

YCIV0600SE-YCIV1500SE & YCIV0590HE-YCIV1380HE

ENGINEERING GUIDE

Revision 4

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AIR-COOLED SCREW LIQUID CHILLERS STYLE B (513 - 1355 KW) SE - STANDARD EFFICIENCY & HE - HIGH EFFICIENCY

Symphony



R134a

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All data in this document is subject to change without prior notice.

FEATURES

YCIV is a fully packaged air cooled liquid chiller with inverter driven screw compressors designed to be located outside on the roof of a building or at ground level.

There are two levels of operating efficiency:

1. Standard YCIV.
2. High Efficiency YCIV.

The optimised capacity control increases the operating efficiency of the chiller.

Each efficiency level has a selection of three acoustic options:

1. Standard Sound Level (SE or HE models) - Generally applicable for daytime operation in city centres etc.
2. Reduced Sound Level (RS) - For daytime operation where background noise is lower.
3. Low Sound Level (LS) - For night and day operation near residential areas.

Economical Operating Costs Year Round

The incorporation of variable compressor speed technology, flash tank economisers, electronic expansion valves and Optimised capacity control results in exceptionally high full load (Efficiency class A) and part load Energy Efficiency Ratios and economical operating costs year round. Further reductions in operating cost may be realised from the high 0.95 power factor that is maintained throughout the chillers' entire operating range.

Fuzzy Logic Control is utilised to make decisions to increase or reduce compressor speeds according to the error or deviation from Setpoint and the rate of change of chilled liquid temperature. This further improves energy efficiency by ensuring that compressors do not needlessly operate to over cool the system.

Specifically Designed For Low Sound Operation

Most major cities today have rigorous noise control legislation and many applications such as medical, educational, hotels and theatres are extremely noise sensitive. In such situations a chiller must not only meet sound level requirements during the day, when background noise levels often mask chiller sound levels, but also during evenings and at night when legislated levels are more stringent and background levels are diminished.

The **YCIV LS** chiller has been specifically designed for low sound operation, to satisfy the needs of various locations, by positioning noise emitting components together in one location and enclosing them in an acoustically treated chamber. Two speed fans are incorporated, that automatically operate at a quiet low speed as ambient temperatures reduce during the evening and at night.

Increased Reliability and Minimal Maintenance Costs

The heart of the YCIV chiller is the YORK MTS semi-hermetic screw compressor. The following design features provide increased reliability and minimal maintenance costs:

- Each compressor motor has a dedicated inverter, to match motor speed to cooling demand, there is no slide valve, return spring or control solenoid. Therefore this simple dual screw rotor compressor has 50% less moving parts than conventional screw compressors.
- YCIV controls monitor compressor runtime and start-ups and automatically switch the lead and lag compressors to balance operating hours.
- The soft start characteristics of variable speed drive, the starting current never exceeds full load amps, eliminates any compressor starting stress.

Another advantage, of low starting current, is that standby generators are smaller than those required for conventional chillers.

Smooth and Step-less Capacity Control

Capacity control is smooth and step-less providing a minimum capacity control of 10% on two compressor chillers and 7.5% on three compressor models.

Chiller Will Continue To Operate

Load limiting controls have been included to ensure that if maximum-operating conditions, such as: motor current, suction or discharge pressure or excess inverter temperatures, are exceeded the chiller will continue to operate to maintain performance within safety limits.

Plain Language 80 Character Display

The control centre has a plain language 80 character display of system temperatures, pressures, motor currents, compressor operating hours and number of starts, variable speed frequency, start/stop times and holidays etc. Full information to facilitate data logging, maintenance schedules and energy management is provided.

Optional Communications Interfaces

Bacnet, Lonmark and Modbus

Single Point Electrical Connection

Symphony is supplied, as standard, with a single point lockable circuit breaker for safety and installation convenience.

Wide Range of Ambient Conditions

Symphony has been designed to operate in ambient temperatures from -18°C to $+52^{\circ}\text{C}$.

Wide Range of Leaving Liquid Temperatures

Symphony has been designed to provide leaving liquid temperatures from -9°C to $+15^{\circ}\text{C}$.

VARIABLE SPEED DRIVE CHILLER HISTORY

1979: YORK introduces water cooled VSD for process cooling applications. Up to 400 hp.

1985: First floor mounted, air cooled, VSD in the industry for centrifugal chillers for air-conditioning applications. Up to 500 hp.



1995: First unit mounted VSD in the industry on centrifugal chillers for air conditioning applications. Up to 500 hp.

2000: Reduced size unit mounted VSD on centrifugal chillers for air-conditioning applications. Up to 1000 hp.



2004: YORK introduces the World's first variable speed drive air-cooled screw chiller.

2005: YORK awarded Climate Protection Award for VSD technology by the United States Environmental Protection Agency.



2006: YORK introduces the World's first low sound variable speed drive air-cooled screw chiller.



NOMINAL DATA

Standard Efficiency (SE) Models	Acoustic Option	YCIV 0600	YCIV 0650	YCIV 0720	YCIV 0770	YCIV 0840	YCIV 0920	YCIV 1000	YCIV 1070	YCIV 1180	YCIV 1340	YCIV 1500
Cooling Capacity kW*	Standard Sound Models (SE)	546	593	648	695	758	832	906	960	1066	1207	1355
Energy Efficiency Ratio (EER)*		2.90	2.87	2.91	2.88	2.96	2.96	2.96	2.93	2.94	2.96	2.96
Efficiency Class		B	C	B	C	B	B	B	B	B	B	B
ESEER **		4.00	3.95	3.99	3.95	3.99	4.03	4.08	4.01	4.03	4.05	4.13
Sound Pressure at 10 Metres dB(A)		69.4	70.4	71.6	70.3	73.3	72.1	72.1	73.9	75.9	76.1	76.4
Cooling Capacity kW*	Reduced Sound Models (SE RS)	539	579	641	679	748	822	896	940	1045	1193	1340
Energy Efficiency Ratio (EER)*		2.77	2.71	2.74	2.7	2.77	2.77	2.78	2.76	2.76	2.8	2.78
Efficiency Class		C	C	C	C	C	C	C	C	C	C	C
ESEER**		3.93	3.88	3.91	3.88	3.90	3.96	3.99	3.92	3.95	3.98	4.01
Sound Pressure at 10 Metres dB(A)		67.4	66.4	67.6	66.3	69.3	68.1	68.1	69.9	71.9	72.1	72.4
Cooling Capacity kW*	Models with 2 Speed Fans (SE LS)	539	579	641	679	748	822	896	940	1045	1193	1340
Energy Efficiency Ratio (EER)*		2.78	2.72	2.75	2.70	2.77	2.78	2.79	2.77	2.77	2.78	2.79
Efficiency Class		C	C	C	C	C	C	C	C	C	C	C
ESEER**		3.97	3.91	3.95	3.91	3.93	4.00	4.03	3.96	3.98	4.01	4.05
Sound Pressure at 10 Metres dB(A)		65.3	61.5	62.4	61.4	63.4	63.2	63	63.4	63.9	65.6	65.8
	Normal Fans Speed	58.5	58.5	59.3	58.3	60.3	61.2	61.2	60.1	60.7	63.6	63.5
	Low Fan Speed	58.5	58.5	59.3	58.3	60.3	61.2	61.2	60.1	60.7	63.6	63.5
Cooling Capacity kW*	SE LS Models with High Fan Speed Inhibited	523	547	607	638	702	779	857	892	987	1129	1283
Energy Efficiency Ratio (EER)*		2.55	2.45	2.47	2.42	2.52	2.51	2.51	2.49	2.49	2.51	2.51
Efficiency Class		D	E	E	E	D	D	D	E	E	D	D
ESEER**		3.95	3.85	3.91	3.84	3.87	3.92	3.96	3.91	3.92	3.97	4.01
Sound Pressure at 10 Metres dB(A)		62.4	58.2	60.1	59.3	61.3	61.2	61.2	60.1	60.7	63.6	63.5
High Efficiency (HE) Models	Acoustic Option	YCIV 0590	YCIV 0630	YCIV 0700	YCIV 0760	YCIV 0800	YCIV 0830	YCIV 0930	YCIV 1050	YCIV 1120	YCIV 1220	YCIV 1380
Cooling Capacity kW*	Standard Sound Models (HE)	540	583	631	682	726	756	837	948	1010	1099	1244
Energy Efficiency Ratio (EER)*		3.12	3.13	3.08	3.05	3.1	3.13	3.05	3.09	3.11	3.1	3.09
Efficiency Class		A	A	B	B	A	A	B	B	A	A	B
ESEER **		4.05	4.04	4.00	4.01	4.00	4.02	4.05	4.08	4.08	4.08	4.13
Sound Pressure at 10 Metres dB(A)		67.4	69.3	69.3	71.3	69.2	73	72	71.6	72.3	73.5	74.0
Cooling Capacity kW*	Reduced Sound Models (HE RS)	531	575	625	675	720	749	828	938	1000	1088	1230
Energy Efficiency Ratio (EER)*		2.98	2.99	2.91	2.87	2.92	2.98	2.88	2.92	2.93	2.91	2.92
Efficiency Class		B	B	B	C	B	B	C	B	B	B	B
ESEER**		3.98	3.97	3.94	3.94	3.94	3.97	3.98	3.98	3.99	3.98	4.05
Sound Pressure at 10 Metres dB(A)		64.4	65.3	65.8	67.3	66	69	67.5	68.6	68.6	70.8	70.4
Cooling Capacity kW*	Models with 2 Speed Fans (HE LS)	531	575	625	675	720	749	828	938	1000	1088	1230
Energy Efficiency Ratio (EER)*		2.99	3.00	2.92	2.88	2.93	2.99	2.89	2.93	2.94	2.92	2.93
Efficiency Class		B	B	B	C	B	B	C	B	B	B	B
ESEER**		4.01	4.00	3.98	3.97	3.98	4.00	4.02	4.02	4.03	4.02	4.08
Sound Pressure at 10 Metres dB(A)		63	63.8	61.8	61.8	61.7	62.7	62.4	63.2	63.5	64.1	64.5
	Normal Fans Speed	56.8	57.5	58.6	58.9	58.8	59.8	59.8	59.3	59.7	60.8	61.0
	Low Fan Speed	56.8	57.5	58.6	58.9	58.8	59.8	59.8	59.3	59.7	60.8	61.0
Cooling Capacity kW*	HE LS Models with High Fan Speed Inhibited	513	559	604	648	696	734	800	903	965	1044	1189
Energy Efficiency Ratio (EER)*		2.76	2.76	2.68	2.59	2.66	2.72	2.61	2.64	2.64	2.64	2.65
Efficiency Class		C	C	D	D	D	C	D	D	D	D	D
ESEER**		4.00	3.98	3.96	3.93	3.95	3.99	3.97	3.98	3.99	4.00	4.03
Sound Pressure at 10 Metres dB(A)		61.4	62.3	58.1	59.3	59.2	61.2	61.2	59.3	59.7	60.8	61.1

* At 7°C leaving chilled water and 35°C ambient.

** ESEER is European Energy Efficiency Ratio. $ESEER = 0.03A + 0.33B + 0.41C + 0.23D$

A = EER is 100% capacity at 35°C ambient.

B = EER is 75% capacity at 30°C ambient.

C = EER is 50% capacity at 25°C ambient.

D = EER is 25% capacity at 20°C ambient.

SPECIFICATION

YCIV air-cooled chillers are completely assembled with all interconnecting refrigerant piping and internal wiring, ready for field installation. The unit is pressure tested, evacuated, and fully factory charged with refrigerant R134a and oil in each of the independent refrigerant circuits. After assembly, an operational test is performed with water flowing through the evaporator to ensure that each refrigerant circuit operates correctly.

The unit structure is manufactured from heavy gauge, galvanised steel and coated with baked-on powder paint (colour Champagne ((RAL 7006), (Munsell No. 9.8YR4.36/1.2)) which when subject to ASTM B117, 1,000 hour, 5% salt spray test, yields minimum ASTM 1654 rating of "6".

YCIV chillers are designed within EN ISO 9001 and built within an EN ISO 9002 accredited manufacturing organisation.

Chillers conform with the following European Directives:

- Machinery directive (2006/42/EC)
- EMC Directive (2004/108/EC)
- Pressure Equipment Directive (97/23/EC)
- Safety Code for Mechanical Refrigeration (EN378-2 (2008))

Or conversely comply with the applicable sections of the following Standards and Codes:

- ANSI/ASHRAE Standard 15, Safety Code for Mechanical Refrigeration.
- ANSI/NFPA Standard 70, National Electrical Code (N.E.C.).
- ASME Boiler and Pressure Vessel Code, Section VIII Division 1.
- ARI Standard 550/590-98, Water Chilling Packages Using the Vapor Compression Cycle.
- ASHRAE 90.1 Energy Standard for Building Except Low-Rise Residential Buildings.
- ARI 370 Sound Rating of Large Outdoor Refrigeration and Air Conditioning Equipment.

In addition, the chillers conform to Underwriters Laboratories (U.L.) for construction of chillers and provide U.L./cU.L. Listing Label.

Fluorinated Greenhouse Gases

- This equipment contains fluorinated greenhouse gases covered by the Kyoto Protocol.
- The global warming potential of the refrigerant (R134a) used in this unit is 1300.
- The refrigerant quantity is stated in the Physical Data table in this document.

- The fluorinated greenhouse gases in this equipment may not be vented to the atmosphere.
- This equipment should only be serviced by qualified technicians.

Semi-Hermetic York Twin-Screw Compressors

Continuous function, microprocessor controlled, Variable Speed Drive (VSD) shall provide valve-less, smooth capacity control from 100% down to 10% of chiller capacity for two compressor chillers and 100% down to 7.5% for three compressor chillers. In addition, elimination of the slide valve and associated unloading components has resulted in a 50% reduction in compressor moving parts.

- Compressors are direct drive, semi-hermetic, rotary twin-screw type, including: muffler, temperature actuated 'off-cycle' heater, IP55 terminal box, discharge shut-off service valve, and precision machined cast iron housing.
- Reliable suction gas cooled, high efficiency, accessible hermetic compressor motor, full suction gas flow through mesh screen filter, with inherent internal thermal overload protection and external current overload on all three phases.
- Suction gas screen and serviceable, 0.5 micron full flow oil filter within the compressor housing.
- Cast iron compressor housing precisely machined for optimal clearances and superb efficiency. Entire compressor, from suction to discharge has a Design Working Pressure (DWP) of 24 bar.

Power and Electrical

YORK has over 25 years of experience designing variable-speed drives specifically for chiller applications. The result is an extremely reliable air-cooled chiller system that offers industry leading efficiency at real world operating conditions, valve-less compressor loading/unloading, excellent capacity control, high power factor and soft start.

- All controls and motor starting equipment necessary for unit operation shall be factory wired and function tested.
- VSD Power/Control Panel includes main power connection(s), VSD and fan motor contactors, current overloads, and factory wiring. Standard design includes IP55 rating, powder painted steel cabinet with hinged, latched, and gasket sealed outer doors equipped with wind struts for safer servicing.
- VSD section of power panel includes a dedicated inverter output for each compressor.
- The variable speed drive (VSD) Inverters are cooled by a propylene glycol cooling loop. A glycol pump circulates glycol through the VSD heat sink to cool the power components. The glycol is then circulated through several of the bottom rows of the condenser coil to reject the heat.

- The panel includes a control display access door so that display and control features can be accessed without opening main cabinet doors.
- Two and three compressor models have as standard a single point power connection. In addition, all models are supplied with a factory mounted and wired control transformer that will supply all unit control voltage from the main unit power supply. The transformer utilises scheduled line voltage on the primary side and provides 115 V/ 1 phase on secondary.
- The power panel is equipped with a factory mounted circuit breaker, at point of incoming single point connection, that provides the means to disconnect power and short circuit protection. A lockable operating handle extends through the power panel door so that power may be disconnected without opening any panel doors.
- Compressor motors are powered by a variable-speed drive. Therefore, motor current never exceeds the rated full load amps, providing soft starts with no electrical inrush. This eliminates the motor heating and stress always found with conventional motor starters. In addition, by eliminating the heat buildup during starting, the required off-time between starts is reduced to a maximum of two minutes.
- Many utility companies charge an additional fee if power factor is below 0.95. These power factor adjustments/penalties can affect both regular tariff rates, as well as demand charges. All YCIV models have a full load displacement power factor of 95% and maintain this level throughout the operating range. Specifications should always require the installing contractor to be responsible for additional cost to supply and install power factor correction capacitors if they are not factory mounted and wired.
- All exposed power wiring is routed through conduit.

Refrigerant Circuits

An independent refrigerant circuit is provided per compressor. Each circuit uses copper refrigerant pipe formed on computer controlled bending machines to reduce the number of brazed joints resulting in a reliable and leak resistant system.

- Liquid line components include: manual shut-off valve with charging port, high absorption removable core filter-drier, sight glass with moisture indicator, and electronic expansion valve.
- Discharge lines are provided with a manual compressor shutoff service valve (See Options and Accessories for suction line valve).
- A Flash tank is located in each refrigerant circuit to increase the system efficiency. The design working pressure is 31 bar.

- Insulated external oil separators with no moving parts, 24 bar design working pressure.
- Refrigerant system differential pressure provides oil flow through service replaceable, 0.5 micron, full flow, cartridge type oil filter internal to compressor.
- Suction lines, oil separators and flash tanks are covered with closed-cell insulation.

Evaporator

The unit uses a Shell and Tube type high-efficiency Direct Expansion Evaporator. Each of the refrigerant circuits consists of 2 passes with the chilled liquid flowing through the baffled shell.

The design working pressure of the evaporator on the shell side is 10.3 bar, and 16 bar for the tube (refrigerant side).

- Constructed and marked in accordance with the Pressure Equipment Directive and pressure tested to Refrigerant Safety Standard EN 378 or ASME Pressure Vessel Code, Section VII, Division (1). Waterside exempt per paragraph U-1, c, (6).
- The water baffles are fabricated from galvanized steel to resist corrosion.
- Removable heads are provided for access to internally enhanced, seamless, copper tubes.
- Water vent and drain connections are included.
- The evaporator is equipped with a thermostatically controlled heater for protection to -29°C ambient and is insulated with 19 mm flexible closed-cell foam.
- Water nozzles have victaulic grooves as standard and are available with optional flanges.

Condenser

Standard (SN) and reduced (RS) sound level models have condensers fitted with single speed fans. Low sound (LS) models have two speed fans fitted.

- The fans are dynamically and statically balanced, direct drive with corrosion resistant glass fibre reinforced composite blades moulded into full airfoil cross section, providing vertical air discharge from extended orifices for efficiency and low sound.
- Guards of heavy gauge, PVC (polyvinyl chloride) coated steel wire are provided.
- The fan motors are the high efficiency, direct drive, 6 pole on SN models and 8 pole on RS and LS models, 3 phase, Class-“F”, current overload protected, totally enclosed (TEAC) type with double sealed, permanently lubricated, ball bearings.

The fin and tube condenser coils are manufactured from seamless, internally enhanced, high condensing coefficient, corrosion resistant copper tubes arranged in staggered rows and mechanically expanded into corrosion resistant aluminium alloy fins with full height fin collars.

- Oil cooling is provided by routing oil, from the oil separator, through several of the top rows of the condenser coil and returned to the compressor.
- The design working pressure is 24 bar.

Microprocessor Controls

The microprocessor control system provides automatic control of chiller operation including compressor start/stop and load/unload, anti-recycle timers, condenser fans, evaporator pump, evaporator heater, unit alarm contacts and run signal contacts.

- Chiller automatically resets to normal chiller operation after power failure.
 - Unit operating software is stored in non-volatile memory. Field programmed set points are retained in a lithium battery backed real time clock (RTC) memory for minimum five years.
 - Alarm contacts are provided to remote alert contacts for any unit or system safety fault.
- Display and Keypad:**

80 character liquid crystal display that is both viewable in direct sunlight and has LED backlighting for night-time viewing. One keypad and display panel is provided with every chiller.



Display and keypad is accessible through display access door without opening main control/electrical cabinet doors.

Display provides unit setpoints, status, electrical data, temperature data, pressures, safety lockouts and diagnostics without the use of a coded display.

Sealed keypad shall include unit On/Off switch.

Programmable Setpoints:

- display language;
- leaving chilled liquid temperature;
- setpoint, control range;
- local or remote control;
- units of measure;
- compressor lead/lag;
- maximum chilled water setpoint reset temperature range.

Display Data:

- chiller liquid return and leaving temperatures;
- ambient temperature;
- lead compressor identification;
- clock and schedule;
- variable out of range;
- remote input indication;
- chilled liquid reset setpoint;
- history data for last ten shutdown faults;
- compressor suction, discharge, and oil pressures and temperatures;
- suction and discharge superheats;
- percent of full-load;
- 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 timer.

During extreme or unusual conditions (i.e. blocked condenser coils, ambient above scheduled maximum, etc.) the chiller control system will avoid safety shutdown by varying the chiller controls and cooling load output to stay on-line and avoid safety limits being reached. This allows maximum possible cooling capacity until the unusual condition is cleared and avoids costly shutdowns.

The system monitors the following parameters and maintains the maximum cooling output possible without shutdown of the equipment:

- motor current;
- suction pressure;
- discharge pressure.

System Safeties are provided for individual compressor systems to perform auto-reset shut down (manual reset required after the third trip in 90 minutes). Safeties include:

- high discharge pressure or temperature;
- low suction pressure;
- high / low motor current;
- high motor temperature;
- high pressure switch;
- high / low differential oil pressure;
- high oil temperature;
- low suction superheat;

- critical sensor malfunction;
- low or high current;
- phase loss/single phase power;
- overload of motor windings;
- low voltage.

Unit Safeties are provided for the chiller to perform auto-reset shut down for the following conditions:

- high or low ambient;
- low leaving chilled liquid temperature;
- under voltage;
- flow switch operation.

END OF LINE TEST AND QUALITY PLAN

Leak Test

After unit assembly refrigerant circuits are separately leak tested using nitrogen.

Strength Test

The system is evacuated and charged with a helium mixture. The high and low-pressure sides, of the refrigerant circuits, are tested separately at their design working pressures to ensure that pressure is held. An electronic leak detector is used to check all joints in the refrigerant circuits for signs of leakage.

Operating Function Test

The chiller is connected to a water loop and electrical power source and each refrigerant system is operated for a minimum of 10 minutes to check that all functions are operating satisfactorily. If a safety shut down occurs the problem is solved and the system is retested.

At the completion of the test the evaporator is drained and a final leak check (using a leak detector) is performed. The unit is then inspected and prepared for shipment.

ACCESSORIES AND OPTIONS

Acoustic Options

There are three acoustic options to suit the various locations where air-cooled chillers are applied:

- The standard sound option (SE and HE) has fans that operate at normal speed and no compressor enclosure.

This option is typically used in non-sensitive sound areas such as industrial areas or locations with loud traffic noise etc.

- The reduced sound option (RS) has fans that operate at normal speed and an unlined compressor enclosure.

This option is typically used for daytime operation where background noise is lower than normal city traffic etc.

- The low sound option (LS) has 2 speed fans and an acoustically lined compressor enclosure.

At high ambient conditions the fans operate at normal speed and as the ambient temperature falls the fans automatically reduce to slow speed. If very low sound is required at all ambient conditions normal fan speed can be inhibited.

This option is typically for locations near residential areas, hotels or hospitals etc where fans operate at normal speed during the day, when background noise levels are noticeable, and at low speed in the evening and at night when background levels are lower.

Energy Efficiency Option

Optimised capacity control option increases the Energy Efficiency Ratio at all operating conditions.

Condenser Coil Protection

Standard condenser coil construction materials include aluminium 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 factory fitted options based on project design parameters and related environmental factors:

- **PRE-COATED FIN CONDENSER COILS** – The air-cooled condenser coils are constructed of epoxy-coated aluminium 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 spray may hit the unit.

- **POST-COATED EPOXY DIPPED CONDENSER COILS** – The unit is built with dipped-cured epoxy condenser coils.

This is another choice for seashore and other corrosive applications (with the exception of strong alkalis, oxidisers and wet bromine, chlorine and fluorine in concentrations greater than 100 ppm).

- **COPPER FIN CONDENSER COILS** – The unit constructed with copper tube condenser coils, which have copper fins.

This is not recommended for units in areas where they may be exposed to acid rain.

Heat Recovery Option

Factory fitted desuperheaters on system 1 and 2 compressor discharge lines to provide hot water during cooling operation.

Unit Protective Panels

- Wire Panels (full unit) – UV stabilized black polyvinyl chloride coated, heavy gauge, welded wire mesh guards mounted on the exterior of the unit (factory mounted).

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.

Evaporator Options

- For ease of installation evaporator water connections are left or right handed when viewed from the control panel end. Left handed water connections are standard.
- 38 mm Insulation – Double thickness insulation provided (factory mounted).
- Victaulic PN10 flange joint kit (10 bar) supplied loose for field installation. Includes flange and companion flange and all necessary nuts, bolts and gaskets
- Flow Switch - Vapour proof 10.3 bar DWP, -28.9°C to 121.1°C with 1" BSP connection for upright mounting in horizontal pipe. This flow switch or equivalent must be supplied with each unit (field mounted).
- Field fitted differential pressure switch to protect evaporator from loss of liquid flow..

Building Automation System (BAS) Interface

The BAS input is :

- Leaving Chilled Liquid Temperature

Each BAS input can accept a reset via a 0 to 10 Vdc, or 2 to 10 Vdc, or 0 to 20 mAdc, or 4 to 20 mAdc signal.

Vibration Isolation

- Neoprene isolation to provides very good performance in most applications for the least cost (field mounted).
- 1" level adjustable spring Isolators. Spring and cage type isolators for mounting under the unit base rails. 1" nominal deflection may vary slightly by application (field mounted).

Roof installations should incorporate the use of spring-type isolators.

- 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 1.0 g accelerated force in all directions to 51 mm. Level adjustable, deflection may vary slightly by application (field mounted).

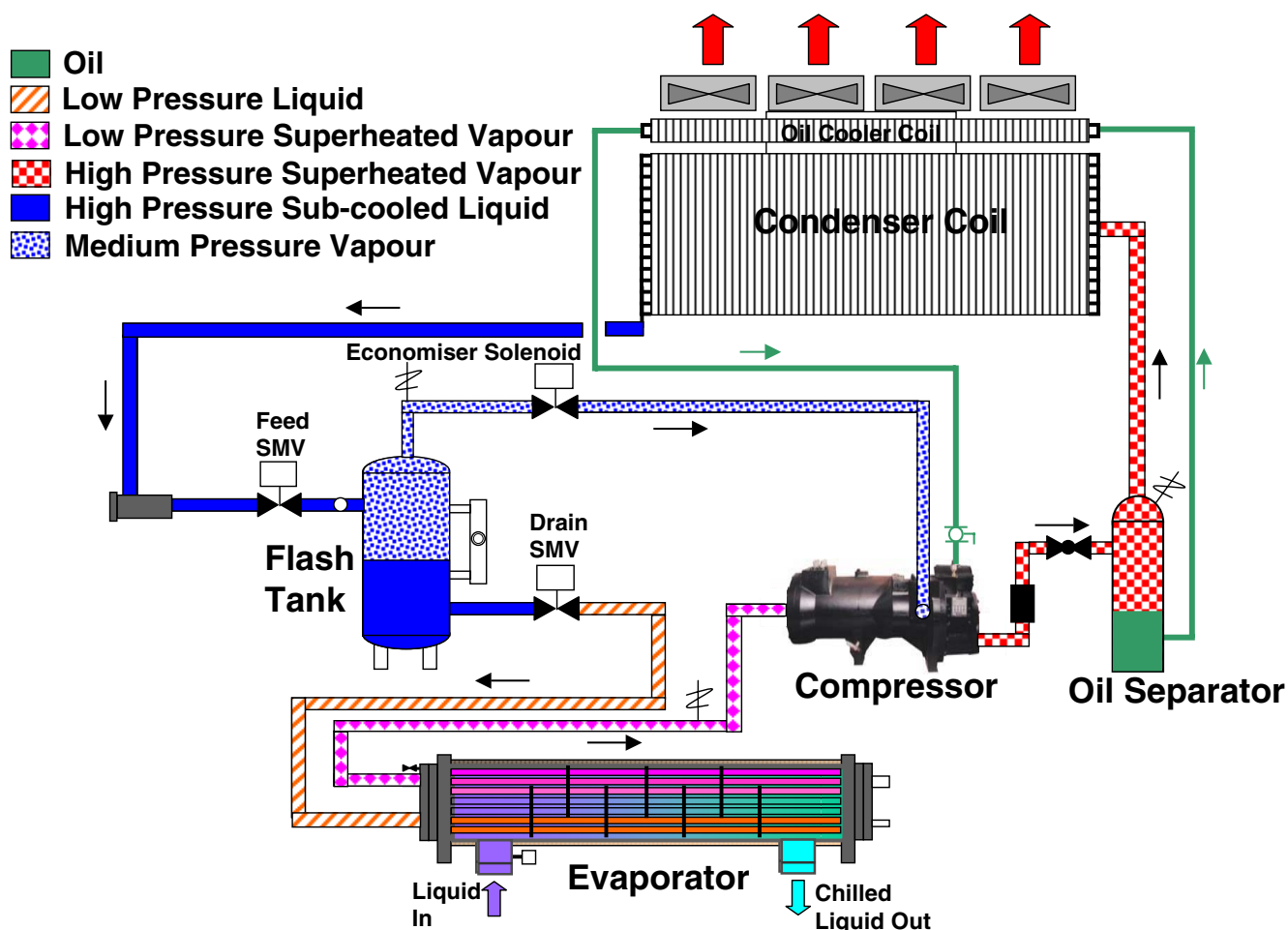
Dual Pressure Relief Valves

Each relief valve is mounted on a sealable ball valve to aid maintenance.

