	1.4
6.0	481.8	127.8	3.5	454.5	143.7	3.0	429.6	161.7	2.5	407.1	181.7	2.1	386.7	204.3	1.8	267.6	175.4	1.5
7.0	495.8	129.7	3.6	468.0	145.9	3.0	442.5	164.2	2.6	419.5	184.7	2.2	398.7	207.7	1.8	269.0	174.8	1.5
8.0	510.1	131.6	3.6	481.5	148.1	3.1	455.5	166.8	2.6	432.0	187.6	2.2	406.9	209.0	1.9	270.6	174.4	1.5
9.0	524.5	133.5	3.7	495.3	150.3	3.1	468.6	169.3	2.6	444.6	190.7	2.2	409.4	207.3	1.9	271.7	173.9	1.5
10.0	539.0	135.4	3.7	509.2	152.5	3.1	481.8	171.9	2.7	457.4	193.7	2.3	412.3	206.2	1.9	273.0	173.5	1.5
11.0	553.8	137.3	3.8	523.0	154.7	3.2	495.3	174.6	2.7	470.3	196.8	2.3	414.8	204.8	1.9	274.2	173.1	1.5
12.0	568.0	139.1	3.8	537.1	157.0	3.2	508.8	177.3	2.7	483.3	200.0	2.3	417.2	203.5	2.0	275.2	172.8	1.5
13.0	583.5	141.1	3.9	551.6	159.3	3.3	522.6	180.0	2.8	496.5	203.2	2.3	419.5	202.3	2.0	276.3	172.4	1.5

MODEL: YCAS0503SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	492.5	133.0	3.5	475.9	153.1	2.9	462.5	176.1	2.5	451.6	202.3	2.1	405.7	212.4	1.8	266.9	179.0	1.4
6.0	506.6	134.3	3.5	489.2	154.6	3.0	475.2	177.9	2.5	463.8	204.5	2.2	408.4	210.6	1.9	268.4	178.1	1.4
7.0	520.9	135.6	3.6	502.8	156.0	3.0	488.1	179.7	2.6	476.3	206.7	2.2	411.0	208.9	1.9	270.0	177.2	1.5
8.0	535.5	136.9	3.7	516.6	157.5	3.1	501.4	181.5	2.6	489.0	209.0	2.2	413.7	207.1	1.9	271.6	176.3	1.5
9.0	550.4	138.1	3.7	530.8	159.0	3.2	514.9	183.3	2.7	502.0	211.2	2.3	416.4	205.2	1.9	273.1	175.4	1.5
10.0	565.7	139.4	3.8	545.2	160.5	3.2	528.6	185.1	2.7	515.2	213.5	2.3	419.1	203.4	2.0	274.7	174.5	1.5
11.0	581.1	140.6	3.9	559.9	162.0	3.3	542.7	187.0	2.8	528.6	215.9	2.4	421.7	201.6	2.0	276.2	173.5	1.5
12.0	596.8	141.9	3.9	574.3	163.5	3.3	557.0	188.9	2.8	542.5	218.3	2.4	424.3	199.8	2.0	277.7	172.5	1.5
13.0	612.7	143.2	4.0	590.0	165.1	3.4	571.5	190.8	2.9	556.2	220.7	2.4	427.1	198.0	2.1	279.3	171.5	1.5

NOTES:

1. kWo = Unit kW Cooling Capacity Output
2. KWi = Compressor kW Input
3. COP = Coefficient of Performance (includes condenser fan power)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based on 0.15 L/s cooler water per ton, and 0.018 (m² – °C)/kW

MODEL: YCAS0543SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	514.0	117.2	4.0	493.6	134.3	3.4	477.2	154.2	2.9	464.1	176.9	2.5	453.5	202.2	2.1	401.2	210.9	1.8
6.0	529.2	118.2	4.1	508.0	135.4	3.4	490.8	155.4	2.9	477.1	178.2	2.5	465.9	203.9	2.2	404.0	209.2	1.8
7.0	544.8	119.1	4.1	522.7	136.3	3.5	504.7	156.5	3.0	490.3	179.6	2.6	478.7	205.6	2.2	406.7	207.5	1.9
8.0	560.8	119.9	4.2	537.8	137.2	3.6	519.0	157.5	3.1	503.9	180.9	2.6	491.6	207.3	2.2	408.5	205.5	1.9
9.0	577.0	120.8	4.3	553.1	138.1	3.7	533.5	158.5	3.1	517.7	182.2	2.7	504.9	208.9	2.3	411.4	203.8	1.9
10.0	593.4	121.6	4.4	568.8	138.9	3.8	548.3	159.6	3.2	531.8	183.5	2.7	518.5	210.6	2.3	414.2	202.1	1.9
11.0	610.4	122.3	4.5	584.8	139.8	3.8	563.5	160.6	3.3	546.2	184.8	2.8	532.3	212.3	2.4	417.0	200.3	2.0
12.0	627.6	123.1	4.6	600.9	140.8	3.9	578.9	161.6	3.3	560.9	186.1	2.8	546.4	213.9	2.4	419.8	198.6	2.0
13.0	645.1	123.8	4.7	617.5	141.6	4.0	594.7	162.7	3.4	575.9	187.4	2.9	560.8	215.7	2.5	422.6	196.9	2.0

MODEL: YCAS0573SC

MODEL: TCA007500																		
AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	564.8	142.9	3.6	532.7	160.4	3.1	503.3	180.4	2.6	476.4	202.7	2.2	448.8	226.0	1.9	373.8	226.0	1.6
6.0	581.5	145.1	3.7	548.9	162.8	3.1	518.7	183.0	2.7	491.2	205.7	2.3	455.9	226.0	1.9	378.8	226.0	1.6
7.0	598.8	147.1	3.8	565.4	165.1	3.2	534.3	185.7	2.7	506.2	208.8	2.3	462.8	226.0	1.9	383.8	226.0	1.6
8.0	616.2	149.1	3.8	582.0	167.4	3.2	550.2	188.3	2.7	521.4	211.9	2.3	469.0	226.0	2.0	388.6	226.0	1.6
9.0	633.8	151.1	3.9	598.4	169.9	3.3	566.3	191.0	2.8	536.7	215.0	2.4	475.7	226.0	2.0	392.1	225.5	1.7
10.0	651.6	153.0	3.9	615.4	172.1	3.3	582.4	193.7	2.8	552.3	218.1	2.4	482.2	226.0	2.0	394.2	224.5	1.7
11.0	669.6	154.9	4.0	632.5	174.4	3.4	598.7	196.4	2.9	568.0	221.3	2.4	488.6	226.0	2.1	396.2	223.5	1.7
12.0	687.8	156.8	4.1	649.8	176.7	3.4	615.0	199.3	2.9	583.9	224.5	2.5	495.0	226.0	2.1	397.3	222.4	1.7
13.0	706.1	158.7	4.1	667.3	179.0	3.5	631.7	202.1	2.9	595.7	226.0	2.5	501.2	226.0	2.1	399.2	221.6	1.7

MODEL: YCAS0623SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	589.6	149.4	3.6	568.6	171.2	3.1	551.5	196.7	2.6	537.7	225.8	2.3	455.2	226.0	1.9	374.1	226.0	1.6
6.0	606.8	150.8	3.7	584.8	172.7	3.2	566.9	198.4	2.7	548.1	226.0	2.3	463.0	226.0	1.9	379.9	226.0	1.6
7.0	624.3	152.1	3.8	601.1	174.4	3.2	582.6	200.1	2.7	558.2	226.0	2.3	470.9	226.0	2.0	385.8	226.0	1.6
8.0	642.1	153.3	3.9	618.0	175.9	3.3	598.7	202.0	2.8	568.6	226.0	2.4	479.1	226.0	2.0	392.2	226.0	1.6
9.0	660.2	154.6	4.0	635.2	177.3	3.4	614.8	203.9	2.8	579.2	226.0	2.4	487.6	226.0	2.0	396.2	225.1	1.7
10.0	678.8	155.8	4.0	652.8	178.7	3.4	631.5	205.6	2.9	589.8	226.0	2.5	496.2	226.0	2.1	398.6	223.6	1.7
11.0	697.6	157.0	4.1	670.6	180.2	3.5	648.5	207.4	3.0	600.1	226.0	2.5	504.9	226.0	2.1	401.0	222.0	1.7
12.0	716.8	158.2	4.2	688.8	181.6	3.6	665.9	209.1	3.0	610.3	226.0	2.6	513.5	226.0	2.2	403.3	220.4	1.7
13.0	736.3	159.4	4.3	707.4	183.0	3.6	683.5	210.9	3.1	621.4	226.0	2.6	522.7	226.0	2.2	405.7	218.8	1.8

MODEL: YCAS0653SC

MODEL: TCA000000																		
AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	612.8	137.7	4.0	588.0	157.4	3.4	568.0	180.4	2.9	552.1	206.5	2.5	513.4	226.0	2.1	424.7	226.0	1.8
6.0	631.2	138.7	4.1	605.4	158.5	3.5	584.3	181.6	3.0	567.5	208.2	2.5	523.4	226.0	2.2	431.9	226.0	1.8
7.0	650.0	139.7	4.2	623.0	159.5	3.6	601.0	182.8	3.0	583.4	209.6	2.6	533.5	226.0	2.2	439.8	226.0	1.8
8.0	669.2	140.6	4.3	641.1	160.5	3.6	618.1	184.0	3.1	599.6	211.1	2.6	543.4	226.0	2.3	447.9	226.0	1.9
9.0	688.8	141.5	4.4	659.6	161.5	3.7	635.5	185.2	3.2	616.1	212.5	2.7	553.5	226.0	2.3	456.1	226.0	1.9
10.0	708.7	142.3	4.5	678.4	162.5	3.8	653.4	186.3	3.2	633.0	213.9	2.8	564.3	226.0	2.3	464.5	226.0	1.9
11.0	729.0	143.2	4.6	697.6	163.4	3.9	671.5	187.4	3.3	650.3	215.4	2.8	575.3	226.0	2.4	473.6	226.0	2.0
12.0	749.6	144.0	4.7	717.1	164.3	4.0	690.0	188.6	3.4	667.9	216.8	2.9	586.6	226.0	2.4	482.5	226.0	2.0
13.0	770.6	144.8	4.8	737.1	165.3	4.1	708.9	189.7	3.5	685.9	218.3	2.9	598.1	226.0	2.5	491.6	226.0	2.0

NOTES:

1. kW_o = Unit kW Cooling Capacity Output
2. kW_i = Compressor kW Input
3. COP = Coefficient of Performance (includes condenser fan power)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based on 0.15 L/s cooler water per ton, and 0.018 (m² – °C)/kW

Ratings – R-22 (Continued)

MODEL: YCAS0693SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP
5.0	709.9	182.0	3.6	668.1	204.3	3.0	629.2	229.4	2.6	595.1	257.8	2.2	563.8	289.6	1.9	457.8	266.4	1.6
6.0	731.4	184.8	3.7	688.5	207.4	3.1	649.1	233.1	2.6	613.6	261.9	2.2	581.8	294.3	1.9	467.5	265.7	1.7
7.0	752.4	187.4	3.7	709.3	210.6	3.1	669.0	236.7	2.7	632.8	266.1	2.3	600.1	299.0	1.9	475.9	265.7	1.7
8.0	775.4	190.1	3.8	730.4	213.6	3.2	689.3	240.3	2.7	652.1	270.2	2.3	618.2	303.2	1.9	483.6	265.1	1.7
9.0	798.0	192.7	3.8	751.8	216.7	3.2	709.7	243.9	2.7	671.8	274.4	2.3	628.5	301.5	2.0	487.2	262.0	1.8
10.0	820.7	195.3	3.9	773.4	219.7	3.3	730.3	247.5	2.8	691.6	278.6	2.4	639.5	300.1	2.0	491.8	259.8	1.8
11.0	843.5	197.9	4.0	795.2	222.8	3.3	751.2	251.1	2.8	711.6	282.8	2.4	649.4	299.2	2.1	495.7	257.4	1.8
12.0	866.6	200.5	4.0	817.2	225.8	3.4	772.3	254.7	2.9	731.8	287.1	2.4	659.7	298.1	2.1	499.2	254.9	1.8
13.0	889.9	203.0	4.1	839.6	228.9	3.4	793.6	258.4	2.9	752.2	291.5	2.5	669.9	297.0	2.1	502.7	252.6	1.9

MODEL: YCAS0773SC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP
5.0	787.3	200.1	3.7	747.4	226.3	3.1	712.7	256.4	2.6	682.6	290.5	2.2	630.0	313.0	1.9	493.6	274.6	1.7
6.0	810.7	202.8	3.7	770.2	229.4	3.1	734.4	260.0	2.7	702.0	294.0	2.3	647.2	316.3	2.0	498.0	271.8	1.7
7.0	834.6	205.4	3.8	792.9	232.4	3.2	756.0	263.4	2.7	720.7	296.9	2.3	664.6	319.7	2.0	502.2	269.1	1.8
8.0	858.9	207.9	3.8	815.8	235.5	3.3	777.9	266.8	2.8	739.9	299.9	2.3	681.6	322.6	2.0	506.3	266.5	1.8
9.0	883.4	210.5	3.9	839.1	238.4	3.3	800.1	270.4	2.8	759.6	303.0	2.4	690.7	319.5	2.1	510.1	263.9	1.8
10.0	908.3	213.0	4.0	862.8	241.4	3.4	822.6	274.0	2.8	779.3	306.1	2.4	700.7	316.9	2.1	514.1	261.5	1.9
11.0	933.5	215.5	4.0	886.7	244.4	3.4	845.5	277.5	2.9	799.2	309.2	2.5	709.3	314.7	2.2	517.9	259.1	1.9
12.0	959.1	218.0	4.1	911.0	247.4	3.5	868.7	281.1	2.9	819.2	312.4	2.5	718.5	312.2	2.2	521.5	256.7	1.9
13.0	984.8	220.5	4.2	935.6	250.4	3.5	892.2	284.7	3.0	838.9	315.6	2.5	727.6	309.8	2.2	525.0	254.3	1.9

MODEL: YCAS0783EC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP
5.0	802.1	184.3	4.0	754.5	206.7	3.4	710.9	232.1	2.8	671.0	260.8	2.4	635.2	292.8	2.0	584.5	314.6	1.8
6.0	826.7	187.0	4.0	777.9	209.6	3.4	733.2	235.5	2.9	692.1	264.6	2.4	653.3	295.7	2.1	599.2	316.3	1.8
7.0	851.6	189.5	4.1	801.6	212.6	3.5	755.7	238.9	2.9	713.1	268.4	2.5	671.5	298.3	2.1	613.9	317.9	1.8
8.0	877.0	192.0	4.2	825.7	215.4	3.5	778.6	242.2	3.0	735.4	272.3	2.5	689.8	300.9	2.2	624.4	316.8	1.9
9.0	902.9	194.3	4.2	850.1	218.3	3.6	801.9	245.5	3.0	758.0	276.1	2.6	708.2	303.4	2.2	629.5	312.3	1.9
10.0	928.7	196.7	4.3	874.8	221.0	3.7	825.5	248.7	3.1	780.8	280.0	2.6	726.6	306.1	2.2	635.9	309.3	1.9
11.0	954.9	199.0	4.4	899.9	223.8	3.7	849.4	251.9	3.1	803.7	283.8	2.7	745.5	308.7	2.3	640.9	305.5	2.0
12.0	981.5	201.3	4.5	925.2	226.5	3.8	873.4	255.3	3.2	826.8	287.7	2.7	764.3	311.4	2.3	646.2	302.1	2.0
13.0	1008.4	203.5	4.5	950.8	229.2	3.8	897.8	258.6	3.2	849.9	291.4	2.7	783.4	314.1	2.4	651.3	298.8	2.1

MODEL: YCAS0873EC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP
5.0	875.4	213.8	3.8	824.0	239.8	3.2	777.0	269.3	2.7	734.4	302.5	2.3	695.0	338.9	1.9	602.7	338.1	1.7
6.0	901.7	217.1	3.8	849.6	243.4	3.2	800.5	273.2	2.7	757.6	307.1	2.3	709.7	338.9	2.0	608.7	334.1	1.7
7.0	928.7	220.2	3.9	875.4	246.9	3.3	825.9	277.4	2.8	781.2	311.7	2.4	724.4	339.0	2.0	614.7	330.3	1.8
8.0	956.2	223.2	4.0	901.5	250.3	3.4	850.8	281.4	2.8	805.1	316.4	2.4	738.9	339.0	2.1	620.2	326.5	1.8
9.0	984.1	226.2	4.0	927.0	254.1	3.4	876.1	285.5	2.9	829.2	321.1	2.4	752.6	339.0	2.1	625.5	322.9	1.8
10.0	1012.0	229.2	4.1	954.0	257.6	3.5	901.4	289.5	2.9	853.6	325.8	2.5	766.4	339.0	2.1	629.5	319.1	1.9
11.0	1040.3	232.1	4.2	981.3	261.1	3.5	927.2	293.8	3.0	878.3	330.6	2.5	780.5	339.0	2.2	634.5	315.8	1.9
12.0	1068.8	235.0	4.2	1008.2	264.5	3.6	952.8	298.1	3.0	903.3	335.5	2.6	794.5	339.0	2.2	639.4	312.8	1.9
13.0	1097.7	237.8	4.3	1035.6	268.0	3.6	979.1	302.3	3.1	926.0	339.0	2.6	808.5	339.0	2.3	644.2	309.8	2.0

NOTES:

1. kW_o = Unit kW Cooling Capacity Output
2. kW_i = Compressor kW Input
3. COP = Coefficient of Performance (includes condenser fan power)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based on 0.15 L/s cooler water per ton, and 0.018 (m² – °C)/kW

MODEL: YCAS0953EC

MODEL: TCAS0935EC																		
AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	915.3	223.9	3.8	881.8	256.5	3.2	854.7	294.5	2.7	832.8	338.0	2.3	736.1	339.0	2.1	621.3	327.1	1.8
6.0	942.3	225.9	3.9	907.2	258.7	3.3	878.8	297.2	2.8	851.9	339.0	2.4	750.7	339.0	2.1	626.4	323.5	1.8
7.0	969.8	227.9	3.9	932.9	261.2	3.3	903.4	299.8	2.8	869.8	339.0	2.4	765.8	339.0	2.1	631.5	320.0	1.9
8.0	997.8	229.9	4.0	959.3	263.6	3.4	928.5	302.4	2.9	888.2	339.0	2.5	781.2	339.0	2.2	636.6	316.4	1.9
9.0	1026.3	231.8	4.1	986.3	265.7	3.5	953.9	305.4	2.9	906.8	339.0	2.5	796.9	339.0	2.2	641.7	312.8	1.9
10.0	1055.4	233.6	4.2	1013.7	267.9	3.5	980.0	308.1	3.0	925.8	339.0	2.6	813.0	339.0	2.3	646.6	309.2	2.0
11.0	1085.1	235.5	4.3	1041.9	270.0	3.6	1006.7	310.8	3.1	945.0	339.0	2.6	829.3	339.0	2.3	651.8	305.7	2.0
12.0	1115.1	237.3	4.4	1070.5	272.2	3.7	1033.9	313.4	3.1	963.5	339.0	2.7	846.0	339.0	2.4	656.5	302.1	2.1
13.0	1145.8	239.1	4.4	1099.6	274.4	3.8	1061.6	316.1	3.2	981.8	339.0	2.7	862.9	339.0	2.4	661.3	298.6	2.1

MODEL: YCAS1063EC

MODEL: TCA01005L0																		
AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP	KWo	KWi	COP
5.0	1091.8	259.1	3.8	1027.1	290.5	3.3	968.5	326.2	2.8	914.7	366.3	2.3	866.1	411.1	2.0	725.8	391.1	1.7
6.0	1125.2	262.8	3.9	1059.1	294.8	3.3	998.9	331.0	2.8	943.9	371.8	2.4	894.2	417.4	2.0	737.4	389.5	1.8
7.0	1159.5	266.4	4.0	1091.6	298.9	3.4	1029.4	335.9	2.9	973.5	377.2	2.4	922.7	423.8	2.1	749.0	388.0	1.8
8.0	1194.1	269.9	4.1	1124.4	303.0	3.4	1060.7	340.7	2.9	1003.3	382.8	2.5	949.4	428.5	2.1	760.8	386.6	1.9
9.0	1229.1	273.4	4.1	1157.6	307.1	3.5	1092.4	345.5	3.0	1031.1	388.2	2.5	969.5	428.3	2.1	772.6	385.2	1.9
10.0	1264.3	276.8	4.2	1191.1	311.2	3.5	1124.3	350.2	3.0	1062.9	394.0	2.5	990.0	429.0	2.2	782.1	385.1	1.9
11.0	1300.0	280.2	4.3	1225.1	315.2	3.6	1156.7	355.0	3.0	1095.1	399.8	2.6	1005.7	427.2	2.2	795.5	382.7	2.0
12.0	1335.9	283.5	4.3	1259.3	319.3	3.7	1189.4	359.9	3.1	1126.4	405.6	2.6	1020.5	424.8	2.3	806.8	381.5	2.0
13.0	1372.3	286.8	4.4	1293.9	323.3	3.7	1222.4	364.8	3.1	1158.1	411.4	2.7	1035.1	422.5	2.3	817.9	380.4	2.0

MODEL: YCAS1093SC

MODEL: TCA510333C																		
AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP
5.0	1096.5	275.2	3.7	1045.5	312.4	3.1	1001.4	355.2	2.7	963.3	403.7	2.3	877.8	426.4	2.0	701.3	383.3	1.7
6.0	1128.8	278.5	3.8	1076.4	316.1	3.2	1030.8	359.6	2.7	989.0	407.4	2.3	899.9	429.8	2.0	706.9	379.6	1.8
7.0	1162.2	281.8	3.8	1107.8	320.0	3.2	1060.8	363.9	2.8	1014.0	410.4	2.4	922.6	433.2	2.0	713.2	375.5	1.8
8.0	1196.0	285.0	3.9	1139.6	323.8	3.3	1091.3	368.2	2.8	1039.5	413.5	2.4	943.4	435.0	2.1	718.1	372.2	1.8
9.0	1230.2	288.2	4.0	1172.1	327.5	3.4	1122.1	372.7	2.8	1065.2	416.5	2.4	957.8	432.0	2.1	724.5	367.9	1.9
10.0	1264.9	291.3	4.0	1205.1	331.2	3.4	1153.5	377.3	2.9	1091.3	419.6	2.5	972.6	429.8	2.2	730.1	364.2	1.9
11.0	1300.1	294.5	4.1	1238.5	334.9	3.5	1185.3	381.8	2.9	1117.6	422.7	2.5	987.2	427.3	2.2	735.6	360.7	1.9
12.0	1335.8	297.6	4.2	1272.5	338.7	3.5	1217.5	386.2	3.0	1143.7	425.9	2.6	1001.8	424.9	2.2	740.7	357.1	2.0
13.0	1372.0	300.7	4.3	1306.8	342.4	3.6	1250.5	390.8	3.0	1169.8	429.2	2.6	1016.6	422.5	2.3	745.9	353.6	2.0

NOTES:

1. kWo = Unit kW Cooling Capacity Output
2. KWi = Compressor kW Input
3. COP = Coefficient of Performance (includes condenser fan power)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based on 0.15 L/s cooler water per ton, and 0.018 (m² – °C)/kW

Ratings – R-22 (Continued)

MODEL: YCAS1163EC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT (°C)	25.0			30.0			35.0			40.0			45.0			50.0		
	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP
5.0	1172.0	285.6	3.8	1103.1	320.4	3.2	1040.0	359.8	2.7	982.8	404.0	2.3	929.1	452.0	2.0	804.6	450.2	1.7
6.0	1207.2	290.1	3.8	1137.2	325.1	3.3	1072.5	365.1	2.8	1013.9	410.2	2.3	948.6	452.0	2.0	812.6	444.9	1.7
7.0	1244.1	294.3	3.9	1171.8	329.8	3.3	1105.5	370.6	2.8	1045.5	416.4	2.4	968.1	452.0	2.0	820.4	439.8	1.8
8.0	1280.3	298.2	4.0	1206.8	334.4	3.4	1138.9	376.0	2.8	1077.4	422.6	2.4	987.5	452.0	2.1	827.7	434.8	1.8
9.0	1317.4	302.2	4.0	1241.5	339.5	3.4	1172.6	381.4	2.9	1109.7	428.9	2.4	1005.1	452.0	2.1	834.8	430.1	1.8
10.0	1354.9	306.1	4.1	1277.2	344.1	3.5	1206.8	386.8	2.9	1142.5	435.3	2.5	1023.9	452.0	2.2	840.0	424.9	1.9
11.0	1392.9	310.0	4.2	1313.2	348.8	3.5	1241.1	392.4	3.0	1175.6	441.7	2.5	1042.3	452.0	2.2	846.8	420.7	1.9
12.0	1430.9	313.9	4.2	1349.6	353.4	3.6	1275.4	398.3	3.0	1209.1	448.3	2.6	1060.9	452.0	2.2	853.3	416.6	1.9
13.0	1470.7	317.8	4.3	1386.5	358.1	3.6	1310.5	403.9	3.1	1236.3	452.0	2.6	1079.4	452.0	2.3	859.6	412.6	2.0

MODEL: YCAS1263EC

AIR TEMPERATURE ON - CONDENSER (°C)																		
LCWT	25.0			30.0			35.0			40.0			45.0			50.0		
(°C)	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP	KW _o	KW _i	COP
5.0	1225.4	298.9	3.8	1180.3	342.4	3.2	1143.8	393.2	2.7	1114.3	451.2	2.3	983.7	452.0	2.1	829.1	435.6	1.8
6.0	1261.6	301.6	3.9	1214.4	345.4	3.3	1176.1	396.7	2.8	1139.0	452.0	2.4	1003.4	452.0	2.1	835.9	430.9	1.8
7.0	1298.4	304.3	3.9	1249.5	348.8	3.3	1209.1	400.2	2.8	1163.0	452.0	2.4	1023.5	452.0	2.2	842.8	426.1	1.9
8.0	1336.1	306.9	4.0	1284.3	351.8	3.4	1242.8	403.8	2.9	1187.6	452.0	2.5	1044.1	452.0	2.2	849.6	421.3	1.9
9.0	1374.3	309.4	4.1	1320.5	354.7	3.5	1276.9	407.6	3.0	1212.6	452.0	2.5	1065.2	452.0	2.2	856.3	416.5	1.9
10.0	1413.3	311.9	4.2	1357.4	357.6	3.6	1312.0	411.4	3.0	1237.8	452.0	2.6	1086.7	452.0	2.3	862.9	411.7	2.0
11.0	1453.0	314.3	4.3	1395.2	360.5	3.6	1347.6	414.9	3.1	1263.6	452.0	2.7	1108.6	452.0	2.3	869.7	407.1	2.0
12.0	1493.5	316.8	4.4	1433.3	363.4	3.7	1383.9	418.4	3.1	1288.4	452.0	2.7	1130.9	452.0	2.4	876.0	402.3	2.1
13.0	1534.3	319.2	4.5	1472.7	366.4	3.8	1421.2	422.1	3.2	1313.0	452.0	2.8	1153.4	452.0	2.4	882.5	397.6	2.1

NOTES:

1. kW_o = Unit kW Cooling Capacity Output
2. kW_i = Compressor kW Input
3. COP = Coefficient of Performance (includes condenser fan power)
4. LCWT = Leaving Chilled Water Temperature
5. Ratings based on 0.15 L/s cooler water per ton, and 0.018 (m² – °C)/kW

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Physical Data – R-22

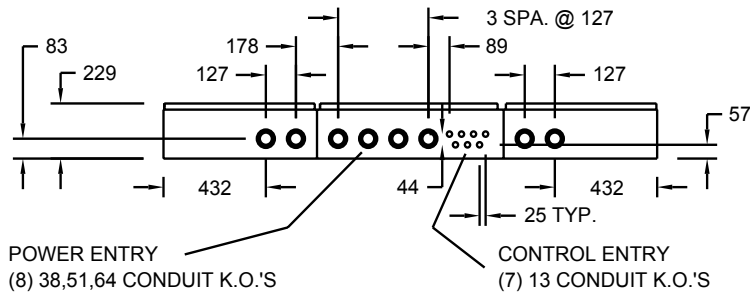
	MODEL NUMBER YCAS						
	0373SC	0403SC	0453SC	0503SC	0543SC	0573SC	0623SC
General Unit Data							
Unit Capacity at 6.7°C water & 35°C ambient, kW	339	368	426	472	499	528	578
Number of Independent Refrigerant Circuits	2	2	2	2	2	2	2
Refrig. Charge, R-22, Ckt.-1 / Ckt.-2, kg.	72 / 72	72 / 72	72 / 72	72 / 72	86 / 86	86 / 86	86 / 86
Ckt.-3 / Ckt.-4, kg.	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Oil Charge, Ckt.-1 / Ckt.-2, liters	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19
Ckt.-3, Ckt.-4, liters	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Shipping Weight:							
Aluminum Fin Coils, kg.	4,601	4,640	4,669	4,700	5,637	5,652	5,725
Copper Fin Coils, kg.	5,029	5,068	5,097	5,128	6,208	6,224	6,297
Operating Weight:							
Aluminum Fin Coils, kg.	4,769	4,808	4,837	4,868	5,886	5,901	5,975
Copper Fin Coils, kg.	5,197	5,236	5,265	5,296	6,458	6,473	6,546
Compressors, Semihermetic Twin Screw							
Quantity per Chiller	2	2	2	2	2	2	2
Nominal kW Size, Ckt.-1 / Ckt.-2	175/175	190 / 190	210/210	250/250	250/250	260/260	305/305
Ckt.-3 / Ckt.-4	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Refrigerant Economizer, Ckt.-1 / Ckt. 2	No / No	Yes / Yes	No / No	Yes / Yes	Yes / Yes	No / No	Yes / Yes
Ckt. 3 / Ckt. 4	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Condensers, High Efficiency Fin / Tube with Integral Subcooler							
Total Chiller Coil Face Area, m ²	17.84	17.84	17.84	17.84	23.78	23.78	23.78
Number of Rows	3	3	3	3	3	3	3
Fins per Meter	512	512	512	512	512	512	512
Condenser Fans							
Number, Ckt.-1 / Ckt.-2	3 / 3	3 / 3	3 / 3	3 / 3	4 / 4	4 / 4	4 / 4
Number, Ckt.-3 / Ckt.-4	- / -	- / -	- / -	- / -	- / -	- / -	- / -
Standard Fans							
Fan Motor, HP / kW	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6
Fan & Motor speed, rev./sec.	15.8	15.8	15.8	15.8	15.8	15.8	15.8
Fan Diameter, mm	900	900	900	900	900	900	900
Fan Tip Speed, m/sec.	45	45	45	45	45	45	45
Total Chiller Airflow, l/sec.	37,660	37,660	37,660	37,660	50,213	50,213	50,213
Low Noise Fans							
Fan Motor, HP / kW	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7
Fan & Motor Speed, rev./sec.	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Fan Diameter, mm	900	900	900	900	900	900	900
Fan Tip Speed, m/sec.	34	34	34	34	34	34	34
Total Chiller Airflow, l/sec.	36,811	36,811	36,811	36,811	49,081	49,081	49,081
High Static Fans							
Fan Motor, HP / kW	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5
Fan & Motor Speed, rev./sec	15.8	15.8	15.8	15.8	15.8	15.8	15.8
Fan Diameter, mm	900	900	900	900	900	900	900
Fan Tip Speed, m/sec.	45	45	45	45	45	45	45
Total Chiller Airflow, l/sec.	37,660	37,660	37,660	37,660	50,213	50,213	50,213
Evaporator, Direct Expansion							
Water Volume, liters	200	200	208	208	208	208	299
Maximum ¹ Water Side Pressure, Bar	10	10	10	10	10	10	10
Maximum Refrigerant Side Pressure, Bar	24	24	24	24	24	24	24
Minimum Chilled Water Flow Rate, l/sec.	8.7	8.7	12.6	12.6	12.6	12.6	15.8
Maximum Chilled Water Flow Rate, l/sec.	33.1	33.1	37.9	37.9	37.9	37.9	47.3
Water Connections, inches	8	8	8	8	8	8	8

1 Optional 21 Bar Waterside available

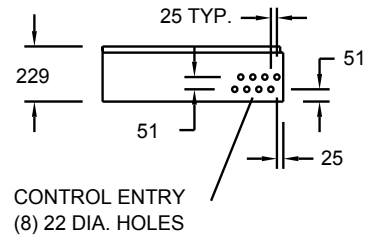
	MODEL NUMBER YCAS									
	0653SC	0693SC	0773SC	0783EC	0873EC	0953EC	1063EC	1093SC	1163EC	1263EC
General Unit Data										
Unit Capacity at 6.7°C water & 35°C ambient, kW	591	672	758	749	818	896	1002	1045	1095	1199
Number of Independent Refrigerant Circuits	2	3	3	3	3	3	4	4	4	4
Refrig. Charge, R-22, Ckt.-1 / Ckt.-2, kg.	100 / 100	65 / 65	65 / 65	70 / 70	70 / 70	78 / 78	90 / 90	92 / 92	85 / 85	92 / 92
Ckt.-3 / Ckt.-4, kg.	- / -	70 / -	78 / -	70 / -	70 / -	78 / -	80 / 80	80 / 80	85 / 85	92 / 92
Oil Charge, Ckt.-1 / Ckt.-2, liters	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19	19 / 19
Ckt.-3, Ckt.-4, liters	- / -	19 / -	19 / -	19 / -	19 / -	19 / -	19 / 19	19 / 19	19 / 19	19 / 19
Shipping Weight:										
Aluminum Fin Coils, kg.	6,180	7,971	8,025	8,749	8,826	8,952	10,832	10,542	11,330	11,437
Copper Fin Coils, kg.	6,766	8,684	8,738	9,605	9,683	9,808	12,074	11,550	12,604	12,758
Operating Weight:										
Aluminum Fin Coils, kg.	6,429	8,569	8,619	9,341	9,418	9,531	11,293	11,001	11,791	11,882
Copper Fin Coils, kg.	7,015	9,282	9,332	10,198	10,275	10,387	12,535	12,008	13,065	13,203
Compressors, Semihermetic Twin Screw										
Quantity per Chiller	2	3	3	3	3	3	4	4	4	4
Nominal Ton Size, Ckt.-1 / Ckt.-2	305/305	210/210	210/210	210/210	260/260	305/305	260/260	305/305	260/260	305/305
Ckt.-3 / Ckt.-4	- / -	210 / -	305 / -	260 / -	260 / -	305 / -	210 / 210	210 / 210	260 / 260	305 / 305
Refrigerant Economizer, Ckt.-1 / Ckt. 2	Yes / Yes	No / No	No / No	No / No	No / No	Yes / Yes	No / No	Yes / Yes	No / No	Yes / Yes
Ckt. 3 / Ckt. 4	- / -	No / -	Yes / -	No / -	No / -	Yes / -	No / No	No / No	No / No	Yes / Yes
Condensers, High Efficiency Fin / Tube with Integral Subcooler										
Total Chiller Coil Face Area, m ²	29.73	29.73	29.73	35.67	35.67	35.67	47.57	47.57	47.57	47.57
Number of Rows	3	3	3	3	3	3	3	3	3	3
Fins per Meter	512	512	512	512	512	512	512	512	512	512
Condenser Fans										
Number, Ckt.-1 / Ckt.-2	5 / 5	3 / 3	3 / 3	4 / 4	4 / 4	4 / 4	5 / 5	4 / 4	4 / 4	4 / 4
Number, Ckt.-3 / Ckt.-4	- / -	4 / -	4 / -	4 / -	4 / -	4 / -	3 / 3	3 / 3	4 / 4	4 / 4
Standard Fans										
Fan Motor, HP / kW	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6	2 / 1.6
Fan & Motor speed, rev./sec.	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
Fan Diameter, mm	900	900	900	900	900	900	900	900	900	900
Fan Tip Speed, m/sec.	45	45	45	45	45	45	45	45	45	45
Total Chiller Airflow, l/sec.	62,767	62,767	62,767	75,320	75,320	75,320	100,427	87,873	100,427	100,427
Low Noise Fans										
Fan Motor, HP / kW	Yes / Yes	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7	2 / 1.7
Fan & Motor Speed, rev./sec.	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
Fan Diameter, mm	900	900	900	900	900	900	900	900	900	900
Fan Tip Speed, m/sec.	34	34	34	34	34	34	34	34	34	34
Total Chiller Airflow, l/sec.	61,351	61,351	61,351	73,621	73,621	73,621	98,161	85,891	98,161	98,161
High Static Fans										
Fan Motor, HP / kW	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5	5 / 3.5
Fan & Motor Speed, rev./sec	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8	15.8
Fan Diameter, mm	900	900	900	900	900	900	900	900	900	900
Fan Tip Speed, m/sec.	45	45	45	45	45	45	45	45	45	45
Total Chiller Airflow, l/sec.	62,767	62,767	62,767	75,320	75,320	75,320	100,427	87,873	100,427	100,427
Evaporator, Direct Expansion										
Water Volume, liters	299	439	439	355	355	355	567	567	511	511
Maximum ¹ Water Side Pressure, Bar	10	10	10	10	10	10	10	10	10	10
Maximum Refrigerant Side Pressure, Bar	24	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7	20.7
Minimum Chilled Water Flow Rate, l/sec.	15.8	14.0	14.0	16.0	16.0	16.0	19.0	21.0	21.0	21.0
Maximum Chilled Water Flow Rate, l/sec.	47.1	50.0	50.0	50.0	50.0	50.0	67.0	67.0	67.0	67.0
Water Connections, inches	8	10	10	10	10	10	10	10	10	10

1 Optional 21 Bar Waterside available

Dimensions – YCAS0373 – YCAS0503

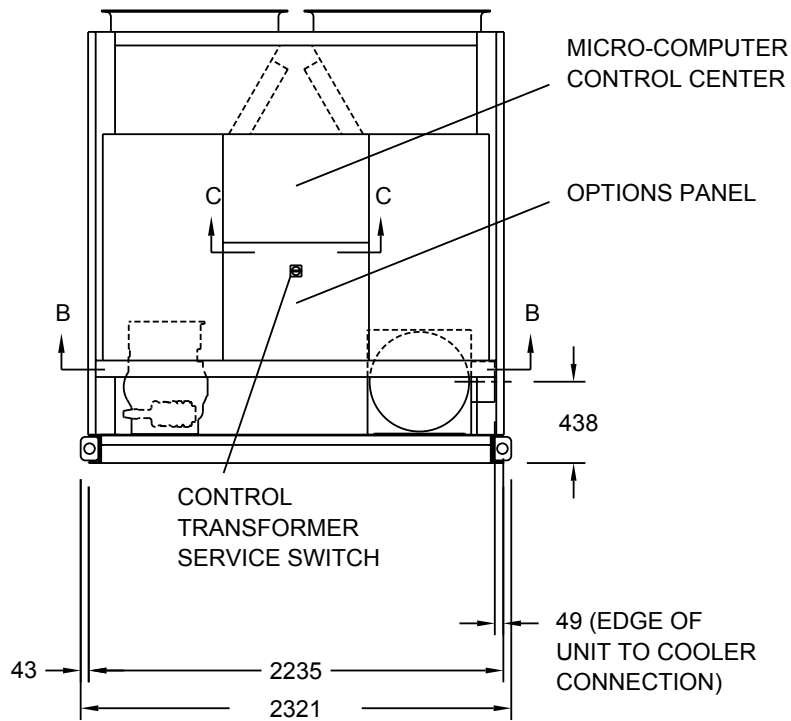


VIEW B-B



VIEW C-C

LD04477

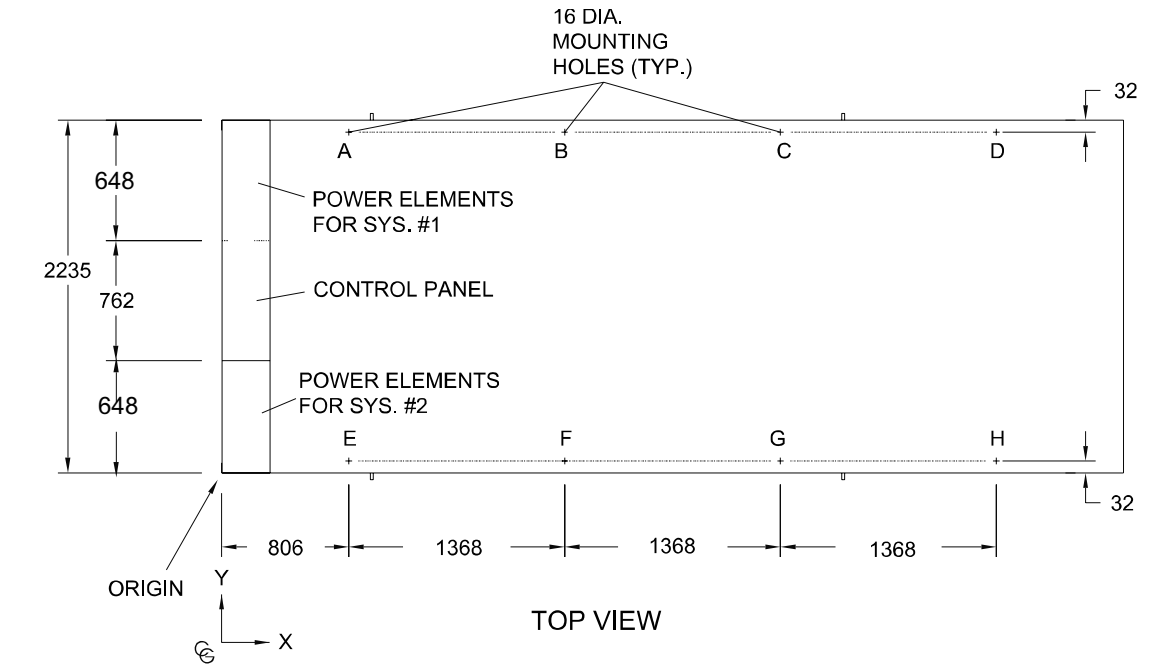


VIEW A-A

LD04478

NOTES:

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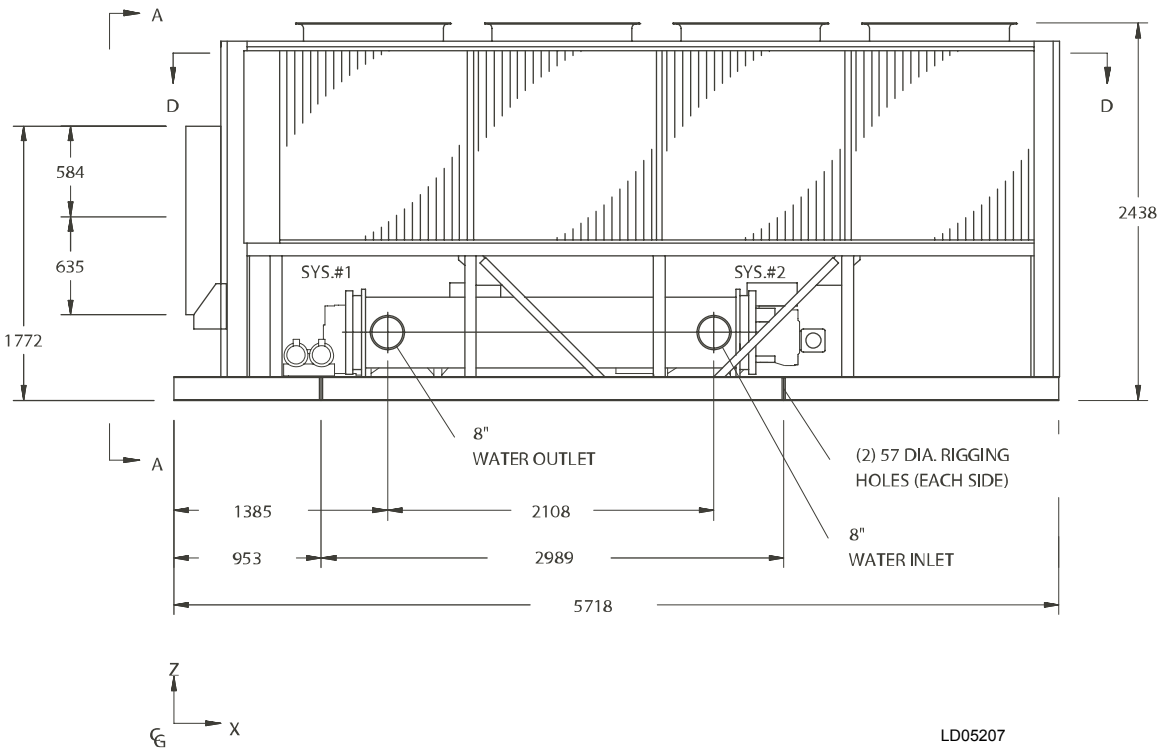


CENTER OF GRAVITY (Alum.)

YCAS	X	Y	Z
0373	2108	1132	957
0403	2118	1126	954
0453	2113	1139	951
0503	2115	1134	946

CENTER OF GRAVITY (Copper)

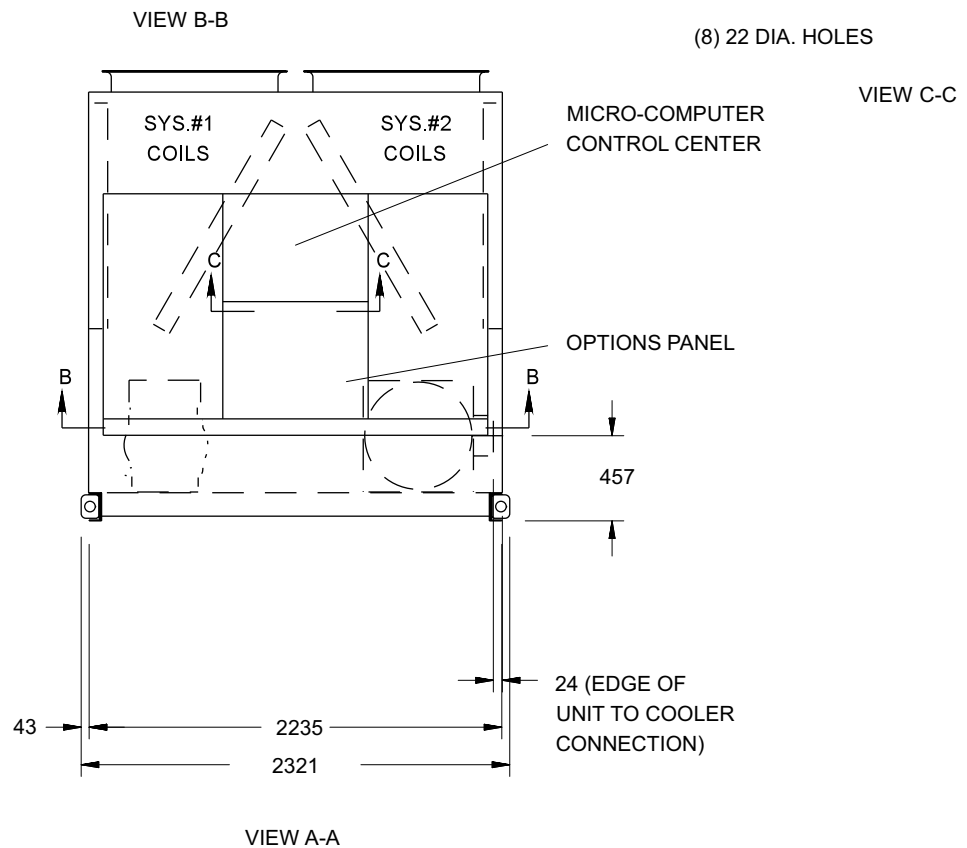
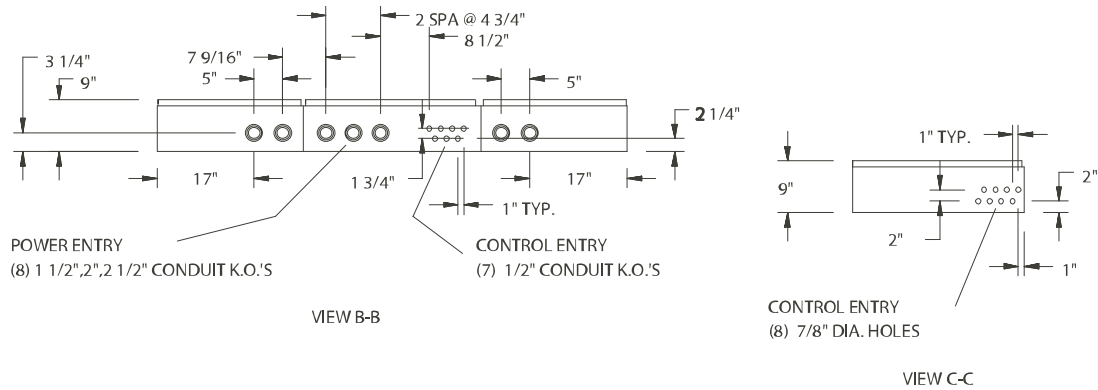
YCAS	X	Y	Z
0373	2119	1130	1013
0403	2129	1125	1009
0453	2124	1137	1006
0503	2126	1133	1002