Two safety valves in parallel of which one is operational to assist in valve replacement during maintenance.

Low Temperature Brine

Control amendments for leaving liquid operation to -9°C.

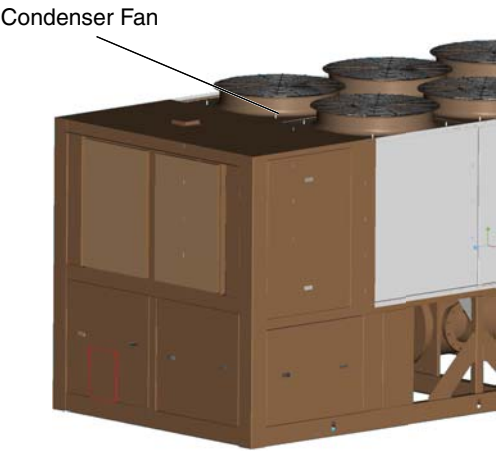
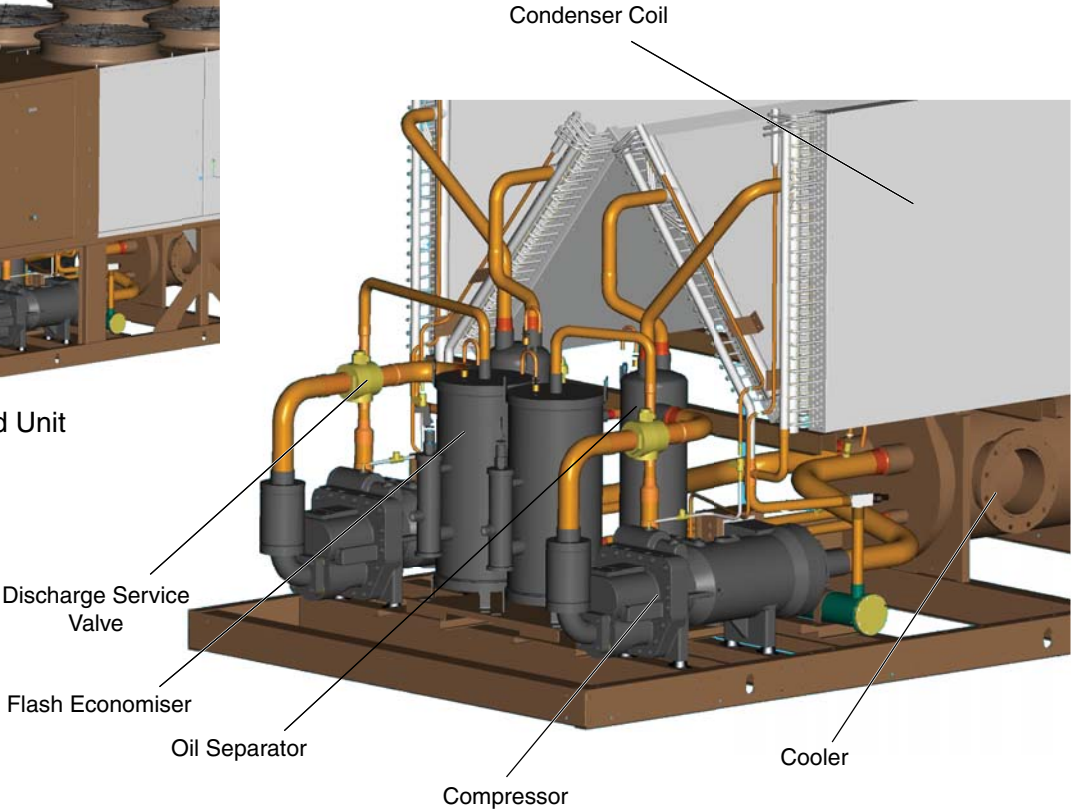
REFRIGERANT FLOW DIAGRAM

Low-pressure liquid refrigerant enters the evaporator tubes and is evaporated and superheated by the heat energy absorbed from the chilled water passing through the evaporator shell. Low-pressure vapour enters the compressor where pressure and superheat are increased. High-pressure vapour is passed through the oil separator where oil is removed, from the refrigerant, and recirculated to the compressor via the oil cooler. High-pressure oil-free vapour is fed to the air-cooled condenser coil where heat is rejected to the air that is forced across the coil surface by fans. The fully condensed liquid refrigerant enters the feed stepper motor valve that controls the liquid flow to maintain a constant liquid level in the Flash Tank. The drain stepper motor valve functions as an Electronic Expansion Valve and controls the refrigerant flow to the evaporator based on the compressor suction superheat. The Economiser Solenoid Valve controls a medium pressure vapour feed to the compressor economiser port. When the valve is open refrigerant vapour flashes off, in the flash tank, to provide additional subcooling to the liquid in the tank. The subcooled liquid is then fed to the evaporator. Increasing both the subcooling and the superheat therefore enhancing the cooling capacity.

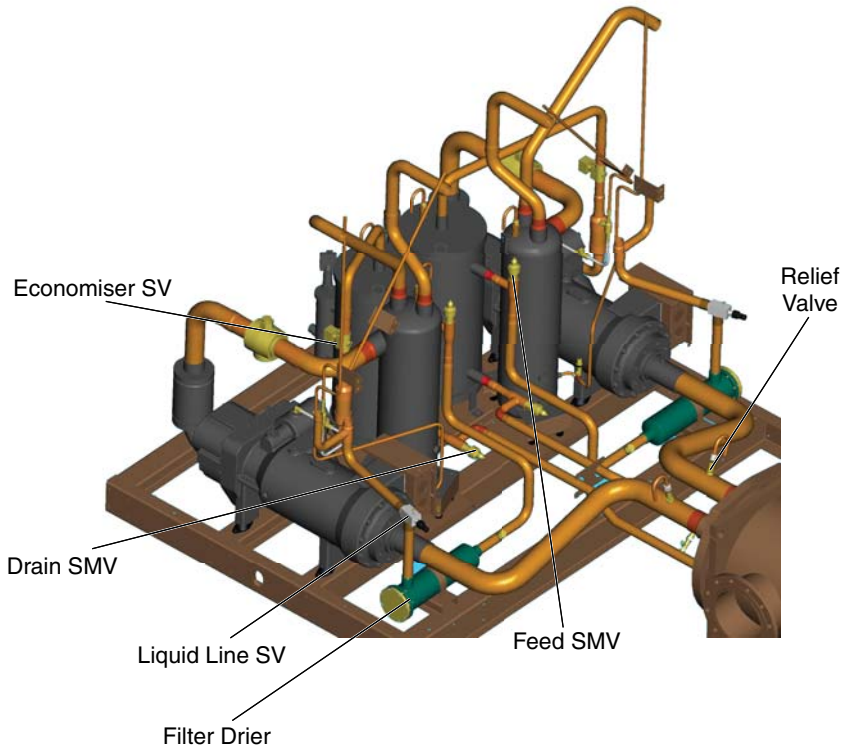
COMPONENT LOCATIONS



Standard Unit



Low Sound Unit

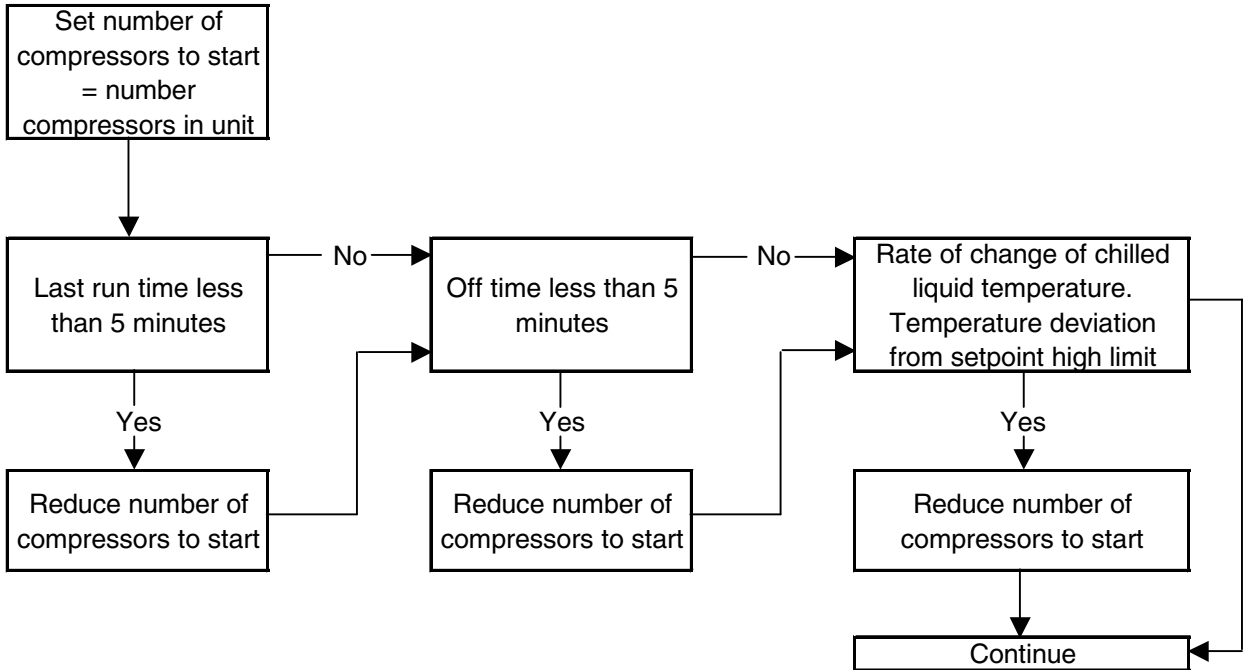


CHILLER CONTROL LOGIC

Optimised European Seasonal Energy Efficiency (ESEER) Control

Smart Anticipatory Control determines how many compressors need to start to satisfy the current cooling load. The “smart” logic is capable of reducing short cycling and reducing loading time on a hot water start and starting all compressors at the same time.

It is desirable to run as many compressors as possible for increased efficiency. Smart anticipatory control logic will keep as many compressors on line and reduce the speed in an effort to optimise the use of the entire evaporator tube surface.



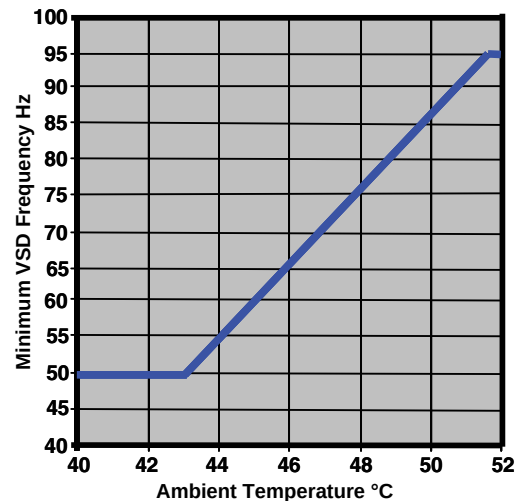
Minimum Variable Speed Start Frequency

The minimum VSD start frequency is based on ambient temperature and determines the frequency that the compressors are ramped to at start. At higher ambients higher motor speeds are needed to provide adequate motor cooling and at low ambients higher motor speeds are needed to develop oil pressure differential at start.

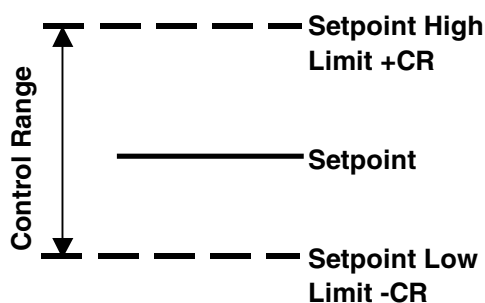
Minimum Variable Speed Run Frequency

The minimum VSD compressor run frequency is based on ambient temperature and determines the minimum frequency that the compressors are permitted to run as the system unloads. At higher ambients higher motor speeds are needed to cool the compressor motor.

The graph illustrates the scaled frequency for both Minimum VSD Start and Run frequencies.



Smart Anticipatory Control Loading/Unloading and Starting Additional Compressors



During the first 30 seconds after a compressor reaches the start frequency loading/unloading is inhibited. After 30 seconds the control logic looks at the actual leaving liquid temperature, compares it with the Setpoint +CR and makes a decision to load or unload. As additional cooling is required the chiller control board microprocessor increases the speed of the compressor at the rate of 1 Hz each 2 seconds until the load is satisfied. Loading will continue for as long as the leaving liquid temperature is above Setpoint +CR.

If the chilled liquid temperature is not satisfied, and is above Setpoint + CR, the microprocessor will start an additional compressor and all compressors are accelerated to start frequency.

If the cooling capacity exceeds the demand the control board microprocessor will decrease the compressor speed at the rate of 0.1 – 1 Hz each 2 seconds until the leaving liquid temperature rises to within the control range.

Fuzzy Logic Control

The fuzzy logic control makes decisions to load or unload according to the error or deviation from Setpoint and the rate of change of chilled liquid temperature.

In most situations, when the chilled liquid temperature is above the Setpoint + CR, the control board microprocessor will continue to increase the speed of the compressors to load the chiller until the temperature drops within the range of the Setpoint High Limit. As the temperature drops and approaches the Setpoint High Limit (Setpoint + CR) the microprocessor's fuzzy logic will begin considering the rate of change before continuing to load. If the rate of change is dropping too fast and there is potential for overshoot, the chiller control board microprocessor may decide not to continue to increase speed. The table below illustrates Fuzzy Logic Loading/Unloading verses Error.

Rate of Change of Liquid Temperature	Deviation from Setpoint		
	Negative Error	Zero Error*	Positive Error
Rate of change of falling temperature	UNLOAD	UNLOAD	HOLD
Zero Rate	UNLOAD	HOLD	HOLD
Rate of change of rising temperature	HOLD	LOAD	LOAD

*Zero Error is when the liquid temperature is at Setpoint.

APPLICATION DATA

Location Requirements

To achieve optimum performance and trouble-free service it is essential that the proposed installation site meets the location and space requirements for the model being installed. It is important to ensure that the minimum service access space is maintained for cleaning and maintenance purposes.

Outdoor Installations

The units can be installed at ground level on a suitable at level foundation easily capable of supporting the weight of the unit, or on a suitable rooftop location. In both cases an adequate supply of air is required. Avoid locations where the sound output and air discharge from the unit may be objectionable.

The location should be selected for minimum sun exposure and away from boiler flues and other sources of airborne chemicals that could attack the condenser coils and steel parts of the unit.

If located in an area accessible to unauthorized persons, steps must be taken to prevent access to the unit by means of a protective fence. This will help to prevent the possibility of vandalism, accidental damage, or possible harm caused by unauthorized removal of protective guards or opening panels to expose rotating or high voltage components.

For ground level locations, the unit must be installed on a suitable flat and level concrete base that extends to fully support the two side channels of the unit base frame. A one-piece concrete slab, with footings extending below the frost line is recommended. To avoid noise and vibration transmission, the unit should not be secured to the building foundation.

On rooftop locations, choose a place with adequate structural strength to safely support the entire operating weight of the unit and service personnel. The unit can be mounted on a concrete slab, similar to ground floor locations, or on steel channels of suitable strength. The channels should be spaced with the same centres as the unit side and front base rails.

This will allow vibration isolators to be fitted if required. Isolators are recommended for rooftop locations. Any ductwork or attenuators fitted to the unit must not have a total static pressure resistance, at full unit air-flow, exceeding the capability of the fans installed in the unit.

Indoor Installations

The unit can be installed in an enclosed plant room, provided the floor is level and of suitable strength to support the full operating weight of the unit. It is essential that there is adequate clearance for air flow to the unit. The discharge air from the top of the unit must be ducted away to prevent re-circulation of air within the plant room. If common ducts are used for fans, non-return dampers must be fitted to the outlet from each fan.

The discharge ducting must be properly sized with a total static pressure loss, together with any intake static pressure loss, less than the available static pressure capability for the type of fan fitted.

The discharge air duct usually rejects outside the building through a louvre. The outlet must be positioned to prevent the air being drawn directly back into the air intake for the condenser coils, as such re-circulation will affect unit performance.

Operating in Low Ambient Conditions

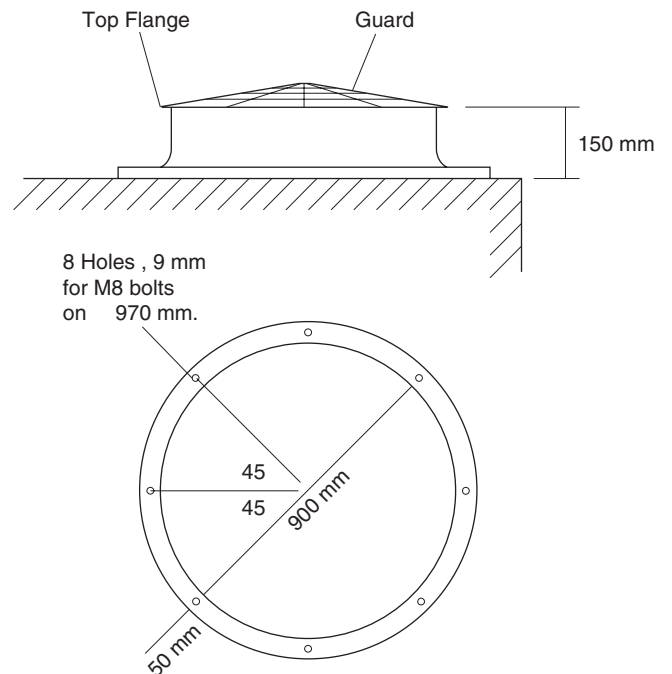
If low cooling capacities are required, at lower ambient conditions (-4°C and below), the refrigerant pressure will fall. To prevent operational problems the two speed fan option should be used.

At ambient conditions of -10°C and below the Condenser Coil Louvred Panels option must be used, if the customer has not provided adequate wind protection.

Ductwork Connection

The following ductwork recommendations are intended to ensure satisfactory operation of the unit. Failure to follow these recommendations could cause damage to the unit, or loss of performance, and may invalidate the warranty. When ducting is to be fitted to the fan discharge it is recommended that the duct should be the same cross sectional area as the fan outlet and straight for at least 1 meter to obtain static regain from the fan.

Ductwork should be suspended with flexible hangers to prevent noise and vibration being transmitted to the structure. A flexible joint is also recommended between the duct attached to the fan and the next section for the same reason. Flexible connectors should not be allowed to concertina.



The unit is not designed to take structural loading. No significant amount of weight should be allowed to rest on the fan outlet flange, deck assemblies or condenser coil module. No more than 1 meter of light construction ductwork should be supported by the unit.

Where cross-winds may occur, any ductwork must be supported to prevent side loading on the unit. If the ducts from two or more fans are to be combined into a common duct, back-flow dampers should be fitted in the individual fan ducts. This will prevent re-circulation of air when only one of the fans is running.

Units are supplied with outlet guards for safety and to prevent damage to the fan blades. If these guards are removed to fit ductwork, adequate alternative precautions must be taken to ensure persons cannot be harmed or put at risk from rotating fan blades.

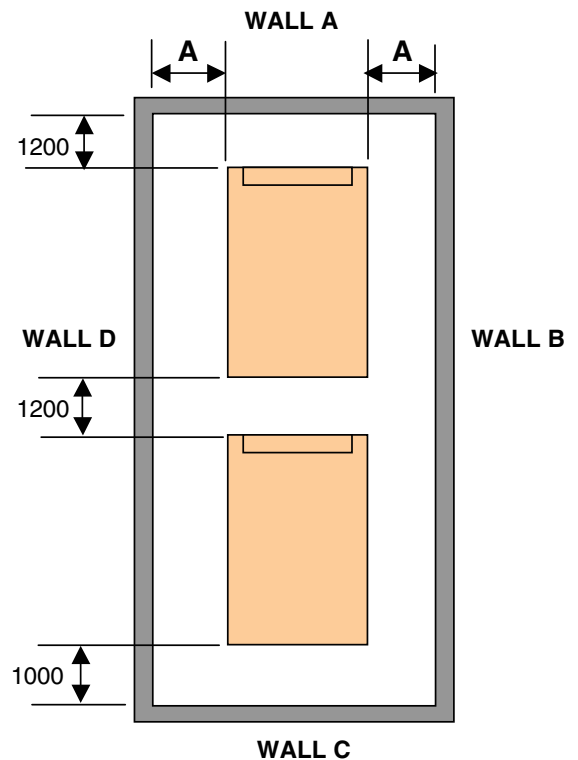
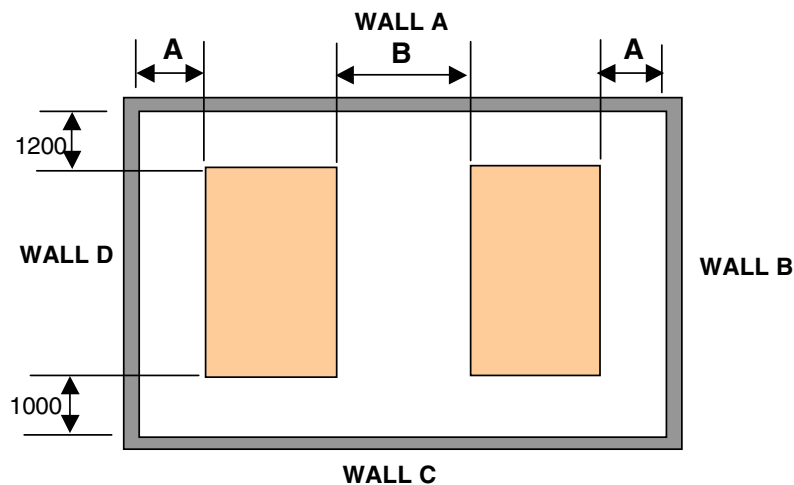
Location Clearances

Adequate clearances around the unit(s) are required for the unrestricted air-flow for the air-cooled condenser coils and to prevent re-circulation of warm discharge air back onto the coils. If clearances given are not maintained, air-flow restriction or re-circulation will cause a loss of unit performance, an increase in power consumption, and may cause the unit to malfunction. Consideration should also be given to the possibility of down drafts, caused by adjacent buildings, which may cause re-circulation or uneven unit air-flow.

For locations where significant cross winds are expected, such as exposed roof tops, an enclosure of solid or louvre type is recommended to prevent wind turbulence interfering with the unit air-flow.

When units are installed in an enclosure, the enclosure height should not exceed the height of the unit on more than one side. If the enclosure is of louvered construction, the same requirement of static pressure loss applies as for ducts and attenuators stated above. Where accumulation of snow is likely, additional height must be provided under the unit to ensure normal air-flow to the unit.

LOCATION CLEARANCES



SOLID WALLS			
Models	SE HE	0600-0920 0590-0800	1000-1500 0830-1380
Dimension A	mm	1500	1700
Dimension B	mm	2700	3000
LOUVRES ON WALLS B & D			
Dimension A	mm	800	800
Dimension B	mm	2700	3000

Notes

Walls must not exceed height of chiller on more than one side.

Louvres must be minimum 50% free area

Dimensions A may have to be increased to allow for pipework and service access around pipework.

Vibration Isolators

Optional sets of vibration isolators can be supplied loose with each unit.

Chilled Liquid Piping

The following piping recommendations are intended to ensure satisfactory operation of the unit(s). Failure to follow these recommendations could cause damage to the unit, or loss of performance, and may invalidate the warranty.

A flow switch must be installed in the customer pipework at the outlet of the cooler and wired back to the control panel using shielded cable to prevent damage to the cooler caused by the unit operating without adequate liquid flow. There should be a straight run of piping of at least 5 pipe diameters on either side of the switch. The flow switch used must have gold plated contacts for low voltage/current operation.

Alternatively, a differential pressure switch fitted across an orifice plate may be used, preferably of the high/low limit type

The chilled liquid pump(s) installed in the piping system(s) should discharge directly into the unit cooler section of the system. The pump(s) may be controlled by the chiller controls or external to the unit. Pipework and fittings must be separately supported to prevent any loading on the cooler.

Flexible connections are recommended which will also minimise transmission of vibrations to the building. Flexible connections must be used if the unit is mounted on anti-vibration mounts, as some movement of the unit can be expected in normal operation.

Piping and fittings immediately next to the cooler should be readily de-mountable to enable cleaning before operation, and to facilitate visual inspection of the exchanger nozzles.

The cooler must be protected by a strainer, preferably of 40 mesh, fitted as close as possible to the liquid inlet connection, and provided with a means of local isolation. The cooler must not be exposed to flushing velocities or debris released during flushing.

It is recommended that a suitably sized bypass and valve arrangement is installed to allow flushing of the piping system. The bypass can be used during maintenance to isolate the heat exchanger without disrupting flow to other units.

Thermometer and pressure gauge connections should be provided on the inlet and outlet connections of each cooler. Gauges and thermometers are not provided with the unit.

Drain and air vent connections should be provided at all low and high points in the piping to permit drainage of the system and to vent any air in the pipes.

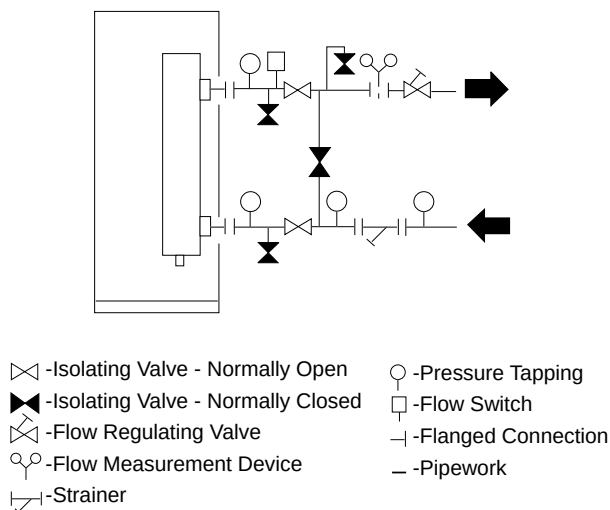
Liquid system lines at risk of freezing, due to low ambient temperatures should be protected using insulation and heater tape and/or a suitable glycol solution. The liquid pump(s) may also be used to ensure liquid is circulated when the ambient temperature approaches freezing point.

Insulation should also be installed around the cooler nozzles. Heater tape of 21 watts per meter under the insulation is recommended, supplied independently and controlled by an ambient temperature thermostat set to switch on at approximately 2.2°C, above the freezing temperature of the chilled liquid.