LD05207

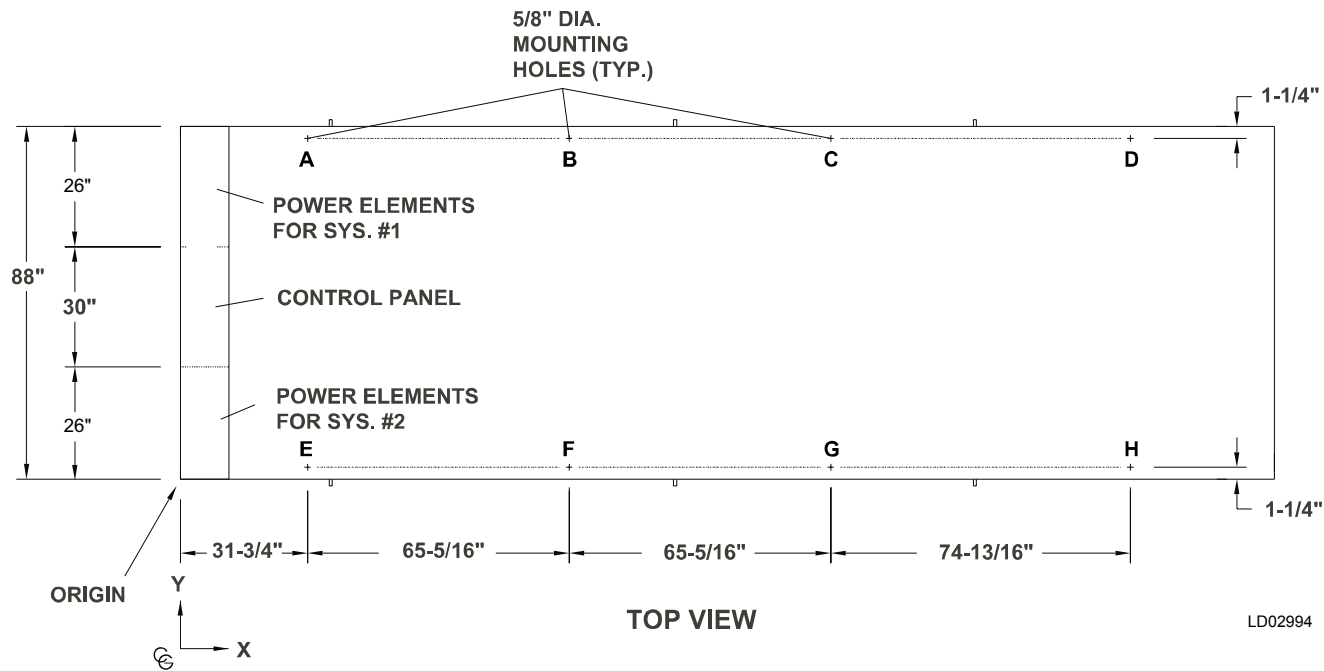
Dimensions – YCAS0543 – YCAS0653

All dimensions
are in mm un-
less otherwise



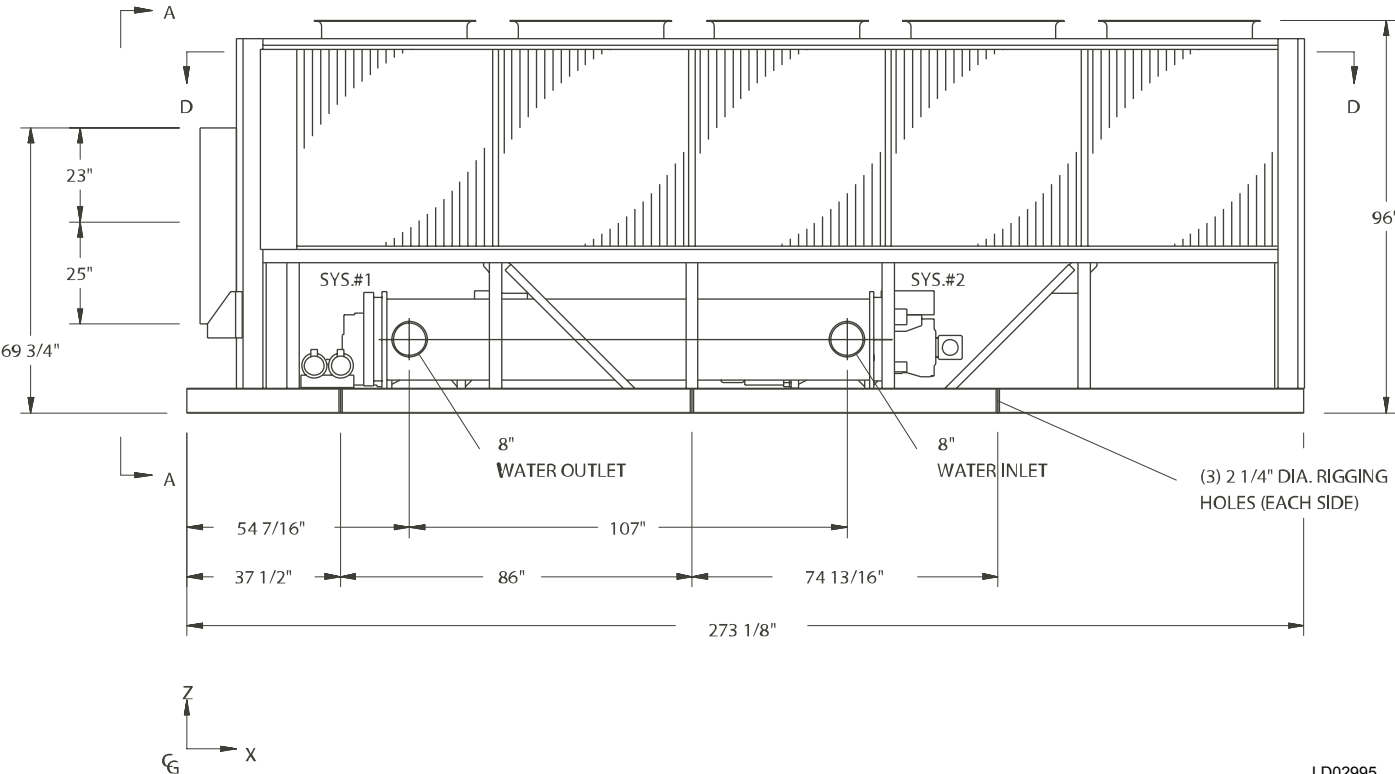
NOTES:

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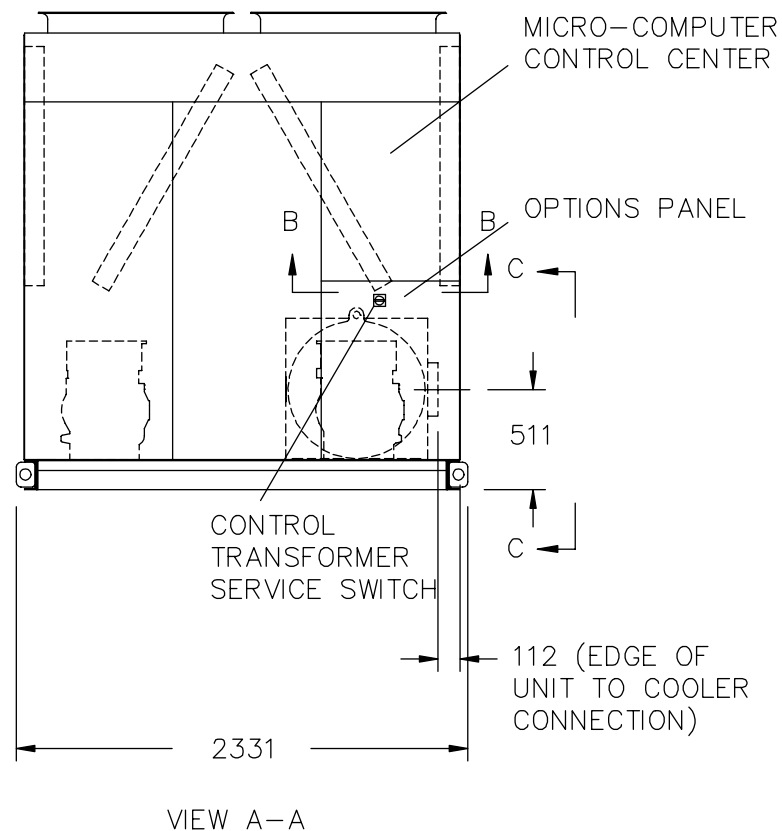
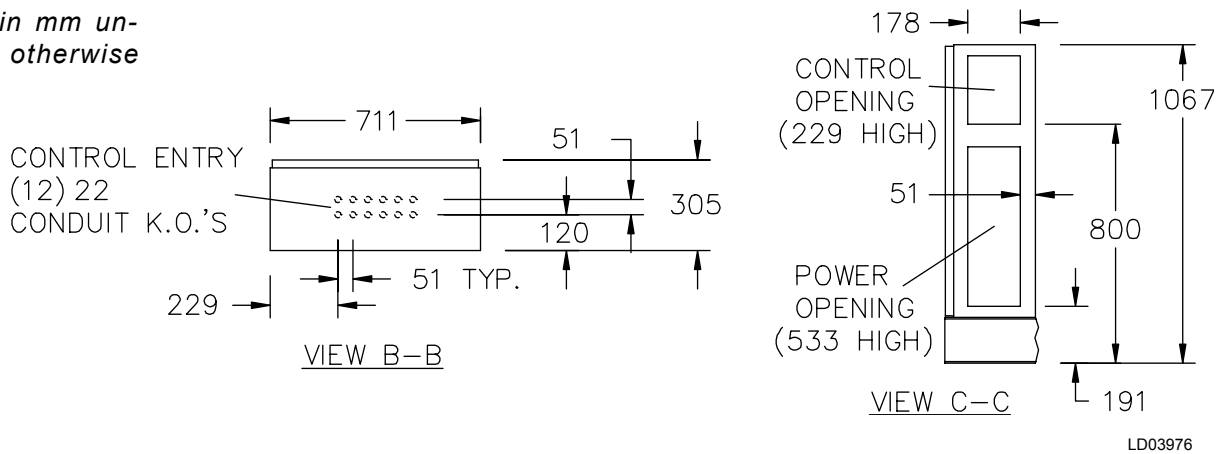
CENTER OF GRAVITY (Alum.)			
YCAS	X	Y	Z
0543	2628	1093	927
0573	2631	1103	925
0623	2633	1099	924

CENTER OF GRAVITY (Copper)			
YCAS	X	Y	Z
0543	2679	1095	962
0573	2682	1105	960
0623	2683	1101	959



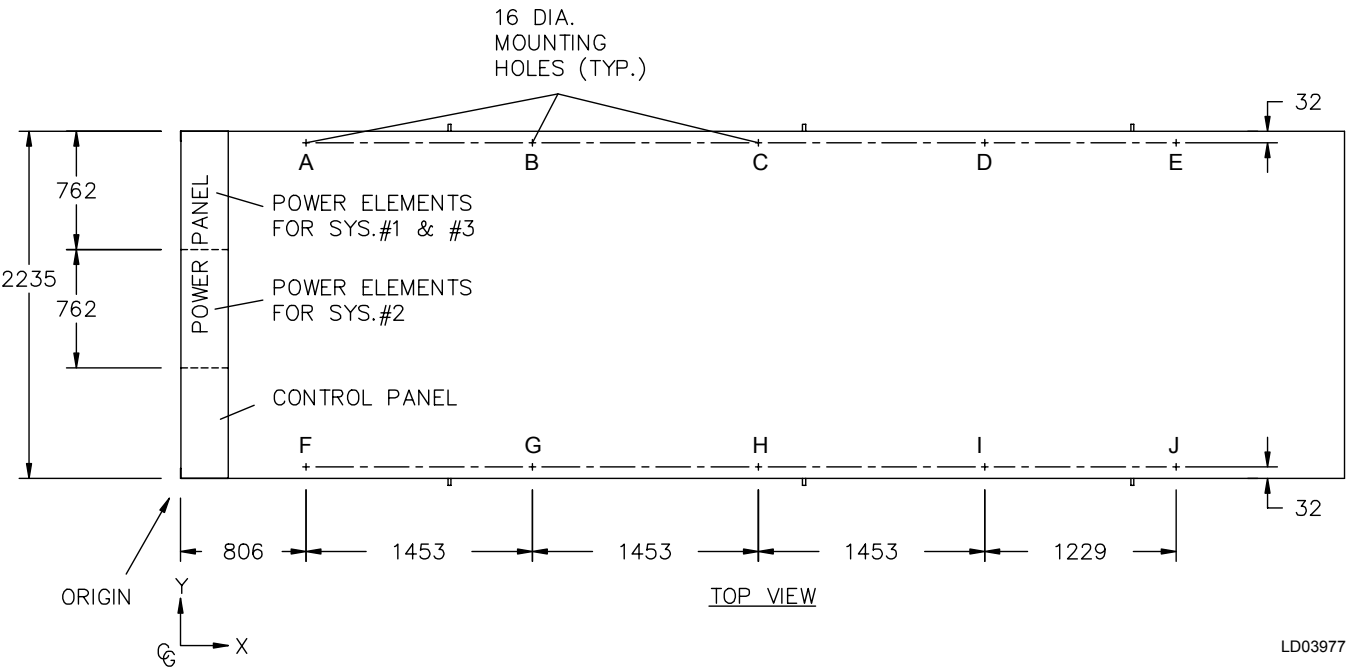
Dimensions – YCAS0693 – YCAS0773

All dimensions
are in mm un-
less otherwise



NOTES:

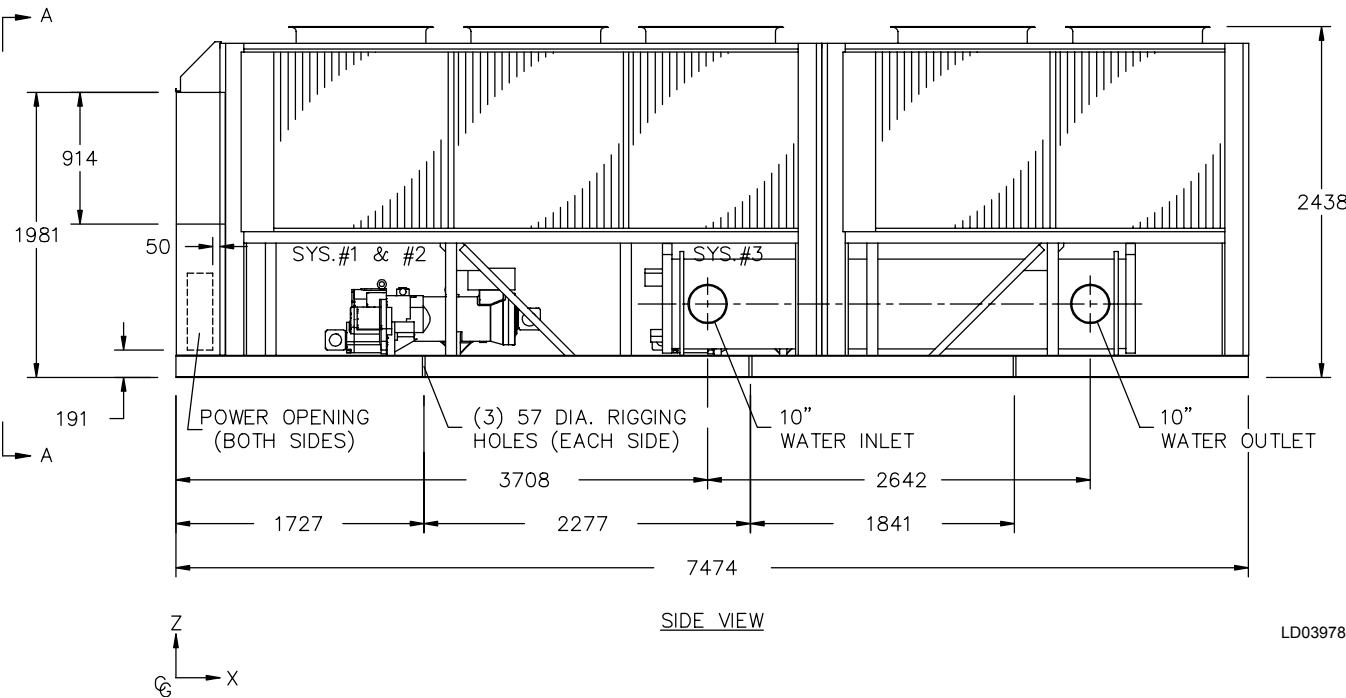
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LD03977

CENTER OF GRAVITY (Alum.)			
YCAS	X	Y	Z
0693	3732	999	845
0773	3734	1001	845

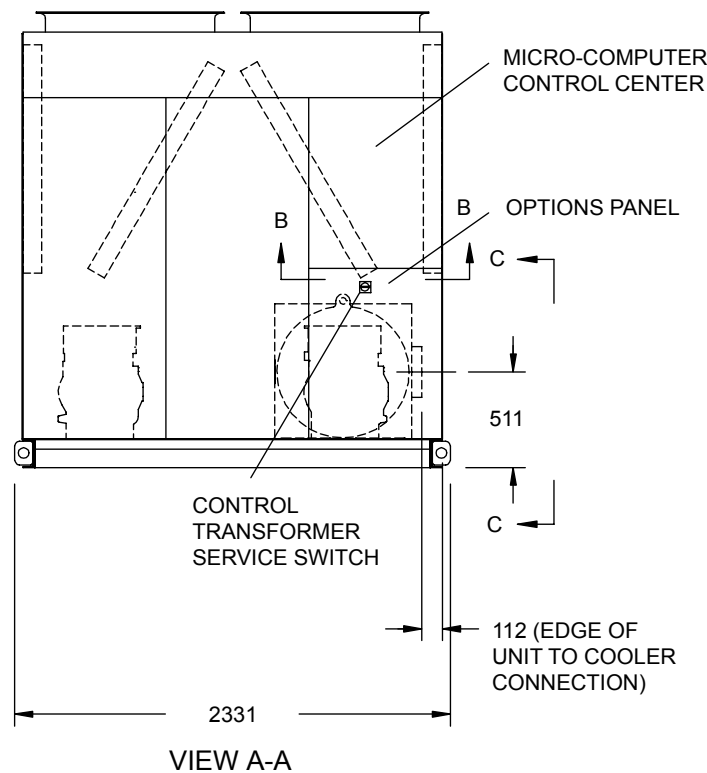
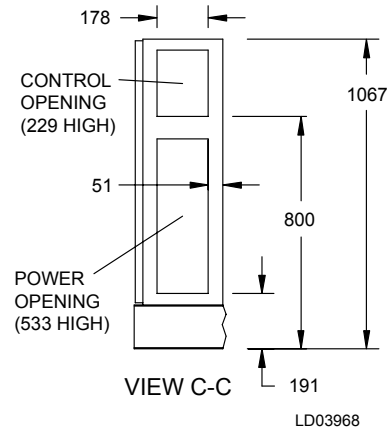
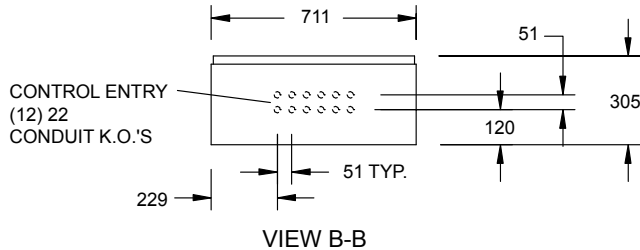
CENTER OF GRAVITY (Copper)			
YCAS	X	Y	Z
0693	3750	1008	907
0773	3751	1011	906



LD03978

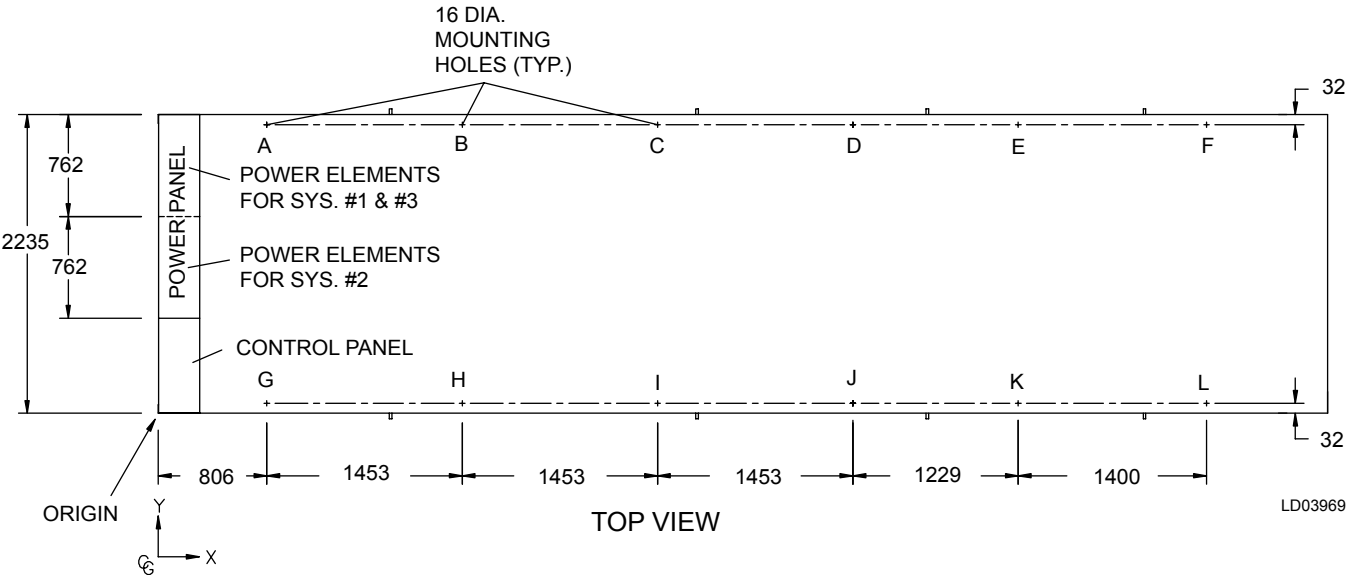
Dimensions – YCAS0783 – YCAS0953

All dimensions
are in mm un-
less otherwise



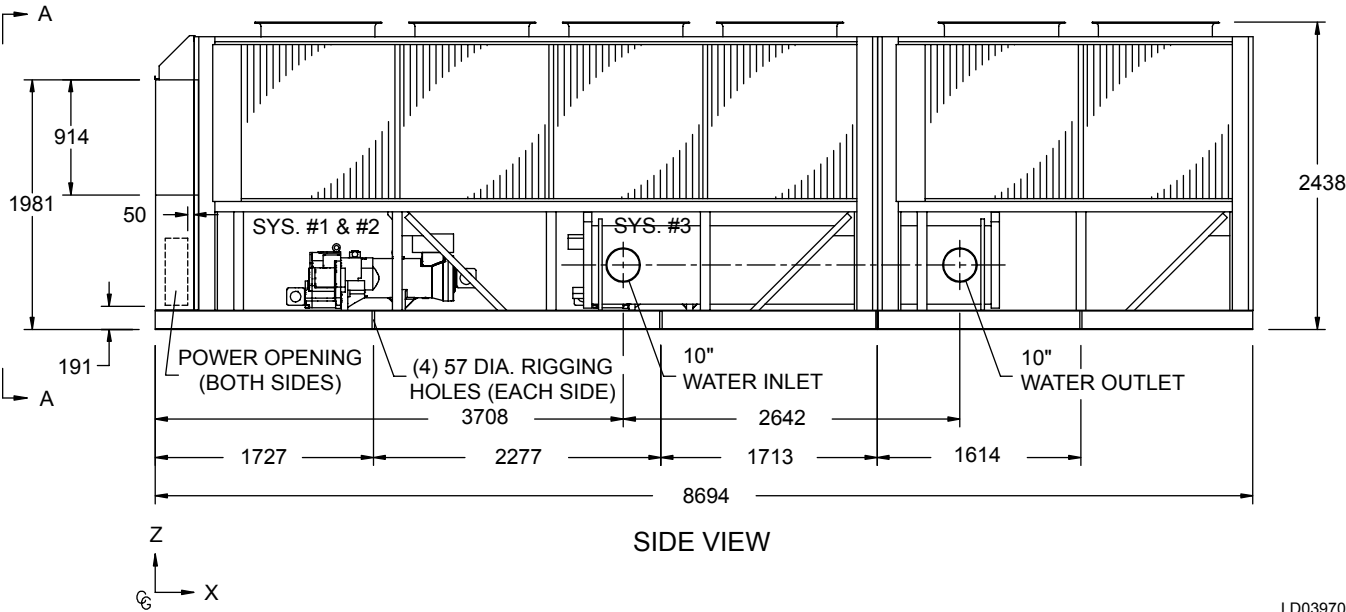
NOTES:

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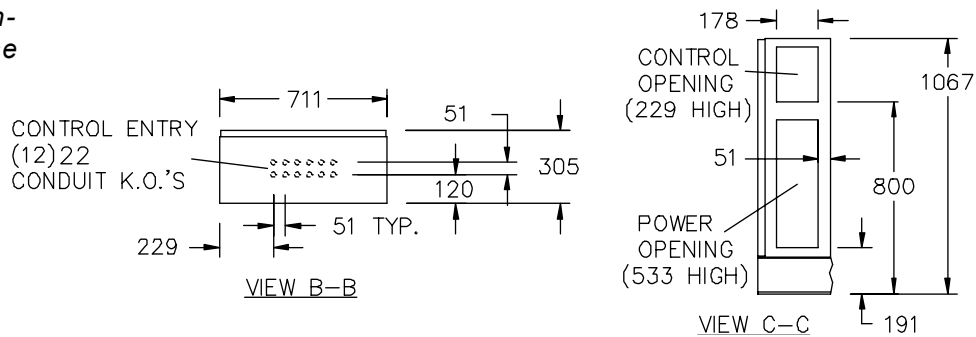
CENTER OF GRAVITY (Alum.)			
YCAS	X	Y	Z
0783	4015	1011	900
0873	4001	1006	907
0953	4008	1012	901

CENTER OF GRAVITY (Copper)			
YCAS	X	Y	Z
0783	4059	1020	963
0873	4047	1020	961
0953	4051	1021	963

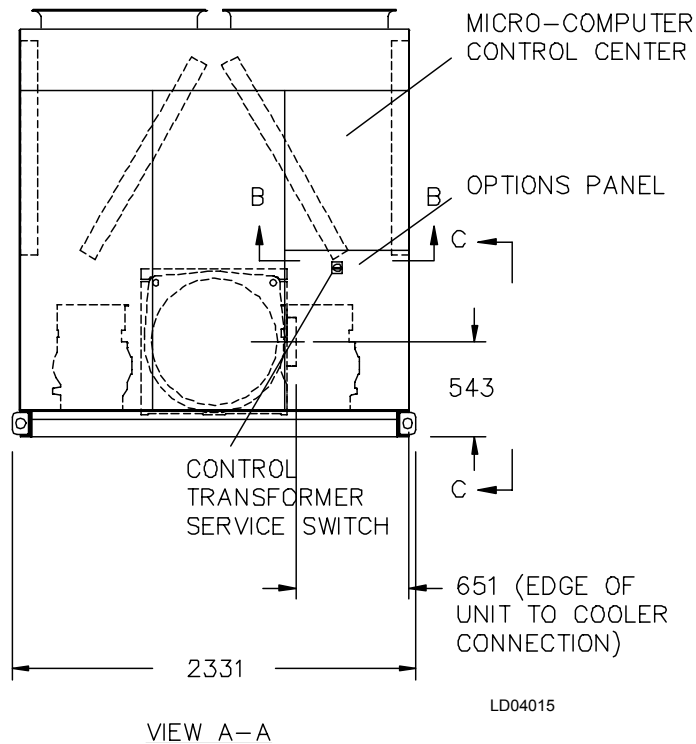


Dimensions – YCAS1063

All dimensions
are in mm un-
less otherwise



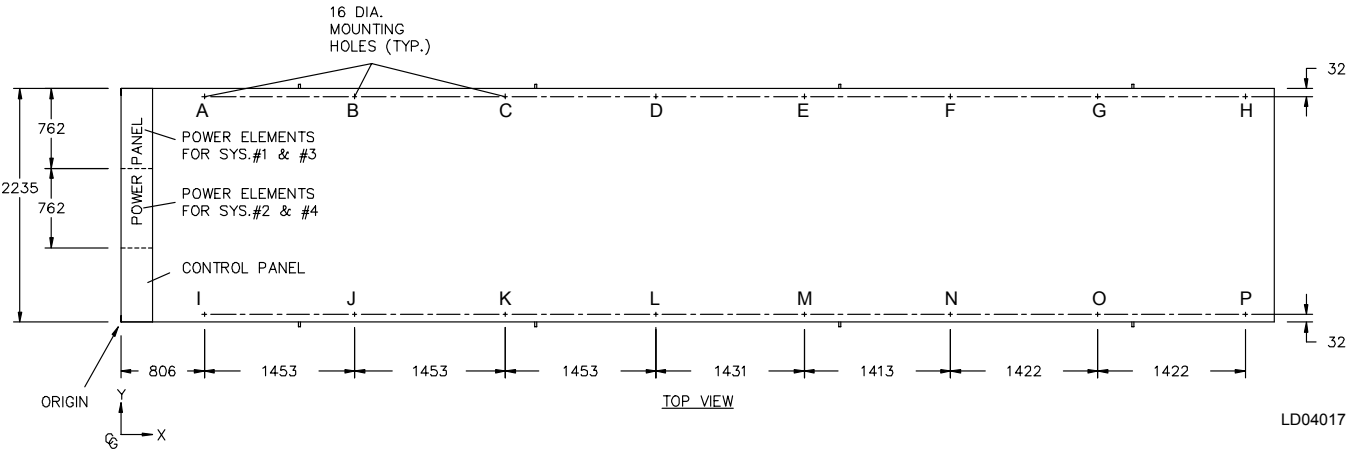
LD04016



LD04015

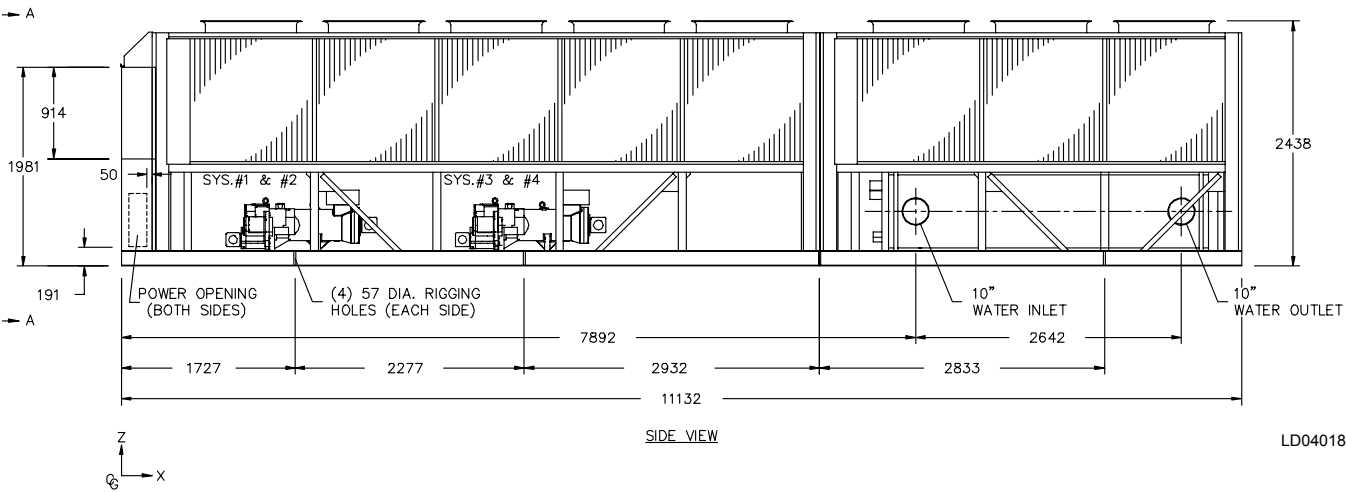
NOTES:

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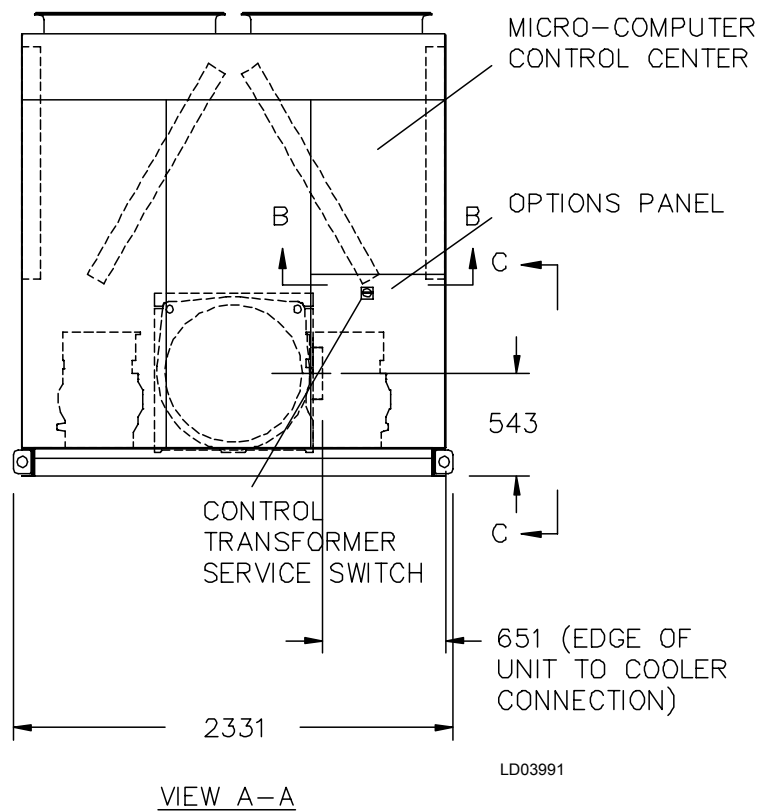
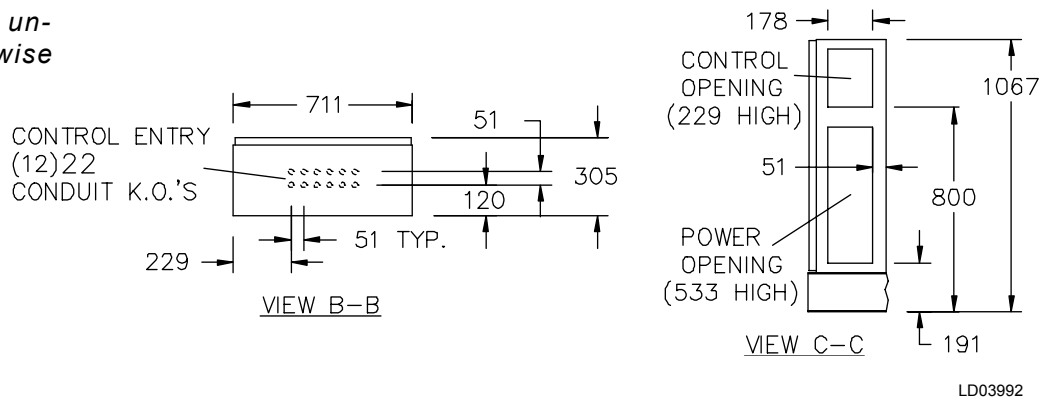
CENTER OF GRAVITY (Alum.)			
YCAS	X	Y	Z
1063	5738	1119	912

CENTER OF GRAVITY (Copper)			
YCAS	X	Y	Z
1063	5745	1119	978



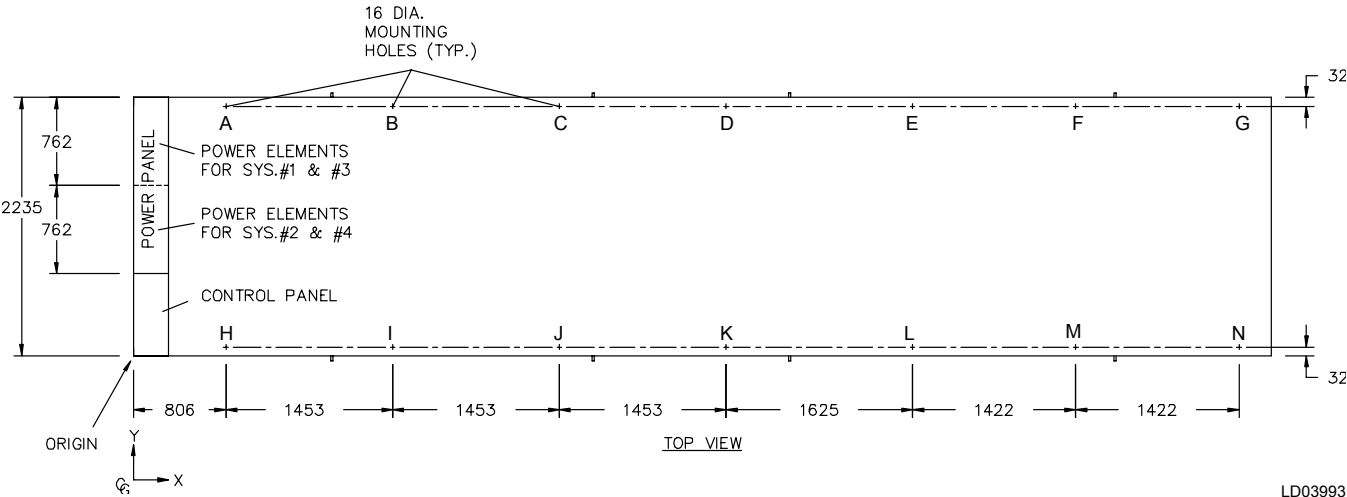
Dimensions – YCAS1093

All dimensions
are in mm un-
less otherwise



NOTES:

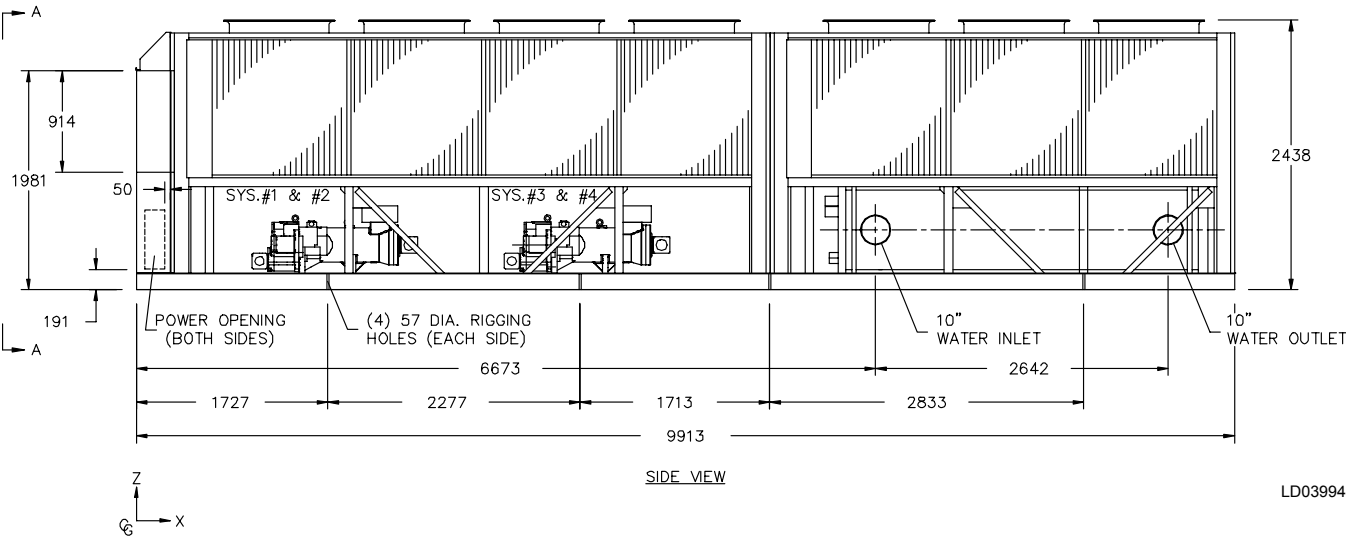
1. Placement on a level surface free of obstructions (including snow, for winter operation) or air recirculation ensures rated performance, reliable operation and ease of maintenance. Site restrictions may compromise minimum clearances indicated below, resulting in unpredictable air flow patterns and possible diminished performance. YORK's unit controls will optimize operation without nuisance high pressure safety cutout; 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 - 2m; rear to wall - 2m; control panel end to wall - 1.2m; top - no obstructions allowed; distance between adjacent units - 3m. No more than one adjacent wall may be higher than the unit.



LD03993

CENTER OF GRAVITY (Alum.)			
YCAS	X	Y	Z
1093	5182	1120	883

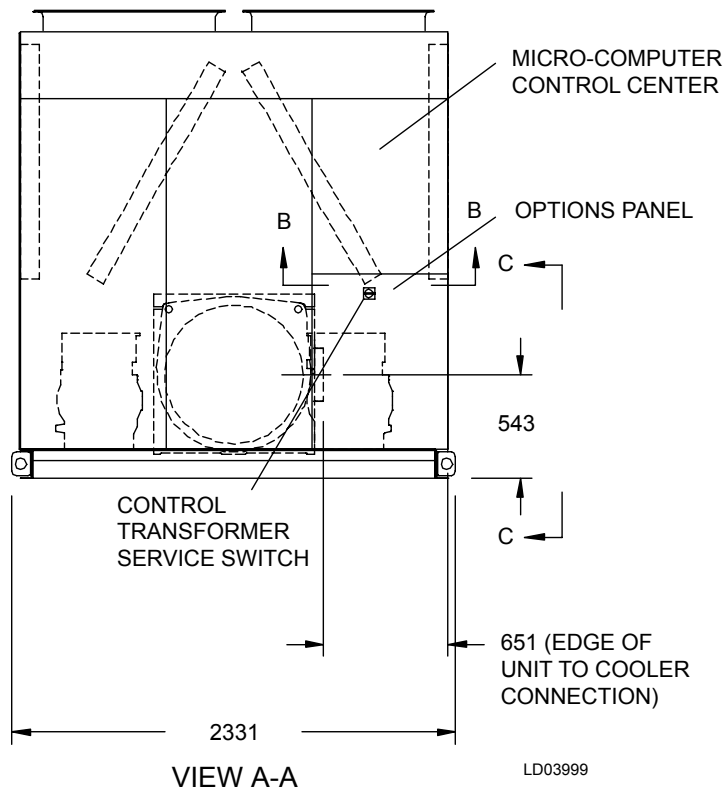
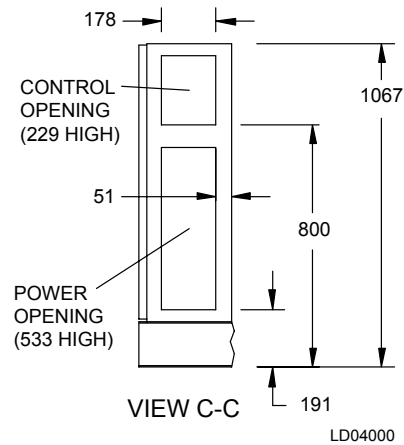
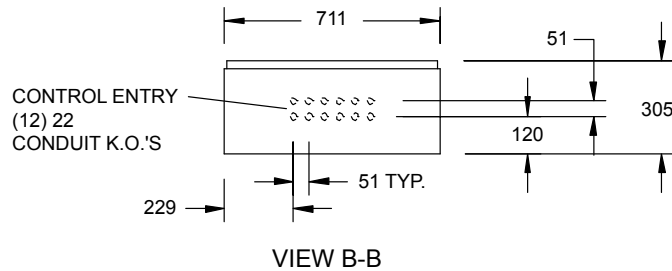
CENTER OF GRAVITY (Copper)			
YCAS	X	Y	Z
1093	5198	1119	947



LD03994

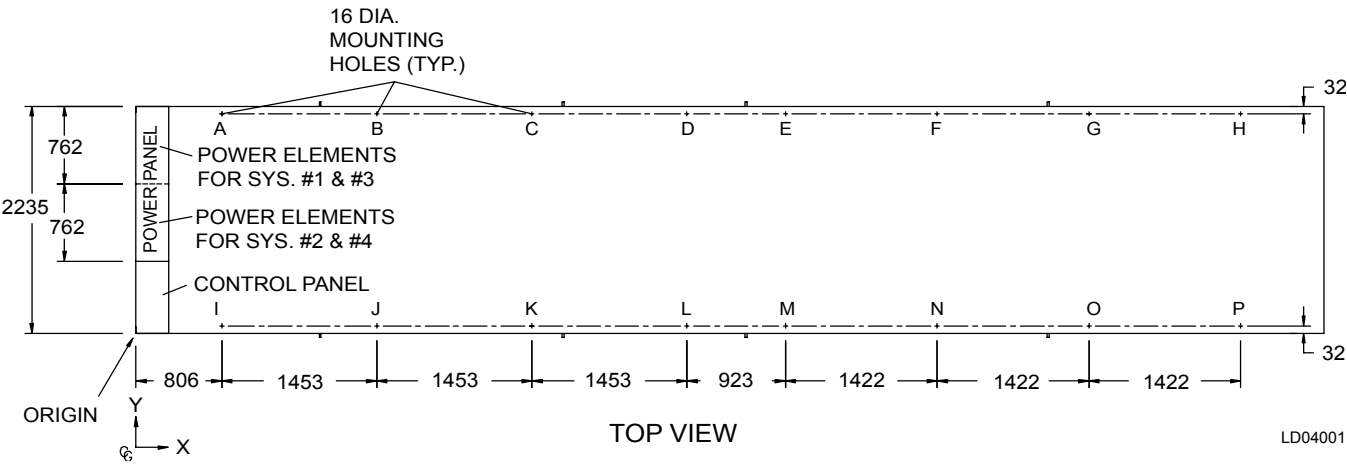
Dimensions – YCAS1163 – YCAS1263

All dimensions are in mm unless otherwise noted.



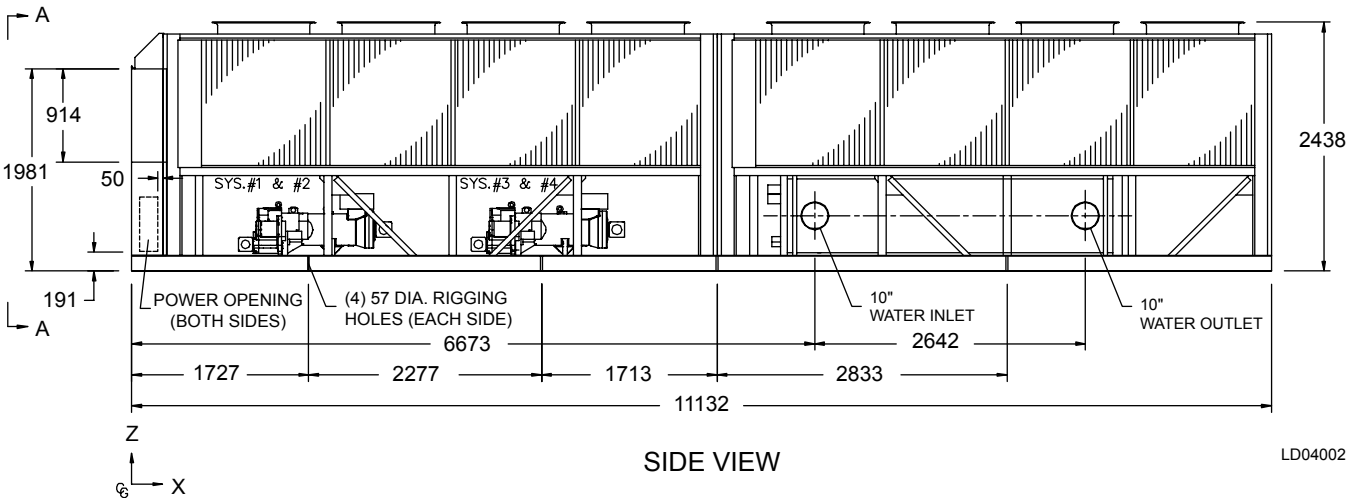
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CENTER OF GRAVITY (Alum.)			
YCAS	X	Y	Z
1163	5438	1108	865
1263	5440	1108	866

CENTER OF GRAVITY (Copper)			
YCAS	X	Y	Z
1163	5449	1109	993
1263	5453	1109	935



Operating Weights – Aluminum Fin Coils

ALUMINUM FIN COIL WEIGHT DISTRIBUTION BY MODEL (KGS)

YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
0373	894	805	715	872	785	698	—	—	—	—	—	—	—	—	—	—	4,769
0403	889	807	726	875	795	716	—	—	—	—	—	—	—	—	—	—	4,808
0453	909	822	735	875	791	707	—	—	—	—	—	—	—	—	—	—	4,837
0503	909	823	738	882	800	717	—	—	—	—	—	—	—	—	—	—	4,868
0543	865	768	671	574	904	803	702	600	—	—	—	—	—	—	—	—	5,886
0573	873	777	680	583	896	797	698	599	—	—	—	—	—	—	—	—	5,901
0623	879	783	686	590	909	809	709	610	—	—	—	—	—	—	—	—	5,975
0653	1,004	862	719	577	1,038	891	743	596	—	—	—	—	—	—	—	—	6,429
0693	850	774	897	642	649	850	864	1,019	958	1,066	—	—	—	—	—	—	8,569
0773	850	779	919	649	649	850	869	1,027	962	1,067	—	—	—	—	—	—	8,619
0783	856	790	945	659	582	383	856	884	1,055	970	977	383	—	—	—	—	9,341
0873	869	808	947	826	1,081	385	869	793	615	862	979	385	—	—	—	—	9,418
0953	873	826	966	668	588	389	873	919	1,074	982	983	389	—	—	—	—	9,531
1063	860	773	889	417	535	863	387	924	860	773	889	417	535	863	387	924	11,293
1093	855	758	875	615	1,012	606	765	883	758	875	952	562	943	542	—	—	11,001
1163	846	743	881	425	926	590	866	619	846	743	881	425	926	590	866	619	11,791
1263	846	761	903	425	928	591	867	620	846	761	903	425	928	591	867	620	11,882

ISOLATOR TYPE & SIZE	MAX LOAD		DEFL.	
	lbs.	kg	in.	mm
AWMR-1-53	1000	453.6	2	51
AWMR-1-530	1150	521.6	2	51
AWMR-1-531	1276	578.8	2	51
AWMR-1-532	1500	680.4	2	51
AWMR-1-551	1676	760.2	2	51
AWMR-1-552	1900	861.8	2	51
AWMR-1-553	2200	997.9	2	51
AWMR-2-510	852	386.5	2	51
AWMR-2-520	1300	589.7	2	51
AWMR-2-521	1552	704.0	2	51
AWMR-2-552	1900	861.8	2	51
AWMR-2-53	2000	907.2	2	51
AWMR-2-530	2300	1043.3	2	51
AWMR-2-531	2552	1157.6	2	51
AWMR-2-532	3000	1360.8	2	51