The cooler is protected by heater mats placed under the insulation, which are powered from the unit control system power supply. During cold weather when there is a risk of freezing, chiller power should be left switched on to provide the freeze protection function unless the liquid systems have been drained.

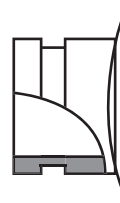
Pipework Arrangement

The following is a suggested piping arrangement for single unit installations. For multiple unit installations, each unit should be piped as shown in the diagram below.



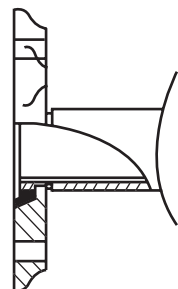
Cooler Connections

Standard chilled liquid connections on all coolers are of the Victaulic Groove type.



Option Flanges

One of two types of flanges may be fitted depending on the customer or local Pressure Vessel Code requirements. These are Victaulic Adapter flanges, normally supplied loose, or weld flanges, which may be supplied loose or ready-fitted. Victaulic Adapter and weld flange dimensions are to ISO 7005 - NP10.



VICTAULIC ADAPTER

Water Treatment

The unit performance provided in the Design Guide is based on a fouling factor of 0.018 m²/hr °C/kW. Dirt, scale, grease and certain types of water treatment will adversely affect the heat exchanger surfaces and therefore the unit performance. Foreign matter in the water system(s) can increase the heat exchanger pressure drop, reducing the flow rate and causing potential damage to the heat exchanger tubes.

Aerated, brackish or salt water is not recommended for use in the water system(s). YORK recommends that a water treatment specialist should be consulted to determine whether the proposed water composition will adversely affect the evaporator materials of carbon steel and copper. The pH value of the water flowing through the evaporator must be kept in a range between 7 and 8.5.

Refrigerant Relief Valve Piping

The evaporator is protected against internal refrigerant overpressure by refrigerant relief valves. A pressure relief valve is mounted on each of the main refrigerant lines connecting the cooler to the compressors.

A piece of pipe is fitted to each valve and directed so that when the valve is activated the release of high pressure gas and liquid cannot be a danger or cause injury. For indoor installations, pressure relief valves should be piped to the exterior of the building.

The size of any piping attached to a relief valve must be of sufficient diameter so as not to cause resistance to the operation of the valve. Unless otherwise specified by local regulations. Internal diameter depends on the length of pipe required and is given by the following formula:

$$D5 = 1.447 \times L$$

Where:

D = minimum pipe internal diameter in cm

L = length of pipe in meters

If relief piping is common to more than one valve, its cross-sectional area must be at least the total required by each valve. Valve types should not be mixed on a common pipe. Precautions should be taken to ensure the outlets of relief valves or relief valve vent pipes remain clear of obstructions at all times.

ELECTRICAL CONNECTION

No additional controls (relays, etc.) should be mounted in the control panel. Power and control wiring not connected to the control panel should not be run through the control panel. If these precautions are not followed it could lead to a risk of electrocution. In addition, electrical noise could cause malfunctions or damage the unit and its controls.

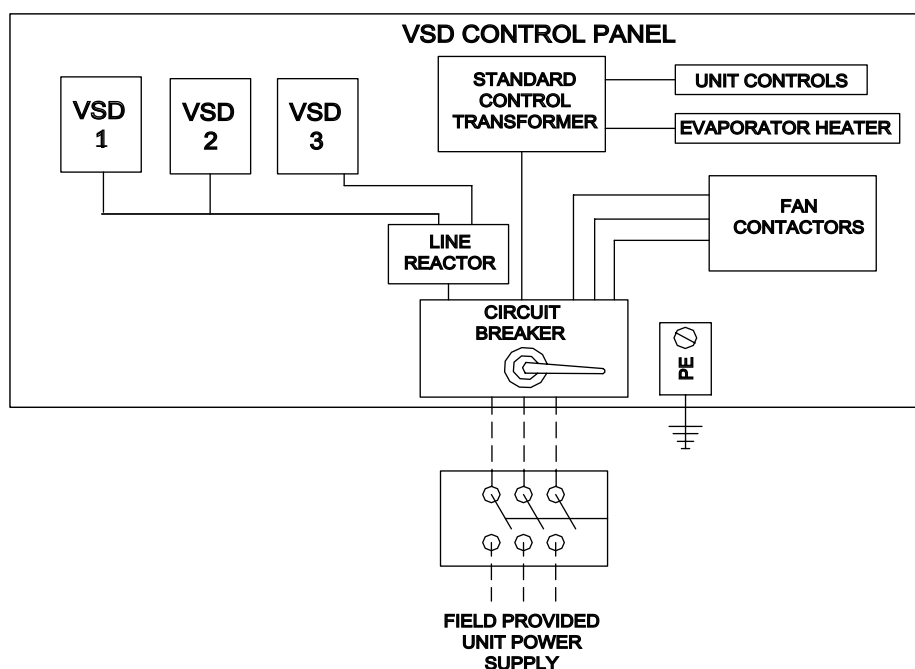
After power wiring connection, do not switch on mains power to the unit. Some internal components are live when the mains are switched on and this must only be done by "Authorized" persons familiar with starting, operating, and troubleshooting this type of equipment.

115 Vac Control Supply Transformer

A 3 wire high voltage to 115 Vac supply transformer is standard in the chiller. This transformer is mounted in the cabinet and steps down the high voltage supply to 115 Vac to be used by the Controls, VSD, Feed & Drain Valve Controller, valves, solenoids, heaters, etc.

The high voltage for the transformer primary is taken from the chiller input. Fusing is provided for the transformer.

Removing high voltage power to the chiller will remove the 115 Vac supply voltage to the control panel circuitry and the evaporator heater. In cold weather, this could cause serious damage to the chiller due to evaporator freeze-up. Do not remove power unless alternate means are taken to ensure operation of the evaporator heater



Power Wiring

All electrical wiring should be carried out in accordance with local regulations. Route properly sized cables to cable entries on the unit. In accordance with CE or U.L. Standard it is the responsibility of the user to install over current protection devices between the supply conductors and the power supply terminals on the unit.

To ensure that no eddy currents are set up in the power panel, the cables forming the 3 phase power supply must enter via the same cable entry. All sources of supply to the unit must be taken via a common point of isolation (not supplied by YORK).

Units require only one 3 phase supply, plus earth ground. Connect the 3 phase supplies to the terminal block or optional circuit breaker located in the panel using lug sizes detailed in the Technical Data Section.

Connect a ground wire from the chiller panel ground lug to the incoming line supply ground.

Control Panel Wiring

All control wiring utilizing contact closures to the control panel terminal block is nominal 115 Vac and must be run in shielded cable, with the shield grounded at the panel end only. Run shielded cable separately from mains cable to avoid electrical noise pick-up. Use the control panel cable entry to avoid the power cables.

Voltage free contacts connected to the panel must be suitable for 115 Vac, 10 ma (gold contacts recommended). If the voltage free contacts form part of a relay or contactor, the coil of the device must be suppressed using a standard R/C suppressor. The above precautions must be taken to avoid electrical noise, which could cause a malfunction or damage to the unit and its controls.

VOLTS FREE CONTACTS

Chilled Liquid Pump Starter

Terminals 23 and 24 on 1TB close to start the chilled liquid pump. This contact can be used as a master start/stop for the pump in conjunction with the daily start/stop schedule.

Run Contact

Terminals 21 and 22 on 1TB close to indicate that a system is running.

Alarm Contacts

The Systems 1/3 & 2/4 each have a single voltage-free contact, which will operate to signal an alarm condition whenever any system locks out, or there is a power failure. To obtain system alarm signal, connect the alarm circuit to volt free Terminals 25 & 26 (System 1/3), Terminals 27 and 28 (System 2/4) of 1TB.

SYSTEM INPUTS

Flow Switch

A chilled liquid flow switch of suitable type MUST be connected between Terminals 2 and 13 of 1TB to provide protection against loss of liquid flow, which will cause evaporator freeze-up if the chiller is permitted to run.

The flow switch circuitry is a 115 Vac circuit. Contacts must be rated for low current (10 ma). Gold contacts should be used.

Remote Run /Stop

A Remote Run/Stop input is available for each pair of systems (1/3 & 2/4). These inputs require a dry contact to start and stop the system. System 1/3 remote dry contacts are connected between Terminals 2 and 15 of 1TB and System 2/4 dry contacts are connected between Terminals 2 and 16 of 1TB. If remote start/stop is not utilized, a jumper must be placed across the terminals to allow the system to run.

The remote run/stop circuitry is a 115 Vac circuit. Contacts must be rated for low current (10 ma). Gold contacts should be used.

Remote Print

Closure of suitable contacts connected to Terminals 2 and 14 of 1TB will cause a hard copy printout of Operating Data/Fault History to be made if an optional printer is connected to the RS-232 port.

The remote print circuitry is a 115 Vac circuit. Contacts must be rated for low current (10 ma). Gold contacts should be used.

Optional Remote Setpoint Offset –Temperature

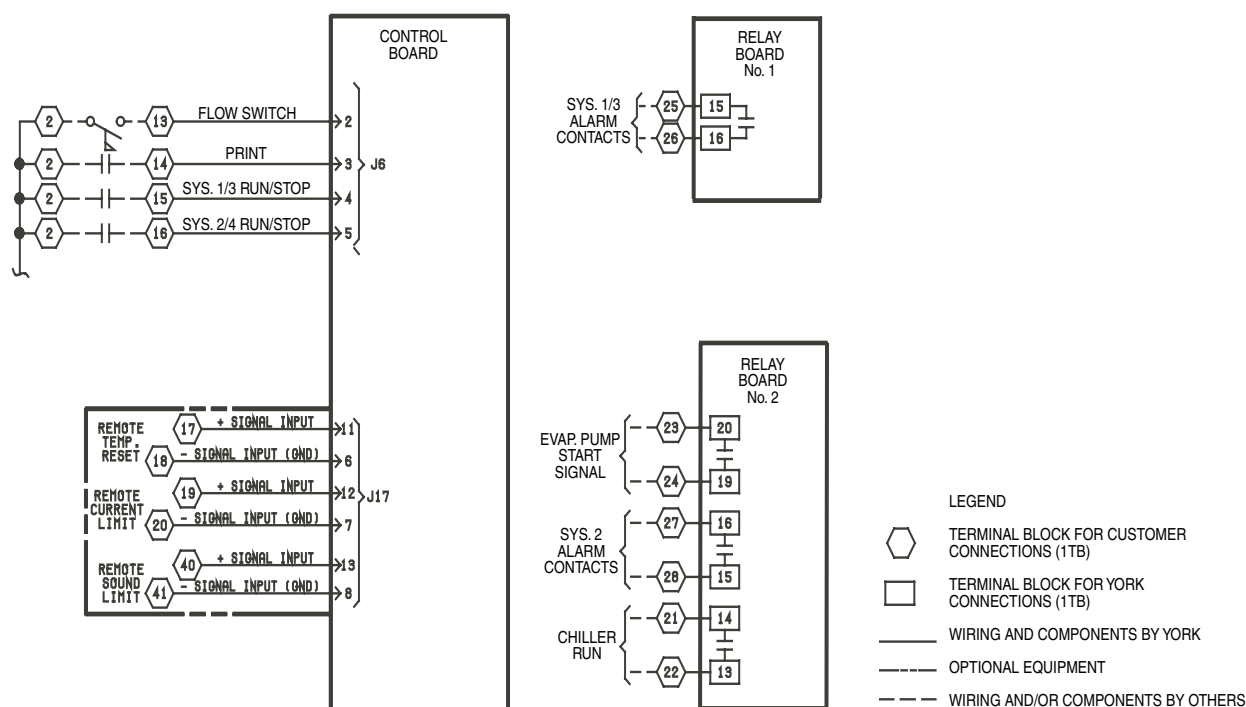
A current or voltage signal connected to Terminals 17 and 18 will provide a remote offset function of the chilled liquid setpoint, if required.

Optional Remote Setpoint Offset – Current

A current or voltage signal connected to Terminals 19 and 20 will provide remote setting of the current limit setpoint, if required.

Optional Remote Setpoint Offset – Sound Limiting

A current or voltage signal connected to Terminals 40 and 41 will provide remote setting of sound limit setpoint, if required.



CHILLER SELECTION DATA**Selection Guide Chilled Water Chillers****DATA REQUIRED**

To select a YORK YCIV chiller the following information is required:

1. Required cooling capacity.
2. Design chilled water entering and leaving temperatures.
3. Design water flow rate if one of the temperatures in item 3 are unknown.
4. Design condenser entering air temperature. This will normally be the design summer ambient air temperature unless location or other factors have an influence.
5. Altitude above sea level.
6. Design evaporator fouling factor.
7. Static pressure resistance against condenser entering and leaving air flow (where ducts, louvres, attenuators, etc., are used) at full unit air volume.

Note: Items 1, 2 and 3 must be linked by the following formulae:

$$\text{Cooling Capacity (kW)} = \text{Range (}^{\circ}\text{C)} \times \text{Flow (litres/sec)} \times 4.18$$

Where:

Range = Entering liquid temperature - Leaving liquid temperature.

CHILLER SELECTION METHOD

1. Determine the correct size of chiller by selecting the model which most closely matches the required capacity at the design conditions of leaving water temperature and entering air temperature (Cooling Capacity Tables).
2. Apply correction factors for fouling factor and altitude to the capacity and power values from the capacity tables. Ensure the corrected capacity is still sufficient for requirements.
3. Using the corrected capacity of the selected chiller adjust the design temperature range, or flow rate, to balance the formulae shown in "Data Required".
4. Physical and electrical data can now be determined from the relevant tables.

Always re-check that selections fall within the design limitations specified in the Operating Limitations.

YCIV SAMPLE SELECTION - COOLING

A standard chiller is required to cool water from 12°C to 7°C having a cooling capacity of 865 kW at a design flow rate of 41 l/s. Other design conditions applying are:

Ambient air entering condenser: 35°C

Fouling factor: 0.044 m² °C./kW

Altitude: Sea level

From a cursory examination of the SE Capacity Table, a model YCIV0920 gives approximately the required capacity:

Capacity = 870.4 kW

Compressor power = 271.3 kW

No correction factors apply therefore, after calculating the flow rate, the conditions will be as follows:

Cooling capacity: 870.4 kW

Water temperature: 12°C to 7°C (Range = 5°C)

Water flow rate: 41.6 l/s

Compressor power: 271.3 kW

All values are within the Operating Limitations. From Pressure Drop Graph, YCIV0920 evaporator water pressure drop = 65 kPa at the calculated flow of 41.6 l/s.

Fouling and Altitude Factors

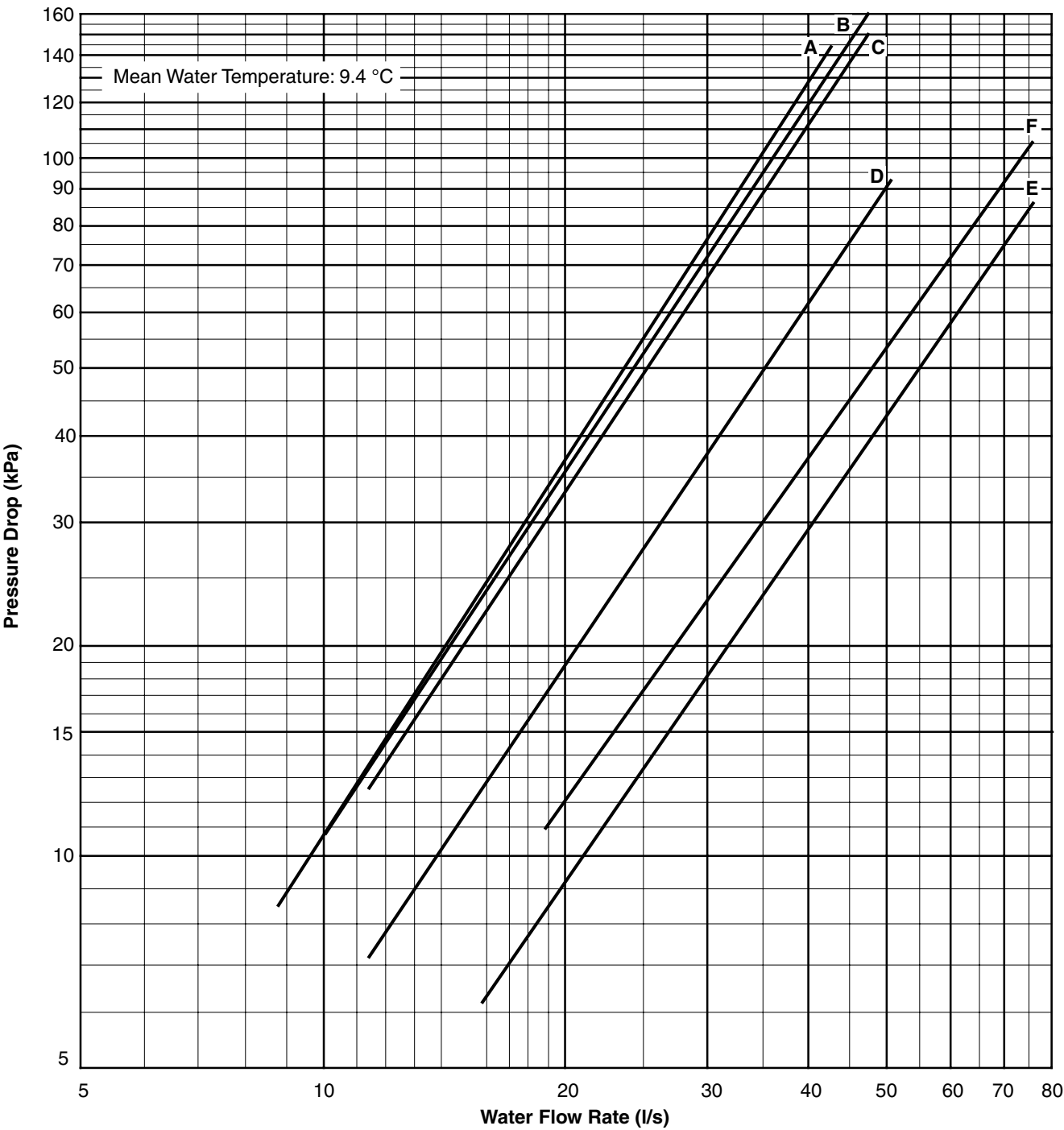
EVAPORATOR		
Fouling Factor m ² °C/kW	Capacity Factor	Comp. Input Factor
0.044	1.000	1.000
0.088	0.987	0.995
0.176	0.964	0.985
0.352	0.915	0.962

Altitude (m)	Capacity Factor	Comp. Input Factor
0	1.000	1.000
600	0.987	1.010
1200	0.973	1.020
1800	0.958	1.029
2400	0.943	1.038

Water Temperature Range Correction Factors

Temperature Range °C	Correction Factors	
	Cooling Capacity	Compressor kW Input
3	0.98	0.99
4	0.99	1.00
5	1.00	1.00
6	1.01	1.00
7	1.02	1.00
8	1.02	1.01
9	1.03	1.01
10	1.04	1.01

PRESSUR DROP GRAPH



Line	Pressure Drop Calculation
A	Pressure Drop [kPa] = 0.1724 x (Flow Rate [l/s] ^{1.7925})
B	Pressure Drop [kPa] = 0.1898 x (Flow Rate [l/s] ^{1.7475})
C	Pressure Drop [kPa] = 0.1781 x (Flow Rate [l/s] ^{1.7468})
D	Pressure Drop [kPa] = 0.1100 x (Flow Rate [l/s] ^{1.7183})
E	Pressure Drop [kPa] = 0.0602 x (Flow Rate [l/s] ^{1.6792})
F	Pressure Drop [kPa] = 0.0923 x (Flow Rate [l/s] ^{1.6265})

Line	Model
A	YCIV0600SE
B	YCIV0590HE, YCIV0630HE, YCIV0650SE, YCIV0700HE, YCIV0720SE
C	YCIV0760HE, YCIV0800HE, YCIV0830HE,
D	YCIV0770SE, YCIV0840SE, YCIV0920SE, YCIV0930HE, YCIV1000SE
E	YCIV1050HE, YCIV1070SE, YCIV1120HE
F	YCIV1180SE, YCIV1220HE, YCIV1340SE, YCIV1380HE, YCIV1500SE

OPERATING LIMITATIONS

Standard Efficiency (SE) Models				YCIV0600		YCIV0650		YCIV0720		YCIV0770		YCIV0840		YCIV0920	
				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Chilled Liquid	Liquid Outlet Temperature	Water Outlet	°C	4.4 to 15.6											
		Glycol Outlet	°C	-9 to 15.6											
		Temp. Range	°C	3 to 10											
	Evaporator Flow Rate		I/s	8.8	42.6	10.1	47.3	10.1	47.3	11.4	50.5	11.4	50.5	11.4	50.5
	Evaporator Pressure Drop		kPa	8.5	143.6	10.8	160.4	10.8	160.4	7.2	92.9	7.2	92.9	7.2	92.9
	Maximum Water Side Pressure		bar	10											
Ambient Air	Air Entering Temperature		°C	-18 to 52											
	Fan Available Static Pressure	Standard Fans	Pa	10											
		2 Speed Fans	Pa	10											
		High Static Fans	Pa	100											
Maximum Refrigerant Side Pressure			bar	16											
Power Supply Voltage 400V, 3 ~, 50 Hz (nominal)			V	360 to 440											
Recommended Minimum System Water Volume			litres	560		620		680		730		800		870	

Standard Efficiency (SE) Models				YCIV1000		YCIV1070		YCIV1180		YCIV1340		YCIV1500	
				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Chilled Liquid	Liquid Outlet Temperature	Water Outlet	°C	4.4 to 15.6									
		Glycol Outlet	°C	-9 to 15.6									
		Temp. Range	°C	3 to 10									
	Evaporator Flow Rate		l/s	11.4	50.5	15.8	75.7	18.9	75.7	18.9	75.7	18.9	75.7
	Evaporator Pressure Drop		kPa	7.2	92.9	6.2	86.1	11.0	105.1	11.0	105.1	11.0	105.1
	Maximum Water Side Pressure		bar	10									
Ambient Air	Air Entering Temperature		°C	-18 to 52									
	Fan Available Static Pressure	Standard Fans	Pa	10									
		2 Speed Fans	Pa	10									
		High Static Fans	Pa	100									
Maximum Refrigerant Side Pressure			bar	16									
Power Supply Voltage 400V, 3 ~, 50 Hz (nominal)			V	360 to 440									
Recommended Minimum System Water Volume			litres	950		1000		1100		1250		1400	

High Efficiency (HE) Models				YCIV0590		YCIV0630		YCIV0700		YCIV0760		YCIV0800		YCIV0830	
				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Chilled Liquid	Liquid Outlet Temperature	Water Outlet	°C	4.4 to 15.6											
		Glycol Outlet	°C	-9 to 15.6											
		Temp. Range	°C	3 to 10											
	Evaporator Flow Rate		I/s	10.1	47.3	10.1	47.3	10.1	47.3	11.4	47.3	11.4	47.3	11.4	47.3
	Evaporator Pressure Drop		kPa	10.8	160.4	10.8	160.4	10.8	160.4	12.5	150.1	12.5	150.1	12.5	150.1
	Maximum Water Side Pressure		bar	10											
Ambient Air	Air Entering Temperature		°C	-18 to 52											
	Fan Available Static Pressure	Standard Fans	Pa	10											
		2 Speed Fans	Pa	10											
		High Static Fans	Pa	100											
Maximum Refrigerant Side Pressure			bar	16											
Power Supply Voltage 400V, 3 ~, 50 Hz (nominal)			V	360 to 440											
Recommended Minimum System Water Volume			litres	550		600		700		760		800		880	

High Efficiency (HE) Models				YCIV0930		YCIV1050		YCIV1120		YCIV1220		YCIV1380	
				Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Chilled Liquid	Liquid Outlet Temperature	Water Outlet	°C	4.4 to 15.6									
		Glycol Outlet	°C	-9 to 15.6									
		Temp. Range	°C	3 to 10									
	Evaporator Flow Rate		l/s	11.4	50.5	15.8	75.7	15.8	75.7	18.9	75.7	18.9	75.7
	Evaporator Pressure Drop		kPa	7.2	92.9	6.2	86.1	6.2	86.1	11.0	105.1	11.0	105.1
	Maximum Water Side Pressure		bar	10									
Ambient Air	Air Entering Temperature		°C	-18 to 52									
	Fan Available Static Pressure	Standard Fans	Pa	10									
		2 Speed Fans	Pa	10									
		High Static Fans	Pa	100									
Maximum Refrigerant Side Pressure			bar	16									
Power Supply Voltage 400V, 3 ~, 50 Hz (nominal)			V	360 to 440									
Recommended Minimum System Water Volume			litres	880		980		1050		1140		1300	

(1) Units operating at ambient temperatures below -4 °C must have the Two Speed Fans.