ISOLATOR TYPE & SIZE	MAX LOAD		DEFL.		SPRING COLOR
	lbs.	kg	in.	mm	
CP-2-25	900	408.2	1.22	30.9	Red
CP-2-26	1200	544.3	1.17	29.7	Purple
CP-2-27	1500	680.4	1.06	26.9	Orange
CP-2-28	1800	816.4	1.02	25.9	Green
CP-2-31	2200	997.9	0.83	21.0	Gray
CP-2-32	2600	1179.3	0.74	18.7	White
CP-2-35	3000	1360.8	0.70	17.7	Gold

Isolator Selection – Aluminum Fin Coils

ALUMINUM FINS, 1" ISOLATOR SELECTIONS – VMC TYPE CP-X-XX

YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0373	2-31	2-28	2-28	2-31	2-28	2-28	—	—	—	—	—	—	—	—	—	—
0403	2-31	2-28	2-28	2-31	2-28	2-28	—	—	—	—	—	—	—	—	—	—
0453	2-31	2-31	2-28	2-31	2-28	2-28	—	—	—	—	—	—	—	—	—	—
0503	2-31	2-31	2-28	2-31	2-28	2-28	—	—	—	—	—	—	—	—	—	—
0543	2-31	2-28	2-28	2-27	2-31	2-28	2-28	2-27	—	—	—	—	—	—	—	—
0573	2-31	2-28	2-28	2-27	2-31	2-28	2-28	2-27	—	—	—	—	—	—	—	—
0623	2-31	2-28	2-28	2-27	2-31	2-28	2-28	2-27	—	—	—	—	—	—	—	—
0653	2-32	2-31	2-28	2-27	2-32	2-31	2-28	2-27	—	—	—	—	—	—	—	—
0693	2-31	2-28	2-31	2-27	2-27	2-31	2-31	2-32	2-31	2-32	—	—	—	—	—	—
0773	2-31	2-28	2-31	2-27	2-27	2-31	2-31	2-32	2-31	2-32	—	—	—	—	—	—
0783	2-31	2-28	2-31	2-28	2-27	2-25	2-31	2-31	2-32	2-31	2-31	2-25	—	—	—	—
0873	2-31	2-28	2-31	2-31	2-32	2-25	2-31	2-28	2-27	2-31	2-31	2-25	—	—	—	—
0953	2-31	2-31	2-31	2-27	2-27	2-25	2-31	2-31	2-32	2-31	2-31	2-25	—	—	—	—
1063	2-31	2-28	2-31	2-26	2-26	2-31	2-25	2-31	2-32	2-28	2-31	2-26	2-26	2-31	2-25	2-31
1093	2-31	2-28	2-31	2-27	2-32	2-27	2-28	2-31	2-28	2-31	2-31	2-27	2-31	2-26	—	—
1163	2-31	2-28	2-31	2-26	2-31	2-27	2-31	2-27	2-31	2-28	2-31	2-26	2-31	2-27	2-31	2-27
1263	2-31	2-28	2-31	2-26	2-31	2-27	2-31	2-27	2-31	2-28	2-31	2-26	2-31	2-27	2-31	2-27

ALUMINUM FINS, NEOPRENE MOUNT SELECTIONS – VMC TYPE RD-X

YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0373	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0403	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0453	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0503	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0543	-4 Red	-4 Red	-4 Blk	-4 Blk	-4 Red	-4 Red	-4 Red	-4 Blk	—	—	—	—	—	—	—	—
0573	-4 Red	-4 Red	-4 Blk	-4 Blk	-4 Red	-4 Red	-4 Red	-4 Blk	—	—	—	—	—	—	—	—
0623	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Grn	-4 Red	-4 Red	-4 Blk	—	—	—	—	—	—	—	—
0653	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Grn	-4 Red	-4 Red	-4 Blk	—	—	—	—	—	—	—	—
0693	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Blk	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	—	—	—	—	—	—
0773	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Blk	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	—	—	—	—	—	—
0783	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Blk	-3 Gray	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	-3 Gray	—	—	—	—
0873	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Grn	-3 Gray	-4 Red	-4 Red	-4 Blk	-4 Red	-4 Red	-3 Gray	—	—	—	—
0953	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Blk	-3 Gray	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	-3 Gray	—	—	—	—
1063	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Blk	-4 Red	-3 Gray	-4 Red	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Blk	-4 Red	-3 Gray	-4 Red
1093	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Red	-4 Blk	—	—
1163	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Blk	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Blk
1263	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Blk	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Blk

ALUMINUM FINS, SEISMIC ISOLATOR SELECTIONS – VMC MODEL # AWMR-X-XXX

YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0373	1-553	1-552	1-551	1-553	1-552	1-551	—	—	—	—	—	—	—	—	—	—
0403	1-553	1-552	1-551	1-553	1-552	1-551	—	—	—	—	—	—	—	—	—	—
0453	1-553	1-552	1-551	1-553	1-552	1-551	—	—	—	—	—	—	—	—	—	—
0503	1-553	1-552	1-551	1-553	1-552	1-551	—	—	—	—	—	—	—	—	—	—
0543	1-553	1-552	1-532	1-532	1-553	1-552	1-551	1-532	—	—	—	—	—	—	—	—
0573	1-553	1-552	1-532	1-532	1-553	1-552	1-551	1-532	—	—	—	—	—	—	—	—
0623	1-553	1-552	1-551	1-532	1-553	1-552	1-551	1-532	—	—	—	—	—	—	—	—
0653	1-553	1-552	2-53	1-531	1-553	1-553	2-53	1-532	—	—	—	—	—	—	—	—
0693	1-552	1-553	1-553	1-532	1-532	1-552	2-53	2-530	1-553	2-531	—	—	—	—	—	—
0773	1-552	1-553	1-553	1-532	1-532	1-552	2-53	2-530	1-553	2-531	—	—	—	—	—	—
0783	1-552	1-553	2-53	1-532	1-532	1-530	1-552	2-53	2-531	1-553	2-530	1-530	—	—	—	—
0873	1-553	1-553	2-53	1-552	2-531	1-530	1-553	2-53	2-521	1-553	2-530	1-530	—	—	—	—
0953	1-553	1-553	2-53	1-532	1-532	1-530	1-553	2-530	2-531	1-553	2-530	1-530	—	—	—	—
1063	1-552	1-553	1-553	2-520	2-520	2-53	2-520	1-553	1-552	1-553	1-553	2-520	2-520	2-53	2-520	1-553
1093	1-552	1-553	1-553	1-532	2-530	2-521	1-552	1-553	1-553	1-553	1-553	1-531	2-530	1-531	—	—
1163	1-552	1-553	1-553	1-530	2-530	2-521	1-553	2-521	1-552	1-553	1-553	1-530	2-530	2-521	1-553	2-521
1263	1-552	1-553	1-553	1-530	2-530	2-521	1-553	2-521	1-552	1-553	1-553	1-530	2-530	2-521	1-553	2-521

Operating Weights

Copper Fin Coils (or Aluminum Fin with Optional Silencer)

COPPER FIN COIL (or aluminum fin with optional silencer kit) Weight Distribution by Model (KGs)																	
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Total
373	963	876	790	941	856	772	—	—	—	—	—	—	—	—	—	—	5,197
403	957	879	801	943	867	790	—	—	—	—	—	—	—	—	—	—	5,236
453	977	893	809	943	862	781	—	—	—	—	—	—	—	—	—	—	5,265
503	977	894	812	951	871	791	—	—	—	—	—	—	—	—	—	—	5,296
543	915	832	749	667	953	867	781	694	—	—	—	—	—	—	—	—	6,458
573	923	841	758	676	945	860	777	692	—	—	—	—	—	—	—	—	6,473
623	929	847	765	682	958	873	788	703	—	—	—	—	—	—	—	—	6,546
653	1,076	934	792	651	1,109	963	817	671	—	—	—	—	—	—	—	—	7,015
693	904	857	961	718	728	904	947	1,075	1,051	1,137	—	—	—	—	—	—	9,282
773	904	862	982	725	728	904	951	1,084	1,055	1,138	—	—	—	—	—	—	9,332
783	911	873	1,020	739	638	464	911	967	1,121	1,064	1,026	464	—	—	—	—	10,198
873	923	891	1,022	906	1,137	466	923	875	681	957	1,028	466	—	—	—	—	10,275
953	927	909	1,041	748	644	470	927	1,002	1,140	1,077	1,033	470	—	—	—	—	10,387
1063	927	876	992	483	591	927	452	986	992	876	992	483	591	927	452	986	12,535
1093	910	841	958	680	1,088	687	816	958	841	958	1,017	638	1,024	592	—	—	12,008
1163	903	830	968	481	990	676	952	701	968	830	968	481	990	676	952	701	13,065
1263	904	849	991	482	994	678	955	704	992	850	992	482	994	678	955	704	13,203

ISOLATOR TYPE & SIZE	MAX LOAD		DEFL.	
	lbs.	kg	in.	mm
AWMR-1-53	1000	453.6	2	51
AWMR-1-530	1150	521.6	2	51
AWMR-1-531	1276	578.8	2	51
AWMR-1-532	1500	680.4	2	51
AWMR-1-551	1676	760.2	2	51
AWMR-1-552	1900	861.8	2	51
AWMR-1-553	2200	997.9	2	51
AWMR-2-510	852	386.5	2	51
AWMR-2-52	1000	453.6	2	51
AWMR-2-520	1300	589.7	2	51
AWMR-2-521	1552	704.0	2	51
AWMR-2-53	2000	907.2	2	51
AWMR-2-530	2300	1043.3	2	51
AWMR-2-531	2552	1157.6	2	51
AWMR-2-532	3000	1360.8	2	51

ISOLATOR TYPE & SIZE	MAX LOAD		DEFL.		SPRING COLOR
	lbs.	kg	in.	mm	
CP-2-25	900	408.2	1.22	30.9	Red
CP-2-26	1200	544.3	1.17	29.7	Purple
CP-2-27	1500	680.4	1.06	26.9	Orange
CP-2-28	1800	816.4	1.02	25.9	Green
CP-2-31	2200	997.9	0.83	21.0	Gray
CP-2-32	2600	1179.3	0.74	18.7	White
CP-2-35	3000	1360.8	0.70	17.7	Gold

COPPER FINS (OR ALUMINUM FIN WITH OPTIONAL SILENCER KIT), 1" ISOLATOR SELECTIONS – VMC TYPE CP-X-XX																	
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	
0373	2-31	2-31	2-31	2-31	2-31	2-28	—	—	—	—	—	—	—	—	—	—	—
0403	2-31	2-31	2-31	2-31	2-31	2-28	—	—	—	—	—	—	—	—	—	—	—
0453	2-31	2-31	2-31	2-31	2-31	2-28	—	—	—	—	—	—	—	—	—	—	—
0503	2-31	2-31	2-31	2-31	2-31	2-28	—	—	—	—	—	—	—	—	—	—	—
0543	2-31	2-31	2-28	2-28	2-31	2-31	2-28	2-28	—	—	—	—	—	—	—	—	—
0573	2-31	2-31	2-28	2-28	2-31	2-31	2-28	2-28	—	—	—	—	—	—	—	—	—
0623	2-31	2-31	2-28	2-28	2-31	2-31	2-28	2-28	—	—	—	—	—	—	—	—	—
0653	2-32	2-31	2-28	2-28	2-32	2-31	2-31	2-28	—	—	—	—	—	—	—	—	—
0693	2-31	2-31	2-31	2-28	2-28	2-31	2-31	2-32	2-32	2-32	—	—	—	—	—	—	—
0773	2-31	2-31	2-31	2-28	2-28	2-31	2-31	2-32	2-32	2-32	—	—	—	—	—	—	—
0783	2-31	2-31	2-32	2-28	2-27	2-26	2-31	2-31	2-32	2-32	2-32	2-26	—	—	—	—	—
0873	2-31	2-31	2-32	2-31	2-32	2-26	2-31	2-31	2-28	2-31	2-32	2-26	—	—	—	—	—
0953	2-31	2-31	2-32	2-28	2-27	2-26	2-31	2-32	2-32	2-32	2-32	2-26	—	—	—	—	—
1063	2-31	2-31	2-31	2-26	2-27	2-31	2-26	2-32	2-31	2-31	2-31	2-26	2-27	2-31	2-26	2-32	2-32
1093	2-31	2-31	2-31	2-28	2-32	2-28	2-31	2-31	2-31	2-31	2-32	2-27	2-32	2-27	—	—	—
1163	2-31	2-31	2-31	2-26	2-31	2-27	2-31	2-28	2-31	2-31	2-31	2-26	2-31	2-27	2-31	2-28	2-28
1263	2-31	2-31	2-31	2-26	2-31	2-27	2-31	2-28	2-31	2-31	2-31	2-26	2-31	2-27	2-31	2-28	2-28

Isolator Selection

Copper Fin Coils (or Aluminum Fin with Optional Silencer)

COPPER FINS (or aluminum fin with optional silencer kit), NEOPRENE MOUNT SELECTIONS – VMC TYPE RD-x																
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0373	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---	---	---
0403	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---	---	---
0453	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---	---	---
0503	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---	---	---
0543	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---
0573	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---
0623	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---
0653	-4 Grn	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	-4 Red	---	---	---	---	---	---	---	---
0693	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	---	---	---	---	---	---
0773	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	---	---	---	---	---	---
0783	-4 Red	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Blk	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Blk	---	---	---	---
0873	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	-4 Blk	-4 Red	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Blk	---	---	---	---
0953	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Blk	-3 Gray	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	-3 Gray	---	---	---	---
1063	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Blk	-4 Red	-3 Grn	-4 Red	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Blk	-4 Red	-3 Gray	-4 Red
1163	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Red
1093	-4 Red	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Blk	-4 Grn	-4 Blk	---	---
1263	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-3 Gray	-4 Red	-4 Blk	-4 Red	-4 Red

COPPER FINS (or aluminum fin with optional silencer kit), SEISMIC ISOLATOR SELECTIONS – VMC MODEL # AWMR-X-XXX																
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
373	1-553	1-553	1-552	1-553	1-553	1-552	---	---	---	---	---	---	---	---	---	---
403	1-553	1-553	1-552	1-553	1-553	1-552	---	---	---	---	---	---	---	---	---	---
453	1-553	1-553	1-552	1-553	1-553	1-552	---	---	---	---	---	---	---	---	---	---
503	1-553	1-553	1-552	1-553	1-553	1-552	---	---	---	---	---	---	---	---	---	---
543	1-553	1-552	1-552	1-551	1-553	1-553	1-552	1-551	---	---	---	---	---	---	---	---
573	1-553	1-552	1-552	1-551	1-553	1-553	1-552	1-551	---	---	---	---	---	---	---	---
623	1-553	1-552	1-552	1-551	1-553	1-553	1-552	1-551	---	---	---	---	---	---	---	---
653	2-531	1-553	Feb-53	1-551	2-531	1-553	Feb-53	1-551	---	---	---	---	---	---	---	---
693	1-553	Feb-53	2-530	1-551	1-551	1-553	2-530	2-531	2-531	1-552	---	---	---	---	---	---
773	1-553	Feb-53	2-530	1-551	1-551	1-553	2-530	2-531	2-531	1-552	---	---	---	---	---	---
783	1-553	Feb-53	2-530	1-551	1-532	1-530	1-553	2-530	2-531	2-531	2-530	1-530	---	---	---	---
873	1-553	Feb-53	2-530	1-553	2-531	1-530	1-553	Feb-53	2-521	1-553	2-530	1-530	---	---	---	---
953	1-553	2-530	2-530	1-552	1-532	1-530	1-553	2-530	2-531	2-531	2-531	1-530	---	---	---	---
1063	1-553	Feb-53	2-530	2-520	2-520	2-530	2-520	1-553	1-553	Feb-53	2-530	2-520	2-520	2-530	2-530	1-553
1093	1-553	Feb-53	2-530	1-551	2-531	2-521	1-553	1-553	Feb-53	1-553	2-530	2-521	2-530	1-532	---	---
1163	1-553	Feb-53	2-530	1-530	2-530	2-521	1-553	2-521	1-553	Feb-53	2-530	1-530	2-530	2-521	1-553	2-521
1263	1-553	Feb-53	2-530	1-530	2-530	2-521	1-553	2-521	1-553	Feb-53	2-530	1-530	2-530	2-521	1-553	2-521

Operating Weights

Copper Fin Coils with Optional Silencer Kit

COPPER FIN COIL WITH OPTIONAL SILENCER KIT WEIGHT DISTRIBUTION BY MODEL (KGS)																	
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	TOTAL
0373	1,059	962	865	1,037	943	848	—	—	—	—	—	—	—	—	—	—	5,714
0403	1,034	965	896	1,021	953	885	—	—	—	—	—	—	—	—	—	—	5,753
0453	1,055	979	904	1,021	948	875	—	—	—	—	—	—	—	—	—	—	5,782
0503	1,054	981	908	1,029	957	886	—	—	—	—	—	—	—	—	—	—	5,813
0543	947	897	848	798	982	931	880	828	—	—	—	—	—	—	—	—	7,111
0573	954	906	857	808	975	925	875	826	—	—	—	—	—	—	—	—	7,126
0623	961	912	863	814	988	938	887	837	—	—	—	—	—	—	—	—	7,199
0653	1,117	1,014	911	808	1,148	1,042	936	830	—	—	—	—	—	—	—	—	7,805
0693	972	925	1,022	806	838	972	1,015	1,130	1,157	1,235	—	—	—	—	—	—	10,072
0773	972	930	1,044	812	839	972	1,019	1,138	1,161	1,236	—	—	—	—	—	—	10,121
0783	979	941	1,081	821	699	586	979	1,035	1,176	1,159	1,081	586	—	—	—	—	11,123
0873	991	959	1,083	987	1,198	588	991	943	736	1,052	1,082	588	—	—	—	—	11,200
0953	1,009	991	1,114	846	717	524	1,009	1,084	1,205	1,191	1,098	524	—	—	—	—	11,313
1063	992	941	1,057	547	655	992	516	1,105	992	941	1,057	547	655	992	516	1,105	13,610
1093	978	909	1,026	748	1,156	755	938	1,026	909	1,026	1,085	706	1,092	715	—	—	13,070
1163	967	894	1,032	544	1,054	740	1,016	820	967	894	1,032	544	1,054	672	1,016	820	14,063
1263	967	912	1,054	545	1,056	741	1,017	821	967	912	1,054	545	1,056	741	1,017	821	14,222

ISOLATOR TYPE & SIZE	MAX LOAD		DEFL.	
	lbs.	kg	in.	mm
AWMR-1-53	1000	453.6	2	51
AWMR-1-530	1150	521.6	2	51
AWMR-1-531	1276	578.8	2	51
AWMR-1-532	1500	680.4	2	51
AWMR-1-551	1676	760.2	2	51
AWMR-1-552	1900	861.8	2	51
AWMR-1-553	2200	997.9	2	51
AWMR-2-510	852	386.5	2	51
AWMR-2-52	1000	453.6	2	51
AWMR-2-520	1300	589.7	2	51
AWMR-2-521	1552	704.0	2	51
AWMR-2-53	2000	907.2	2	51
AWMR-2-530	2300	1043.3	2	51
AWMR-2-531	2552	1157.6	2	51
AWMR-2-532	3000	1360.8	2	51

ISOLATOR TYPE & SIZE	MAX LOAD		DEFL.		SPRING COLOR
	lbs.	kg	in.	mm	
CP-2-25	900	408.2	1.22	30.9	Red
CP-2-26	1200	544.3	1.17	29.7	Purple
CP-2-27	1500	680.4	1.06	26.9	Orange
CP-2-28	1800	816.4	1.02	25.9	Green
CP-2-31	2200	997.9	0.83	21.0	Gray
CP-2-32	2600	1179.3	0.74	18.7	White
CP-2-35	3000	1360.8	0.70	17.7	Gold

Isolator Selection

Copper Fin Coils with Optional Silencer Kit

COPPER FINNS WITH OPTIONAL SILENCER KIT, 1" ISOLATOR SELECTIONS – VMC TYPE CP-X-XX																
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0373	2-32	2-31	2-31	2-32	2-31	2-31	—	—	—	—	—	—	—	—	—	—
0403	2-32	2-31	2-31	2-32	2-31	2-31	—	—	—	—	—	—	—	—	—	—
0453	2-32	2-31	2-31	2-32	2-31	2-31	—	—	—	—	—	—	—	—	—	—
0503	2-32	2-31	2-31	2-32	2-31	2-31	—	—	—	—	—	—	—	—	—	—
0543	2-31	2-31	2-31	2-28	2-31	2-31	2-31	2-31	—	—	—	—	—	—	—	—
0573	2-31	2-31	2-31	2-28	2-31	2-31	2-31	2-31	—	—	—	—	—	—	—	—
0623	2-31	2-31	2-31	2-28	2-31	2-31	2-31	2-31	—	—	—	—	—	—	—	—
0653	2-32	2-32	2-31	2-28	2-32	2-32	2-31	2-28	—	—	—	—	—	—	—	—
0693	2-31	2-31	2-32	2-28	2-31	2-31	2-32	2-32	2-32	2-35	—	—	—	—	—	—
0773	2-31	2-31	2-32	2-28	2-31	2-31	2-32	2-32	2-32	2-35	—	—	—	—	—	—
0783	2-31	2-31	2-32	2-31	2-35	2-27	2-31	2-32	2-32	2-32	2-32	2-27	—	—	—	—
0873	2-31	2-31	2-32	2-31	2-35	2-27	2-31	2-32	2-32	2-32	2-32	2-27	—	—	—	—
0953	2-32	2-31	2-32	2-31	2-28	2-26	2-32	2-32	2-35	2-35	2-32	2-26	—	—	—	—
1063	2-31	2-31	2-32	2-27	2-27	2-31	2-26	2-32	2-31	2-31	2-32	2-27	2-27	2-31	2-26	2-32
1093	2-31	2-31	2-32	2-28	2-32	2-28	2-31	2-32	2-31	2-32	2-32	2-28	2-32	2-28	—	—
1163	2-31	2-31	2-32	2-27	2-32	2-28	2-32	2-31	2-31	2-31	2-32	2-27	2-32	2-28	2-32	2-31
1263	2-31	2-31	2-32	2-27	2-32	2-28	2-32	2-31	2-31	2-31	2-32	2-27	2-32	2-28	2-32	2-31

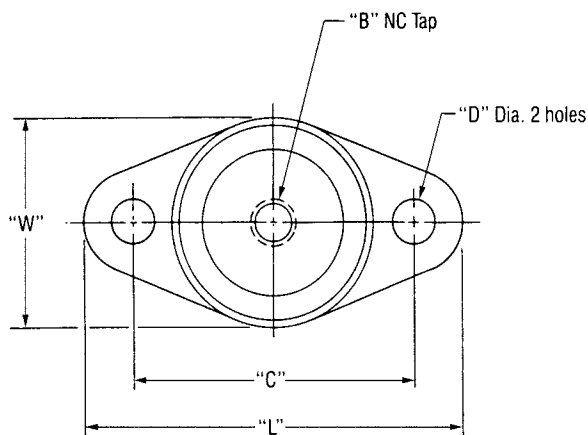
COPPER FINNS WITH OPTIONAL SILENCER KIT, NEOPRENE MOUNT SELECTIONS – VMC TYPE RD-X																
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0373	-4 Grn	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0403	-4 Grn	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0453	-4 Grn	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0503	-4 Grn	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	—	—	—	—	—	—	—	—	—	—
0543	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	—	—	—	—	—	—	—	—
0573	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	—	—	—	—	—	—	—	—
0623	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	—	—	—	—	—	—	—	—
0653	-4 Grn	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Red	-4 Red	—	—	—	—	—	—	—	—
0693	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Grn	—	—	—	—	—	—
0773	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Grn	—	—	—	—	—	—
0783	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	-4 Blk	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Grn	-4 Blk	—	—	—	—
0873	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	-4 Blk	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Grn	-4 Blk	—	—	—	—
0953	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	-4 Blk	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Grn	-4 Blk	—	—	—	—
1063	-4 Red	-4 Red	-4 Grn	-4 Blk	-4 Blk	-4 Red	-4 Blk	-4 Grn	-4 Red	-4 Grn	-4 Grn	-4 Blk	-4 Blk	-4 Red	-4 Blk	-4 Grn
1093	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	-4 Red	-4 Red	-4 Grn	-4 Red	-4 Grn	-4 Grn	-4 Red	-4 Grn	-4 Red	—	—
1163	-4 Red	-4 Red	-4 Grn	-4 Blk	-4 Grn	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Grn	-4 Grn	-4 Red	-4 Red	-4 Red
1263	-4 Red	-4 Red	-4 Grn	-4 Blk	-4 Grn	-4 Red	-4 Red	-4 Red	-4 Red	-4 Red	-4 Grn	-4 Blk	-4 Grn	-4 Red	-4 Red	-4 Red

*VMC TYPE RD-3

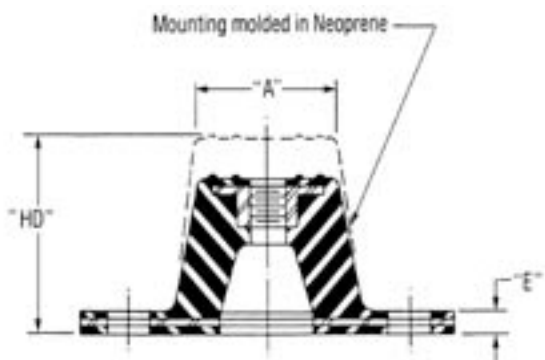
COPPER FINNS WITH OPTIONAL SILENCER KIT, SEISMIC ISOLATOR SELECTIONS – VMC MODEL # AWMR-X-XXX																
YCAS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
0373	2-531	1-553	1-553	2-530	1-553	1-553	—	—	—	—	—	—	—	—	—	—
0403	2-531	1-553	1-553	2-530	1-553	1-553	—	—	—	—	—	—	—	—	—	—
0453	2-531	1-553	1-553	2-530	1-553	1-553	—	—	—	—	—	—	—	—	—	—
0503	2-531	1-553	1-553	2-530	1-553	1-553	—	—	—	—	—	—	—	—	—	—
0543	1-553	1-553	1-553	1-552	1-553	1-553	1-553	1-552	—	—	—	—	—	—	—	—
0573	1-553	1-553	1-553	1-552	1-553	1-553	1-553	1-552	—	—	—	—	—	—	—	—
0623	1-553	1-553	1-553	1-552	1-553	1-553	1-553	1-552	—	—	—	—	—	—	—	—
0653	2-531	2-530	2-53	1-552	2-531	2-530	2-530	1-552	—	—	—	—	—	—	—	—
0693	1-553	2-53	2-531	1-552	1-552	1-553	2-530	2-531	2-532	2-532	—	—	—	—	—	—
0773	1-553	2-53	2-531	1-552	1-552	1-553	2-530	2-531	2-532	2-532	—	—	—	—	—	—
0783	1-553	2-53	2-531	1-553	2-53	1-532	1-553	2-530	2-532	2-532	2-531	2-520	—	—	—	—
0873	1-553	2-53	2-531	1-553	2-532	1-532	1-553	2-530	2-53	2-532	2-531	2-520	—	—	—	—
0953	2-530	2-53	2-531	1-552	1-551	1-553	2-530	2-531	2-532	2-532	2-531	1-531	—	—	—	—
1063	1-553	2-53	2-530	2-520	2-521	2-530	2-520	2-531	1-553	2-530	2-531	2-520	2-521	2-530	2-520	2-531
1093	1-553	2-53	2-530	1-551	2-531	2-53	1-553	2-530	2-530	2-530	2-531	1-551	2-531	1-551	—	—
1163	1-553	2-53	2-531	1-531	2-531	2-53	2-530	2-53	1-553	2-53	2-531	1-531	2-531	2-53	2-530	2-53
1263	1-553	2-53	2-531	1-531	2-531	2-53	2-530	2-53	1-553	2-53	2-531	1-531	2-531	2-53	2-530	2-53

Isolator Details

R3 / RD3 SERIES

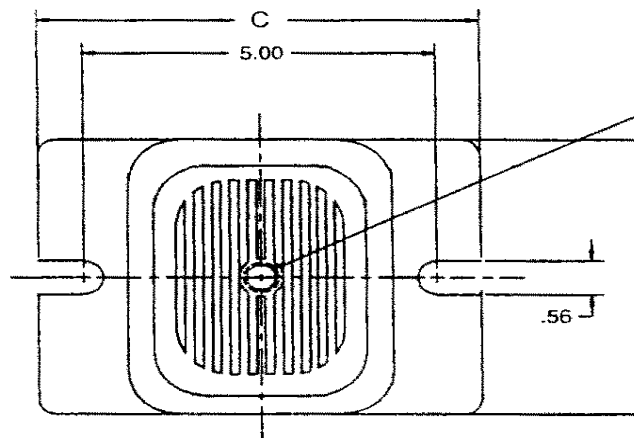


LD04033

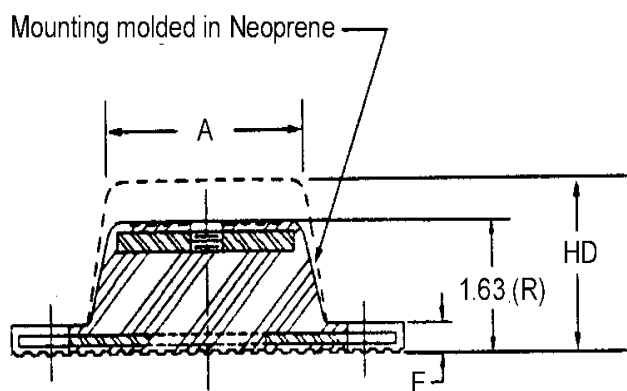


LD04737

R4 / RD4 SERIES



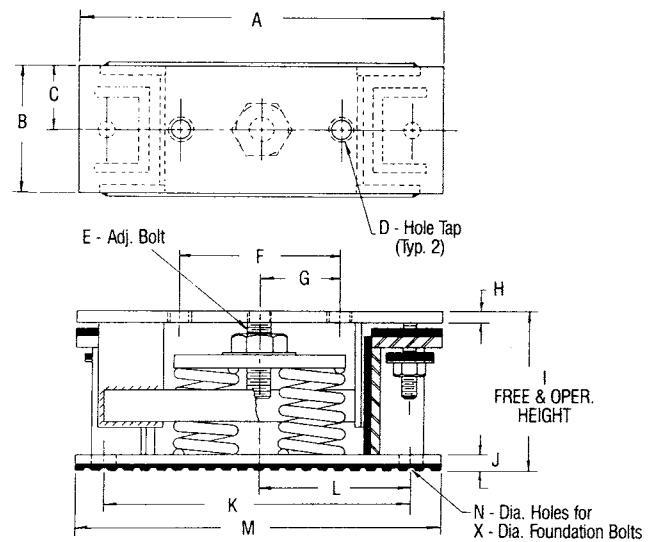
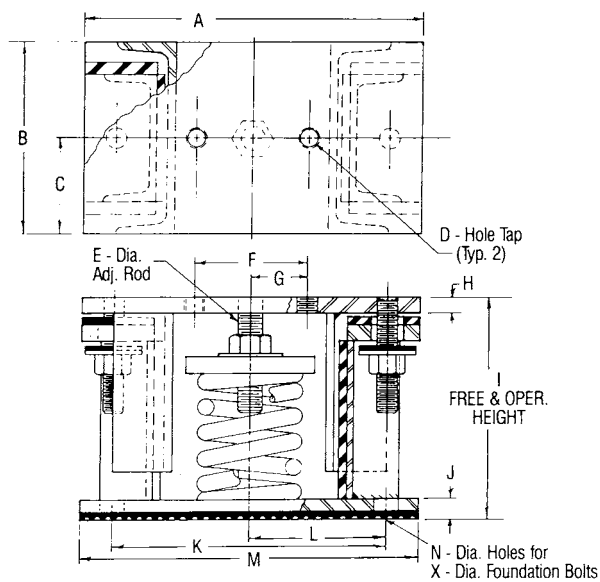
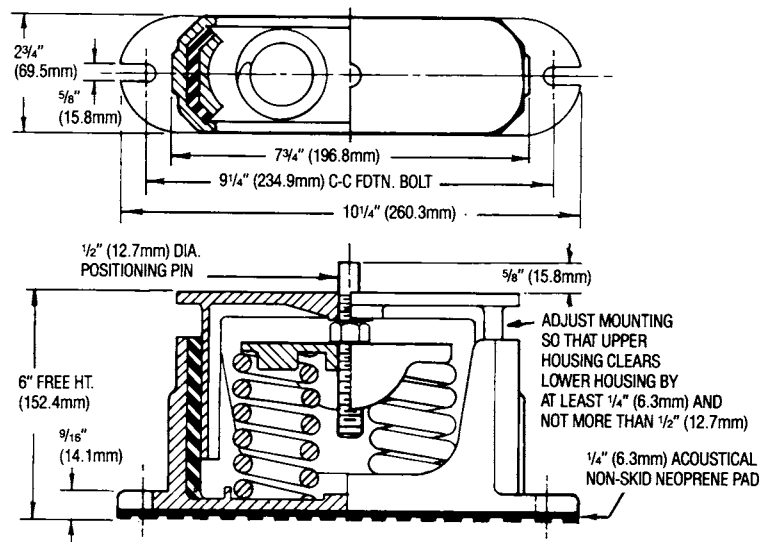
LD04805



LD04804

DIMENSIONS – Inches (mm)

TYPE	L	W	HD	A	B	C	D	E
R-3 or RD-3	5.5"	3.375"	2.875"	2.5"	0.5"	4.125"	0.563"	0.25"
	(139.7)	(85.8)	(73.2)	(63.5)	(12.7)	(104.8)	(14.4)	(6.3)
R-4 or RD-4	6.25"	4.625"	2.75"	3.0"	0.5"	5.0"	0.563"	0.375"
	(158.7)	(117.6)	(69.8)	(76.2)	(12.7)	(127.0)	(14.4)	(9.6)



DIMENSIONS – (In.)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N/X
AWMR-1 50-553	10-1/2	6	3	5/8 11NC	3/4	3-1/2	1-3/4	1/2	9	5/8	8-1/2	4-1/4	10-1/2	3/4 5/8
AWMR-2 50-553	15	6	3	3/4 10NC	1	7-1/2	3-3/4	1/2	9-1/2	5/8	14-1/2	7-1/4	17	3/4 5/8

Electrical Data

MULTIPLE POINT POWER SUPPLY CONNECTION – 2 COMPRESSOR UNITS (SEE FIG.1)

(Each of Two Field Provided Power Supply Circuits individually protected with Branch Circuit Protection.

Field Connections to Factory provided Terminal Block (Std), Disconnects (Opt), or Individual System Circuit Breakers (Opt)
in each of the two Motor Control Centers.)

Model YCAS	Volts	SYSTEM #1 FIELD SUPPLIED WIRING												
		MRA ¹ (MCA)	Min. NF Disc. Sw. ^{2,9}	Overcurrent Protection ¹³		Factory Provided (Lugs) Wire Range ⁷			Compressor			Fans ^{11, 12}		
				Min. ^{3, 5}	Max. ^{4, 6}	*Standard Terminal Block	*Optional NF. Disc Switch	Optional Circuit Breaker	RLA	Y-LRA	X-LRA	Qty.	FLA (Ea.)	LRA (Ea.)
0373	380	148	150	200	250	# 2 - 4/0	# 4 - 300	# 6 - 350	108	241	761	3	4.4	17.1
0403	380	160	200	200	250	# 2 - 4/0	# 4 - 300	# 6 - 350	118	241	761	3	4.4	17.1
0453	380	188	200	225	300	1/0 - 300	# 6 - 350	# 6 - 350	140	309	979	3	4.4	17.1
0503	380	215	250	300	350	1/0 - 300	# 6 - 350	(2) 3/0-250	161	309	979	3	4.4	17.1
0543	380	193	200	250	300	1/0 - 300	# 6 - 350	# 6 - 350	141	309	979	4	4.4	17.1
0573	380	227	250	300	350	2/0 - 500	# 6 - 350	(2) 3/0-250	168	309	979	4	4.4	17.1
0623	380	247	250	300	400	2/0 - 500	# 6 - 350	(2) 3/0-250	183	309	979	4	4.4	17.1
0653	380	232	250	300	350	2/0 - 500	# 6 - 350	(2) 3/0-250	168	309	979	5	4.4	17.1

* "Optional" Circuit Breakers are REQUIRED for units with CE mark.
See page 48 for Electrical Data Notes.

MULTIPLE POINT POWER SUPPLY CONNECTION – 3 & 4 COMPRESSOR UNITS (SEE FIG.5 OR FIG. 6)

(Two Field Provided Power Supply Circuits to the Chiller. Field Connections to Factory provided Terminal Block (Std)
or Disconnects (Opt) in the Options Panel or Individual System Circuit Breakers (opt¹⁰) in each of the two Motor Control Centers.)

Model YCAS	Volts	ELECTRICAL SYSTEM #1 FIELD SUPPLIED WIRING														
		Field Provided Power Supply				Factory Provided (Lugs) Wire Range ⁷		Compressor #1			Compressor #3			Fan ^{11, 12} Data		
		MRA ¹ (MCA)	Min NF Disc SW ^{2,9}	Over-current Protection ¹³		Standard Terminal block	Optional NF Disc. Switch	RLA	Y-Δ LRA	X-LRA	RLA	Y-Δ LRA	X-LRA	Qty	FLA (ea)	LRA (ea)
				Min. ^{3, 5}	Max. ^{4, 6}											
0693	380	362	400	400	450	(1) 2/0-(2)4/0	(2) 3/0-250	140	283	907	124	283	907	7	4.4	17.1
0773	380	436	600	450	500	(2) 1/0-300	(2) 250-500	140	283	907	183	283	907	7	4.4	17.1
0783	380	402	400	450	500	(1) 2/0-(2)4/0	(2) 3/0-250	124	283	907	168	283	907	8	4.4	17.1
0873	380	457	600	500	500	(2) 1/0-300	(2) 250-500	168	283	907	168	283	907	8	4.4	17.1
0953	380	494	600	500	600	(2) 1/0-300	(2) 250-500	183	283	907	183	283	907	8	4.4	17.1
1063	380	413	600	450	500	(2) 1/0-300	(2) 250-500	161	283	907	140	283	907	8	4.4	17.1
1093	380	436	600	450	500	(2) 1/0-300	(2) 250-500	183	283	907	140	283	907	7	4.4	17.1
1163	380	457	600	500	500	(2) 1/0-300	(2) 250-500	168	283	907	168	283	907	8	4.4	17.1
1263	380	494	600	500	600	(2) 1/0-300	(2) 250-500	183	283	907	183	283	907	8	4.4	17.1

See page 48 for Electrical Data footnotes.

Model YCAS	Volts	SYSTEM #2 FIELD-SUPPLIED WIRING												
		MRA ¹ (MCA)	Min. NF Disc. Sw. ^{2,9}	Over-current Protection ¹³		Factory Provided (Lugs) Wire Range ⁷			Compressor			Fans ^{11, 12}		
				Min. ^{3, 5}	Max. ^{4, 6}	Std. Terminal Block	Optional NF. Disc. Sw.	Optional Circuit Breaker	RLA	Y-LRA	X-LRA	Qty.	FLA (Ea.)	LRA (Ea.)
0373	380	148	150	200	250	# 2 - 4/0	# 4 - 300	# 6 - 350	108	241	761	3	4.4	17.1
0403	380	160	200	200	250	# 2 - 4/0	# 4 - 300	# 6 - 350	118	241	761	3	4.4	17.1
0453	380	188	200	225	300	1/0 - 300	# 6 - 350	# 6 - 350	140	309	979	3	4.4	17.1
0503	380	215	250	300	350	1/0 - 500	# 6 - 350	(2) 3/0-250	161	309	979	3	4.4	17.1
0543	380	193	200	250	300	1/0 - 300	# 6 - 350	# 6 - 350	141	309	979	4	4.4	17.1
0573	380	227	250	300	350	2/0 - 500	# 6 - 350	(2) 3/0-250	168	309	979	4	4.4	17.1
0623	380	247	250	300	400	2/0 - 500	# 6 - 350	(2) 3/0-250	183	309	979	4	4.4	17.1
0653	380	232	250	300	350	2/0 - 500	# 6 - 350	(2) 3/0-250	168	309	979	5	4.4	17.1

Chiller Model YCAS	Volts	ELECTRICAL SYSTEM #2 FIELD SUPPLIED WIRING														
		Field Provided Power Supply				Factory Provided (Lugs) Wire Range		Compressor #2			Compressor #4			Fan ^{11, 12} Data		
		MRA ¹ (MCA)	Min NF Disc SW ^{2, 9}	Over-current Protection ¹³		*Standard Terminal block	*Optional NF Disc. Switch	RLA	Y-Δ LRA	X-LRA	RLA	Y-Δ LRA	X-LRA	Qty	FLA (ea)	LRA (ea)
				Min. ^{3, 5}	Max. ^{4, 6}											
0693	380	189	200	200	300	#2-4/0	# 4-300	140	283	907	—	—	—	3	4.4	17.1
0773	380	189	200	200	300	#2-4/0	# 4-300	140	283	907	—	—	—	3	4.4	17.1
0783	380	173	175	175	250	#2-4/0	# 4-300	124	283	907	—	—	—	4	4.4	17.1
0873	380	228	250	250	350	1/0-300	# 6-350	168	283	907	—	—	—	4	4.4	17.1
0953	380	247	250	250	400	1/0-300	# 6-350	183	283	907	—	—	—	4	4.4	17.1
1063	380	413	600	450	500	(2) 1/0-300	(2) 250-500	161	283	907	140	283	907	8	4.4	17.1
1093	380	436	600	450	500	(2) 1/0-300	(2) 250-500	183	283	907	140	283	907	7	4.4	17.1
1163	380	457	600	500	500	(2) 1/0-300	(2) 250-500	168	283	907	168	283	907	8	4.4	17.1
1263	380	494	600	500	600	(2) 1/0-300	(2) 250-500	183	283	907	183	283	907	8	4.4	17.1

Electrical Data (Continued)

OPTIONAL SINGLE-POINT POWER SUPPLY WITH INDIVIDUAL SYSTEM CIRCUIT BREAKERS – 2 COMPRESSOR UNITS (SEE FIG. 2)

(One Field Provided Power Supply Circuit to the chiller. Field connections to Power Terminal Block or Non-Fused Disconnect in 'Option Panel'.
Individual System Circuit Protection (Breakers) per Motor Control Center¹⁰)

Chiller Model YCAS	Volts	FIELD-SUPPLIED WIRING					
		Field Provided Power Supply				Factory Provided (Lugs) Wire Range ⁷	
		MRA ¹ (MCA)	Min. NF Disc Sw. ^{2,9}	Over-Current Protection ¹³		Standard Terminal Block	Optional NF Disc. Switch
				Min. ^{3,5}	Max. ^{4,6}		
0373	380	296	400	300	350	2/0 - 500	(2) 3/0-250
0403	380	321	400	350	400	(2) 1/0 - 300	(2) 3/0-250
0453	380	375	400	400	450	(2) 1/0 - 300	(2) 3/0-250
0503	380	430	600	450	500	(2) 2/0 - 500	(2) 250-500
0543	380	387	400	400	450	(2) 1/0 - 300	(2) 3/0-250
0573	380	455	600	500	500	(2) 2/0 - 500	(2) 250-500
0623	380	493	600	500	600	(2) 2/0 - 500	(2) 250-500
0653	380	464	600	500	500	(2) 2/0 - 500	(2) 250-500

See page 48 for Electrical Data footnotes.

OPTIONAL SINGLE-POINT POWER SUPPLY CONNECTION WITH INDIVIDUAL SYSTEM CIRCUIT BREAKERS – 3 & 4 COMPRESSOR UNITS (SEE FIG. 7)

(One Field Provided Power Supply Circuit to the chiller. Field connections to Power Terminal Block (standard) or Non-Fused Disconnect (option)
in 'Option Panel'. Individual System Circuit Breakers in each Motor Control Center.)

Chiller YCAS	Volts	FIELD SUPPLIED WIRING					
		Field Provided Power Supply				Factory Provided (Lugs) Wire Range ⁷	
		MRA ¹ (MCA)	Min NF Disc SW ²	Over-Current Protection ¹³		Terminal Block (Lugs) Wire Range	NF Disc. Switch (Lugs) Wire Range
				Min. ^{3,5}	Max. ^{4,6}		
0693	380	551	600	600	600	(2)2/0-500	(2)250-500
0773	380	625	800	700	700	(2)2/0-500	(3)2/0-400
0783	380	575	600	600	600	(2)2/0-500	(2)250-500
0873	380	685	800	700	700	(3)1/0-300	(3)2/0-400
0953	380	741	800	800	800	(3)1/0-300	(3)2/0-400
1063	380	826	1000	800	800	(3)2/0-500	(4)4/0-500
1093	380	872	1000	1000	1000	(3)2/0-500	(4)4/0-500
1163	380	914	1000	1000	1000	(3)2/0-500	(4)4/0-500
1263	380	989	1000	1000	1000	(3)2/0-500	(4)4/0-500

See page 48 for Electrical Data footnotes.

Model YCAS	Volts	SYSTEM #1						SYSTEM #2					
		Compressor Data			Fan Data ^{11, 12}			Compressor Data			Fan Data ^{11, 12}		
		RLA	Y-LRA	X-LRA	Qty.	FLA (Ea.)	LRA (Ea.)	RLA	Y-LRA	X-LRA	Qty.	FLA (Ea.)	LRA (Ea.)
0373	380	107.9	241	761	3	4.4	17.1	107.9	241	761	3	4.4	17.1
0403	380	117.7	241	761	3	4.4	17.1	117.7	241	761	3	4.4	17.1
0453	380	139.5	309	979	3	4.4	17.1	139.5	309	979	3	4.4	17.1
0503	380	161.3	309	979	3	4.4	17.1	161.3	309	979	3	4.4	17.1
0543	380	140.6	309	979	4	4.4	17.1	140.6	309	979	4	4.4	17.1
0573	380	167.9	309	979	4	4.4	17.1	167.9	309	979	4	4.4	17.1
0623	380	183.1	309	979	4	4.4	17.1	183.1	309	979	4	4.4	17.1
0653	380	167.9	309	979	5	4.4	17.1	167.9	309	979	5	4.4	17.1

ELECTRICAL SYSTEM #1 FIELD SUPPLIED WIRING									ELECTRICAL SYSTEM #2 FIELD SUPPLIED WIRING								
Compressor #1 Data			Compressor #3 Data			Fan Data ^{11, 12}			Compressor #2 Data			Compressor #4 Data			Fan Data ^{11, 12}		
RLA	Y-Δ LRA	X-LRA	RLA	Y-Δ LRA	X-LRA	Qty	FLA (ea)	LRA (ea)	RLA	Y-Δ LRA	X-LRA	RLA	Y-Δ LRA	X-LRA	Qty	FLA (ea)	LRA (ea)
140	283	907	124	283	907	7	4.4	17.1	140	283	907	—	—	—	3	4.4	17.1
140	283	907	183	283	907	7	4.4	17.1	140	283	907	—	—	—	3	4.4	17.1
124	283	907	168	283	907	8	4.4	17.1	124	283	907	—	—	—	4	4.4	17.1
168	283	907	168	283	907	8	4.4	17.1	168	283	907	—	—	—	4	4.4	17.1
183	283	907	183	283	907	8	4.4	17.1	183	283	907	—	—	—	4	4.4	17.1
161	283	907	140	283	907	8	4.4	17.1	161	283	907	140	283	907	8	4.4	17.1
183	283	907	140	283	907	7	4.4	17.1	183	283	907	140	283	907	7	4.4	17.1
168	283	907	168	283	907	8	4.4	17.1	168	283	907	168	283	907	8	4.4	17.1
183	283	907	183	283	907	8	4.4	17.1	183	283	907	183	283	907			

Electrical Data (Continued)

OPTIONAL SINGLE-POINT POWER SUPPLY CONNECTION – 2 COMPRESSOR UNITS (SEE FIG. 3)

(One Field Provided Power Supply Circuit to the chiller. Field connections to Power Terminal Block or Disconnect Switch in the 'Option Panel'.
No internal Individual System Circuit Protection per Motor Control Center¹⁰)

Chiller Model YCAS	Volts	FIELD-SUPPLIED WIRING					
		Field Provided Power Supply				Factory Provided (Lugs) Wire Range ⁷	
		MRA ¹ (MCA)	Min. NF Disc Sw. ^{2, 9}	Over-Current Protection		Terminal Block	Optional NF Disc. Switch
				Min. ³	Max. ⁴		
0373	380	269	400	300	350	2/0 - 500	(2) 3/0-250
0403	380	291	400	350	400	(2) 1/0 - 300	(2) 3/0-250
0453	380	340	400	400	450	(2) 1/0 - 300	(2) 3/0-250
0503	380	389	600	450	500	(2) 2/0 - 500	(2) 250-500
0543	380	352	400	400	450	(2) 1/0 - 300	(2) 3/0-250
0573	380	413	600	500	500	(2) 2/0 - 500	(2) 250-500
0623	380	447	600	500	600	(2) 2/0 - 500	(2) 250-500
0653	380	422	600	500	500	(2) 2/0 - 500	(2) 250-500

Option not available for units with CE mark.
See page 48 for Electrical Data footnotes.

OPTIONAL SINGLE-POINT POWER SUPPLY CONNECTION TO FACTORY CIRCUIT BREAKER – 2 COMPRESSOR UNITS (SEE FIG. 4)

(One Field Provided Power Supply Circuit to the chiller. Field Connection to Circuit Breaker in 'Option Panel'.
No internal Individual System Circuit Protection per Motor Control Center¹⁰.)