STANDARD EFFICIENCY CHILLERS (SE) WITH STANDARD FANS - COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0600	4.5	534.1	139.5	3.49	522.1	156.2	3.08	507.9	172.5	2.73	491.2	189.2	2.42	472.9	206.3	2.15
	5	542.3	139.9	3.54	529.8	156.5	3.12	515.4	172.9	2.77	498.3	189.8	2.45	479.8	207.0	2.18
	6	559.0	140.8	3.62	545.6	157.0	3.20	530.4	173.7	2.83	512.9	191.1	2.51	493.7	208.5	2.22
	7	575.9	141.7	3.71	561.6	157.7	3.28	545.8	174.7	2.90	527.5	192.3	2.56	508.0	210.0	2.27
	8	592.8	142.4	3.80	577.9	158.5	3.36	561.4	175.7	2.97	542.4	193.5	2.62	522.8	212.3	2.32
	10	627.2	144.0	3.98	611.2	160.3	3.52	593.3	177.9	3.10	573.0	196.2	2.73	553.1	216.6	2.40
	12	662.9	145.9	4.16	645.6	162.5	3.67	626.3	180.4	3.23	604.9	199.0	2.85	584.7	220.9	2.49
	15	718.7	149.1	4.42	699.7	165.9	3.90	678.7	184.0	3.44	655.7	203.0	3.03	605.7	206.4	2.75
	15.5	728.3	149.8	4.46	709.0	166.5	3.94	687.6	184.7	3.47	664.4	203.8	3.06	608.6	203.8	2.80
YCIV 0650	4.5	576.5	148.1	3.57	565.9	167.4	3.13	553.1	190.2	2.72	527.3	208.4	2.38	492.7	218.4	2.13
	5	584.6	149.4	3.59	573.9	167.8	3.17	560.9	190.7	2.75	534.1	208.8	2.40	495.5	216.5	2.15
	6	600.8	151.8	3.64	590.0	169.5	3.22	576.6	191.8	2.81	548.1	209.5	2.46	500.9	212.5	2.22
	7	617.3	154.1	3.68	606.3	172.5	3.26	592.6	192.9	2.87	561.9	209.9	2.52	506.9	208.6	2.28
	8	634.1	156.5	3.73	622.8	175.2	3.30	608.6	194.3	2.93	575.6	210.3	2.57	513.3	204.9	2.35
	10	668.3	161.3	3.82	656.8	180.2	3.39	639.3	199.1	3.01	603.6	211.3	2.69	524.4	196.6	2.50
	12	703.2	166.0	3.92	691.4	185.3	3.48	670.7	202.9	3.10	631.5	215.8	2.75	533.6	188.5	2.64
	15	757.1	171.1	4.10	745.0	193.1	3.61	719.2	208.4	3.24	674.9	220.8	2.88	542.7	179.2	2.82
	15.5	766.3	172.0	4.13	754.1	194.1	3.63	727.4	209.4	3.26	682.1	221.7	2.90	543.8	177.4	2.85
YCIV 0720	4.5	627.4	159.0	3.60	617.2	179.9	3.16	605.6	204.5	2.76	585.2	229.7	2.39	562.4	251.5	2.11
	5	636.1	160.5	3.62	625.8	180.4	3.20	613.8	205.0	2.79	592.3	229.9	2.42	568.9	251.9	2.13
	6	653.8	163.3	3.66	643.1	182.1	3.26	630.7	206.0	2.85	606.4	230.4	2.47	582.2	252.4	2.18
	7	671.7	165.9	3.71	660.6	184.8	3.30	647.8	207.1	2.91	621.0	230.7	2.53	595.8	253.0	2.22
	8	689.9	168.6	3.76	678.4	187.8	3.34	665.1	208.8	2.97	635.7	231.1	2.58	609.7	253.4	2.27
	10	727.2	174.1	3.84	714.9	193.4	3.43	700.5	214.8	3.05	665.8	232.1	2.69	638.1	254.3	2.37
	12	765.8	179.6	3.93	752.6	199.1	3.51	737.2	220.8	3.13	695.7	236.4	2.77	658.0	248.3	2.50
	15	826.2	186.1	4.11	811.6	207.9	3.64	793.8	229.4	3.25	742.4	242.2	2.88	673.0	234.0	2.70
	15.5	836.6	187.2	4.14	821.7	209.3	3.66	802.9	230.6	3.27	750.4	243.1	2.91	675.7	231.8	2.74
YCIV 0770	4.5	677.6	173.3	3.60	665.3	196.4	3.15	651.3	225.5	2.71	620.4	248.2	2.36	566.1	246.8	2.16
	5	687.0	174.7	3.62	674.5	196.7	3.18	660.2	225.9	2.74	627.8	248.2	2.38	568.8	244.3	2.19
	6	706.3	177.4	3.67	693.1	199.4	3.23	678.0	226.6	2.81	642.7	248.1	2.44	574.2	239.0	2.26
	7	725.9	180.1	3.72	712.1	202.6	3.27	695.4	226.7	2.88	658.0	247.8	2.50	580.8	234.2	2.33
	8	745.9	183.1	3.76	731.5	205.3	3.32	712.8	228.2	2.93	673.5	247.5	2.56	586.8	229.1	2.40
	10	787.1	189.5	3.85	771.5	211.0	3.41	748.4	233.1	3.02	705.2	247.7	2.68	598.5	219.2	2.55
	12	830.0	195.5	3.94	813.0	217.3	3.50	785.3	237.1	3.11	737.1	251.4	2.77	608.1	210.2	2.70
	15	897.0	204.5	4.08	878.1	227.1	3.62	843.1	243.8	3.26	787.0	255.0	2.91	618.5	199.8	2.88
	15.5	908.5	206.2	4.10	889.3	228.4	3.65	852.9	245.0	3.28	795.5	255.6	2.94	620.4	198.0	2.91
YCIV 0840	4.5	735.3	184.9	3.65	722.5	207.7	3.22	707.9	236.2	2.80	680.5	262.8	2.43	653.8	281.9	2.19
	5	745.6	186.6	3.67	732.5	208.3	3.25	717.6	236.8	2.83	688.5	263.0	2.46	661.5	282.1	2.21
	6	766.5	189.7	3.71	753.0	211.0	3.31	737.3	238.0	2.89	705.0	263.1	2.52	676.9	282.5	2.26
	7	787.8	192.8	3.76	773.7	214.8	3.34	757.5	239.3	2.96	721.9	263.2	2.58	692.7	282.7	2.31
	8	809.6	196.1	3.80	794.8	218.2	3.38	778.0	241.8	3.01	739.0	263.3	2.64	708.8	282.9	2.36
	10	854.3	202.8	3.89	838.4	224.8	3.47	820.1	249.7	3.08	773.8	264.0	2.76	741.7	283.2	2.47
	12	900.6	209.2	3.99	883.6	231.7	3.56	863.8	256.8	3.16	809.0	268.9	2.83	757.2	271.7	2.62
	15	972.8	217.0	4.16	953.8	242.3	3.68	926.6	264.8	3.29	863.9	274.2	2.97	773.4	255.8	2.84
	15.5	985.2	218.5	4.19	965.9	243.5	3.71	936.6	265.8	3.31	873.3	275.1	2.99	776.2	253.1	2.88
YCIV 0920	4.5	806.5	202.9	3.64	793.1	228.1	3.22	777.5	258.7	2.80	750.9	289.2	2.44	731.6	316.6	2.18
	5	817.7	204.9	3.66	804.0	228.8	3.25	788.1	259.5	2.84	760.1	289.6	2.47	740.4	317.1	2.21
	6	840.4	208.5	3.70	826.2	231.2	3.31	809.7	261.0	2.90	778.7	290.2	2.52	758.1	317.9	2.25
	7	863.6	212.0	3.75	848.8	235.5	3.34	831.6	262.6	2.96	797.8	290.8	2.58	776.2	318.7	2.30
	8	887.1	215.7	3.79	871.7	239.6	3.38	853.9	264.9	3.01	817.2	291.4	2.64	794.6	319.4	2.35
	10	935.6	223.1	3.87	919.0	247.0	3.46	899.7	273.8	3.08	856.6	293.0	2.75	811.9	307.1	2.49
	12	985.6	230.5	3.96	967.9	254.7	3.54	947.1	281.7	3.15	896.7	299.2	2.82	826.2	292.3	2.66
	15	1063.4	238.1	4.15	1043.9	266.0	3.67	1017.5	291.1	3.29	959.0	307.1	2.95	839.4	275.0	2.86
	15.5	1076.7	239.6	4.17	1056.9	267.5	3.70	1028.6	292.4	3.31	970.2	308.1	2.97	841.6	272.4	2.89

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).
Data based on 5 °C chilled liquid temperature difference.

Standard Efficiency Chillers (SE) with Standard Fans - Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIIV 1000	4.5	878.0	220.7	3.64	863.9	248.3	3.22	847.4	281.0	2.81	821.6	315.3	2.45	809.8	350.9	2.18
	5	890.2	223.1	3.66	875.7	249.2	3.25	858.9	281.9	2.84	831.9	315.9	2.48	819.6	351.6	2.20
	6	914.7	227.2	3.70	899.8	251.2	3.32	882.3	283.7	2.90	852.7	317.0	2.53	839.6	353.0	2.25
	7	939.6	231.1	3.74	924.2	256.0	3.35	905.9	285.6	2.96	874.0	318.1	2.58	860.0	354.3	2.30
	8	965.0	235.1	3.78	948.9	260.8	3.38	930.2	287.5	3.02	895.6	319.2	2.64	880.8	355.5	2.34
	10	1017.1	243.2	3.86	999.8	269.0	3.46	979.5	297.6	3.08	939.7	321.5	2.75	899.0	340.7	2.49
	12	1071.0	251.5	3.94	1052.4	277.5	3.54	1030.7	306.5	3.16	984.7	329.2	2.82	915.0	324.3	2.66
	15	1154.3	258.8	4.14	1134.3	289.5	3.66	1108.6	317.1	3.29	1054.5	339.7	2.93	931.5	306.9	2.85
	15.5	1168.5	260.4	4.16	1148.2	291.1	3.69	1120.9	318.8	3.31	1067.5	340.9	2.96	934.1	304.2	2.88
YCIIV 1070	4.5	932.9	232.2	3.67	916.0	264.8	3.20	896.3	302.4	2.76	860.2	335.8	2.41	793.7	343.2	2.17
	5	945.9	234.4	3.69	928.9	265.3	3.23	908.7	303.0	2.80	871.0	336.1	2.43	797.8	340.2	2.20
	6	972.4	238.4	3.74	954.9	266.8	3.31	934.0	304.3	2.86	892.9	336.6	2.49	806.6	334.0	2.27
	7	999.5	242.1	3.79	981.3	270.9	3.35	959.5	305.5	2.93	914.5	336.9	2.55	815.2	327.3	2.33
	8	1027.0	245.8	3.84	1008.2	275.3	3.39	984.7	306.3	3.00	936.6	337.1	2.61	825.3	321.3	2.41
	10	1083.4	253.9	3.93	1063.6	283.0	3.49	1035.8	313.4	3.09	981.9	337.3	2.73	843.3	308.4	2.55
	12	1141.8	262.4	4.02	1120.9	291.2	3.58	1088.6	320.1	3.18	1027.5	342.4	2.82	858.7	295.6	2.71
	15	1233.1	272.4	4.19	1210.5	304.6	3.71	1171.0	330.1	3.33	1098.2	349.8	2.95	874.3	280.8	2.89
	15.5	1248.7	274.3	4.22	1225.8	306.6	3.73	1185.1	331.9	3.35	1110.1	350.9	2.98	876.9	278.3	2.92
YCIIV 1180	4.5	1037.0	257.4	3.69	1018.7	293.3	3.22	998.0	336.8	2.77	956.8	374.4	2.40	871.0	371.1	2.21
	5	1051.5	259.8	3.71	1032.8	293.9	3.25	1011.6	337.4	2.80	968.3	374.3	2.43	875.3	367.5	2.24
	6	1080.9	263.9	3.76	1061.4	296.1	3.32	1038.8	338.2	2.87	991.4	374.1	2.49	883.5	359.5	2.31
	7	1111.0	268.0	3.81	1090.5	300.9	3.36	1066.0	338.7	2.94	1014.8	373.8	2.55	892.9	351.9	2.38
	8	1141.7	272.3	3.86	1120.3	305.3	3.41	1093.6	339.6	3.01	1038.9	373.3	2.62	903.2	344.7	2.45
	10	1204.8	281.8	3.95	1181.6	313.7	3.50	1149.7	348.0	3.09	1088.0	372.4	2.75	921.7	329.9	2.61
	12	1270.5	291.5	4.03	1245.3	322.9	3.59	1208.0	354.8	3.19	1137.4	377.8	2.83	937.4	316.1	2.76
	15	1373.7	304.6	4.19	1345.3	338.3	3.72	1299.5	366.0	3.34	1214.9	383.6	2.98	954.1	300.6	2.94
	15.5	1391.5	307.1	4.21	1362.6	340.2	3.75	1315.2	368.0	3.36	1228.1	384.6	3.01	956.1	297.5	2.98
YCIIV 1340	4.5	1170.2	292.8	3.66	1150.5	331.1	3.21	1127.9	375.9	2.80	1089.0	420.3	2.44	1056.9	457.1	2.18
	5	1186.5	295.8	3.68	1166.4	332.1	3.25	1143.3	376.9	2.83	1102.3	420.6	2.46	1069.3	457.6	2.21
	6	1219.7	301.3	3.72	1198.8	334.7	3.32	1174.6	379.0	2.89	1128.9	421.4	2.52	1094.6	458.7	2.25
	7	1253.5	306.3	3.76	1231.7	340.3	3.35	1206.5	381.3	2.96	1156.3	422.1	2.58	1120.5	459.6	2.30
	8	1287.9	311.5	3.81	1265.2	346.4	3.39	1239.1	383.7	3.02	1184.3	422.7	2.63	1146.9	460.5	2.35
	10	1358.9	322.2	3.89	1334.3	357.1	3.47	1305.9	396.0	3.09	1241.4	424.0	2.75	1179.2	447.9	2.48
	12	1432.2	333.3	3.98	1406.0	368.2	3.56	1375.3	407.7	3.16	1299.2	431.7	2.83	1200.6	426.9	2.65
	15	1546.5	344.8	4.16	1517.5	385.1	3.68	1479.2	421.9	3.30	1389.4	442.8	2.96	1220.6	399.8	2.86
	15.5	1566.0	347.0	4.19	1536.6	387.4	3.71	1495.4	423.7	3.32	1404.6	444.5	2.98	1223.4	395.9	2.89
YCIIV 1500	4.5	1312.9	328.4	3.66	1291.6	371.5	3.21	1267.1	420.5	2.81	1229.7	472.3	2.45	1212.5	525.6	2.18
	5	1331.1	331.8	3.68	1309.5	372.7	3.25	1284.4	421.8	2.84	1245.0	473.2	2.47	1227.1	526.6	2.20
	6	1368.1	338.6	3.71	1345.7	375.3	3.32	1319.4	424.4	2.90	1276.1	474.9	2.53	1256.9	528.6	2.25
	7	1405.8	344.4	3.75	1382.5	381.2	3.36	1355.1	427.3	2.96	1308.0	476.5	2.58	1287.3	530.6	2.30
	8	1444.3	350.3	3.80	1419.8	388.6	3.39	1391.6	430.2	3.02	1340.5	478.2	2.64	1318.4	532.5	2.34
	10	1523.2	362.6	3.88	1497.0	401.2	3.47	1466.2	443.5	3.10	1407.0	481.6	2.75	1353.8	516.2	2.48
	12	1604.3	375.3	3.96	1576.9	414.1	3.55	1543.8	457.3	3.17	1475.2	491.3	2.83	1378.3	491.4	2.64
	15	1728.9	386.5	4.15	1699.1	431.6	3.68	1661.9	473.7	3.30	1581.0	507.8	2.94	1404.9	463.7	2.84
	15.5	1750.0	388.8	4.18	1719.9	434.8	3.70	1680.4	476.2	3.32	1599.2	510.3	2.96	1408.7	459.7	2.87

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5 °C chilled liquid temperature difference.

STANDARD EFFICIENCY CHILLERS (SE RS) WITH ULTRA QUIET FANS - COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0600	4.5	530.4	146.2	3.34	516.9	162.3	2.96	502.0	178.7	2.62	484.1	195.9	2.32	467.1	214.4	2.06
	5	538.3	146.5	3.38	524.5	162.6	2.99	509.3	179.3	2.65	491.1	196.6	2.35	474.0	215.6	2.08
	6	554.2	147.1	3.47	539.8	163.5	3.07	523.9	180.5	2.71	505.3	198.0	2.40	487.9	218.1	2.11
	7	570.5	147.9	3.55	555.4	164.4	3.14	538.6	181.8	2.77	519.6	199.7	2.45	502.0	220.5	2.15
	8	587.0	148.7	3.64	571.2	165.4	3.21	553.7	183.0	2.83	534.0	201.2	2.50	507.3	215.6	2.22
	10	620.6	150.8	3.80	603.6	167.9	3.34	584.5	185.9	2.94	563.6	204.5	2.60	517.7	205.3	2.38
	12	655.3	153.2	3.95	637.0	170.6	3.48	616.6	188.9	3.06	594.5	208.0	2.69	527.2	194.9	2.54
	15	709.7	157.0	4.18	689.4	174.9	3.68	667.3	193.4	3.24	644.3	213.8	2.85	541.6	181.9	2.78
	15.5	719.0	157.8	4.22	698.5	175.7	3.71	676.0	194.2	3.27	653.0	214.9	2.87	543.9	179.8	2.83
YCIV 0650	4.5	571.9	158.2	3.35	560.2	178.2	2.94	542.9	199.1	2.56	511.5	214.2	2.25	436.2	194.4	2.11
	5	579.8	159.7	3.36	568.0	178.8	2.97	550.0	199.5	2.59	517.6	214.5	2.28	438.5	192.4	2.14
	6	595.9	162.4	3.40	583.8	181.2	3.01	564.1	200.2	2.65	529.9	215.3	2.32	443.1	188.4	2.20
	7	612.2	165.1	3.44	599.6	184.7	3.04	578.5	200.8	2.71	542.6	215.9	2.37	447.5	184.5	2.27
	8	628.7	167.8	3.48	615.8	187.8	3.07	593.0	202.4	2.76	555.5	216.5	2.42	451.8	180.5	2.34
	10	662.4	173.3	3.56	648.9	193.7	3.15	622.1	207.7	2.82	581.6	218.3	2.52	459.2	172.2	2.48
	12	696.9	178.2	3.65	682.5	199.3	3.22	652.3	211.9	2.90	602.0	219.2	2.60	466.9	165.0	2.63
	15	750.2	183.8	3.82	730.2	205.0	3.36	697.3	217.8	3.03	615.4	208.0	2.79	475.9	156.2	2.82
	15.5	759.3	184.8	3.85	738.4	205.4	3.39	704.5	218.7	3.05	617.4	206.2	2.82	477.4	154.7	2.85
YCIV 0720	4.5	623.2	168.7	3.41	612.3	190.5	2.99	599.8	216.3	2.60	567.6	236.4	2.27	540.1	254.2	2.01
	5	631.8	170.4	3.42	620.6	191.2	3.02	607.8	217.0	2.63	574.3	236.7	2.29	541.8	251.1	2.04
	6	649.1	173.6	3.46	637.6	193.3	3.07	624.2	218.4	2.68	587.7	237.2	2.34	545.6	245.2	2.10
	7	666.7	176.5	3.50	654.7	196.7	3.10	640.9	219.9	2.74	601.3	237.8	2.39	550.1	239.7	2.17
	8	684.6	179.4	3.54	672.1	200.1	3.14	657.8	222.0	2.78	615.1	238.3	2.44	555.2	234.4	2.23
	10	721.2	185.6	3.61	707.7	206.4	3.21	689.8	227.8	2.85	643.3	239.8	2.53	566.5	224.6	2.37
	12	759.1	191.4	3.69	744.4	212.9	3.28	720.1	232.3	2.92	671.5	244.7	2.59	577.7	215.6	2.51
	15	818.3	198.2	3.85	802.0	222.6	3.39	766.7	238.6	3.03	715.0	250.9	2.70	590.2	205.3	2.69
	15.5	828.4	199.4	3.88	811.8	224.1	3.41	774.7	239.7	3.05	722.4	251.9	2.71	592.0	203.5	2.72
YCIV 0770	4.5	671.8	186.0	3.35	658.6	210.5	2.93	637.8	236.6	2.54	599.8	253.8	2.24	498.1	217.3	2.15
	5	681.0	187.5	3.38	667.6	211.0	2.96	645.8	236.8	2.57	606.7	253.9	2.26	500.7	215.1	2.18
	6	699.8	190.5	3.42	685.6	214.4	3.00	662.0	237.2	2.63	620.7	254.1	2.31	507.6	215.6	2.21
	7	719.0	193.5	3.46	704.0	218.1	3.03	678.5	237.5	2.70	635.0	254.1	2.37	510.8	206.2	2.32
	8	738.4	196.8	3.50	722.8	221.4	3.07	695.0	239.8	2.74	649.4	254.0	2.42	515.8	201.9	2.39
	10	778.6	203.5	3.58	761.2	227.7	3.15	728.8	245.3	2.81	676.2	253.2	2.53	524.4	192.7	2.53
	12	820.2	209.4	3.67	798.1	232.5	3.23	762.1	248.8	2.90	686.3	244.1	2.66	532.9	184.5	2.68
	15	885.6	217.9	3.81	855.7	239.1	3.38	811.8	253.3	3.03	700.7	231.5	2.85	543.2	174.8	2.87
	15.5	896.7	219.5	3.84	865.5	239.9	3.41	820.2	254.1	3.06	702.9	229.7	2.88	544.9	173.2	2.91
YCIV 0840	4.5	729.6	196.7	3.43	716.0	220.6	3.03	700.4	250.5	2.63	659.2	268.6	2.32	622.2	279.8	2.11
	5	739.8	198.6	3.45	725.7	221.4	3.06	709.8	251.3	2.66	666.8	268.8	2.34	624.8	277.2	2.13
	6	760.3	202.0	3.49	745.5	224.8	3.10	729.0	253.0	2.71	682.2	269.1	2.39	630.1	272.0	2.19
	7	781.2	205.5	3.53	765.8	229.2	3.13	748.4	254.8	2.77	698.0	269.3	2.45	635.6	266.6	2.25
	8	802.4	209.0	3.57	786.4	233.0	3.16	767.0	257.3	2.81	714.0	269.5	2.50	641.5	261.0	2.32
	10	846.2	216.5	3.64	828.7	240.6	3.23	801.5	262.6	2.88	746.5	270.9	2.60	653.5	249.2	2.47
	12	891.6	222.9	3.74	872.6	248.4	3.30	836.9	266.8	2.96	779.3	276.0	2.67	0.0	0.0	0.00
	15	962.0	231.2	3.89	940.9	259.6	3.42	892.0	272.8	3.09	830.5	281.4	2.79	677.5	225.8	2.80
	15.5	974.1	232.8	3.92	952.7	261.0	3.44	901.3	273.7	3.11	839.0	282.4	2.81	678.9	223.6	2.84
YCIV 0920	4.5	800.6	215.6	3.44	786.1	241.9	3.03	769.5	274.1	2.64	731.3	298.0	2.32	683.4	305.3	2.12
	5	811.6	217.8	3.45	796.8	242.9	3.06	779.8	275.1	2.67	740.0	298.4	2.34	686.8	302.5	2.15
	6	833.9	221.8	3.49	818.5	246.0	3.11	800.8	277.0	2.72	757.6	299.2	2.39	693.4	296.5	2.21
	7	856.6	225.7	3.52	840.4	250.9	3.13	822.1	279.1	2.77	775.6	300.1	2.44	699.6	290.1	2.28
	8	879.7	229.7	3.56	862.8	255.4	3.16	842.9	281.5	2.82	794.0	300.8	2.49	705.4	283.2	2.35
	10	927.2	238.0	3.63	908.8	264.0	3.23	882.0	288.8	2.88	831.2	302.9	2.59	714.8	268.6	2.50
	12	976.2	245.6	3.71	956.5	272.7	3.30	922.4	294.7	2.96	868.8	310.0	2.65	725.0	255.8	2.65
	15	1052.5	253.8	3.88	1030.7	285.0	3.41	984.8	303.3	3.07	927.6	318.4	2.76	736.9	242.7	2.83
	15.5	1065.5	255.4	3.91	1043.3	286.5	3.43	996.4	304.2	3.10	937.5	319.8	2.78	739.0	240.5	2.87

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).
Data based on 5°C chilled liquid temperature difference.

Standard Efficiency Chillers (SE RS) with Ultra Quiet Fans Fans - Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCI V 1000	4.5	871.9	234.3	3.44	856.5	263.1	3.04	838.8	297.5	2.65	803.6	326.9	2.32	755.1	337.0	2.12
	5	883.8	236.8	3.45	868.2	264.1	3.07	850.0	298.5	2.68	813.4	327.6	2.35	758.5	333.5	2.15
	6	907.9	241.4	3.49	891.6	267.0	3.12	872.8	300.8	2.73	833.3	329.0	2.39	765.6	326.3	2.22
	7	932.4	245.8	3.52	915.4	272.5	3.14	895.9	303.1	2.78	853.5	330.5	2.44	772.9	319.0	2.29
	8	957.3	250.2	3.56	939.6	277.6	3.17	919.0	305.5	2.83	874.1	331.8	2.49	779.9	311.8	2.36
	10	1008.4	259.2	3.62	989.2	287.1	3.23	962.8	314.8	2.88	916.3	334.5	2.59	792.5	298.0	2.50
	12	1061.2	268.0	3.70	1040.5	296.7	3.30	1008.1	322.2	2.95	958.6	343.7	2.64	805.3	284.9	2.65
	15	1143.3	276.2	3.87	1120.7	310.1	3.41	1077.9	333.4	3.06	1025.0	355.0	2.74	819.0	270.6	2.83
	15.5	1157.2	277.7	3.90	1134.2	311.7	3.43	1091.7	334.3	3.09	1036.3	356.8	2.76	821.5	268.1	2.86
YCI V 1070	4.5	925.7	247.8	3.45	907.4	281.8	3.00	881.7	317.3	2.61	833.9	344.3	2.29	701.4	304.7	2.16
	5	938.5	250.2	3.47	919.9	282.7	3.03	893.1	317.8	2.64	843.8	344.7	2.31	705.3	301.8	2.19
	6	964.5	254.6	3.51	945.3	284.7	3.10	916.4	319.0	2.70	863.6	345.5	2.36	712.6	295.8	2.25
	7	991.1	258.7	3.55	971.1	289.7	3.13	940.1	320.0	2.76	884.0	346.0	2.41	719.9	289.7	2.32
	8	1018.1	262.9	3.59	997.3	294.8	3.16	964.4	321.3	2.82	904.7	346.5	2.46	727.0	283.6	2.39
	10	1073.5	271.7	3.67	1051.3	303.8	3.24	1013.1	329.9	2.89	947.0	347.3	2.57	738.8	270.8	2.54
	12	1130.8	280.6	3.76	1105.2	311.8	3.33	1063.5	337.2	2.97	970.4	341.0	2.68	751.7	258.8	2.69
	15	1220.4	290.6	3.92	1187.1	323.0	3.46	1135.6	345.4	3.10	993.2	324.3	2.88	766.9	245.4	2.88
	15.5	1235.7	292.5	3.95	1201.2	324.3	3.48	1147.6	346.7	3.13	995.7	321.4	2.91	769.3	243.1	2.92
YCI V 1180	4.5	1028.7	275.5	3.46	1009.1	313.6	3.01	981.0	354.4	2.61	926.3	382.7	2.29	766.9	326.6	2.20
	5	1042.9	278.1	3.47	1022.9	314.3	3.04	993.6	354.9	2.64	936.9	382.9	2.31	770.8	323.4	2.23
	6	1071.7	282.6	3.52	1050.8	317.4	3.09	1019.1	355.8	2.70	958.6	383.1	2.37	778.7	316.8	2.30
	7	1101.1	287.1	3.56	1079.0	323.1	3.13	1045.1	356.6	2.76	980.7	383.1	2.42	786.6	310.3	2.37
	8	1131.0	291.8	3.60	1107.9	328.1	3.16	1071.4	358.6	2.81	1003.1	383.0	2.48	794.3	303.7	2.44
	10	1192.6	301.8	3.68	1167.0	337.3	3.25	1125.1	368.2	2.88	1043.3	379.0	2.60	807.4	289.9	2.59
	12	1256.7	311.2	3.77	1225.4	345.4	3.33	1177.1	373.7	2.97	1058.8	365.6	2.73	821.6	277.3	2.74
	15	1357.2	323.7	3.92	1316.7	357.7	3.47	1254.3	380.6	3.11	1081.6	346.9	2.93	837.3	262.8	2.94
	15.5	1374.4	326.1	3.95	1332.5	359.0	3.50	1267.5	381.8	3.14	1085.2	344.3	2.96	839.9	260.4	2.97
YCI V 1340	4.5	1161.7	311.2	3.45	1140.5	351.2	3.03	1116.4	398.2	2.64	1059.1	431.7	2.32	993.6	444.8	2.11
	5	1177.7	314.5	3.47	1156.1	352.4	3.06	1131.3	399.5	2.66	1071.6	432.3	2.34	998.6	441.3	2.14
	6	1210.2	320.4	3.50	1187.6	355.9	3.12	1161.7	402.3	2.72	1096.8	433.3	2.39	1008.5	433.3	2.20
	7	1243.3	326.1	3.54	1219.6	362.6	3.14	1192.7	405.2	2.77	1122.7	434.2	2.44	1017.8	424.5	2.26
	8	1277.1	331.8	3.58	1252.3	369.3	3.17	1224.3	408.4	2.82	1148.9	435.2	2.50	1026.5	414.9	2.33
	10	1346.5	343.8	3.65	1319.5	381.7	3.24	1280.9	418.2	2.89	1202.6	436.9	2.60	1039.3	392.9	2.49
	12	1418.5	355.4	3.73	1389.3	394.2	3.31	1339.1	426.4	2.96	1256.8	446.0	2.67	1053.4	372.5	2.65
	15	1530.3	367.6	3.90	1497.9	412.7	3.42	1429.4	438.0	3.09	1341.3	457.6	2.78	1070.9	353.1	2.83
	15.5	1549.4	369.9	3.92	1516.5	415.2	3.44	1444.6	439.9	3.11	1355.7	459.4	2.80	1073.9	349.8	2.86
YCI V 1500	4.5	1303.8	348.4	3.46	1280.8	393.4	3.04	1254.6	444.9	2.65	1203.1	489.6	2.32	1137.3	509.7	2.11
	5	1321.7	352.2	3.47	1298.3	394.9	3.07	1271.4	446.5	2.68	1217.8	490.6	2.35	1142.5	504.5	2.14
	6	1358.0	359.5	3.50	1333.7	398.0	3.13	1305.4	449.8	2.73	1247.5	492.7	2.39	1153.0	493.8	2.21
	7	1394.9	366.2	3.53	1369.5	405.5	3.16	1340.2	453.2	2.78	1277.8	494.7	2.44	1163.7	482.9	2.28
	8	1432.7	372.8	3.57	1406.0	413.7	3.18	1375.7	456.7	2.84	1308.5	496.9	2.49	1174.5	472.0	2.35
	10	1510.1	386.4	3.64	1481.1	428.1	3.24	1442.4	469.5	2.90	1371.9	500.9	2.59	1193.7	451.2	2.49
	12	1590.2	400.6	3.71	1559.0	442.5	3.31	1510.9	481.2	2.96	1436.4	512.6	2.65	1213.3	431.4	2.64
	15	1712.6	412.4	3.88	1679.0	462.5	3.42	1616.7	498.2	3.07	1536.4	530.4	2.75	1234.9	409.1	2.82
	15.5	1733.2	414.9	3.91	1699.1	465.7	3.44	1634.3	500.9	3.09	1553.6	533.1	2.77	1238.6	405.4	2.86

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5 °C chilled liquid temperature difference.