Model YCAS	Volts	FIELD SUPPLIED WIRING			SYSTEM #1					SYSTEM #2				
		MRA ¹ (MCA)	Factory Supplied Breaker		Compressor		Fans ^{11, 12}			Compressor		Fans ^{11, 12}		
			Rating ^{2, 9}	Wire Range ⁷ (Lugs)	RLA	X-LRA	Qty	FLA(ea)	LRA(ea)	RLA	X-LRA	Qty	FLA(ea)	LRA(ea)
0373	380	269	400	(2) 3/0-250	107.9	761	3	4.4	17.1	107.9	761	3	4.4	17.1
0403	380	291	450	(2) 3/0-250	117.7	761	3	4.4	17.1	117.7	761	3	4.4	17.1
0453	380	340	500	(2) 3/0-250	139.5	979	3	4.4	17.1	139.5	979	3	4.4	17.1
0503	380	389	600	(2) 250-500	161.3	979	3	4.4	17.1	161.3	979	3	4.4	17.1
0543	380	352	500	(2) 3/0-250	140.6	979	4	4.4	17.1	140.6	979	4	4.4	17.1
0573	380	413	600	(2) 250-500	167.9	979	4	4.4	17.1	167.9	979	4	4.4	17.1
0623	380	447	600	(2) 250-500	183.1	979	4	4.4	17.1	183.1	979	4	4.4	17.1
0653	380	422	600	(2) 250-500	167.9	979	5	4.4	17.1	167.9	979	5	4.4	17.1

Option not available for units with CE mark.

Model YCAS	Volts	SYSTEM #1						SYSTEM #2					
		Compressor Data			Fan Data ^{11, 12}			Compressor Data			Fan Data ^{11, 12}		
		RLA	Y-LRA	X-LRA	Qty.	FLA (Ea.)	LRA (Ea.)	RLA	Y-LRA	X-LRA	Qty.	FLA (Ea.)	LRA (Ea.)
0373	380	108	N/A	761	3	4.4	17.1	108	N/A	761	3	4.4	17.1
0403	380	118	N/A	761	3	4.4	17.1	118	N/A	761	3	4.4	17.1
0453	380	140	N/A	979	3	4.4	17.1	140	N/A	979	3	4.4	17.1
0503	380	161	N/A	979	3	4.4	17.1	161	N/A	979	3	4.4	17.1
0543	380	141	N/A	979	4	4.4	17.1	141	N/A	979	4	4.4	17.1
0573	380	168	N/A	979	4	4.4	17.1	168	N/A	979	4	4.4	17.1
0623	380	183	N/A	979	4	4.4	17.1	183	N/A	979	4	4.4	17.1
0653	380	168	N/A	979	5	4.4	17.1	168	N/A	979	5	4.4	17.1

CONTROL POWER SUPPLY (UNITS WITHOUT STANDARD CONTROL CIRCUIT TRANSFORMERS)

NO. OF COMPRESSORS	CONTROL POWER SUPPLY	MCA (MAX LOAD CURRENT)	MAX DUAL ELEMENT FUSE SIZE	NON-FUSED DISCONNECT SWITCH SIZE
2	115V-1Ø	20A	20A	30A
3 or 4 (Non-CE 50/60Hz)	115V-1Ø	30A	30A	30A

CONTROL POWER SUPPLY (UNITS WITH STANDARD CONTROL CIRCUIT TRANSFORMER)

NO. OF COMPRESSORS	CONTROL POWER SUPPLY	MCA (MAX LOAD CURRENT)	RECOMMENDED DUAL ELEMENT FUSE SIZE	NON-FUSED DISCONNECT SWITCH SIZE
2	400V - 50 HZ	6.3A	15A	—
3 or 4	400V - 50 HZ	9.4A	15A	—

Electrical Notes

NOTES (pages 42 - 47)

1. MRA is Maximum Running Amps, the maximum continuous current at any operating point in the rating range. Also referred to as MCA, or Minimum Circuit Ampacity to be provided by the installer. If a factory mounted Control Transformer is provided, add 3 amps to the system #1 MCA values in the YCAS Tables.
2. The recommended disconnect switch is based on a minimum of 115% of the summation rated load amps of all the loads included in the circuit, per N.E.C. 440 - 12A1.
3. Minimum recommended fuse size is based on 150% of the largest motor RLA plus 100% of the remaining RLAs (U.L. Standard 1995, Section 36.1). Minimum fuse rating = $(1.5 \times \text{largest compressor RLA}) + \text{other compressor RLAs} + (\# \text{ fans} \times \text{each fan motor FLA})$.
4. Maximum dual element fuse size is based on 225% maximum plus 100% of the rated load amps for all other loads included in the circuit, per N.E.C. 440-22. Maximum fuse rating = $(2.25 \times \text{largest compressor RLA}) + \text{other compressor RLAs} + (\# \text{ fans} \times \text{each fan motor FLA})$.
5. Minimum recommended circuit breaker is 150% maximum plus 100% of rated load amps included in the circuit, per circuit per U.L. 1995 Fig. 36.2. Minimum circuit breaker rating = $(1.5 \times \text{largest compressor RLA}) + \text{other compressor RLAs} + (\# \text{ fans} \times \text{each fan motor FLA})$.
6. Maximum circuit breaker is based on 225% maximum plus 100% of the rated load amps for all loads included in the circuit, per circuit, per U.L. 1995 Fig. 36.2. Maximum circuit breaker rating = $(2.25 \times \text{largest compressor RLA}) + \text{other compressor RLAs} + (\# \text{ fans} \times \text{each fan motor FLA})$.
7. The Incoming Wire Range is the minimum and maximum wire size that can be accommodated by unit wiring lugs. The (1), (2), or (3) indicate the number of termination points or lugs which are available per phase. Actual wire size and number of wires per phase must be determined based on ampacity and job requirements using N.E.C. wire sizing information. The above recommendations are based on the National Electrical Code and using **copper conductors** only. Field wiring must also comply with local codes.
8. A ground lug is provided for each compressor system to accommodate field grounding conductor per N.E.C. Article 250-54. A control circuit grounding lug is also supplied. Incoming ground wire range is #6 - 350 MCM.
9. The field supplied disconnect is a "Disconnecting Means" as defined in N.E.C. 100.B, and is intended for isolating the unit from the available power supply to perform maintenance and troubleshooting. This disconnect is not intended to be a Load Break Device.
10. Two-Compressor machines with single-point power connection, and equipped with Star (Wye)-Delta Compressor motor start must also include factory-provided individual system circuit breakers in each motor control center. All 3 & 4 Compressor machines equipped with Star-Delta compressor motor start must also include factory-provided individual system circuit breakers in each motor control center.
11. Consult factory for Electrical Data on units equipped with "High Static Fan" Option. 50 Hz Fans are 3.5 kW each.
12. FLA for each "Low Noise Fan" motor is 4.1A.
13. Group Rated Breaker must be HACR type for cU.L. machines.

LEGEND

ACR-LINE	ACROSS THE LINE START
CB	CIRCUIT BREAKER
DE FU	DUAL ELEMENT FUSE
DISC SW	DISCONNECT SWITCH
FACT MOUNT CB	FACTORY-MOUNTED CIRCUIT BREAKER
FACT MOUNT FUSE	FACTORY-MOUNTED FUSES
FLA	FULL LOAD AMPS
HZ	HERTZ
MAX	MAXIMUM
MCA	MINIMUM CIRCUIT AMPACITY
MIN	MINIMUM
MIN NF	MINIMUM NON-FUSED
RLA	RUNNING LOAD AMPS
S.P. WIRE	SINGLE-POINT WIRING
UNIT MTD SERV SW	UNIT-MOUNTED SERVICE (NON-FUSED DISCONNECT SWITCH)
WYE-DELTA	WYE-DELTA START
XLRA	ACROSS-THE-LINE INRUSH LOCKED ROTOR AMPS
YLRA	WYE-DELTA INRUSH LOCKED ROTOR AMPS

Diagram illustrating the optional control transformer connection for the 120-160 Hz power supply.

The diagram shows two circuits, **CIRCUIT #1** and **CIRCUIT #2**, connected to a common power supply.

CIRCUIT #1 includes a **1T Control Transformer** and a **CTB** (Circuit Transformer Block) with terminals **2** and **L**. The **CTB** is labeled **CTB**.

CIRCUIT #2 includes a **CTB** with terminals **2** and **L**.

Both circuits have a **GRD** (Ground) connection and a **FIELD PROVIDED UNIT POWER SUPPLY** connection.

The diagram also includes a note **SEE NOTE 3** and a label **OPTIONAL CONTROL TRANSFORMER**.

CIRCUIT #1

CIRCUIT #2

OPTIONAL CONTROL TRANSFORMER

1T Control Transformer

Circ Brkr*

2 L

Term. Block NF Disc SW

GRD

See Note 3

STD FIELD PROVIDED 120-1.60Hz POWER SUPPLY (NOT REQUIRED IF OPTIONAL CONTROL TRANSFORMER FITTED)

FIELD PROVIDED UNIT POWER SUPPLY

FIG. 2 – OPTIONAL SINGLE POINT POWER SUPPLY CONNECTION WITH INDIVIDUAL SYSTEM CIRCUIT BREAKERS

Power Connection Options (Continued)

STYLE "G" 2 COMPRESSOR POWER WIRING CONNECTIONS

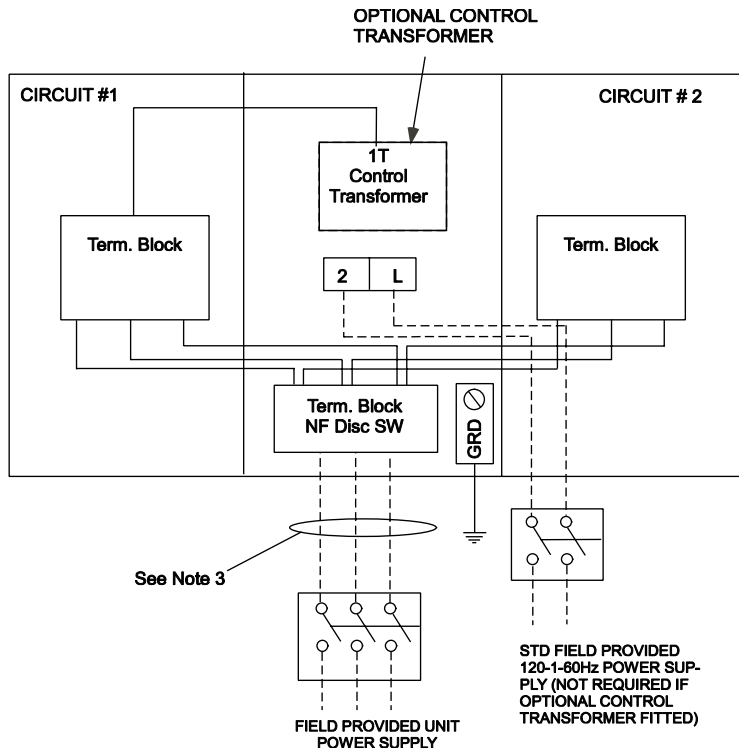


FIG. 3 – OPTIONAL SINGLE-POINT POWER SUPPLY CONNECTION WITH FIELD SUPPLIED CIRCUIT PROTECTION

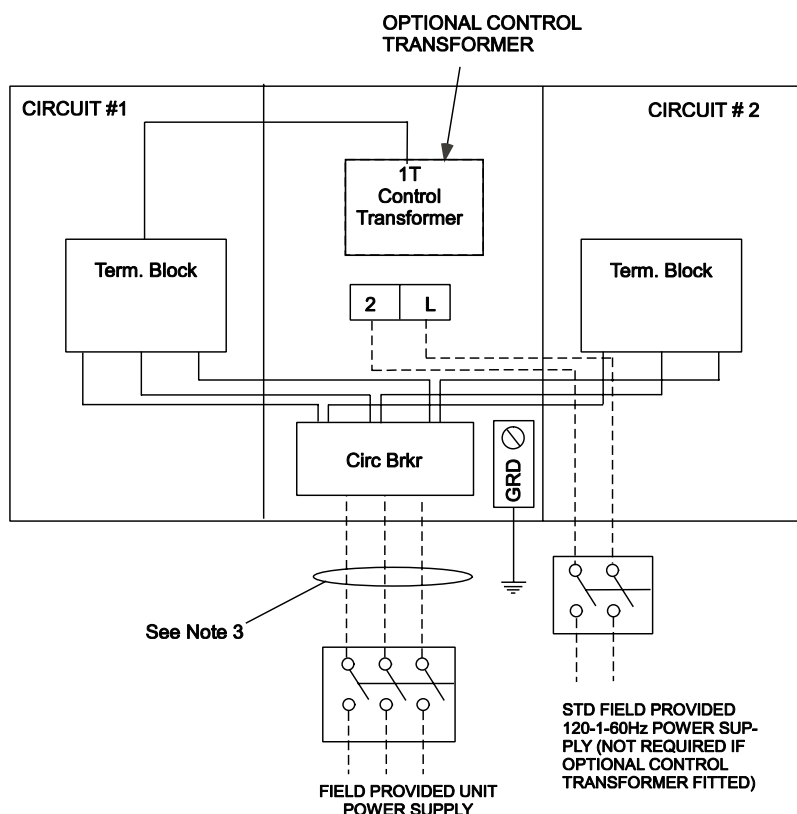


FIG. 4 – OPTIONAL SINGLE-POINT POWER SUPPLY CONNECTION TO FACTORY CIRCUIT BREAKER

3 & 4 COMPRESSOR POWER CONNECTION OPTIONS

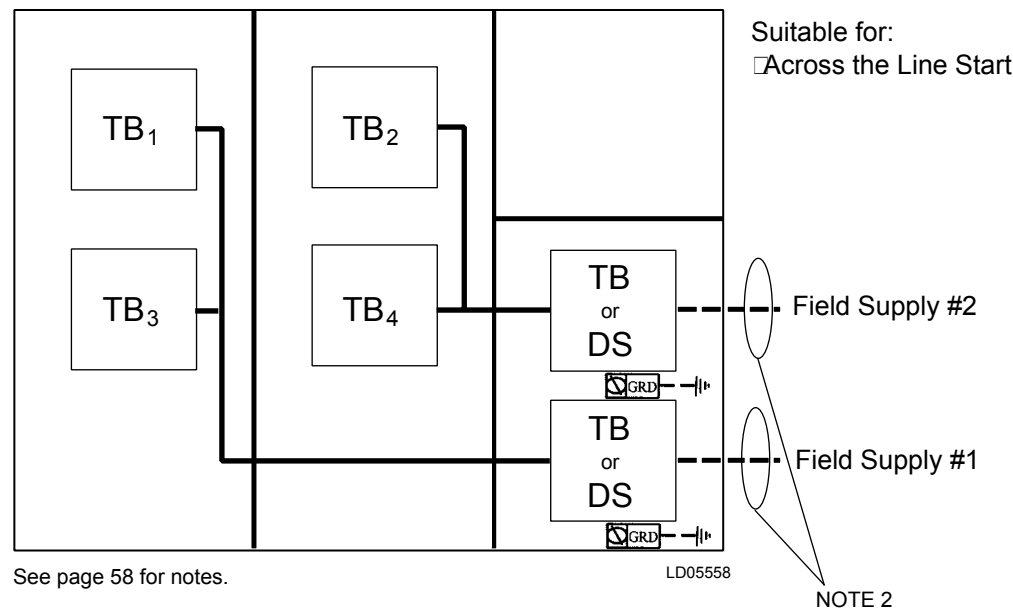


FIG. 5 – MULTIPLE POINT POWER SUPPLY CONNECTION

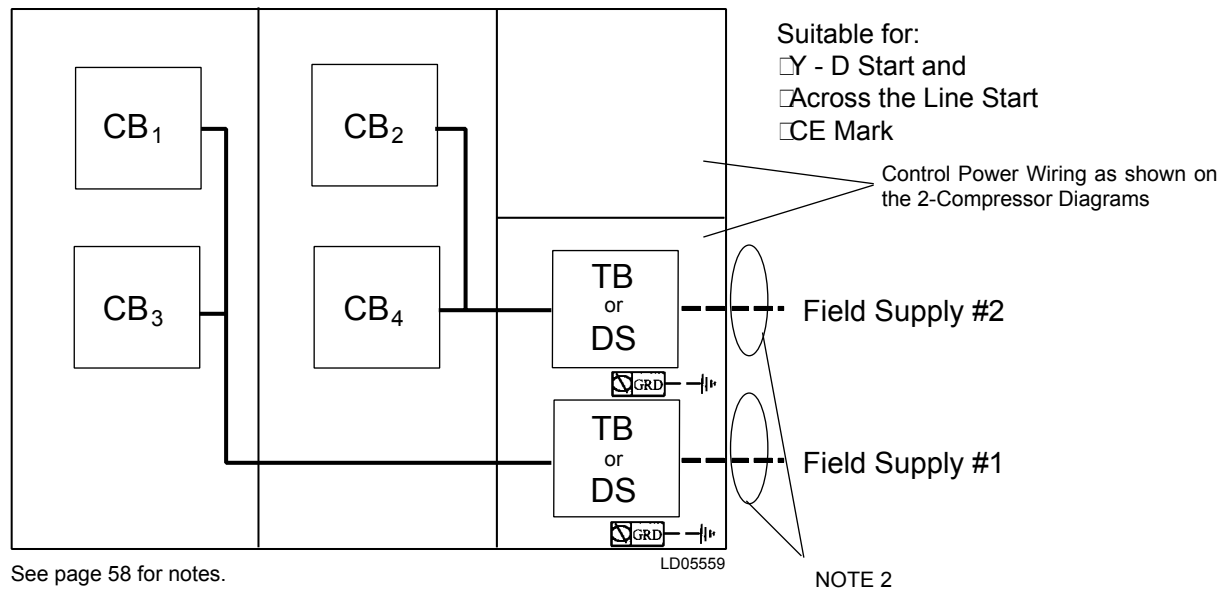


FIG. 6 – MULTIPLE POINT POWER SUPPLY CONNECTION WITH INDIVIDUAL SYSTEM CIRCUIT BREAKERS

Power Connection Options (Continued)

3 & 4 COMPRESSOR POWER CONNECTION OPTIONS

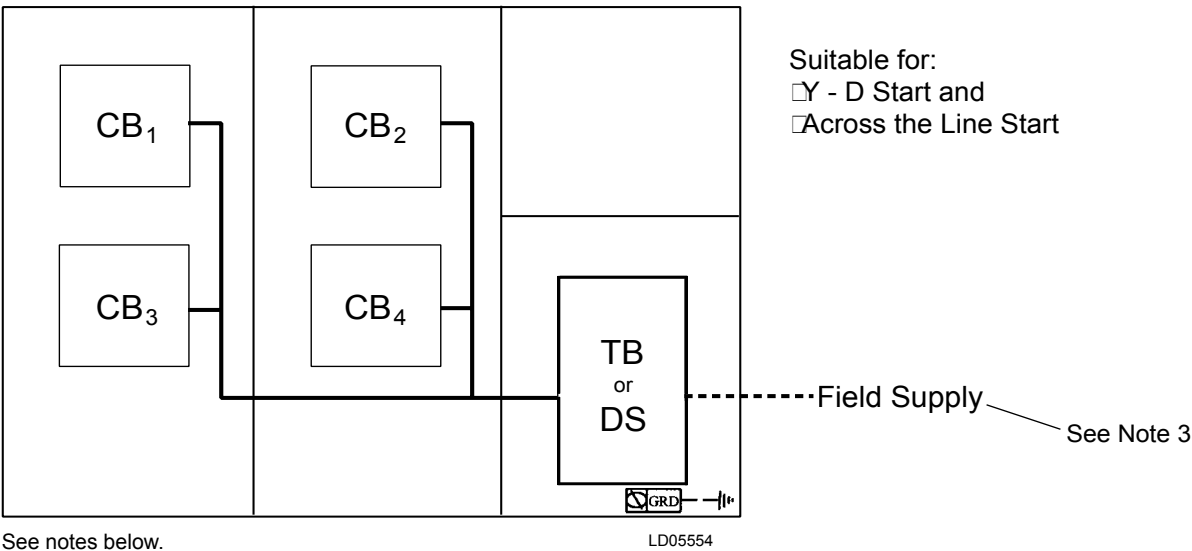
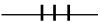


FIG. 7 – OPTIONAL SINGLE-POINT POWER SUPPLY CONNECTION WITH INDIVIDUAL SYSTEM CIRCUIT BREAKERS

NOTES:

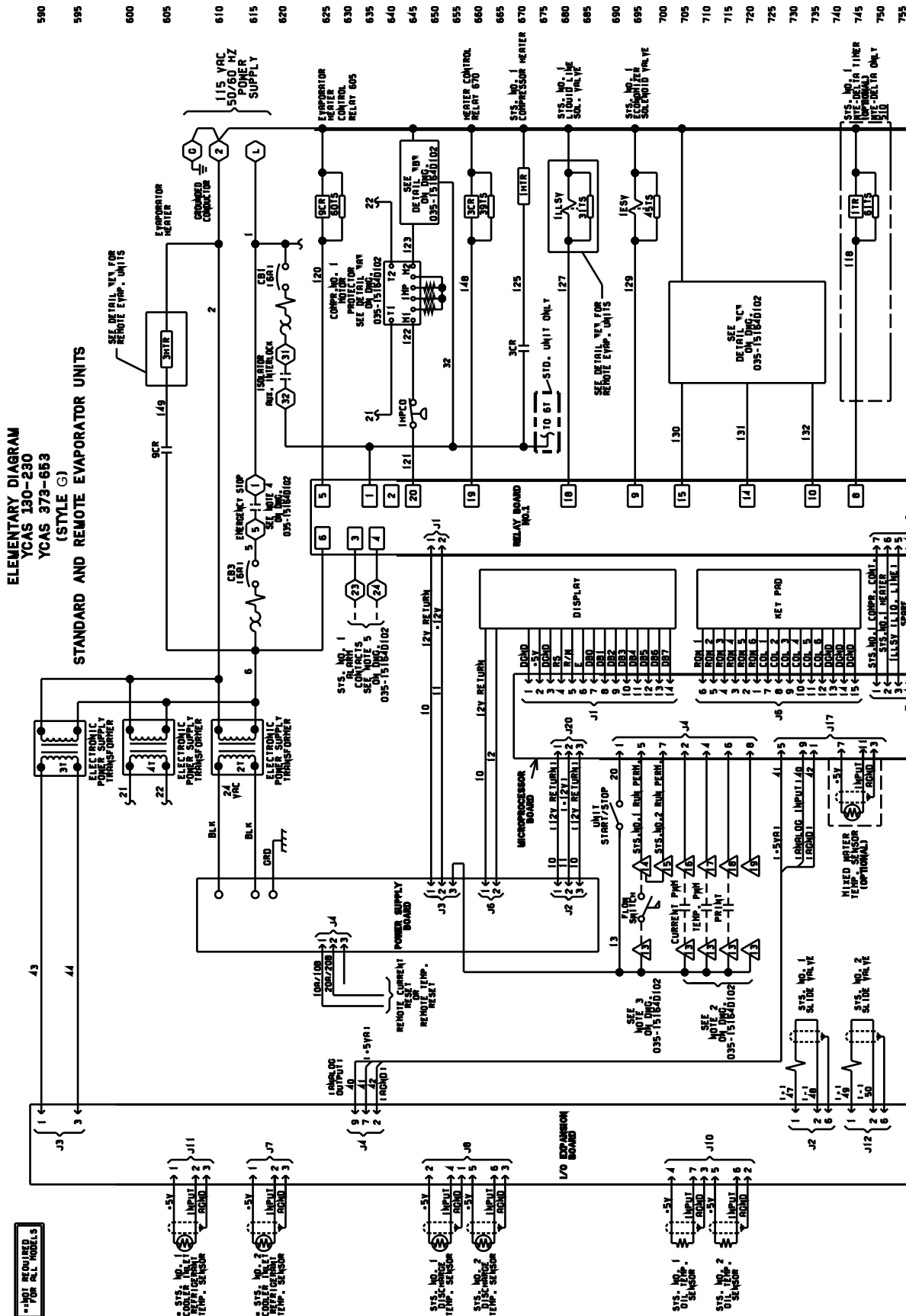
1. ----- Dashed Line indicates Field Provided Wiring.
2. The above recommendations are based on the National Electrical Code and using copper conductors only. Field wiring must also comply with local codes.