STANDARD EFFICIENCY CHILLERS (SE LS) WITH TWO SPEED FANS - COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0600	4.5	530.4	146.2	3.35	516.9	162.3	2.97	502.0	178.7	2.63	484.1	195.9	2.33	467.1	214.4	2.06
	5	538.3	146.5	3.40	524.5	162.6	3.00	509.3	179.3	2.66	491.1	196.6	2.35	474.0	215.6	2.08
	6	554.2	147.1	3.48	539.8	163.5	3.08	523.9	180.5	2.72	505.3	198.0	2.41	487.9	218.1	2.12
	7	570.5	147.9	3.57	555.4	164.4	3.15	538.6	181.8	2.78	519.6	199.7	2.45	502.0	220.5	2.16
	8	587.0	148.7	3.65	571.2	165.4	3.22	553.7	183.0	2.84	534.0	201.2	2.50	507.3	215.6	2.23
	10	620.6	150.8	3.81	603.6	167.9	3.36	584.5	185.9	2.95	563.6	204.5	2.60	517.7	205.3	2.38
	12	655.3	153.2	3.97	637.0	170.6	3.49	616.6	188.9	3.07	594.5	208.0	2.70	527.2	194.9	2.55
	15	709.7	157.0	4.20	689.4	174.9	3.69	667.3	193.4	3.25	644.3	213.8	2.85	541.6	181.9	2.79
YCIV 0650	4.5	571.9	158.2	3.36	560.2	178.2	2.95	542.9	199.1	2.57	511.5	214.2	2.26	436.2	194.4	2.11
	5	579.8	159.7	3.38	568.0	178.8	2.98	550.0	199.5	2.60	517.6	214.5	2.28	438.5	192.4	2.15
	6	595.9	162.4	3.42	583.8	181.2	3.02	564.1	200.2	2.66	529.9	215.3	2.33	443.1	188.4	2.21
	7	612.2	165.1	3.46	599.6	184.7	3.05	578.5	200.8	2.72	542.6	215.9	2.38	447.5	184.5	2.28
	8	628.7	167.8	3.50	615.8	187.8	3.08	593.0	202.4	2.77	555.5	216.5	2.43	451.8	180.5	2.35
	10	662.4	173.3	3.57	648.9	193.7	3.15	622.1	207.7	2.83	581.6	218.3	2.53	459.2	172.2	2.49
	12	696.9	178.2	3.66	682.5	199.3	3.23	652.3	211.9	2.91	602.0	219.2	2.60	466.9	165.0	2.64
	15	750.2	183.8	3.83	730.2	205.0	3.37	697.3	217.8	3.03	615.4	208.0	2.80	475.9	156.2	2.83
YCIV 0720	4.5	623.2	168.7	3.42	612.3	190.5	3.00	599.8	216.3	2.61	567.6	236.4	2.27	540.1	254.2	2.02
	5	631.8	170.4	3.44	620.6	191.2	3.03	607.8	217.0	2.64	574.3	236.7	2.30	541.8	251.1	2.05
	6	649.1	173.6	3.47	637.6	193.3	3.08	624.2	218.4	2.69	587.7	237.2	2.34	545.6	245.2	2.11
	7	666.7	176.5	3.51	654.7	196.7	3.11	640.9	219.9	2.75	601.3	237.8	2.39	550.1	239.7	2.17
	8	684.6	179.4	3.55	672.1	200.1	3.15	657.8	222.0	2.79	615.1	238.3	2.44	555.2	234.4	2.24
	10	721.2	185.6	3.62	707.7	206.4	3.22	689.8	227.8	2.86	643.3	239.8	2.54	566.5	224.6	2.38
	12	759.1	191.4	3.70	744.4	212.9	3.29	720.1	232.3	2.93	671.5	244.7	2.60	577.7	215.6	2.52
	15	818.3	198.2	3.87	802.0	222.6	3.40	766.7	238.6	3.04	715.0	250.9	2.70	590.2	205.3	2.70
YCIV 0770	4.5	671.8	186.0	3.37	658.6	210.5	2.94	637.8	236.6	2.55	599.8	253.8	2.24	498.1	217.3	2.16
	5	681.0	187.5	3.39	667.6	211.0	2.97	645.8	236.8	2.58	606.7	253.9	2.27	500.7	215.1	2.19
	6	699.8	190.5	3.43	685.6	214.4	3.01	662.0	237.2	2.64	620.7	254.1	2.32	507.6	215.6	2.22
	7	719.0	193.5	3.47	704.0	218.1	3.04	678.5	237.5	2.70	635.0	254.1	2.37	510.8	206.2	2.32
	8	738.4	196.8	3.51	722.8	221.4	3.08	695.0	239.8	2.74	649.4	254.0	2.43	515.8	201.9	2.40
	10	778.6	203.5	3.59	761.2	227.7	3.16	728.8	245.3	2.82	676.2	253.2	2.54	524.4	192.7	2.54
	12	820.2	209.4	3.68	798.1	232.5	3.24	762.1	248.8	2.91	686.3	244.1	2.66	532.9	184.5	2.69
	15	885.6	217.9	3.83	855.7	239.1	3.39	811.8	253.3	3.04	700.7	231.5	2.86	543.2	174.8	2.88
YCIV 0840	4.5	729.6	196.7	3.45	716.0	220.6	3.04	700.4	250.5	2.64	659.2	268.6	2.32	622.2	279.8	2.11
	5	739.8	198.6	3.46	725.7	221.4	3.07	709.8	251.3	2.67	666.8	268.8	2.35	624.8	277.2	2.14
	6	760.3	202.0	3.50	745.5	224.8	3.11	729.0	253.0	2.72	682.2	269.1	2.40	630.1	272.0	2.20
	7	781.2	205.5	3.54	765.8	229.2	3.14	748.4	254.8	2.77	698.0	269.3	2.45	635.6	266.6	2.26
	8	802.4	209.0	3.58	786.4	233.0	3.17	767.0	257.3	2.82	714.0	269.5	2.51	641.5	261.0	2.32
	10	846.2	216.5	3.65	828.7	240.6	3.24	801.5	262.6	2.89	746.5	270.9	2.61	653.5	249.2	2.47
	12	891.6	222.9	3.75	872.6	248.4	3.31	836.9	266.8	2.97	779.3	276.0	2.68	0.0	0.0	0.00
	15	962.0	231.2	3.91	940.9	259.6	3.43	892.0	272.8	3.10	830.5	281.4	2.80	677.5	225.8	2.81
YCIV 0920	4.5	800.6	215.6	3.45	786.1	241.9	3.04	769.5	274.1	2.65	731.3	298.0	2.33	683.4	305.3	2.12
	5	811.6	217.8	3.46	796.8	242.9	3.07	779.8	275.1	2.67	740.0	298.4	2.35	686.8	302.5	2.15
	6	833.9	221.8	3.50	818.5	246.0	3.12	800.8	277.0	2.73	757.6	299.2	2.40	693.4	296.5	2.22
	7	856.6	225.7	3.54	840.4	250.9	3.14	822.1	279.1	2.78	775.6	300.1	2.45	699.6	290.1	2.28
	8	879.7	229.7	3.57	862.8	255.4	3.17	842.9	281.5	2.83	794.0	300.8	2.50	705.4	283.2	2.35
	10	927.2	238.0	3.64	908.8	264.0	3.24	882.0	288.8	2.89	831.2	302.9	2.60	714.8	268.6	2.51
	12	976.2	245.6	3.72	956.5	272.7	3.31	922.4	294.7	2.96	868.8	310.0	2.66	725.0	255.8	2.66
	15	1052.5	253.8	3.89	1030.7	285.0	3.42	984.8	303.3	3.08	927.6	318.4	2.77	736.9	242.7	2.84
	15.5	1065.5	255.4	3.92	1043.3	286.5	3.44	996.4	304.2	3.11	937.5	319.8	2.79	739.0	240.5	2.88

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5 °C chilled liquid temperature difference.

 Fans operate at low speed at 28 °C ambient and below.

Standard Efficiency Chillers (SE LS) with Two Speed Fans - Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 1000	4.5	871.9	234.3	3.46	856.5	263.1	3.05	838.8	297.5	2.66	803.6	326.9	2.33	755.1	337.0	2.13
	5	883.8	236.8	3.47	868.2	264.1	3.08	850.0	298.5	2.69	813.4	327.6	2.35	758.5	333.5	2.16
	6	907.9	241.4	3.50	891.6	267.0	3.13	872.8	300.8	2.74	833.3	329.0	2.40	765.6	326.3	2.22
	7	932.4	245.8	3.53	915.4	272.5	3.15	895.9	303.1	2.79	853.5	330.5	2.45	772.9	319.0	2.29
	8	957.3	250.2	3.57	939.6	277.6	3.18	919.0	305.5	2.84	874.1	331.8	2.50	779.9	311.8	2.36
	10	1008.4	259.2	3.64	989.2	287.1	3.24	962.8	314.8	2.89	916.3	334.5	2.60	792.5	298.0	2.51
	12	1061.2	268.0	3.71	1040.5	296.7	3.31	1008.1	322.2	2.96	958.6	343.7	2.65	805.3	284.9	2.66
	15	1143.3	276.2	3.89	1120.7	310.1	3.42	1077.9	333.4	3.07	1025.0	355.0	2.75	819.0	270.6	2.84
	15.5	1157.2	277.7	3.91	1134.2	311.7	3.44	1091.7	334.3	3.10	1036.3	356.8	2.77	821.5	268.1	2.87
YCIV 1070	4.5	925.7	247.8	3.46	907.4	281.8	3.01	881.7	317.3	2.62	833.9	344.3	2.29	701.4	304.7	2.16
	5	938.5	250.2	3.48	919.9	282.7	3.04	893.1	317.8	2.65	843.8	344.7	2.32	705.3	301.8	2.20
	6	964.5	254.6	3.52	945.3	284.7	3.11	916.4	319.0	2.71	863.6	345.5	2.37	712.6	295.8	2.26
	7	991.1	258.7	3.56	971.1	289.7	3.14	940.1	320.0	2.77	884.0	346.0	2.42	719.9	289.7	2.33
	8	1018.1	262.9	3.60	997.3	294.8	3.17	964.4	321.3	2.83	904.7	346.5	2.47	727.0	283.6	2.40
	10	1073.5	271.7	3.69	1051.3	303.8	3.25	1013.1	329.9	2.90	947.0	347.3	2.58	738.8	270.8	2.55
	12	1130.8	280.6	3.77	1105.2	311.8	3.34	1063.5	337.2	2.98	970.4	341.0	2.69	751.7	258.8	2.70
	15	1220.4	290.6	3.94	1187.1	323.0	3.47	1135.6	345.4	3.11	993.2	324.3	2.89	766.9	245.4	2.90
	15.5	1235.7	292.5	3.96	1201.2	324.3	3.49	1147.6	346.7	3.13	995.7	321.4	2.92	769.3	243.1	2.93
YCIV 1180	4.5	1028.7	275.5	3.47	1009.1	313.6	3.02	981.0	354.4	2.61	926.3	382.7	2.29	766.9	326.6	2.21
	5	1042.9	278.1	3.49	1022.9	314.3	3.05	993.6	354.9	2.64	936.9	382.9	2.32	770.8	323.4	2.24
	6	1071.7	282.6	3.53	1050.8	317.4	3.10	1019.1	355.8	2.70	958.6	383.1	2.37	778.7	316.8	2.30
	7	1101.1	287.1	3.57	1079.0	323.1	3.14	1045.1	356.6	2.77	980.7	383.1	2.43	786.6	310.3	2.37
	8	1131.0	291.8	3.62	1107.9	328.1	3.17	1071.4	358.6	2.82	1003.1	383.0	2.48	794.3	303.7	2.45
	10	1192.6	301.8	3.70	1167.0	337.3	3.26	1125.1	368.2	2.89	1043.3	379.0	2.61	807.4	289.9	2.60
	12	1256.7	311.2	3.78	1225.4	345.4	3.34	1177.1	373.7	2.98	1058.8	365.6	2.74	821.6	277.3	2.75
	15	1357.2	323.7	3.94	1316.7	357.7	3.48	1254.3	380.6	3.12	1081.6	346.9	2.94	837.3	262.8	2.95
	15.5	1374.4	326.1	3.96	1332.5	359.0	3.51	1267.5	381.8	3.15	1085.2	344.3	2.97	839.9	260.4	2.99
YCIV 1340	4.5	1161.7	311.2	3.47	1140.5	351.2	3.04	1116.4	398.2	2.64	1059.1	431.7	2.32	993.6	444.8	2.12
	5	1177.7	314.5	3.48	1156.1	352.4	3.07	1131.3	399.5	2.67	1071.6	432.3	2.35	998.6	441.3	2.15
	6	1210.2	320.4	3.51	1187.6	355.9	3.13	1161.7	402.3	2.73	1096.8	433.3	2.40	1008.5	433.3	2.21
	7	1243.3	326.1	3.55	1219.6	362.6	3.15	1192.7	405.2	2.78	1122.7	434.2	2.45	1017.8	424.5	2.27
	8	1277.1	331.8	3.59	1252.3	369.3	3.18	1224.3	408.4	2.83	1148.9	435.2	2.50	1026.5	414.9	2.34
	10	1346.5	343.8	3.66	1319.5	381.7	3.25	1280.9	418.2	2.90	1202.6	436.9	2.61	1039.3	392.9	2.49
	12	1418.5	355.4	3.74	1389.3	394.2	3.32	1339.1	426.4	2.97	1256.8	446.0	2.67	1053.4	372.5	2.66
	15	1530.3	367.6	3.91	1497.9	412.7	3.43	1429.4	438.0	3.09	1341.3	457.6	2.79	1070.9	353.1	2.84
	15.5	1549.4	369.9	3.93	1516.5	415.2	3.45	1444.6	439.9	3.11	1355.7	459.4	2.80	1073.9	349.8	2.87
YCIV 1500	4.5	1303.8	348.4	3.47	1280.8	393.4	3.05	1254.6	444.9	2.66	1203.1	489.6	2.33	1137.3	509.7	2.12
	5	1321.7	352.2	3.49	1298.3	394.9	3.08	1271.4	446.5	2.68	1217.8	490.6	2.35	1142.5	504.5	2.15
	6	1358.0	359.5	3.51	1333.7	398.0	3.14	1305.4	449.8	2.74	1247.5	492.7	2.40	1153.0	493.8	2.21
	7	1394.9	366.2	3.55	1369.5	405.5	3.17	1340.2	453.2	2.79	1277.8	494.7	2.45	1163.7	482.9	2.28
	8	1432.7	372.8	3.58	1406.0	413.7	3.19	1375.7	456.7	2.84	1308.5	496.9	2.50	1174.5	472.0	2.35
	10	1510.1	386.4	3.65	1481.1	428.1	3.25	1442.4	469.5	2.91	1371.9	500.9	2.60	1193.7	451.2	2.50
	12	1590.2	400.6	3.72	1559.0	442.5	3.32	1510.9	481.2	2.97	1436.4	512.6	2.66	1213.3	431.4	2.65
	15	1712.6	412.4	3.90	1679.0	462.5	3.43	1616.7	498.2	3.08	1536.4	530.4	2.76	1234.9	409.1	2.83
	15.5	1733.2	414.9	3.92	1699.1	465.7	3.45	1634.3	500.9	3.10	1553.6	533.1	2.77	1238.6	405.4	2.86

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5°C chilled liquid temperature difference.

 Fans operate at low speed at 28°C ambient and below.

STANDARD EFFICIENCY CHILLERS (SE LS) WITH TWO SPEED FANS - HIGH SPEED INHIBITED COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C											
		25			30			35			40		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0600	4.5	520.5	158.1	3.12	505.7	174.8	2.75	488.4	191.9	2.43	470.1	208.9	2.16
	5	527.9	158.7	3.15	513.1	175.5	2.78	495.3	192.7	2.46	476.7	210.1	2.18
	6	543.1	159.8	3.22	527.5	176.9	2.84	509.1	194.6	2.50	490.5	213.1	2.21
	7	558.5	161.0	3.29	542.1	178.5	2.89	523.1	196.5	2.55	504.6	216.1	2.24
	8	574.1	162.4	3.35	556.8	180.1	2.95	537.2	198.4	2.59	518.9	219.3	2.28
	10	605.9	165.6	3.47	586.8	183.8	3.05	565.9	202.4	2.68	533.9	213.1	2.41
	12	638.5	169.2	3.59	618.0	187.7	3.15	595.8	206.8	2.76	544.9	202.6	2.58
	15	689.6	174.7	3.76	667.4	193.3	3.30	644.2	213.9	2.89	559.5	188.3	2.84
	15.5	698.5	175.7	3.79	675.9	194.4	3.33	652.7	215.4	2.91	561.8	186.1	2.88
YCIV 0650	4.5	560.9	180.4	2.97	543.0	197.8	2.63	517.0	212.1	2.34	452.3	202.4	2.14
	5	568.5	182.4	2.97	549.8	198.4	2.65	522.8	212.6	2.36	455.0	200.6	2.17
	6	583.8	186.1	3.00	563.2	201.1	2.68	534.7	213.5	2.41	459.8	196.7	2.24
	7	599.3	189.8	3.02	576.7	204.4	2.71	546.8	214.3	2.45	465.1	193.0	2.30
	8	615.1	193.4	3.04	590.2	207.2	2.73	558.7	216.8	2.48	469.8	189.0	2.38
	10	646.6	200.3	3.09	618.1	212.4	2.79	582.5	222.5	2.52	477.3	182.0	2.50
	12	676.5	203.7	3.18	646.7	217.5	2.86	594.7	217.1	2.63	483.0	176.0	2.61
	15	722.6	207.2	3.35	688.7	223.0	2.97	607.8	206.3	2.83	491.9	166.3	2.81
	15.5	730.4	207.8	3.37	695.5	223.4	2.99	609.5	204.5	2.86	493.4	164.7	2.84
YCIV 0720	4.5	613.5	190.4	3.06	600.9	214.0	2.68	574.0	233.9	2.35	534.0	248.7	2.06
	5	621.6	192.5	3.07	608.8	215.0	2.71	580.4	234.3	2.38	539.8	249.1	2.08
	6	638.3	196.5	3.09	624.9	218.2	2.74	593.4	235.1	2.42	551.5	250.0	2.12
	7	655.2	200.2	3.12	641.1	222.9	2.75	606.5	235.8	2.47	563.4	250.9	2.16
	8	672.2	204.1	3.14	657.5	227.4	2.77	619.4	237.7	2.50	572.8	249.3	2.21
	10	707.1	211.9	3.19	687.3	233.1	2.83	645.2	244.0	2.54	582.3	238.2	2.35
	12	743.1	218.8	3.25	715.6	238.2	2.88	671.9	248.9	2.60	590.5	229.9	2.46
	15	799.4	226.8	3.38	759.3	244.7	2.98	712.5	256.0	2.68	603.8	217.8	2.65
	15.5	808.9	228.3	3.40	766.8	245.2	3.01	719.3	257.2	2.69	605.7	215.9	2.68
YCIV 0770	4.5	658.5	214.9	2.93	636.7	235.4	2.60	604.1	252.6	2.30	517.5	228.8	2.17
	5	667.2	216.9	2.94	644.4	235.9	2.62	610.7	252.8	2.32	520.2	226.4	2.20
	6	684.8	220.9	2.97	659.5	239.7	2.64	624.1	253.1	2.37	525.4	221.5	2.27
	7	702.8	224.9	2.99	674.8	243.3	2.66	637.7	253.3	2.42	530.8	216.7	2.34
	8	720.7	228.7	3.02	690.6	246.2	2.70	650.8	255.9	2.45	535.8	212.1	2.41
	10	754.8	234.5	3.09	722.9	252.0	2.76	666.7	251.9	2.55	543.9	204.2	2.54
	12	790.2	237.9	3.19	753.3	255.9	2.83	677.5	242.6	2.68	550.7	197.7	2.65
	15	845.4	242.7	3.35	799.8	259.1	2.97	691.7	230.9	2.87	561.0	186.8	2.85
	15.5	854.7	243.7	3.37	807.8	259.2	3.00	693.7	229.1	2.90	562.7	185.1	2.89
YCIV 0840	4.5	716.7	223.1	3.06	701.2	249.0	2.70	665.2	267.0	2.39	618.6	278.5	2.14
	5	726.3	225.4	3.07	710.4	250.3	2.72	672.6	267.3	2.42	625.3	278.8	2.16
	6	745.8	229.8	3.10	729.0	255.4	2.74	687.5	267.7	2.47	638.7	279.4	2.20
	7	765.7	234.3	3.12	747.8	261.1	2.75	702.4	268.2	2.52	652.6	279.9	2.24
	8	785.8	238.8	3.15	764.2	263.9	2.78	717.2	270.8	2.54	658.5	274.4	2.31
	10	827.0	248.3	3.19	796.7	268.9	2.85	747.2	276.6	2.60	669.3	263.9	2.44
	12	870.0	255.6	3.26	829.7	273.7	2.91	778.2	281.1	2.66	678.7	254.3	2.56
	15	936.5	265.7	3.39	881.2	278.5	3.04	825.7	287.4	2.77	692.5	239.5	2.76
	15.5	946.6	266.7	3.41	890.1	278.8	3.07	833.8	288.4	2.79	694.6	237.4	2.80
YCIV 0920	4.5	787.1	243.7	3.08	770.4	272.4	2.71	736.7	295.6	2.39	693.1	314.3	2.12
	5	797.6	246.5	3.08	780.5	273.8	2.73	745.1	296.2	2.42	700.0	314.3	2.14
	6	818.8	251.5	3.11	800.9	278.6	2.76	762.3	297.3	2.46	707.3	309.0	2.20
	7	840.3	256.6	3.13	821.5	284.9	2.77	779.4	298.6	2.51	714.7	303.2	2.27
	8	862.3	261.7	3.15	840.4	289.2	2.79	796.7	301.3	2.54	721.8	296.9	2.34
	10	907.2	272.2	3.19	877.5	296.2	2.85	831.4	309.6	2.58	734.0	284.2	2.48
	12	953.7	281.0	3.25	915.5	303.0	2.91	867.0	316.3	2.64	741.4	273.1	2.60
	15	1025.9	291.9	3.37	974.4	311.4	3.01	915.9	320.4	2.75	753.1	257.5	2.79
	15.5	1037.9	292.8	3.40	984.5	312.1	3.04	919.2	316.6	2.80	755.3	255.2	2.83

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors.

EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5°C chilled liquid temperature difference.

Standard Efficiency Chillers (SE LS) with Two Speed Fans - High Speed Inhibited - Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature oC											
		25			30			35			40		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 1000	4.5	857.7	264.2	3.09	839.8	295.6	2.72	808.4	323.9	2.40	767.8	349.7	2.12
	5	869.0	267.4	3.10	850.9	297.1	2.74	817.9	324.8	2.42	776.0	350.2	2.14
	6	892.0	273.0	3.12	873.1	301.6	2.77	837.3	326.6	2.46	783.0	343.1	2.20
	7	915.3	278.8	3.13	895.4	308.6	2.78	856.7	328.5	2.51	790.4	335.7	2.27
	8	939.1	284.4	3.16	916.9	314.1	2.80	876.5	331.5	2.54	797.9	328.2	2.34
	10	987.6	295.8	3.20	958.6	323.2	2.85	915.7	342.2	2.58	811.9	313.6	2.48
	12	1037.6	306.1	3.25	1001.6	332.0	2.90	956.1	351.2	2.62	821.4	303.4	2.59
	15	1115.4	317.8	3.37	1067.8	343.8	2.99	1012.0	358.0	2.73	835.3	287.3	2.78
	15.5	1129.5	318.6	3.40	1079.2	344.9	3.01	1015.8	354.1	2.77	837.8	284.7	2.81
YCIV 1070	4.5	908.9	282.2	3.07	882.3	314.0	2.69	843.5	341.0	2.37	729.2	317.9	2.20
	5	921.1	285.4	3.07	893.5	314.8	2.71	852.8	341.6	2.40	733.3	315.0	2.23
	6	945.9	291.2	3.10	916.0	317.4	2.76	872.0	342.6	2.44	741.0	308.8	2.29
	7	971.1	296.7	3.12	938.5	323.1	2.78	891.5	343.5	2.49	749.7	303.0	2.36
	8	996.8	302.2	3.15	961.3	328.3	2.81	911.1	344.9	2.54	757.6	296.9	2.43
	10	1047.3	311.8	3.21	1008.4	337.4	2.87	944.6	349.5	2.60	771.0	284.8	2.58
	12	1098.0	319.4	3.29	1055.9	345.8	2.93	960.5	337.8	2.73	780.1	276.0	2.69
	15	1177.5	326.9	3.45	1122.8	354.3	3.05	982.4	321.7	2.92	794.3	261.2	2.88
	15.5	1191.0	328.2	3.48	1134.2	354.8	3.07	985.4	319.2	2.96	796.9	258.7	2.92
YCIV 1180	4.5	1009.9	316.4	3.04	980.7	351.5	2.67	934.5	380.4	2.36	798.1	343.6	2.22
	5	1023.3	319.9	3.05	992.9	352.3	2.70	944.8	380.7	2.39	802.3	340.1	2.26
	6	1050.5	325.7	3.08	1017.3	356.5	2.74	965.6	381.1	2.44	810.1	332.5	2.33
	7	1078.2	331.5	3.11	1041.8	362.8	2.75	986.8	381.3	2.49	818.5	325.4	2.40
	8	1105.9	337.0	3.14	1067.0	368.0	2.78	1007.6	383.6	2.53	827.3	318.8	2.48
	10	1160.3	346.7	3.20	1118.7	377.7	2.85	1030.4	376.7	2.63	840.7	306.2	2.61
	12	1216.7	354.0	3.29	1166.1	383.8	2.92	1047.3	362.8	2.77	850.9	296.7	2.73
	15	1305.0	363.1	3.45	1238.5	389.8	3.06	1070.0	345.7	2.96	866.7	280.5	2.93
	15.5	1320.0	364.7	3.47	1251.0	390.0	3.09	1073.2	343.1	2.99	869.4	277.9	2.96
YCIV 1340	4.5	1142.1	351.8	3.09	1117.9	395.2	2.71	1067.9	428.5	2.39	1001.5	452.8	2.13
	5	1157.3	356.0	3.10	1132.6	397.2	2.73	1080.0	429.2	2.42	1012.5	453.6	2.15
	6	1188.2	363.4	3.12	1162.3	402.6	2.77	1104.5	430.6	2.46	1027.1	449.3	2.20
	7	1219.7	370.6	3.14	1192.3	411.6	2.78	1129.3	432.0	2.51	1038.3	441.8	2.26
	8	1251.7	378.0	3.16	1221.2	419.0	2.80	1154.1	434.5	2.55	1049.1	433.5	2.33
	10	1317.4	393.1	3.21	1274.7	428.6	2.86	1203.7	445.8	2.60	1068.2	415.0	2.47
	12	1385.4	406.7	3.27	1329.3	437.9	2.92	1255.2	454.9	2.66	1079.1	398.3	2.59
	15	1491.1	422.5	3.39	1414.1	449.8	3.03	1332.0	466.0	2.75	1095.2	374.3	2.79
	15.5	1509.3	424.8	3.41	1428.8	450.7	3.05	1336.9	460.5	2.80	1098.2	370.9	2.83
YCIV 1500	4.5	1282.8	392.4	3.11	1256.4	441.4	2.72	1210.6	484.7	2.40	1150.4	523.2	2.12
	5	1299.9	397.3	3.12	1272.8	443.8	2.75	1224.9	486.1	2.42	1163.2	524.9	2.14
	6	1334.5	406.2	3.13	1306.3	448.3	2.79	1253.8	488.8	2.47	1179.3	519.0	2.19
	7	1369.7	414.6	3.15	1339.9	458.7	2.80	1282.9	491.7	2.51	1190.1	508.1	2.25
	8	1405.4	423.3	3.17	1373.5	468.5	2.81	1312.7	494.4	2.55	1201.4	497.0	2.32
	10	1479.0	440.5	3.21	1436.6	482.2	2.86	1372.0	510.5	2.59	1223.7	474.2	2.48
	12	1554.8	457.2	3.26	1501.6	495.5	2.91	1433.3	524.0	2.64	1238.6	458.3	2.59
	15	1671.2	474.7	3.38	1602.0	514.5	3.00	1525.3	541.6	2.72	1259.5	434.4	2.77
	15.5	1691.8	476.2	3.41	1619.1	516.2	3.02	1531.1	535.6	2.76	1263.2	430.5	2.81

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors.

EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5°C chilled liquid temperature difference.

HIGH EFFICIENCY CHILLERS (HE) WITH STANDARD FANS - COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0590	4.5	531.2	128.6	3.74	517.3	143.0	3.31	499.4	156.8	2.93	479.0	171.1	2.60	456.8	186.3	2.29
	5	539.7	129.1	3.79	525.5	143.4	3.35	507.3	157.3	2.97	486.6	171.7	2.63	464.0	187.0	2.32
	6	557.0	130.1	3.88	542.0	144.3	3.44	523.4	158.5	3.04	501.9	173.1	2.69	478.7	188.4	2.37
	7	574.6	131.1	3.97	558.8	145.3	3.52	539.7	159.7	3.12	517.6	174.6	2.75	493.8	189.9	2.43
	8	592.1	132.1	4.07	575.9	146.3	3.60	556.3	161.0	3.19	533.5	176.0	2.82	509.1	191.6	2.48
	10	627.5	133.8	4.26	610.8	148.6	3.77	590.2	163.9	3.33	566.4	179.1	2.94	541.3	195.7	2.59
	12	664.0	135.6	4.45	646.7	151.2	3.93	625.1	167.0	3.47	600.3	182.6	3.06	575.3	200.4	2.69
	15	721.0	138.4	4.75	703.1	154.9	4.18	680.6	171.4	3.68	654.7	187.7	3.26	610.0	196.5	2.91
	15.5	730.7	138.9	4.80	712.7	155.6	4.22	690.1	172.2	3.72	664.1	188.5	3.29	611.8	194.0	2.95
YCIV 0630	4.5	570.3	136.1	3.77	557.3	152.9	3.32	541.0	169.4	2.93	522.6	186.5	2.59	502.4	203.9	2.29
	5	579.5	136.5	3.82	566.0	153.2	3.36	549.2	169.7	2.97	530.4	187.0	2.62	510.0	204.6	2.32
	6	597.8	137.3	3.92	583.5	153.8	3.45	566.0	170.5	3.05	546.4	188.0	2.69	525.3	206.1	2.37
	7	616.5	138.1	4.02	601.5	154.5	3.55	583.2	171.4	3.13	562.7	189.1	2.76	541.2	207.8	2.43
	8	635.6	139.0	4.12	619.7	155.2	3.64	600.7	172.3	3.21	579.5	190.2	2.82	557.4	209.4	2.48
	10	675.1	141.3	4.32	657.2	157.2	3.81	636.6	174.6	3.36	613.9	192.8	2.95	591.0	212.9	2.59
	12	716.1	144.0	4.50	696.3	159.6	3.98	674.1	177.1	3.51	650.0	195.5	3.09	607.7	204.8	2.76
	15	778.8	148.4	4.76	757.1	164.2	4.22	732.9	181.8	3.72	706.9	200.3	3.28	624.9	190.1	3.04
	15.5	789.3	149.3	4.80	767.4	165.1	4.26	743.0	182.6	3.76	716.7	201.2	3.31	626.7	187.7	3.09
YCIV 0700	4.5	609.5	144.3	3.78	600.3	163.6	3.33	589.1	186.5	2.90	573.0	211.4	2.51	557.7	233.2	2.23
	5	618.0	145.6	3.81	608.7	163.9	3.37	597.4	186.8	2.93	580.5	211.6	2.54	564.5	233.5	2.26
	6	635.3	148.0	3.85	625.8	165.1	3.44	614.1	187.6	3.00	595.6	212.0	2.60	578.3	234.0	2.31
	7	652.9	150.2	3.91	643.2	167.5	3.49	631.1	188.3	3.08	611.1	212.3	2.67	592.5	234.4	2.36
	8	670.5	152.5	3.96	660.8	170.1	3.54	648.5	189.4	3.15	626.9	212.6	2.73	606.9	234.8	2.41
	10	706.7	157.3	4.06	696.6	174.7	3.64	683.7	194.5	3.24	659.3	213.3	2.87	636.4	235.3	2.52
	12	744.0	162.3	4.15	733.5	179.6	3.74	720.0	199.5	3.33	692.1	217.2	2.96	666.9	235.7	2.64
	15	802.0	168.2	4.33	791.0	187.4	3.87	776.6	207.0	3.47	742.7	222.7	3.10	691.3	227.8	2.83
	15.5	811.9	169.3	4.36	800.8	188.6	3.90	786.3	208.3	3.49	750.9	223.5	3.12	694.0	225.6	2.86
YCIV 0760	4.5	660.4	156.5	3.81	649.7	178.7	3.32	637.3	205.8	2.86	621.6	236.9	2.45	597.9	255.5	2.20
	5	669.6	157.8	3.83	658.7	178.8	3.37	646.1	206.1	2.90	629.2	236.7	2.48	605.1	255.6	2.22
	6	688.4	160.4	3.89	677.1	179.8	3.44	663.9	206.4	2.97	644.7	236.3	2.55	619.6	255.7	2.27
	7	707.5	162.8	3.94	695.7	182.5	3.49	682.1	206.8	3.05	660.5	235.9	2.61	634.4	255.7	2.33
	8	727.1	165.5	3.99	714.8	185.1	3.54	700.7	207.3	3.13	676.3	235.4	2.68	649.5	255.5	2.39
	10	767.1	171.5	4.07	754.0	190.0	3.65	738.7	213.0	3.22	709.1	234.3	2.82	680.5	254.8	2.51
	12	808.7	178.2	4.15	794.6	195.5	3.74	778.2	217.8	3.32	742.1	237.3	2.92	712.4	253.9	2.63
	15	873.0	187.2	4.28	857.8	205.3	3.86	840.1	226.1	3.46	793.3	240.9	3.08	761.2	257.9	2.77
	15.5	883.9	188.9	4.30	868.5	206.8	3.88	850.7	227.6	3.48	802.0	241.5	3.11	764.7	255.5	2.81
YCIV 0800	4.5	701.9	164.1	3.84	691.1	187.0	3.36	678.8	214.5	2.91	661.3	244.9	2.51	642.8	267.6	2.25
	5	711.7	165.6	3.87	700.7	187.2	3.41	688.1	214.8	2.95	669.8	245.0	2.54	650.4	267.8	2.27
	6	731.7	168.5	3.91	720.2	188.0	3.49	707.0	215.3	3.02	686.9	245.2	2.61	665.9	267.9	2.33
	7	752.1	171.1	3.97	740.1	190.9	3.53	726.3	215.9	3.10	704.4	245.3	2.67	681.7	267.9	2.38
	8	772.8	174.0	4.02	760.3	193.9	3.58	746.0	216.5	3.17	722.3	245.4	2.74	697.8	267.7	2.44
	10	815.5	180.1	4.11	802.0	199.2	3.68	786.4	222.3	3.27	759.1	245.6	2.87	730.8	267.2	2.56
	12	859.4	187.0	4.18	845.1	205.1	3.78	828.4	227.8	3.36	795.4	249.1	2.97	765.0	266.5	2.68
	15	927.2	195.8	4.33	911.4	215.0	3.90	893.3	236.5	3.50	850.3	253.5	3.13	788.9	253.7	2.90
	15.5	938.8	197.5	4.35	922.7	216.7	3.92	904.4	238.1	3.52	859.6	254.1	3.15	791.9	251.0	2.94
YCIV 0830	4.5	729.1	169.5	3.84	718.3	192.1	3.38	705.8	218.9	2.95	690.6	250.1	2.56	674.5	275.0	2.29
	5	739.3	171.1	3.87	728.3	192.6	3.42	715.5	219.3	2.99	699.9	250.6	2.59	682.6	275.1	2.31
	6	760.1	174.2	3.91	748.7	193.6	3.50	735.3	220.1	3.06	719.0	251.5	2.65	699.1	275.3	2.37
	7	781.2	177.0	3.96	769.4	196.4	3.55	755.6	221.0	3.13	738.5	252.5	2.71	715.7	275.4	2.42
	8	802.8	179.9	4.01	790.5	199.7	3.59	776.1	222.1	3.20	758.3	253.6	2.77	732.8	275.4	2.48
	10	846.9	185.9	4.11	833.9	205.5	3.69	818.5	227.9	3.30	797.6	254.8	2.90	768.0	275.4	2.60
	12	891.7	192.4	4.19	878.0	211.4	3.79	861.9	234.1	3.39	835.0	258.1	3.00	804.1	275.3	2.72
	15	961.6	200.3	4.36	946.7	221.1	3.92	929.0	243.1	3.53	892.2	263.6	3.14	859.6	280.0	2.86
	15.5	973.6	201.7	4.39	958.4	222.8	3.95	940.5	244.7	3.55	901.9	264.4	3.17	868.7	281.0	2.88

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).
Data based on 5 °C chilled liquid temperature difference.

High Efficiency Chillers (HE) with Standard Fans - Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0930	4.5	809.6	196.2	3.74	796.8	220.6	3.31	781.9	250.4	2.89	760.8	283.1	2.51	746.0	313.3	2.24
	5	820.9	198.2	3.76	807.9	221.3	3.35	792.7	251.0	2.92	770.8	283.7	2.54	755.0	313.6	2.26
	6	843.9	201.7	3.80	830.4	223.3	3.41	814.5	252.3	2.99	791.0	284.7	2.59	773.3	314.4	2.31
	7	867.2	205.1	3.85	853.2	227.4	3.45	836.7	253.8	3.05	811.6	285.8	2.65	792.1	315.1	2.36
	8	891.0	208.6	3.89	876.4	231.3	3.48	859.4	255.6	3.12	832.6	286.9	2.71	811.2	315.7	2.41
	10	939.9	215.9	3.98	924.2	238.4	3.57	905.8	264.0	3.19	874.2	288.4	2.83	828.9	303.0	2.57
	12	990.4	223.3	4.07	973.7	245.8	3.66	954.0	271.5	3.27	915.7	294.5	2.91	843.6	287.9	2.74
	15	1068.9	231.0	4.26	1050.7	257.0	3.79	1028.3	281.6	3.41	980.3	302.5	3.04	857.1	271.2	2.94
	15.5	1082.3	232.6	4.28	1063.9	258.5	3.82	1040.4	283.4	3.43	0.0	0.0	0.00	859.4	268.9	2.97
YCIV 1050	4.5	919.4	215.4	3.85	903.5	245.5	3.36	884.6	280.8	2.91	861.5	321.6	2.50	828.1	350.8	2.21
	5	932.4	217.3	3.87	916.3	245.9	3.40	897.1	281.3	2.94	872.9	321.9	2.53	838.2	351.1	2.24
	6	958.7	221.0	3.92	942.4	247.2	3.48	922.4	282.2	3.02	895.5	322.2	2.59	858.7	351.7	2.29
	7	985.6	224.5	3.97	968.8	250.6	3.53	948.3	283.2	3.09	918.5	322.3	2.66	879.7	352.1	2.34
	8	1012.9	228.1	4.03	995.6	254.6	3.58	974.7	284.3	3.17	941.1	322.4	2.72	901.0	352.5	2.40
	10	1069.0	235.9	4.12	1051.1	261.6	3.69	1028.8	291.7	3.26	987.8	322.3	2.86	944.9	352.9	2.51
	12	1126.9	244.3	4.21	1108.3	269.2	3.79	1084.9	299.2	3.36	1035.1	326.6	2.96	990.4	353.0	2.63
	15	1217.3	255.0	4.37	1197.7	281.9	3.92	1172.8	310.9	3.51	1107.9	333.8	3.10	1060.2	359.7	2.77
	15.5	1232.7	257.0	4.39	1213.0	284.1	3.94	1187.8	313.0	3.53	1120.4	334.9	3.13	1072.1	360.9	2.79
YCIV 1120	4.5	978.3	226.2	3.89	961.7	259.4	3.38	942.8	298.5	2.91	919.6	343.8	2.49	887.1	372.6	2.23
	5	992.1	228.2	3.92	975.4	259.6	3.42	955.9	298.7	2.95	932.2	344.3	2.52	897.8	372.8	2.26
	6	1020.2	232.0	3.97	1003.0	260.3	3.51	982.6	299.4	3.03	957.4	344.9	2.59	919.4	373.0	2.31
	7	1048.7	235.7	4.02	1031.0	263.7	3.57	1009.9	299.9	3.11	981.0	344.3	2.66	941.6	373.0	2.36
	8	1077.9	239.6	4.07	1059.5	267.8	3.62	1037.8	300.6	3.19	1005.1	343.6	2.73	964.1	372.9	2.42
	10	1137.9	248.1	4.16	1118.4	274.9	3.73	1095.2	307.5	3.29	1054.4	342.3	2.87	1010.8	372.1	2.54
	12	1200.1	258.1	4.24	1179.5	283.0	3.83	1154.7	315.1	3.39	1104.6	345.3	2.98	1059.2	370.8	2.67
	15	1297.9	271.6	4.37	1275.3	297.1	3.96	1248.3	327.2	3.54	1182.2	351.2	3.14	1133.3	375.5	2.83
	15.5	1314.6	274.2	4.39	1291.6	299.9	3.97	1264.4	329.4	3.57	1195.6	352.1	3.17	1145.9	376.6	2.85
YCIV 1220	4.5	1063.9	249.9	3.84	1046.5	284.1	3.36	1026.8	325.9	2.91	997.6	370.9	2.51	965.7	403.0	2.25
	5	1078.9	252.3	3.86	1061.2	284.6	3.41	1040.9	326.3	2.95	1010.1	371.0	2.54	977.0	403.3	2.27
	6	1109.3	256.4	3.92	1090.9	286.2	3.48	1069.7	327.2	3.02	1035.5	371.1	2.60	1000.2	403.5	2.32
	7	1140.5	260.5	3.97	1121.2	290.8	3.53	1099.1	328.1	3.10	1061.6	371.1	2.67	1023.9	403.6	2.38
	8	1172.3	264.8	4.02	1152.1	295.3	3.58	1129.2	329.3	3.17	1088.1	371.0	2.73	1048.0	403.5	2.44
	10	1237.7	274.3	4.11	1215.8	303.5	3.68	1190.8	338.7	3.26	1142.8	370.9	2.87	1097.6	402.9	2.55
	12	1305.8	284.6	4.19	1282.1	312.6	3.78	1255.1	347.1	3.36	1197.0	376.4	2.97	1149.2	401.8	2.68
	15	1412.8	298.3	4.34	1386.3	328.3	3.90	1356.3	361.1	3.50	1280.2	382.9	3.12	1184.1	382.7	2.89
	15.5	1431.2	300.9	4.37	1404.3	330.5	3.93	1373.8	363.6	3.52	1294.4	383.9	3.15	1188.5	378.7	2.93
YCIV 1380	4.5	1206.1	287.7	3.79	1185.1	323.9	3.35	1160.1	366.4	2.92	1127.6	415.0	2.53	1106.8	461.5	2.25
	5	1223.1	290.7	3.81	1201.9	325.0	3.38	1176.5	367.5	2.96	1142.6	415.7	2.56	1120.7	462.1	2.28
	6	1257.6	296.4	3.85	1236.0	327.4	3.46	1209.7	369.7	3.02	1173.1	417.2	2.62	1148.8	463.4	2.33
	7	1292.8	301.6	3.90	1270.5	332.9	3.50	1243.6	371.9	3.09	1204.2	418.8	2.68	1177.7	464.6	2.38
	8	1328.6	306.9	3.94	1305.7	339.2	3.53	1278.0	374.5	3.16	1235.9	420.3	2.74	1207.2	465.8	2.43
	10	1401.9	318.0	4.03	1378.0	350.3	3.62	1348.6	386.2	3.24	1301.2	423.6	2.87	1268.0	468.1	2.54
	12	1477.7	329.7	4.11	1452.8	361.7	3.71	1421.9	398.1	3.32	1366.5	432.5	2.95	1306.5	455.1	2.69
	15	1594.7	341.4	4.29	1569.0	378.5	3.84	1537.2	414.8	3.45	1466.4	446.1	3.08	1330.0	428.0	2.90
	15.5	1614.4	343.7	4.32	1588.7	381.4	3.86	1556.3	417.9	3.47	1485.4	447.3	3.11	1333.4	424.3	2.93

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).
Data based on 5°C chilled liquid temperature difference.

HIGH EFFICIENCY CHILLERS (HE RS) WITH ULTRA QUIET FANS - COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0590	4.5	527.3	134.4	3.59	511.1	148.0	3.18	492.3	161.9	2.82	471.0	176.5	2.49	448.9	192.0	2.19
	5	535.5	134.9	3.63	519.0	148.5	3.22	500.0	162.6	2.85	478.4	177.3	2.52	456.1	193.1	2.22
	6	552.0	135.8	3.72	535.2	149.7	3.30	515.7	164.0	2.92	493.1	178.9	2.57	470.7	195.3	2.26
	7	569.0	136.7	3.81	551.6	150.9	3.37	531.4	165.5	2.98	508.4	180.5	2.63	485.7	197.6	2.31
	8	586.0	137.8	3.90	568.3	152.2	3.45	547.4	167.0	3.05	523.8	182.2	2.69	501.1	200.0	2.36
	10	620.9	140.1	4.07	602.3	155.2	3.59	580.2	170.4	3.17	555.6	185.9	2.80	520.6	196.8	2.49
	12	656.7	142.7	4.23	637.2	158.5	3.72	614.1	174.1	3.29	588.4	189.9	2.90	530.0	187.7	2.64
	15	712.9	146.4	4.48	692.2	163.4	3.93	668.2	179.4	3.48	641.1	196.2	3.07	543.1	175.1	2.89
	15.5	722.5	147.1	4.52	701.7	164.2	3.97	677.5	180.3	3.51	650.5	197.5	3.10	545.2	173.1	2.93
YCIV 0630	4.5	566.3	142.2	3.62	551.6	158.8	3.19	534.6	175.5	2.82	515.2	192.9	2.49	495.9	211.7	2.20
	5	575.2	142.6	3.67	560.0	159.1	3.23	542.6	176.0	2.85	522.9	193.6	2.52	503.3	212.6	2.22
	6	593.2	143.5	3.76	577.1	159.9	3.31	558.8	177.1	2.92	538.3	194.8	2.57	511.7	209.9	2.28
	7	611.6	144.5	3.85	594.6	160.9	3.40	575.4	178.3	2.99	554.2	196.2	2.63	517.5	205.2	2.36
	8	630.3	145.6	3.94	612.4	161.9	3.48	592.3	179.5	3.06	570.3	197.6	2.69	523.4	200.4	2.44
	10	668.3	147.9	4.12	648.8	164.4	3.63	627.2	182.3	3.19	603.7	200.7	2.81	533.7	190.5	2.61
	12	707.6	150.6	4.29	686.6	167.3	3.78	663.5	185.3	3.33	638.7	204.2	2.92	543.2	181.8	2.77
	15	768.7	155.7	4.52	745.7	172.6	3.99	720.4	190.6	3.52	694.7	210.8	3.09	556.2	169.5	3.03
	15.5	779.0	156.7	4.56	755.7	173.6	4.02	730.2	191.6	3.55	704.3	212.0	3.11	558.3	167.6	3.07
YCIV 0700	4.5	606.2	152.2	3.61	596.2	172.4	3.17	584.2	196.3	2.75	561.5	217.6	2.41	542.0	238.2	2.13
	5	614.7	153.6	3.63	604.5	172.8	3.20	592.3	196.8	2.79	568.8	217.9	2.43	548.3	238.6	2.16
	6	631.7	156.2	3.67	621.3	174.3	3.27	608.7	197.8	2.85	583.4	218.5	2.49	560.6	238.6	2.20
	7	649.1	158.7	3.72	638.3	177.3	3.31	625.4	198.8	2.91	598.2	219.0	2.55	565.5	233.4	2.27
	8	666.7	161.2	3.77	655.7	180.2	3.35	642.3	200.3	2.97	613.4	219.5	2.61	570.8	228.3	2.34
	10	702.5	166.3	3.86	691.0	185.3	3.44	676.9	206.4	3.05	643.7	220.4	2.72	582.7	218.9	2.48
	12	739.4	171.6	3.95	727.3	190.7	3.52	710.0	210.5	3.14	673.2	224.7	2.80	594.3	209.8	2.63
	15	796.8	177.4	4.12	783.9	199.1	3.65	761.0	216.4	3.28	718.8	230.0	2.92	606.8	199.9	2.81
	15.5	806.6	178.5	4.15	793.6	200.3	3.67	769.7	217.4	3.30	726.5	230.8	2.95	608.5	198.1	2.85
YCIV 0760	4.5	656.2	166.1	3.61	644.7	189.7	3.14	631.5	218.2	2.70	604.0	242.3	2.34	580.2	259.5	2.11
	5	665.3	167.6	3.63	653.6	190.0	3.18	640.1	218.5	2.73	611.2	242.3	2.37	586.9	259.8	2.13
	6	683.8	170.1	3.68	671.6	191.4	3.24	657.6	219.2	2.80	625.9	242.1	2.43	600.4	260.3	2.17
	7	702.6	172.8	3.73	689.9	194.4	3.28	675.3	219.9	2.87	640.7	241.9	2.49	614.3	260.5	2.22
	8	721.8	175.5	3.77	708.5	197.3	3.32	693.4	221.0	2.93	655.8	241.5	2.55	628.5	260.6	2.27
	10	761.2	181.4	3.86	746.8	202.5	3.42	730.4	227.6	3.00	686.7	240.9	2.68	643.9	251.1	2.41
	12	802.0	187.8	3.94	786.5	208.4	3.51	768.8	233.1	3.09	717.7	244.5	2.76	655.5	239.0	2.57
	15	865.3	196.0	4.09	848.6	218.2	3.63	820.9	237.9	3.24	765.8	248.1	2.90	668.5	227.0	2.75
	15.5	876.1	197.6	4.11	859.0	219.3	3.65	829.7	238.6	3.26	774.0	248.7	2.93	669.8	224.7	2.78
YCIV 0800	4.5	697.8	173.5	3.66	686.3	197.7	3.19	673.2	226.6	2.76	649.0	253.4	2.40	624.7	271.9	2.16
	5	707.5	175.1	3.68	695.7	198.1	3.23	682.3	227.0	2.79	656.9	253.5	2.42	631.9	272.2	2.18
	6	727.2	178.1	3.72	714.9	199.2	3.30	700.8	227.9	2.86	672.4	253.4	2.48	643.0	270.4	2.23
	7	747.2	180.9	3.77	734.3	202.6	3.34	719.7	228.7	2.92	688.3	253.3	2.54	648.8	264.8	2.30
	8	767.6	183.9	3.81	754.1	205.8	3.38	738.9	229.8	2.99	704.5	253.0	2.61	654.9	259.1	2.37
	10	809.6	190.2	3.90	794.9	211.6	3.47	778.1	236.5	3.07	737.6	252.5	2.73	667.5	247.2	2.52
	12	852.9	197.0	3.98	837.2	217.9	3.56	816.2	240.9	3.16	770.8	256.2	2.82	679.7	235.5	2.69
	15	919.4	205.1	4.13	902.2	228.1	3.68	874.9	247.9	3.30	822.5	260.5	2.96	693.3	224.2	2.87
	15.5	930.8	206.7	4.15	913.2	229.6	3.70	884.8	249.1	3.32	831.3	261.2	2.98	694.8	222.0	2.90
YCIV 0830	4.5	725.3	178.1	3.68	713.8	201.8	3.23	700.6	229.7	2.82	681.5	260.1	2.44	656.8	279.5	2.20
	5	735.4	179.8	3.70	723.7	202.4	3.27	710.1	230.3	2.85	689.7	260.2	2.47	664.3	279.7	2.22
	6	755.9	183.2	3.74	743.7	203.6	3.34	729.5	231.5	2.91	706.3	260.4	2.53	679.9	280.1	2.27
	7	776.8	186.1	3.79	764.0	207.1	3.38	749.3	232.7	2.98	723.2	260.4	2.59	695.7	280.3	2.32
	8	798.1	189.2	3.83	784.8	210.7	3.42	769.5	233.9	3.04	740.3	260.5	2.65	711.9	280.5	2.38
	10	841.7	195.7	3.92	827.4	216.9	3.51	810.8	241.0	3.12	775.3	260.7	2.77	745.1	280.6	2.49
	12	885.9	202.4	4.00	870.9	223.5	3.59	853.5	247.7	3.20	810.8	264.6	2.86	779.2	280.7	2.60
	15	954.9	210.0	4.17	938.3	233.7	3.71	919.1	257.9	3.32	865.3	270.2	2.99	814.6	275.1	2.77
	15.5	966.7	211.4	4.20	949.8	235.6	3.73	930.4	259.6	3.34	874.5	271.0	3.02	817.6	272.0	2.81

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).
Data based on 5 °C chilled liquid temperature difference.