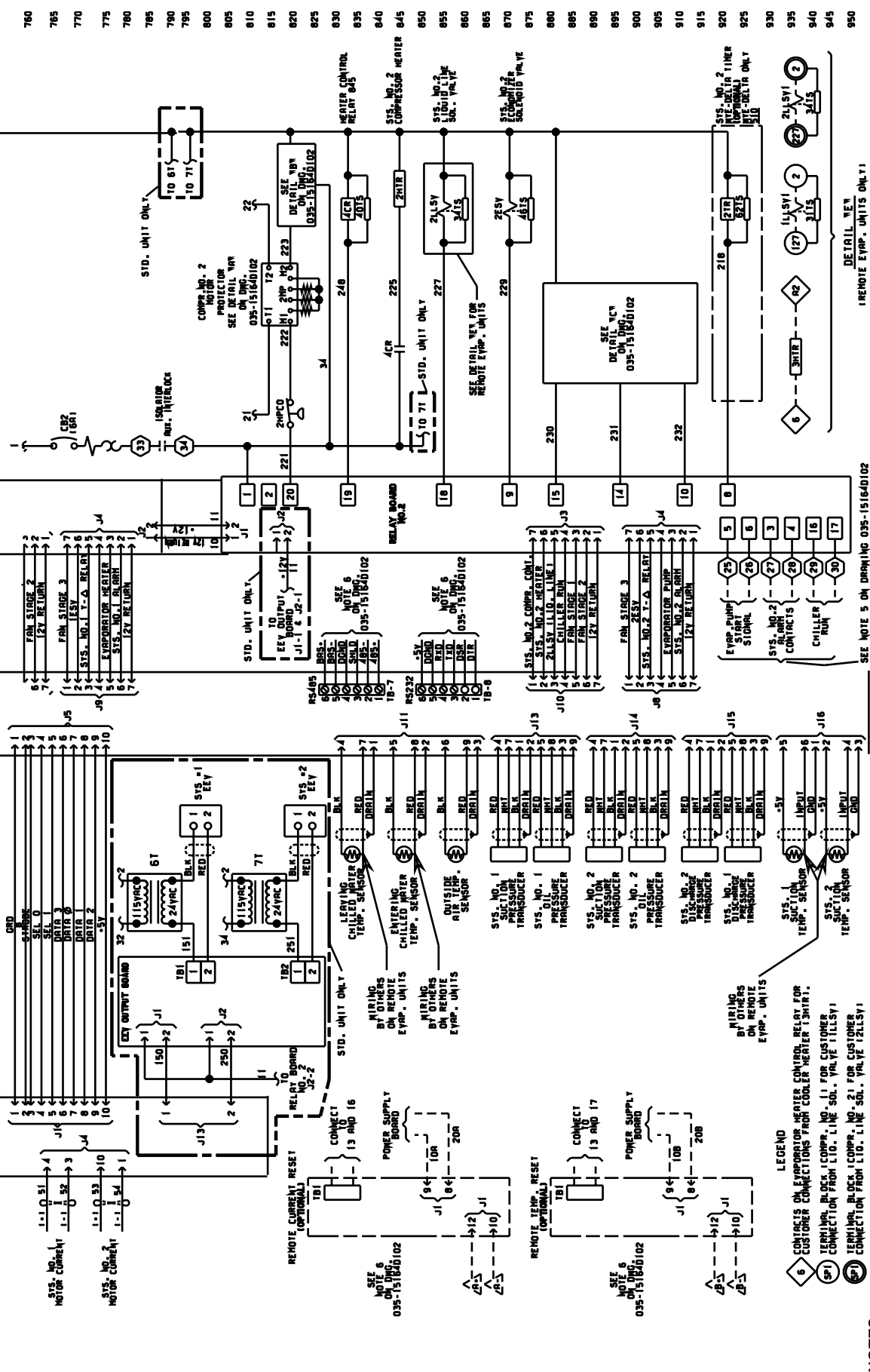
LEGEND REFERS TO TYPICAL CONTROL WIRING DIAGRAM ON PAGES 60 & 61.

LEGEND	
T S	Transient Voltage Suppression
	Terminal Block for Customer Connections
	Terminal Block for Customer Low Voltage (Class 2) Connections. See Note 2
	Terminal Block for YORK Connections Only
	Wiring and Components by YORK
	Optional Equipment
	Wiring and/or Components by Others

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Typical Control Wiring





NOTES:

1. Field wiring to be in accordance with the current edition of the National Electrical Code as well as all other applicable codes and specifications.
2. Contacts must be suitable for switching 24VDC, (gold contacts recommended). Wiring shall not be run in the same conduit with any line voltage wiring.
3. To cycle unit on and off automatically with contact shown, install a cycling device in series with the flow switch (flsw). See note 2 for contact rating and wiring specifications.
4. To stop unit (emergency stop) with contacts other than those shown, install the stop contact between terminals 5 and 1. If a stop device is not installed, a jumper must be connected between terminals 5 and 1. Device must have a minimum contact rating of 100va at 115volts a.c.
5. Alarm contacts are for annunciating alarm/unit malfunction. Contacts are rated at 115V, 100va, resistive load only, and must be suppressed at load by user.
6. See Installation, Operation and Maintenance manual when optional equipment is used.

Application Data

UNIT LOCATION

The YCAS chillers are designed for outdoor installation. When selecting a site for installation, be guided by the following requirements:

1. Installation sites may be either on a roof or on ground level. (See FOUNDATION)
2. Select a place having an adequate supply of fresh air for the condensers. Recommended clearances for all units are shown on the DRAWING pages.
3. Avoid locations near windows or structures where normal operating sounds may be objectionable.
4. The standard condenser fans are not recommended for use with ductwork, filters, or other resistance in the condenser air stream.
5. When it is desirable to surround the unit(s), it is recommended that the screening be able to pass the required chiller CFM without exceeding 0.1" external static pressure.
6. Protection against corrosive environments is available by supplying the units with either copper fins or epoxy-coating on the condenser coils. The epoxy-coated coils should be utilized with any units being installed at the seashore, or where salt spray may hit the units, or where acid rain is prevalent (copper condenser coils are not recommended where they may be exposed to acid rain).
7. On installations where winter operation is intended and snow accumulations are expected, additional elevation must be provided to insure normal condenser air flow.

FOUNDATION

The unit should be mounted on a flat and level foundation, ground or roof, capable of supporting the entire operating weight of the equipment. Operating weights are given in the PHYSICAL DATA tables.

Roof Locations – Adequate structural strength to safely support the entire weight of the unit and service personnel must be provided. Care must be taken not to damage the roof during installation. If the roof is "bonded", consult building contractor or architect for special installation requirements. Roof installations should incorporate the use of spring-type isolators to minimize the transmission of vibration into building

structure. Additional support should be provided to the roof at the spring-isolator locations.

Ground Locations – Units must be installed on a substantial base that will not settle and cause strain on the refrigerant lines, resulting in possible leaks. A one-piece concrete slab, with footers extending below the frost line, is recommended. The slab should not be tied to the main building foundation as noises will telegraph.

Mounting holes (5/8") are provided in the base rails for bolting the unit to its foundation. See DIMENSIONS for location of the mounting holes.

For ground installations, precautions should be taken to protect the unit from tampering by, or injury to, unauthorized persons. Fasteners on access panels will prevent casual tampering; however, further safety precautions, such as unit enclosure options, a fenced-in enclosure, or locking devices on the panels may be advisable. Check local authorities for safety regulations.

CHILLED-LIQUID PIPING

The chilled-liquid piping system should be laid out so that the circulating pump discharges into the cooler. The inlet and outlet cooler-liquid connections are given in DIMENSIONS. Hand stop valves are recommended for use in all lines to facilitate servicing. Drain connections should be provided at all low points to permit complete drainage of the cooler and system piping.

A strainer (40 mesh) is recommended for use on the INLET line to the cooler, and must be in place upon initial operation of the water pumps.

Pressure-gauge connections are recommended for installation in the inlet and outlet water lines. Gauges are not provided with the unit and are to be furnished by others.

Chilled liquid lines exposed to the weather should be wrapped with a supplemental heater cable and insulated, or glycol should be added to the chilled liquid to protect against freezing if low ambient periods are expected.

A flow switch is available as an accessory on all units. A flow switch must be installed in the leaving water piping of the cooler and must not be used to start and stop the unit.

Guide Specifications

PART 1 — GENERAL

1.01 SCOPE

- A. The requirements of the General Conditions, Supplementary Conditions, Division 1, and Drawings apply to all Work herein.
- B. Provide Microprocessor controlled, twin-screw compressor, air-cooled, liquid chillers of the scheduled capacities as shown and indicated on the Drawings, including but not limited to:
 1. Chiller package
 2. Charge of refrigerant and oil
 3. Electrical power and control connections
 4. Chilled water connections

1.02 QUALITY ASSURANCE

- A. Products shall be Designed, Tested, Rated and Certified in accordance with, and installed in compliance with applicable sections of the following Standards and Codes:
 1. ANSI/ASHRAE Standard 15 – *Safety Code for Mechanical Refrigeration*
 2. ANSI/NFPA Standard 70 – *National Electrical Code (N.E.C.)*.
 3. *ASME Boiler and Pressure Vessel Code, Section VIII, Division 1*.
 4. Conform to Underwriters Laboratories (U.L.) for construction of chillers and provide U.L./cU.L. Listing label.
 5. Manufactured in facility registered to ISO 9002.
- B. Factory Test: Chiller shall be pressure-tested, evacuated and fully charged with refrigerant and oil, and shall be factory operational run tested with water flowing through the vessel.
- C. Warranty: Manufacturer shall Warrant all equipment and material of its manufacture against defects in workmanship and material for a period of eighteen (18) months from date of shipment, whichever occurs first.

1.03 DELIVERY AND HANDLING

- A. Unit shall be delivered to job site fully assembled, and charged with refrigerant and oil by the Manufacturer.
- B. Unit shall be stored and handled per Manufacturer's instructions.

PART 2 — PRODUCTS

2.01 CHILLER MATERIALS AND COMPONENTS

- A. General: Install and commission, as shown on the schedules and plans, factory assembled, charged,

and tested air cooled screw compressor chiller(s) as specified herein. Chiller shall be designed, selected, and constructed using a refrigerant with Flammability rating of "1", as defined by ANSI/ASHRAE STANDARD-34 *Number Designation and Safety Classification of Refrigerants*. Chiller shall include, but is not limited to: a complete system with not less than two independent refrigerant circuits, semihermetic twin screw compressors, direct expansion type evaporator, air-cooled condenser, refrigerant, lubrication system, interconnecting wiring, safety and operating controls including capacity controller, control center, motor starting components, and special features as specified herein or required for safe, automatic operation.

- B. Cabinet: External structural members shall be constructed of heavy gauge, galvanized steel coated with baked on powder paint which, when subject to ASTM B117, 500 hour, 5% salt spray test, yields minimum ASTM 1654 rating of "6".

2.02 COMPRESSORS AND MOTORS

- A. Compressors: Shall be direct drive, semihermetic, rotary twin-screw type, including: internal muffler, temperature actuated 'off-cycle' heater, rain-tight terminal box, internal discharge check, discharge and suction shut-off service valves, and precision machined cast iron housing. Design working pressure of entire compressor, suction to discharge, shall be 450 PSIG (31 bar). Compressor shall be U.L. listed.
- B. Motors: Refrigerant suction gas cooled two-pole accessible hermetic compressor motor, full suction gas flow through 0.006" maximum mesh screen, with inherent internal thermal overload protection and external current overload on all three phases. Motor stator shall employ APT2000 type magnet wire.
- C. Lubrication: External oil separators with no moving or fragile parts, 450 PSIG design working pressure, and U.L. listing. Refrigerant system differential pressure shall provide oil flow through service replaceable, 0.5 micron, full flow, cartridge type oil filter internal to compressor. Filter bypass, less restrictive media, or oil pump not acceptable.
- D. Capacity Control: Compressors shall start at minimum load position. Capacity control range from 100% to 10% of chiller full load using continuous function slide valves, and without hot gas bypass. Step unloading unacceptable. Provide Microprocessor controlled, output pressure regulating capacity control valve to command compressor capacity independent of control valve input pressure and balance compressor capacity with cooling load.

Guide Specifications (Continued)

2.03 REFRIGERANT CIRCUIT COMPONENTS

Each independent refrigerant circuit shall include: liquid line shutoff valve with charging port, low side pressure relief device, removable core filter-drier, solenoid valve, sight glass with moisture indicator, and reliable electronic expansion valves for R22 and a thermostatic expansion valves for remote barrel units.

2.04 HEAT EXCHANGERS

A. Evaporator:

1. Direct expansion type with refrigerant inside high efficiency copper tubes, chilled liquid forced over the tubes by galvanized steel baffles. Independent refrigerant circuits per compressor.
2. Constructed, tested, and stamped in accordance with applicable sections of ASME pressure vessel code for minimum 350 PSIG (24 bar) refrigerant side design working pressure and 150 PSIG (10 bar) water side design working pressure.
3. Shell covered with 3/4" (19mm), flexible, closed-cell insulation, thermal conductivity of 0.26k ([BTU/HR-Ft²-°F]/in.) maximum. Water nozzles with grooves for mechanical couplings, and insulated by Contractor after pipe installation.
4. Provide vent and drain fittings, and thermostatically controlled heaters to protect to -20°F (-29°C) ambient in off-cycle.

B. Air Cooled Condenser:

1. Coils: Internally enhanced, seamless copper tubes, mechanically expanded into aluminum alloy fins with full height collars. Subcooling coil an integral part of condenser. Design working pressure shall be 450 PSIG (31 bar).
2. Fans: Shall be dynamically and statically balanced, direct drive, corrosion resistant glass fiber reinforced composite blades molded into low noise, full airfoil cross section, providing vertical air discharge from extended orifices for efficiency and low sound. Each fan in its own compartment to prevent cross flow during fan cycling. Guards of heavy gauge, PVC (polyvinyl chloride) coated or galvanized steel.
3. Fan Motors: High efficiency, direct drive, 6-pole, 3-phase, insulation class "F", current protected, Totally Enclosed Air-Over (TEAO), rigid mounted, with double sealed, permanently lubricated, ball bearings.

C. Refrigerant Economizer (when provided): Stainless steel plate type, oven brazed with copper, U.L./cU.L. Listed, 450 PSIG (31 bar) design working pressure.

2.05 CONTROLS

A. General: Automatic start, stop, operating, and protection sequences across the range of scheduled conditions and transients.

B. Control Circuit Transformer: Factory mounted with primary breaker having lockable, external handle, and 115V/1Ø secondary.

C. Microprocessor Enclosure: Rain and dust tight NEMA 3R/12 (IP55) powder painted steel cabinet with hinged, latched, and gasket sealed door.

D. Microprocessor Control Center:

1. Automatic control of compressor start/stop and load/unload, anti-coincidence and anti-recycle timers, automatic pump-down at start-up and shut-down, condenser fans, evaporator pump, evaporator heater, unit alarm contacts, run signal contacts, and chiller operation from 0°F to 125°F (-18°C to 52°) ambient. Automatic reset to normal chiller operation after power failure.
2. Setpoint Reset:
 - a. Pulse Width Modulated (PWM) input to reset current unload setpoint downward via signal from external Energy Management System (EMS), maximum allowable reset programmable from microprocessor keypad.
 - b. PWM input to reset the chilled liquid setpoint upward via signal from remote EMS, maximum allowable reset programmable from microprocessor keypad.
3. Software stored in non-volatile memory, with programmed set-points retained in lithium battery backed real time clock (RTC) memory for minimum 5 years.
4. Forty character liquid crystal display, descriptions in English (or Spanish or French), numeric data in English (or Metric) units. Sealed keypad with sections for Setpoints, Display, Entry, Print, Program, Clock, and Unit On/Off Switch.
5. Programmable Setpoints (within Manufacturer limits): display language; discharge pressure unload and cutout; low suction pressure cutout; low and high ambient cutouts; leaving chilled liquid temperature: setpoint, control range, and cutout; high motor current unload; anti-recycle time; lag compressor start; local or remote control; units of measure; compressor lead/lag; power failure restart (auto or manual), and maximum EMS-PWM reset temperature range.
6. Display Data: Chiller liquid return and leaving temperatures, ambient, lead compressor identification and lead/lag delay, clock and schedule, (variable) out of range, remote input indication, chilled liq-

uid reset setpoint, leaving liquid pull-down rate setpoint, leaving liquid error (deviation from setpoint), and history data for last six shutdown faults. Compressor suction, discharge, and oil pressures and temperatures, suction and discharge superheats, percent of full-load motor current, operating hours, starts, and anti-recycle timer status. Status Messages for manual override, unit switch off, compressor run, run permissive, remote controlled shut down, no cooling load, daily/holiday shut down, anti-recycle/anti-coincident timer, high pressure low suction temperature limit.

7. System Safeties: Shall cause individual compressor systems to perform auto-reset shut down; manual reset required after the third trip in 90 minutes. Includes: high discharge pressure or temperature, low suction pressure, high / low motor current, high pressure switch, high / low differential oil pressure, high oil temperature, and motor protector. Compressor motor protector shall protect against damage due to: low or high input current, phase reversal (reverse rotation), current unbalance, phase loss, thermal overload of windings, and low voltage.
 8. Unit Safeties: Shall be automatic reset and cause compressors to shut down if: high or low ambient, low leaving chilled liquid temperature, under voltage, and flow switch operation. Contractor shall provide flow switch and wiring per chiller manufacturer requirements.
 9. Alarm Contacts: High or low ambient, low leaving chilled liquid temperature, low voltage, low battery, and (per compressor circuit): high discharge pressure or temperature, low suction pressure, low or high motor current, low or high differential oil pressure, and high oil temperature.
- E. Manufacturer shall provide any controls not listed above, necessary for automatic chiller operation. Mechanical Contractor shall provide field control wiring necessary to interface sensors to the chiller control system.

2.06 POWER CONNECTION and DISTRIBUTION

A. Power Panels:

1. NEMA 3R/12 (IP55) rain/dust tight, powder painted steel cabinets with hinged, latched, and gasket sealed outer doors equipped with wind struts for safer servicing. Provide main power connection(s), compressor and fan motor start contactors, current overloads, and factory wiring.
2. Field power supply wiring connections shall be to a single power center on the chiller, shall be 3-phase of scheduled voltage, and shall connect to

terminal blocks per each of the two motor control panels. Separate disconnecting means and/or external branch circuit protection (by Contractor) required per applicable local or national codes.

3. Provide two electrically separate, adjacent motor control center cabinets, with independent doors and separated by a steel panel, for compressor and fan motor power distribution components.

B. Exposed compressor and fan motor power wiring shall be routed through liquid tight conduit.

2.07 ACCESSORIES and OPTIONS

Some accessories and options supercede standard product features. Your YORK representative will be pleased to provide assistance.

- A. Microprocessor controlled, Factory installed Wye-Delta compressor motor starters for reduced compressor inrush start current. Two-compressor machines with Single-Point power connection and equipped with Star-Delta compressor motor start must also include Factory provided circuit breakers in each motor control center. All 3 & 4 compressor machines equipped with Star-Delta compressor motor start must also include factory provided circuit breakers in each motor control center.

B. Power Supply Connections:

1. Two Compressor Machines –
 - a. Multiple Point with compressor Individual System Circuit Breakers or Non-Fused Disconnect Switches: Two Field provided branch circuits shall connect to individual system Circuit Breakers or Non-Fused Disconnects per compressor on each of the two motor control centers, with lockable external handles on doors in compliance with Article 440-14 of the N.E.C.
 - b. Single-Point Terminal Block or Non-fused Disconnect Switch: Field provided branch circuit shall connect to single-point Terminal Block or Non-Fused Disconnect with lockable external handle in compliance with N.E.C. Article 440-14, with Factory provided interconnecting wiring to (optional Individual System Circuit Breakers, and) compressor motor start components in each of two motor control center cabinets.
 - c. Single-Point Circuit Breaker: Field provided branch circuit shall connect to Single-Point Circuit Breaker with Lockable External Handle (in compliance with Article 440-14 of N.E.C.). Factory provided interconnecting wiring to compressor motor start components in each of two motor control center cabinets.

Guide Specifications (Continued)

2. Three and Four Compressor Machines –
- Multiple Point power connection to Terminal Blocks or Non-Fused Disconnect Switches: Two Field provided branch circuits shall connect to Factory provided Terminal Blocks or Non-Fused Disconnect Switches, with Lockable External Handle in compliance with Article 440-14 of N.E.C. with Factory furnished interconnecting wiring to (optional Individual System Circuit Breakers with lockable external handles, and) compressor motor start components in each of the two motor control center cabinets.
 - Single-Point Terminal Block or Non-fused Disconnect Switch: Field provided branch circuit shall connect to single-point Terminal Block or Non-Fused Disconnect with lockable external handle in compliance with N.E.C. Article 440-14, with Factory provided interconnecting wiring to Individual System Circuit Breakers and compressor motor start components in each of two motor control center cabinets.
- C. Control Current Terminal Strip provides power input terminals to field provided power input (models 0373 - 0653).
- D. Condenser Coil Environmental Protection:
- Black Fin: Epoxy coated aluminum fin stock to guard from corrosive agents and insulate against galvanic potential. For mild seashore or industrial locations.
 - Copper Fin: Provide copper fins in lieu of aluminum.
 - Epoxy Coating: Cured epoxy coating on condenser coils for seashore and other corrosive applications (with the exception of strong alkalis, oxidizers, and wet bromine, chlorine and fluorine in concentrations greater than 100ppm).
- E. Protective Chiller Panels (Factory mounted):
- Louvered Panels (condenser coils only): Painted steel as per remainder of unit cabinet, over external condenser coil faces.
 - Wire Panels (full unit): Heavy gauge, welded wire-mesh, PVC coated to resist corrosion, to protect condenser coils from incidental damage and restrict unauthorized access to internal components.
 - Louvered Panels (full unit): Painted steel as per remainder of unit cabinet, to protect condenser coils from incidental damage, visually screen internal components, and prevent unauthorized access to internal components.
 - Louvered/Wire Panels: Louvered steel panels on external condenser coil faces, painted as per remainder of unit cabinet. Heavy gauge, welded wire-mesh, PVC coated to resist corrosion, around base of machine to restrict unauthorized access.
- F. Evaporator options:
- Provide 1-1/2" cooler insulation in lieu of standard 3/4".
 - Provide DX Cooler with 300 PSIG (20.7 bar) waterside design working pressure in lieu of standard 150 PSIG (10.3 bar).
 - Provide Raised Face Flanges for cooler nozzles:
 - 150 PSIG (10.3 bar), welded flanges (field kit, mate supplied).
 - 300 PSIG (20.7 bar), welded flanges (factory installed, no mate supplied).
 - 150 PSIG (10.3 bar), Victaulic™ Flanges (field kit, no mate supplied).
- G. Remote Cooler: Manufacturer shall provide separately: 1. Chiller less evaporator, refrigerant, and liquid line mechanical devices; 2. Insulated evaporator; 3. Field accessory kit including filter-drier shell and core, liquid line solenoid valve, sight glass with moisture indicator, and expansion valve per refrigerant circuit; 4. Entering and leaving water temperature transducers. Contractor shall field erect system and provide interconnecting piping, refrigerant charge, and wiring in accordance with manufacturers recommendations, and project plans and schedules. Where not otherwise specified, Contractor provided system piping shall be in accordance with applicable sections of the ASHRAE Handbook.
- H. Flow Switch (Field mounted): Vapor proof SPDT, NEMA 4X switch (___ 150 PSIG (10.3 bar) or ___ 300 PSIG (20.7 bar)), -20°F to 250°F (-28.9°C to 121.1°C).
- I. High External Static Pressure Fans and Motors: Factory installed fans and motors for up to 0.4 inches of water (100Pa) external static pressure at nominal condenser air flow.
- J. Microprocessor Membrane Keypad Graphics on in lieu of Standard English:
- French language.
 - Spanish language.
- K. Thermal Storage: Leaving chilled liquid setpoint range for charge cycle from 25°F to 15°F (13.9°C to 8.3°C) minimum, automatic reset setpoint range of 40°F to 50°F (22.2°C to 27.8°C).
- L. Low Temperature Process Brine: Leaving chilled liquid setpoint range 20°F to 50°F (11.1°C to 27.8°C) (optional range of 15°F to 20°F (3.3°C to 11.1°C)).

- M. Building Automation System (EMS) Reset Interface: Chiller to accept 4 to 20mA, 0 to 10 VDC, or discrete contact closure input to reset the leaving chilled liquid temperature, or percent full load amps (current limit).
- N. Remote Control Panel (Field mounted): Auxiliary panel for remote user interface for functions normally made at the unit control center.
- O. Multi-Unit Sequence Control (Field mounted): Separate Sequencing control center provided to permit control of up to eight chillers in parallel based on mixed liquid temperature.
- P. Sound Reduction:
1. Low speed, reduced noise fans (Factory mounted)
 2. Acoustical compressor enclosures (Field mounted)
 3. Compressor Sound Blankets (Factory mounted)
- Q. Vibration Isolation (Field mounted):
1. Neoprene Isolators.
 2. 1 Inch Deflection Spring Isolators: Level adjustable, spring and cage type isolators for mounting under the unit base rails.
 3. 2 Inch Deflection Seismic Isolators: Level adjustable, restrained mounts in rugged welded steel housing with vertical and horizontal limit

stops. Housings shall be designed to withstand a minimum 1.0g accelerated force in all directions to 2" (50 mm).

PART 3 — EXECUTION

3.01 INSTALLATION

- A. General: Rig and Install in full accordance with Manufacturer's requirements, Project drawings, and Contract documents.
- B. Location: Locate chiller as indicated on drawings, including cleaning and service maintenance clearance per Manufacturer instructions. Adjust and level chiller on support structure.
- C. Components: Installing Contractor shall provide and install all auxiliary devices and accessories for fully operational chiller.
- D. Electrical: Coordinate electrical requirements and connections for all power feeds with Electrical Contractor (Division 16).
- E. Controls: Coordinate all control requirements and connections with Controls Contractor.
- F. Finish: Installing Contractor shall paint damaged and abraded factory finish with touch-up paint matching factory finish.



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