High Efficiency Chillers (HE RS) with Ultra Quiet Fans- Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0930	4.5	804.6	207.4	3.55	790.7	233.0	3.14	774.8	264.1	2.74	746.6	293.8	2.39	698.0	302.0	2.17
	5	815.6	209.6	3.57	801.6	233.8	3.17	785.3	265.0	2.77	755.7	294.2	2.41	701.5	299.1	2.21
	6	838.3	213.3	3.61	823.5	236.5	3.22	806.6	266.7	2.82	774.0	294.9	2.47	708.4	292.9	2.27
	7	861.2	217.1	3.65	845.9	241.1	3.25	828.3	268.4	2.88	792.7	295.7	2.52	714.9	286.4	2.34
	8	884.6	220.9	3.69	868.7	245.3	3.29	850.2	270.7	2.94	811.7	296.4	2.57	720.9	279.5	2.42
	10	932.7	228.8	3.76	915.4	253.3	3.36	893.4	279.2	3.00	850.6	298.0	2.68	730.8	265.2	2.57
	12	982.3	236.5	3.85	963.8	261.5	3.44	938.1	286.3	3.07	889.8	305.0	2.75	741.4	252.9	2.73
	15	1059.6	244.5	4.02	1039.3	273.6	3.55	1007.5	297.3	3.19	951.0	313.4	2.86	753.2	240.2	2.91
	15.5	1072.8	246.1	4.05	1052.1	275.0	3.58	1020.3	298.6	3.21	961.4	314.7	2.88	755.3	237.9	2.94
YCIV 1050	4.5	913.5	227.8	3.65	896.2	259.5	3.18	876.0	296.4	2.75	838.7	330.2	2.38	803.1	357.7	2.11
	5	926.4	230.0	3.67	908.8	260.1	3.22	888.2	297.1	2.78	848.9	330.4	2.41	812.6	358.2	2.14
	6	952.4	233.9	3.72	934.4	261.7	3.29	913.0	298.4	2.85	869.7	330.8	2.46	831.8	359.2	2.18
	7	978.8	237.6	3.77	960.3	265.8	3.34	938.3	299.8	2.92	890.7	331.1	2.52	851.3	360.0	2.23
	8	1005.9	241.5	3.82	986.6	270.3	3.37	964.1	301.4	2.98	911.9	331.4	2.58	871.3	360.6	2.28
	10	1061.3	249.6	3.91	1041.1	278.1	3.47	1016.7	310.3	3.06	955.9	331.8	2.70	900.6	353.4	2.40
	12	1118.5	258.2	3.99	1097.2	286.4	3.56	1071.5	318.8	3.14	1000.2	337.1	2.78	917.8	338.0	2.55
	15	1207.9	268.3	4.16	1185.0	299.7	3.68	1149.2	328.2	3.28	1068.6	344.6	2.91	938.6	321.4	2.73
	15.5	1223.2	270.2	4.18	1200.1	301.7	3.71	1161.6	329.5	3.30	1080.3	345.7	2.94	941.4	318.6	2.76
YCIV 1120	4.5	972.2	239.5	3.69	954.4	274.8	3.20	934.3	315.5	2.75	896.9	353.2	2.38	861.2	378.3	2.14
	5	985.8	241.7	3.71	967.7	275.2	3.24	947.0	316.1	2.79	907.7	353.2	2.41	871.2	378.8	2.16
	6	1013.5	245.7	3.76	994.7	276.0	3.32	973.2	317.1	2.86	929.7	353.0	2.47	891.6	379.5	2.21
	7	1041.6	249.6	3.81	1022.3	280.2	3.36	999.8	318.1	2.93	952.0	352.7	2.53	912.4	379.9	2.26
	8	1070.4	253.5	3.86	1050.2	284.8	3.40	1027.1	319.3	2.99	974.8	352.3	2.59	933.4	380.1	2.31
	10	1129.5	262.1	3.95	1107.9	292.5	3.50	1082.8	327.9	3.08	1021.3	351.4	2.72	977.3	379.9	2.42
	12	1190.7	272.0	4.03	1167.8	300.8	3.60	1140.8	336.3	3.17	1068.4	355.4	2.82	997.3	363.4	2.58
	15	1286.8	284.0	4.18	1261.6	315.4	3.72	1225.9	346.5	3.31	1141.3	361.4	2.96	1018.8	344.0	2.77
	15.5	1303.3	286.3	4.20	1277.7	317.6	3.74	1239.2	347.7	3.34	1153.7	362.2	2.99	1021.8	341.0	2.80
YCIV 1220	4.5	1057.1	264.7	3.65	1038.6	301.0	3.18	1017.6	344.8	2.75	974.9	382.3	2.39	937.1	409.4	2.16
	5	1071.9	267.2	3.67	1052.9	301.6	3.22	1031.4	345.5	2.78	986.6	382.4	2.42	947.7	409.9	2.18
	6	1101.7	271.7	3.71	1082.0	304.1	3.29	1059.5	346.9	2.85	1009.8	382.3	2.48	964.6	407.5	2.23
	7	1132.3	276.0	3.76	1111.6	309.2	3.32	1088.2	348.3	2.91	1033.6	382.1	2.54	973.1	399.4	2.29
	8	1163.5	280.5	3.80	1141.8	314.1	3.36	1117.4	350.3	2.97	1057.9	381.9	2.60	981.9	391.0	2.36
	10	1227.7	290.4	3.89	1204.1	323.0	3.46	1176.5	360.8	3.05	1107.5	381.1	2.73	1000.6	373.4	2.51
	12	1294.5	300.3	3.98	1268.8	332.9	3.54	1233.0	366.8	3.14	1157.3	387.1	2.81	1018.6	355.8	2.67
	15	1399.3	313.1	4.14	1370.4	348.7	3.66	1320.7	376.5	3.29	1235.3	393.7	2.95	1039.1	338.4	2.86
	15.5	1417.3	315.5	4.16	1387.8	350.8	3.69	1335.8	378.2	3.31	1248.6	394.7	2.97	1042.2	335.4	2.89
YCIV 1380	4.5	1198.0	303.2	3.61	1175.0	341.1	3.18	1148.5	385.6	2.77	1107.0	430.9	2.41	1079.6	474.3	2.15
	5	1214.8	306.5	3.63	1191.5	342.4	3.21	1164.4	387.0	2.80	1121.1	431.6	2.44	1084.9	469.8	2.18
	6	1248.8	312.7	3.66	1225.0	345.3	3.28	1196.8	389.7	2.86	1149.6	432.9	2.49	1095.4	460.3	2.24
	7	1283.5	318.6	3.70	1258.8	351.9	3.31	1229.9	392.4	2.92	1178.5	434.2	2.55	1105.7	450.3	2.31
	8	1318.8	324.4	3.74	1293.3	358.9	3.34	1263.6	395.3	2.98	1207.7	435.7	2.60	1115.6	439.8	2.38
	10	1391.2	336.4	3.81	1364.3	371.0	3.42	1332.0	409.0	3.04	1268.0	438.4	2.72	1132.2	418.7	2.53
	12	1466.0	348.9	3.89	1437.6	383.7	3.49	1399.2	419.9	3.12	1329.2	448.1	2.79	1149.3	399.3	2.69
	15	1582.2	360.9	4.06	1552.3	402.4	3.60	1503.8	436.1	3.24	1423.8	462.4	2.90	1169.0	378.7	2.87
	15.5	1601.7	363.3	4.09	1571.4	405.1	3.62	1523.1	438.1	3.26	1440.0	464.6	2.92	1172.3	375.2	2.90

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).
Data based on 5 °C chilled liquid temperature difference.

HIGH EFFICIENCY CHILLERS (HE LS) WITH TWO SPEED FANS - COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kW _o	kW _{ci}	EER	kW _o	kW _{ci}	EER	kW _o	kW _{ci}	EER	kW _o	kW _{ci}	EER	kW _o	kW _{ci}	EER
YCIV 0590	4.5	527.3	134.4	3.60	511.1	148.0	3.19	492.3	161.9	2.83	471.0	176.5	2.50	448.9	192.0	2.20
	5	535.5	134.9	3.65	519.0	148.5	3.23	500.0	162.6	2.86	478.4	177.3	2.53	456.1	193.1	2.22
	6	552.0	135.8	3.73	535.2	149.7	3.31	515.7	164.0	2.93	493.1	178.9	2.58	470.7	195.3	2.27
	7	569.0	136.7	3.83	551.6	150.9	3.39	531.4	165.5	2.99	508.4	180.5	2.64	485.7	197.6	2.32
	8	586.0	137.8	3.91	568.3	152.2	3.46	547.4	167.0	3.06	523.8	182.2	2.70	501.1	200.0	2.36
	10	620.9	140.1	4.08	602.3	155.2	3.60	580.2	170.4	3.18	555.6	185.9	2.81	520.6	196.8	2.49
	12	656.7	142.7	4.25	637.2	158.5	3.74	614.1	174.1	3.30	588.4	189.9	2.91	530.0	187.7	2.65
	15	712.9	146.4	4.50	692.2	163.4	3.95	668.2	179.4	3.49	641.1	196.2	3.08	543.1	175.1	2.90
YCIV 0630	15.5	722.5	147.1	4.54	701.7	164.2	3.98	677.5	180.3	3.52	650.5	197.5	3.11	545.2	173.1	2.94
	4.5	566.3	142.2	3.64	551.6	158.8	3.20	534.6	175.5	2.83	515.2	192.9	2.50	495.9	211.7	2.20
	5	575.2	142.6	3.68	560.0	159.1	3.24	542.6	176.0	2.86	522.9	193.6	2.53	503.3	212.6	2.23
	6	593.2	143.5	3.78	577.1	159.9	3.33	558.8	177.1	2.93	538.3	194.8	2.58	511.7	209.9	2.29
	7	611.6	144.5	3.87	594.6	160.9	3.41	575.4	178.3	3.00	554.2	196.2	2.64	517.5	205.2	2.37
	8	630.3	145.6	3.96	612.4	161.9	3.49	592.3	179.5	3.07	570.3	197.6	2.70	523.4	200.4	2.45
	10	668.3	147.9	4.14	648.8	164.4	3.65	627.2	182.3	3.20	603.7	200.7	2.82	533.7	190.5	2.62
	12	707.6	150.6	4.31	686.6	167.3	3.80	663.5	185.3	3.34	638.7	204.2	2.93	543.2	181.8	2.78
YCIV 0700	15	768.7	155.7	4.54	745.7	172.6	4.01	720.4	190.6	3.53	694.7	210.8	3.10	556.2	169.5	3.04
	15.5	779.0	156.7	4.58	755.7	173.6	4.04	730.2	191.6	3.56	704.3	212.0	3.12	558.3	167.6	3.08
	4.5	606.2	152.2	3.63	596.2	172.4	3.18	584.2	196.3	2.77	561.5	217.6	2.41	542.0	238.2	2.14
	5	614.7	153.6	3.65	604.5	172.8	3.22	592.3	196.8	2.80	568.8	217.9	2.44	548.3	238.6	2.16
	6	631.7	156.2	3.69	621.3	174.3	3.28	608.7	197.8	2.86	583.4	218.5	2.50	560.6	238.6	2.21
	7	649.1	158.7	3.74	638.3	177.3	3.32	625.4	198.8	2.92	598.2	219.0	2.56	565.5	233.4	2.28
	8	666.7	161.2	3.78	655.7	180.2	3.36	642.3	200.3	2.98	613.4	219.5	2.62	570.8	228.3	2.35
	10	702.5	166.3	3.87	691.0	185.3	3.45	676.9	206.4	3.06	643.7	220.4	2.73	582.7	218.9	2.49
YCIV 0760	12	739.4	171.6	3.96	727.3	190.7	3.54	710.0	210.5	3.15	673.2	224.7	2.81	594.3	209.8	2.64
	15	796.8	177.4	4.14	783.9	199.1	3.66	761.0	216.4	3.29	718.8	230.0	2.93	606.8	199.9	2.82
	15.5	806.6	178.5	4.17	793.6	200.3	3.69	769.7	217.4	3.31	726.5	230.8	2.96	608.5	198.1	2.86
	4.5	656.2	166.1	3.62	644.7	189.7	3.15	631.5	218.2	2.71	604.0	242.3	2.35	580.2	259.5	2.11
	5	665.3	167.6	3.64	653.6	190.0	3.19	640.1	218.5	2.74	611.2	242.3	2.38	586.9	259.8	2.14
	6	683.8	170.1	3.69	671.6	191.4	3.25	657.6	219.2	2.81	625.9	242.1	2.43	600.4	260.3	2.18
	7	702.6	172.8	3.74	689.9	194.4	3.29	675.3	219.9	2.88	640.7	241.9	2.49	614.3	260.5	2.23
	8	721.8	175.5	3.79	708.5	197.3	3.34	693.4	221.0	2.94	655.8	241.5	2.56	628.5	260.6	2.28
YCIV 0800	10	761.2	181.4	3.88	746.8	202.5	3.43	730.4	227.6	3.01	686.7	240.9	2.68	643.9	251.1	2.42
	12	802.0	187.8	3.96	786.5	208.4	3.52	768.8	233.1	3.10	717.7	244.5	2.77	655.5	239.0	2.58
	15	865.3	196.0	4.10	848.6	218.2	3.64	820.9	237.9	3.25	765.8	248.1	2.91	668.5	227.0	2.76
	15.5	876.1	197.6	4.12	859.0	219.3	3.67	829.7	238.6	3.27	774.0	248.7	2.94	669.8	224.7	2.79
	4.5	697.8	173.5	3.67	686.3	197.7	3.20	673.2	226.6	2.77	649.0	253.4	2.40	624.7	271.9	2.17
	5	707.5	175.1	3.69	695.7	198.1	3.24	682.3	227.0	2.80	656.9	253.5	2.43	631.9	272.2	2.19
	6	727.2	178.1	3.74	714.9	199.2	3.31	700.8	227.9	2.87	672.4	253.4	2.49	643.0	270.4	2.24
	7	747.2	180.9	3.78	734.3	202.6	3.35	719.7	228.7	2.93	688.3	253.3	2.55	648.8	264.8	2.31
YCIV 0830	8	767.6	183.9	3.83	754.1	205.8	3.39	738.9	229.8	3.00	704.5	253.0	2.61	654.9	259.1	2.38
	10	809.6	190.2	3.92	794.9	211.6	3.49	778.1	236.5	3.08	737.6	252.5	2.74	667.5	247.2	2.53
	12	852.9	197.0	4.00	837.2	217.9	3.57	816.2	240.9	3.17	770.8	256.2	2.83	679.7	235.5	2.70
	15	919.4	205.1	4.15	902.2	228.1	3.69	874.9	247.9	3.31	822.5	260.5	2.97	693.3	224.2	2.88
	15.5	930.8	206.7	4.17	913.2	229.6	3.71	884.8	249.1	3.33	831.3	261.2	2.99	694.8	222.0	2.91
	4.5	725.3	178.1	3.70	713.8	201.8	3.25	700.6	229.7	2.83	681.5	260.1	2.45	656.8	279.5	2.21
	5	735.4	179.8	3.72	723.7	202.4	3.28	710.1	230.3	2.86	689.7	260.2	2.48	664.3	279.7	2.23
	6	755.9	183.2	3.76	743.7	203.6	3.36	729.5	231.5	2.92	706.3	260.4	2.54	679.9	280.1	2.28
YCIV 0830	7	776.8	186.1	3.81	764.0	207.1	3.39	749.3	232.7	2.99	723.2	260.4	2.60	695.7	280.3	2.33
	8	798.1	189.2	3.85	784.8	210.7	3.43	769.5	233.9	3.05	740.3	260.5	2.66	711.9	280.5	2.39
	10	841.7	195.7	3.94	827.4	216.9	3.52	810.8	241.0	3.13	775.3	260.7	2.78	745.1	280.6	2.50
	12	885.9	202.4	4.02	870.9	223.5	3.61	853.5	247.7	3.21	810.8	264.6	2.87	779.2	280.7	2.61
	15	954.9	210.0	4.19	938.3	233.7	3.73	919.1	257.9	3.33	865.3	270.2	3.00	814.6	275.1	2.78
	15.5	966.7	211.4	4.21	949.8	235.6	3.75	930.4	259.6	3.35	874.5	271.0	3.03	817.6	272.0	2.82

Notes:

kW_o = Full load cooling capacity. kW_{ci} = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).
Data based on 5°C chilled liquid temperature difference.

 Fans operate at low speed at 28°C ambient and below.

High Efficiency Chillers (HE LS) with Two Speed Fans - Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature °C														
		25			30			35			40			45		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0930	4.5	804.6	207.4	3.6	790.7	233.0	3.2	774.8	264.1	2.8	746.6	293.8	2.4	698.0	302.0	2.2
	5	815.6	209.6	3.6	801.6	233.8	3.2	785.3	265.0	2.8	755.7	294.2	2.4	701.5	299.1	2.2
	6	838.3	213.3	3.6	823.5	236.5	3.2	806.6	266.7	2.8	774.0	294.9	2.5	708.4	292.9	2.3
	7	861.2	217.1	3.7	845.9	241.1	3.3	828.3	268.4	2.9	792.7	295.7	2.5	714.9	286.4	2.4
	8	884.6	220.9	3.7	868.7	245.3	3.3	850.2	270.7	3.0	811.7	296.4	2.6	720.9	279.5	2.4
	10	932.7	228.8	3.8	915.4	253.3	3.4	893.4	279.2	3.0	850.6	298.0	2.7	730.8	265.2	2.6
	12	982.3	236.5	3.9	963.8	261.5	3.5	938.1	286.3	3.1	889.8	305.0	2.8	741.4	252.9	2.7
	15	1059.6	244.5	4.0	1039.3	273.6	3.6	1007.5	297.3	3.2	951.0	313.4	2.9	753.2	240.2	2.9
	15.5	1072.8	246.1	4.1	1052.1	275.0	3.6	1020.3	298.6	3.2	961.4	314.7	2.9	755.3	237.9	3.0
YCIV 1050	4.5	913.5	227.8	3.7	896.2	259.5	3.2	876.0	296.4	2.8	838.7	330.2	2.4	803.1	357.7	2.1
	5	926.4	230.0	3.7	908.8	260.1	3.2	888.2	297.1	2.8	848.9	330.4	2.4	812.6	358.2	2.1
	6	952.4	233.9	3.7	934.4	261.7	3.3	913.0	298.4	2.9	869.7	330.8	2.5	831.8	359.2	2.2
	7	978.8	237.6	3.8	960.3	265.8	3.4	938.3	299.8	2.9	890.7	331.1	2.5	851.3	360.0	2.2
	8	1005.9	241.5	3.8	986.6	270.3	3.4	964.1	301.4	3.0	911.9	331.4	2.6	871.3	360.6	2.3
	10	1061.3	249.6	3.9	1041.1	278.1	3.5	1016.7	310.3	3.1	955.9	331.8	2.7	900.6	353.4	2.4
	12	1118.5	258.2	4.0	1097.2	286.4	3.6	1071.5	318.8	3.2	1000.2	337.1	2.8	917.8	338.0	2.6
	15	1207.9	268.3	4.2	1185.0	299.7	3.7	1149.2	328.2	3.3	1068.6	344.6	2.9	938.6	321.4	2.7
	15.5	1223.2	270.2	4.2	1200.1	301.7	3.7	1161.6	329.5	3.3	1080.3	345.7	3.0	941.4	318.6	2.8
YCIV 1120	4.5	972.2	239.5	3.7	954.4	274.8	3.2	934.3	315.5	2.8	896.9	353.2	2.4	861.2	378.3	2.2
	5	985.8	241.7	3.7	967.7	275.2	3.3	947.0	316.1	2.8	907.7	353.2	2.4	871.2	378.8	2.2
	6	1013.5	245.7	3.8	994.7	276.0	3.3	973.2	317.1	2.9	929.7	353.0	2.5	891.6	379.5	2.2
	7	1041.6	249.6	3.8	1022.3	280.2	3.4	999.8	318.1	2.9	952.0	352.7	2.5	912.4	379.9	2.3
	8	1070.4	253.5	3.9	1050.2	284.8	3.4	1027.1	319.3	3.0	974.8	352.3	2.6	933.4	380.1	2.3
	10	1129.5	262.1	4.0	1107.9	292.5	3.5	1082.8	327.9	3.1	1021.3	351.4	2.7	977.3	379.9	2.4
	12	1190.7	272.0	4.0	1167.8	300.8	3.6	1140.8	336.3	3.2	1068.4	355.4	2.8	997.3	363.4	2.6
	15	1286.8	284.0	4.2	1261.6	315.4	3.7	1225.9	346.5	3.3	1141.3	361.4	3.0	1018.8	344.0	2.8
	15.5	1303.3	286.3	4.2	1277.7	317.6	3.8	1239.2	347.7	3.4	1153.7	362.2	3.0	1021.8	341.0	2.8
YCIV 1220	4.5	1057.1	264.7	3.7	1038.6	301.0	3.2	1017.6	344.8	2.8	974.9	382.3	2.4	937.1	409.4	2.2
	5	1071.9	267.2	3.7	1052.9	301.6	3.2	1031.4	345.5	2.8	986.6	382.4	2.4	947.7	409.9	2.2
	6	1101.7	271.7	3.7	1082.0	304.1	3.3	1059.5	346.9	2.9	1009.8	382.3	2.5	964.6	407.5	2.2
	7	1132.3	276.0	3.8	1111.6	309.2	3.3	1088.2	348.3	2.9	1033.6	382.1	2.5	973.1	399.4	2.3
	8	1163.5	280.5	3.8	1141.8	314.1	3.4	1117.4	350.3	3.0	1057.9	381.9	2.6	981.9	391.0	2.4
	10	1227.7	290.4	3.9	1204.1	323.0	3.5	1176.5	360.8	3.1	1107.5	381.1	2.7	1000.6	373.4	2.5
	12	1294.5	300.3	4.0	1268.8	332.9	3.6	1233.0	366.8	3.2	1157.3	387.1	2.8	1018.6	355.8	2.7
	15	1399.3	313.1	4.2	1370.4	348.7	3.7	1320.7	376.5	3.3	1235.3	393.7	3.0	1039.1	338.4	2.9
	15.5	1417.3	315.5	4.2	1387.8	350.8	3.7	1335.8	378.2	3.3	1248.6	394.7	3.0	1042.2	335.4	2.9
YCIV 1380	4.5	1198.0	303.2	3.6	1175.0	341.1	3.2	1148.5	385.6	2.8	1107.0	430.9	2.4	1079.6	474.3	2.2
	5	1214.8	306.5	3.6	1191.5	342.4	3.2	1164.4	387.0	2.8	1121.1	431.6	2.4	1084.9	469.8	2.2
	6	1248.8	312.7	3.7	1225.0	345.3	3.3	1196.8	389.7	2.9	1149.6	432.9	2.5	1095.4	460.3	2.3
	7	1283.5	318.6	3.7	1258.8	351.9	3.3	1229.9	392.4	2.9	1178.5	434.2	2.6	1105.7	450.3	2.3
	8	1318.8	324.4	3.8	1293.3	358.9	3.4	1263.6	395.3	3.0	1207.7	435.7	2.6	1115.6	439.8	2.4
	10	1391.2	336.4	3.8	1364.3	371.0	3.4	1332.0	409.0	3.1	1268.0	438.4	2.7	1132.2	418.7	2.5
	12	1466.0	348.9	3.9	1437.6	383.7	3.5	1399.2	419.9	3.1	1329.2	448.1	2.8	1149.3	399.3	2.7
	15	1582.2	360.9	4.1	1552.3	402.4	3.6	1503.8	436.1	3.3	1423.8	462.4	2.9	1169.0	378.7	2.9
	15.5	1601.7	363.3	4.1	1571.4	405.1	3.6	1523.1	438.1	3.3	1440.0	464.6	2.9	1172.3	375.2	2.9

Notes:

kW_o = Full load cooling capacity. kW_{ci} = kW input of all compressors. EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5 °C chilled liquid temperature difference.

 Fans operate at low speed at 28 °C ambient and below.

HIGH EFFICIENCY CHILLERS (HE LS) WITH TWO SPEED FANS - HIGH SPEED INHIBITED - COOLING CAPACITIES

Model	LWT °C	Condenser Coil Entering Air Temperature °C											
		25			30			35			40		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0590	4.5	515.7	144.3	3.37	497.3	158.3	2.98	476.8	172.6	2.63	454.8	187.6	2.32
	5	523.5	145.0	3.40	505.0	159.0	3.01	484.0	173.4	2.66	461.6	188.6	2.34
	6	539.4	146.4	3.48	520.2	160.8	3.07	498.5	175.4	2.71	475.5	190.5	2.39
	7	555.5	147.9	3.55	535.7	162.6	3.13	513.3	177.3	2.76	489.7	192.7	2.43
	8	571.8	149.5	3.61	551.5	164.4	3.19	528.3	179.4	2.81	504.8	195.6	2.47
	10	605.0	153.1	3.74	583.2	168.5	3.29	558.9	183.8	2.90	535.4	202.0	2.54
	12	639.0	157.1	3.85	616.0	172.9	3.39	590.5	188.6	2.99	547.9	194.0	2.70
	15	692.5	163.2	4.03	668.3	179.3	3.55	641.3	196.0	3.13	560.8	180.8	2.96
YCIV 0630	15.5	701.7	164.2	4.06	677.2	180.5	3.58	650.4	197.6	3.15	562.9	178.7	3.00
	4.5	556.0	154.2	3.39	539.3	171.0	2.98	520.5	188.3	2.63	500.7	206.3	2.32
	5	564.4	154.7	3.43	547.3	171.6	3.02	528.0	189.1	2.65	508.1	207.5	2.34
	6	581.3	155.9	3.51	563.4	172.9	3.08	543.2	190.7	2.71	522.9	209.8	2.38
	7	598.6	157.1	3.58	579.7	174.4	3.15	558.8	192.3	2.76	535.5	210.4	2.43
	8	616.1	158.5	3.66	596.4	176.0	3.21	574.7	194.1	2.82	541.6	205.5	2.51
	10	651.9	161.7	3.80	630.4	179.5	3.33	607.1	198.0	2.92	553.5	195.7	2.69
	12	688.9	165.4	3.93	665.8	183.5	3.44	641.1	202.3	3.02	564.2	186.4	2.87
YCIV 0700	15	746.4	172.0	4.10	721.1	190.2	3.60	695.4	210.6	3.15	576.7	173.6	3.14
	15.5	756.1	173.2	4.13	730.6	191.4	3.63	700.4	209.1	3.20	578.7	171.6	3.19
	4.5	598.5	169.9	3.31	586.8	191.7	2.90	567.7	212.6	2.54	535.0	228.3	2.24
	5	606.7	171.6	3.32	594.8	192.4	2.92	574.8	213.0	2.57	541.2	228.7	2.26
	6	623.3	174.9	3.35	611.0	194.7	2.97	589.2	213.8	2.62	553.7	229.5	2.30
	7	640.1	177.9	3.39	627.3	198.8	2.99	603.7	214.6	2.68	566.4	230.2	2.35
	8	657.3	181.0	3.42	643.9	202.4	3.02	618.4	216.1	2.72	579.3	230.8	2.40
	10	692.0	187.3	3.49	677.5	208.8	3.08	648.0	222.0	2.78	602.3	230.0	2.50
YCIV 0760	12	727.8	193.2	3.56	709.2	213.4	3.16	678.7	226.7	2.86	611.0	222.4	2.62
	15	783.5	199.7	3.72	758.3	219.9	3.28	722.1	232.8	2.96	624.5	210.7	2.82
	15.5	793.0	201.0	3.74	766.7	220.5	3.31	729.4	233.7	2.98	626.5	208.8	2.85
	4.5	646.7	188.1	3.25	633.5	214.0	2.82	612.6	239.7	2.44	570.3	251.4	2.17
	5	655.4	189.9	3.26	642.0	214.5	2.85	619.6	239.7	2.47	576.7	251.7	2.20
	6	673.1	193.0	3.30	659.2	217.3	2.89	633.9	239.7	2.53	589.7	252.0	2.24
	7	691.2	196.1	3.34	676.5	221.4	2.91	648.3	239.6	2.59	602.7	252.3	2.29
	8	709.6	199.3	3.37	694.1	225.0	2.94	662.7	240.6	2.63	616.2	252.3	2.34
YCIV 0800	10	747.3	206.0	3.44	730.5	231.8	3.01	691.3	245.0	2.70	643.7	253.1	2.44
	12	786.3	212.2	3.52	767.3	238.6	3.07	721.0	247.9	2.78	669.1	256.1	2.51
	15	847.3	220.0	3.67	816.1	242.8	3.22	766.4	252.3	2.91	683.0	240.9	2.71
	15.5	857.6	221.4	3.69	824.5	243.0	3.25	774.1	253.0	2.93	685.2	238.7	2.74
	4.5	688.6	194.8	3.33	675.6	221.4	2.89	654.9	247.6	2.52	614.9	263.0	2.24
	5	697.9	196.9	3.34	684.7	222.0	2.92	662.9	248.0	2.55	621.8	263.2	2.26
	6	716.8	200.3	3.38	702.9	224.5	2.97	679.2	248.7	2.60	635.7	263.6	2.31
	7	736.1	203.6	3.41	721.4	228.8	2.99	695.7	249.4	2.66	650.0	263.8	2.36
YCIV 0830	8	755.7	207.1	3.45	740.2	232.7	3.02	712.3	250.8	2.71	664.5	263.9	2.41
	10	795.9	214.4	3.51	778.1	239.3	3.09	743.8	256.1	2.77	687.7	259.9	2.53
	12	837.5	221.3	3.59	814.8	244.8	3.17	775.7	259.5	2.86	697.3	250.4	2.66
	15	901.4	229.5	3.73	871.4	252.6	3.29	824.8	264.5	2.98	712.0	236.4	2.87
	15.5	912.3	231.0	3.75	881.2	253.4	3.32	833.2	265.3	3.00	714.3	234.4	2.90
	4.5	716.8	197.4	3.40	703.7	223.2	2.98	689.0	253.2	2.59	648.0	269.7	2.29
	5	726.6	199.5	3.42	713.2	224.0	3.01	698.1	254.1	2.61	655.2	269.9	2.31
	6	746.4	203.3	3.45	732.5	226.1	3.06	716.7	255.9	2.66	670.2	270.3	2.36
YCIV 0830	7	766.6	206.9	3.48	752.0	230.6	3.08	734.4	257.2	2.72	685.4	270.6	2.42
	8	787.1	210.6	3.52	771.8	234.9	3.11	751.2	257.5	2.77	700.9	270.9	2.47
	10	829.4	218.1	3.58	812.6	242.8	3.17	784.2	263.4	2.84	732.5	271.3	2.57
	12	872.2	225.6	3.65	854.6	250.7	3.24	818.1	267.7	2.91	763.7	276.7	2.63
	15	938.9	233.5	3.81	918.9	263.1	3.33	870.4	273.7	3.03	812.6	282.4	2.75
	15.5	950.3	235.0	3.83	930.0	264.5	3.35	879.1	274.7	3.05	821.0	283.3	2.77

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors.

EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5°C chilled liquid temperature difference.

High Efficiency Chillers (HE LS) with Two Speed Fans - High Speed Inhibited - Cooling Capacities (continued)

Model	LWT °C	Condenser Coil Entering Air Temperature oC											
		25			30			35			40		
		kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER	kWo	kWci	EER
YCIV 0930	4.5	792.8	232.2	3.23	776.9	260.1	2.84	753.3	289.2	2.49	710.9	310.1	2.20
	5	803.4	234.8	3.24	787.3	261.2	2.87	762.7	290.1	2.51	718.1	309.9	2.22
	6	825.1	239.4	3.27	808.2	265.3	2.90	781.9	291.9	2.56	725.9	304.4	2.29
	7	847.2	244.1	3.29	829.4	271.1	2.92	800.0	293.2	2.61	733.5	298.5	2.35
	8	869.6	248.9	3.32	850.2	275.9	2.94	818.3	295.6	2.65	740.9	292.0	2.43
	10	915.5	258.5	3.37	892.1	284.4	3.00	854.7	303.7	2.70	753.7	278.8	2.58
	12	963.0	267.1	3.44	935.3	292.9	3.06	892.1	310.3	2.76	761.4	268.3	2.71
	15	1036.8	277.2	3.57	1002.1	304.8	3.15	943.4	314.0	2.88	773.3	254.1	2.89
	15.5	1049.8	278.4	3.60	1013.4	305.9	3.18	946.7	310.2	2.93	775.5	251.9	2.93
YCIV 1050	4.5	899.7	255.7	3.32	879.7	290.1	2.88	852.3	325.5	2.50	791.1	344.7	2.20
	5	912.0	258.4	3.33	891.8	291.1	2.91	862.7	325.9	2.53	800.2	345.3	2.22
	6	937.2	263.1	3.36	916.2	293.7	2.96	882.7	326.6	2.58	818.5	346.2	2.26
	7	962.7	267.8	3.40	940.8	299.6	2.99	903.2	327.2	2.64	837.3	347.1	2.31
	8	988.8	272.4	3.44	965.9	305.3	3.01	923.8	328.1	2.69	856.1	347.8	2.36
	10	1042.2	282.0	3.50	1017.6	315.3	3.08	964.5	335.7	2.75	894.9	349.4	2.45
	12	1097.4	291.3	3.58	1071.1	325.7	3.14	1006.5	341.5	2.82	933.6	356.5	2.51
	15	1183.7	301.9	3.7	1143.5	335.3	3.3	1071.4	349.8	2.93	959.6	340.9	2.7
	15.5	1198.5	303.8	3.8	1155.3	335.9	3.3	1082.1	351.2	2.95	962.8	337.9	2.7
YCIV 1120	4.5	958.0	269.8	3.35	937.9	308.3	2.89	911.5	349.0	2.49	847.8	366.2	2.21
	5	971.1	272.5	3.36	950.6	309.2	2.92	922.1	349.0	2.52	857.3	366.6	2.24
	6	997.7	277.2	3.40	976.5	311.3	2.98	943.5	349.0	2.58	876.8	367.1	2.29
	7	1024.9	281.8	3.44	1002.5	317.1	3.01	965.2	348.9	2.64	896.7	367.5	2.34
	8	1052.6	286.4	3.47	1029.0	322.9	3.03	987.3	348.8	2.70	916.9	367.6	2.39
	10	1109.4	296.1	3.55	1083.8	332.7	3.10	1030.4	355.6	2.77	958.1	367.6	2.49
	12	1168.1	306.0	3.62	1140.6	343.0	3.17	1075.5	360.3	2.85	999.4	373.6	2.56
	15	1260.5	317.2	3.78	1220.4	354.1	3.29	1144.5	366.9	2.99	1040.8	365.2	2.73
	15.5	1276.3	319.4	3.80	1233.1	354.4	3.32	1156.2	368.0	3.01	1044.1	361.9	2.76
YCIV 1220	4.5	1041.7	298.4	3.30	1020.8	338.2	2.87	984.7	375.4	2.51	920.9	396.5	2.22
	5	1055.8	301.6	3.31	1034.5	339.3	2.90	996.4	375.9	2.53	931.1	396.9	2.25
	6	1084.5	306.7	3.34	1062.1	343.7	2.94	1020.2	376.7	2.59	951.7	397.5	2.29
	7	1113.8	312.0	3.38	1090.1	350.4	2.96	1044.4	377.5	2.64	972.9	397.9	2.34
	8	1143.6	317.4	3.41	1118.7	356.4	2.99	1068.6	379.7	2.69	994.4	398.2	2.39
	10	1204.7	328.8	3.5	1175.2	366.4	3.1	1115.2	387.4	2.75	1029.6	393.0	2.5
	12	1268.3	338.9	3.56	1229.0	373.8	3.14	1162.9	392.7	2.83	1043.7	379.1	2.63
	15	1368.0	352.0	3.70	1313.0	383.9	3.27	1236.5	400.2	2.96	1065.5	357.5	2.84
	15.5	1385.1	354.4	3.72	1327.4	384.8	3.30	1249.1	401.5	2.98	1068.9	354.4	2.87
YCIV 1380	4.5	1178.8	337.5	3.30	1152.4	378.6	2.89	1116.2	422.2	2.53	1056.3	456.0	2.22
	5	1195.0	341.5	3.31	1168.2	380.3	2.92	1130.5	423.4	2.55	1068.7	457.0	2.24
	6	1227.8	348.8	3.33	1200.0	384.8	2.97	1159.2	425.9	2.60	1094.0	458.9	2.29
	7	1261.3	355.8	3.36	1232.2	393.4	2.98	1188.5	428.4	2.65	1120.0	460.7	2.33
	8	1295.1	363.2	3.38	1265.0	401.7	3.00	1218.0	431.5	2.70	1144.1	460.6	2.38
	10	1364.8	377.8	3.43	1330.9	416.3	3.05	1275.1	444.8	2.74	1165.4	439.4	2.54
	12	1436.7	391.9	3.49	1395.6	428.7	3.11	1333.5	455.4	2.81	1178.5	423.5	2.66
	15	1549.3	407.0	3.63	1495.6	447.1	3.20	1423.6	471.3	2.90	1197.4	400.9	2.85
	15.5	1568.4	409.4	3.65	1512.9	449.0	3.23	1439.0	473.9	2.91	1200.6	397.5	2.88

Notes:

kWo = Full load cooling capacity. kWci = kW input of all compressors.

EER = Energy Efficiency Ratio (includes compressors and fans).

Data based on 5°C chilled liquid temperature difference.

STANDARD/HIGH EFFICIENCY (SE & SE RS/HE & HE RS) MODELS - SOUND DATA

Sound Power dB			Standard Efficiency Chillers (SE)								SPL at 10 m
Model		Mean	Band Levels - Frequency Hz								
YCIV		SWL	63	125	250	500	1000	2000	4000	8000	
0600	LWA	102	75	82	93	95	96	97.4	87	77	69.4
	LW	107	101	98.1	102	98.2	96	96.2	86	78.1	
0650	LWA	103	76	83	94	96	97	98.4	88	78	70.4
	LW	108	102	99.1	103	99.2	97	97.2	87	79.1	
0720	LWA	104	77	84	95	97	99	99.4	89	79	71.55
	LW	109	103	100	104	100	99	98.2	88	80.1	
0770	LWA	103	76	83	94	96	97	98.4	88	78	70.27
	LW	108	102	99.1	103	99.2	97	97.2	87	79.1	
0840	LWA	106	79	86	97	99	100	101	91	81	73.27
	LW	111	105	102	106	102	100	100	90	82.1	
0920	LWA	105	77	85	96	98	99	100	90	80	72.15
	LW	110	103	101	105	101	99	99.2	89	81.1	
1000	LWA	105	78	85	96	98	99	100	90	80	72.15
	LW	110	104	101	105	101	99	99.2	89	81.1	
1070	LWA	107	59.6	73.7	82.2	101	98.5	104	95	86.4	73.93
	LW	108	85.8	89.8	90.8	104	98.5	103	94	87.5	
1180	LWA	109	60.6	74.7	83.2	103	99.8	106	96.8	86.7	75.95
	LW	109	86.8	90.8	91.8	106	99.8	105	95.8	87.8	
1340	LWA	109	58.9	75.7	78.2	106	100	105	97.1	88.5	76.12
	LW	111	85.1	91.8	86.8	109	100	104	96.1	89.6	
1500	LWA	110	59.6	76.7	79.2	107	102	103	97.8	90.7	76.41
	LW	111	85.8	92.8	87.8	110	102	102	96.8	91.8	

Models have normal speed fans and no compressor enclosure.

All data tested at 7°C leaving chilled water and 35°C ambient.

Sound Power dB			Standard Efficiency Chillers (SE RS)								SPL at 10 m
Model		Mean	Band Levels - Frequency Hz								
YCIV		SWL	63	125	250	500	1000	2000	4000	8000	
0600	LWA	100	73	80	91	93	94	95.4	85	75	67.4
	LW	105	99.2	96.1	99.6	96.2	94	94.2	84	76.1	
0650	LWA	99	72	79	90	92	93	94.4	84	74	66.4
	LW	104	98.2	95.1	98.6	95.2	93	93.2	83	75.1	
0720	LWA	100	73	80	91	93	95	95.4	85	75	67.55
	LW	105	99.2	96.1	99.6	96.2	95	94.2	84	76.1	
0770	LWA	99	72	79	90	92	93	94.4	84	74	66.27
	LW	104	98.2	95.1	98.6	95.2	93	93.2	83	75.1	
0840	LWA	102	75	82	93	95	96	97.4	87	77	69.27
	LW	107	101	98.1	102	98.2	96	96.2	86	78.1	
0920	LWA	101	73	81	92	94	95	96.4	86	76	68.15
	LW	106	99.2	97.1	101	97.2	95	95.2	85	77.1	
1000	LWA	101	74	81	92	94	95	96.4	86	76	68.15
	LW	106	100	97.1	101	97.2	95	95.2	85	77.1	
1070	LWA	103	56	70	78	97	94	100	91	82	69.93
	LW	104	82	86	87	100	94	99	90	84	
1180	LWA	105	57	71	79	99	96	102	93	83	71.95
	LW	105	83	87	88	102	96	101	92	84	
1340	LWA	105	55	72	74	102	96	101	93	85	72.1
	LW	107	81	88	83	105	96	100	92	86	
1500	LWA	106	56	73	75	103	98	99	94	87	72.41
	LW	107	82	89	84	106	98	98	93	88	

Models have normal speed fans and an unlined compressor enclosure.

All data tested at 7°C leaving chilled water and 35°C ambient.

Sound Power dB			High Efficiency Chillers (HE)								SPL at 10 m
Model		Mean	Band Levels - Frequency Hz								
YCIV		SWL	63	125	250	500	1000	2000	4000	8000	
0590	LWA	100	73	80	91	93	94	95.4	85	75	67.4
	LW	105	99.2	96.1	99.6	96.2	94	94.2	84	76.1	
0630	LWA	102	75	82	93	95	96	97.4	87	77	69.27
	LW	107	101	98.1	102	98.2	96	96.2	86	78.1	
0700	LWA	102	75	82	93	95	96	97.4	87	77	69.27
	LW	107	101	98.1	102	98.2	96	96.2	86	78.1	
0760	LWA	104	77	84	95	97	98	99.4	89	79	71.27
	LW	109	103	100	104	100	98	98.2	88	80.1	
0800	LWA	102	75	81.9	93	95.4	95.8	97.4	86.8	77	69.17
	LW	107	101	98	102	98.6	95.8	96.2	85.8	78.1	
0830	LWA	106	79	86	97	98	100	101	91	81	72.96
	LW	111	105	102	106	101	100	100	90	82.1	
0930	LWA	105	78	85	96	97	99	100	90	80	71.96
	LW	110	104	101	105	100	99	99.2	89	81.1	
1050	LWA	104	59.6	71.7	86.2	98.8	99.5	99.6	92	86.4	71.59
	LW	106	85.8	87.8	94.8	102	99.5	98.4	91	87.5	
1120	LWA	105	59.6	71.7	86.2	99.6	99.8	101	92.8	85.7	72.3
	LW	106	85.8	87.8	94.8	103	99.8	99.8	91.8	86.8	
1220	LWA	106	59.6	73.7	82.2	102	98.8	103	93.8	85.7	73.5
	LW	108	85.8	89.8	90.8	105	98.8	102	92.8	86.8	
1380	LWA	107	59.9	74.7	83.2	103	102	101	94.1	90.5	74.0
	LW	108	86.1	90.8	91.8	106	102	100	93.1	91.6	

Models have normal speed fans and no compressor enclosure.

All data tested at 7°C leaving chilled water and 35°C ambient.

Sound Power dB			High Efficiency Chillers (HE RS)								SPL at 10 m
Model		Mean	Band Levels - Frequency Hz								
YCIV		SWL	63	125	250	500	1000	2000	4000	8000	
0590	LWA	97	70	77	88	90	91	92.4	82	72	64.4
	LW	102	96.2	93.1	96.6	93.2	91	91.2	81	73.1	
0630	LWA	98	71	78	89	91	92	93.4	83	73	65.27
	LW	103	97.2	94.1	97.6	94.2	92	92.2	82	74.1	
0700	LWA	98	71	78	89	92	93	93.4	83	73	65.76
	LW	103	97.2	94.1	97.6	95.2	93	92.2	82	74.1	
0760	LWA	100	73	80	91	93	94	95.4	85	75	67.27
	LW	105	99.2	96.1	99.6	96.2	94	94.2	84	76.1	
0800	LWA	99	70.8	78.9	89.4	91.8	93	94.2	84	73.9	65.96
	LW	103	97	95	98	95	93	93	83	75	
0830	LWA	102	75	82	93	94	96	97.4	87	77	68.96
	LW	107	101	98.1	102	97.2	96	96.2	86	78.1	
0930	LWA	100	74	81	92	92	94	96.4	86	76	67.55
	LW	106	100	97.1	101	95.2	94	95.2	85	77.1	
1050	LWA	102	56	68	82	95	95	98	90	82	68.64
	LW	102	82	84	91	98	95	97	89	84	
1120	LWA	102	56	68	82	95	95	98	91	82	68.6
	LW	102	82	84	91	98	95	97	90	83	
1220	LWA	104	56	70	78	98	95	101	92	82	70.8
	LW	104	82	86	87	101	95	100	91	83	
1380	LWA	104	56	71	79	98	98	99	91	87	70.4
	LW	104	82	87	88	101	98	98	90	88	

Models have normal speed fans and an unlined compressor enclosure.

All data tested at 7°C leaving chilled water and 35°C ambient.

STANDARD/HIGH EFFICIENCY (SE LS/HE LS) MODELS - SOUND DATA

Sound Power dB				Standard Efficiency Chillers (SE LS)								SPL at 10 m
Model	Fan		Mean	Band Levels - Frequency Hz								
YCIV	Speed		SWL	63	125	250	500	1000	2000	4000	8000	
0600	Std.	LWA	98	77	81	89	93	91	91.69	84.7	74.8	65.33
		LW	106	103	97.1	97.6	96.2	91	90.49	83.7	75.9	
	Low	LWA	91	68.8	76	79.4	86	86	83.4	78.9	70.8	58.47
		LW	98	95	92.1	88	89.2	86	86.2	77.9	71.9	
0650	Std.	LWA	94	75.3	79.1	85.6	89	87	87.69	80.7	70.8	61.49
		LW	104	102	95.2	94.2	92.2	87	86.49	79.7	71.9	
	Low	LWA	91	68.8	76	79.4	86	86	83.4	78.9	70.8	58.47
		LW	98	95	92.1	88	89.2	86	82.2	77.9	71.9	
0720	Std.	LWA	95	76.3	80.1	86.6	90	88	88.69	81.7	71.8	62.36
		LW	105	103	96.2	95.2	93.2	88	87.49	80.7	72.9	
	Low	LWA	92	69.8	77	80.4	87	87	84.4	79.9	71.8	59.34
		LW	99	96	93.1	89	90.2	87	83.2	78.9	72.9	
0770	Std.	LWA	94	75.3	79.1	85.6	89	87	87.69	80.7	70.8	61.36
		LW	104	102	95.2	94.2	92.2	87	86.49	79.7	71.9	
	Low	LWA	91	68.8	76	79.4	86	86	83.4	78.9	70.8	58.34
		LW	98	95	92.1	88	89.2	86	82.2	77.9	71.9	
0840	Std.	LWA	96	77.3	81.1	87.6	91	89	89.69	82.7	72.8	63.36
		LW	106	104	97.2	96.2	94.2	89	88.49	81.7	73.9	
	Low	LWA	93	70.8	78	81.4	88	88	85.4	80.9	72.8	60.34
		LW	100	97	94.1	90	91.2	88	84.2	79.9	73.9	
0920	Std.	LWA	96	77.3	81.1	87.6	91	89	89.69	82.7	72.8	63.24
		LW	106	104	97.2	96.2	94.2	89	88.49	81.7	73.9	
	Low	LWA	94	71.8	79	82.4	89	89	86.4	81.9	73.8	61.21
		LW	101	98	95.1	91	92.2	89	85.2	80.9	74.9	
1000	Std.	LWA	96	77.3	81.1	87	90	90.8	88.4	82.7	72.8	63.04
		LW	105	104	97.2	95.6	93.2	90.8	87.2	81.7	73.9	
	Low	LWA	94	71.8	79	82.4	89	89	86.4	81.9	73.8	61.21
		LW	101	98	95.1	91	92.2	89	85.2	80.9	74.9	
1070	Std.	LWA	96	78	82	88	93	90	86	80	75	63.41
		LW	106	104	98	97	96	90	85	79	76	
	Low	LWA	93	72	79	81	91	85	81	74	69	60.13
		LW	101	98	95	90	94	85	80	73	70	
1180	Std.	LWA	97	78	82	88	94	90	86	80	75	63.87
		LW	106	104	98	97	97	90	85	79	76	
	Low	LWA	94	72	79	82	92	86	82	74	69	60.75
		LW	102	98	95	90	95	86	80	73	70	
1340	Std.	LWA	99	79	83	89	97	91	87	81	76	65.6
		LW	107	105	99	97	100	91	85	80	77	
	Low	LWA	97	73	80	82	96	87	82	75	70	63.6
		LW	103	99	96	91	99	87	81	74	71	
1500	Std.	LWA	99	79	83	89	97	91	87	81	76	65.8
		LW	108	105	99	98	100	91	86	80	77	
	Low	LWA	97	73	80	83	96	87	81	75	70	63.5
		LW	103	99	96	91	99	87	80	74	71	

Models have two speed fans and an acoustically lined compressor enclosure.

Normal fan speed data tested at 7°C leaving chilled water and 35°C ambient.

Low fan speed data tested at 7°C leaving chilled water and 25°C ambient.

Sound Power dB				High Efficiency Chillers (HE LS)								SPL at 10 m
Model	Fan		Mean	Band Levels - Frequency Hz								
YCIV	Speed		SWL	63	125	250	500	1000	2000	4000	8000	
0590	Std.	LWA	95	78	81.1	87	91	90	86	80.7	72.8	62.95
		LW	106	104	97.2	95.6	94.2	90	84.8	79.7	73.9	
	Low	LWA	89	70	75	78.4	85	84	80.53	75.9	69.8	56.77
		LW	98	96.2	91.1	87	88.2	84	79.33	74.9	70.9	
0630	Std.	LWA	96	78.3	82.1	88.6	92	90	88.29	81.7	73.8	63.82
		LW	107	105	98.2	97.2	95.2	90	87.09	80.7	74.9	
	Low	LWA	90	69.8	74.9	78.4	85	86	81.53	76.9	70.8	57.52
		LW	98	96	91	87	88.2	86	80.33	75.9	71.9	
0700	Std.	LWA	94	76.3	80.1	86.6	90	88	86.29	79.7	71.8	61.82
		LW	105	103	96.2	95.2	93.2	88	85.09	78.7	72.9	
	Low	LWA	91	69.8	77	80.4	87	86	82.53	77.9	71.8	58.63
		LW	99	96	93.1	89	90.2	86	81.33	76.9	72.9	
0760	Std.	LWA	94	76.3	80.1	86.6	90	88	86.29	79.7	71.8	61.82
		LW	105	103	96.2	95.2	93.2	88	85.09	78.7	72.9	
	Low	LWA	91	71	77	80.4	87	87	82	77.9	71.8	58.9
		LW	100	97.2	93.1	89	90.2	87	80.8	76.9	72.9	
0800	Std.	LWA	94	76.3	80.1	86.6	90	88	86.29	79.7	71.8	61.69
		LW	105	103	96.2	95.2	93.2	88	85.09	78.7	72.9	
	Low	LWA	91	71	77	80.4	87	87	82	77.9	71.8	58.77
		LW	100	97.2	93.1	89	90.2	87	80.8	76.9	72.9	
0830	Std.	LWA	95	77.3	81.1	87.6	91	89	87.29	80.7	72.8	62.69
		LW	106	104	97.2	96.2	94.2	89	86.09	79.7	73.9	
	Low	LWA	92	72	78	81.4	88	88	83	78.9	72.8	59.77
		LW	101	98.2	94.1	90	91.2	88	81.8	77.9	73.9	
0930	Std.	LWA	95	77.3	81.1	87.6	91	89	85	80.7	72.8	62.41
		LW	106	104	97.2	96.2	94.2	89	83.8	79.7	73.9	
	Low	LWA	92	72	78	81.4	88	88	83	78.9	72.8	59.77
		LW	101	98.2	94.1	90	91.2	88	81.8	77.9	73.9	
1050	Std.	LWA	96	78	82	88	92	90	86	80	75	63.23
		LW	106	104	98	97	95	90	85	79	76	
	Low	LWA	92	72	79	82	89	86	80	74	69	59.3
		LW	101	98	95	90	93	86	79	73	70	
1120	Std.	LWA	97	78	82	89	93	90	86	80	76	63.5
		LW	107	104	99	97	96	90	85	79	77	
	Low	LWA	93	72	79	82	90	86	81	74	69	59.7
		LW	102	99	95	90	93	86	80	73	70	
1220	Std.	LWA	97	79	83	89	94	91	87	80	76	64.1
		LW	107	105	99	97	97	91	85	79	77	
	Low	LWA	94	73	79	82	92	86	82	74	70	60.8
		LW	102	99	95	91	95	86	81	73	71	
1380	Std.	LWA	98	79	83	89	94	91	87	81	76	64.5
		LW	107	105	99	98	97	91	86	80	77	
	Low	LWA	94	73	80	83	92	87	81	75	70	61.0
		LW	102	99	96	91	95	87	80	74	71	

Models have two speed fans and an acoustically lined compressor enclosure.

Normal fan speed data tested at 7°C leaving chilled water and 35°C ambient.

Low fan speed data tested at 7°C leaving chilled water and 25°C ambient.

Sound Power dB			Standard Efficiency Chillers (SE LS)									SPL at 10 m
Model YCIV		Mean SWL	Normal Fan Speed Inhibited									
			Band Levels - Frequency Hz									
			63	125	250	500	1000	2000	4000	8000		
0600	LWA	95	73.8	81	84.4	89	90	87.4	83.9	75.8	62.38	
	LW	103	100	97.1	93	92.2	90	86.2	82.9	76.9		
0650	LWA	91	69.8	76	79	85	86	83.4	79.9	71.8	58.23	
	LW	99	96	92.1	87.6	88.2	86	82.2	78.9	72.9		
0720	LWA	93	71.8	78	81	87	88	85.4	81.9	73.8	60.11	
	LW	101	98	94.1	89.6	90.2	88	84.2	80.9	74.9		
0770	LWA	92	70.8	78	80	86	87	85.4	80.9	72.8	59.35	
	LW	100	97	94.1	88.6	89.2	87	84.2	79.9	73.9		
0840	LWA	94	71	79	82.4	89	89	86.4	81.9	73.8	61.33	
	LW	101	97.2	95.1	91	92.2	89	85.2	80.9	74.9		
0920	LWA	94	71.8	79	82.4	89	89	86.4	81.9	73.8	61.21	
	LW	101	98	95.1	91	92.2	89	85.2	80.9	74.9		
1000	LWA	94	73	79	82.4	89	89	86.4	81.9	73.8	61.22	
	LW	102	99.2	95.1	91	92.2	89	85.2	80.9	74.9		
1070	LWA	93	72	79	81	91	85	81	74	69	60.13	
	LW	101	98	95	90	94	85	80	73	70		
1180	LWA	94	72	79	82	92	86	82	74	69	60.75	
	LW	102	98	95	90	95	86	80	73	70		
1340	LWA	97	73	80	82	96	87	82	75	70	63.6	
	LW	103	99	96	91	99	87	81	74	71		
1500	LWA	97	73	80	83	96	87	81	75	70	63.5	
	LW	103	99	96	91	99	87	80	74	71		

STANDARD EFFICIENCY (SE) MODELS - PHYSICAL DATA

Refrigerant R134a			Standard Efficiency Chillers					
			YCIV 0600	YCIV 0650	YCIV 0720	YCIV 0770	YCIV 0840	YCIV 0920
Quantity Refrigerant Circuits			2	2	2	2	2	2
Refrigerant Charge	Circuit 1/Circuit 2	kg	74/74	77/77	84/77	87/80	87/87	105/89
Oil Charge	Circuit 1/Circuit 2	kg	19/19	19/19	19/19	19/19	19/19	19/19
Compressor	Quantity		2	2	2	2	2	2
Evaporator	Water Volume	litre	253.6	359.6	359.6	529.9	529.9	529.9
	Water Connections (nominal bore)	inch	8	10	10	10	10	10
Air Cooled Condenser	Total Coil Face Area	m ²	21.8	21.8	24.5	24.5	27.2	30
	Number of Tube Rows		3	3	3	3	3	3
	Number Fins per metre		669	669	669	669	669	669
	Number Fans (Circuit 1/Ct 2)		4/4	4/4	5/4	5/4	5/5	6/5
Normal Fans	SE & SE RS Models: Total Air Flow	m ³ /s	48.8	48.8	54.9	54.9	61.0	67.1
Dual Speed Fans	LS Models: Norm. Speed Total Air Flow	m ³ /s	48.8	48.8	54.9	54.9	61.0	67.1
	LS Models: Low Speed Total Air Flow	m ³ /s	36.6	36.6	41.2	41.2	45.8	50.3
Dimensions	Length	mm	5848	5848	6966	6966	6966	8083
	Width	mm	2241	2241	2241	2241	2241	2241
	Height	mm	2384	2384	2384	2384	2384	2384
Weight	SE Models Shipping Weight	kg	5216	5619	5818	6295	6524	6692
	SE Models: Operating Weight	kg	5470	5979	6178	6825	6940	7222
	RS Models Extra Weight	kg	260	260	260	260	260	260
	LS Models Extra Weight	kg	325	325	325	325	325	325
	Copper Fins Extra Weight	kg	725	725	910	910	910	1085

Refrigerant R134a			Standard Efficiency Chillers				
			YCIV 1000	YCIV 1070	YCIV 1180	YCIV 1340	YCIV 1500
Quantity Refrigerant Circuits			2	3	3	3	3
Refrigerant Charge	Circuit 1/Circuit 2 Circuit 3	kg	105/105	84/77/ 77	84/84/ 77	84/84/ 105	105/105 /105
Oil Charge	Circuit 1/Circuit 2 Circuit 3	kg	19/19	19/15/ 15	19/19/ 15	19/19/ 19	19/19/ 19
Compressor	Quantity		2	3	3	3	3
Evaporator	Water Volume	litre	529.9	764.6	893.3	893.3	893.3
	Water Connections (nominal bore)	inch	10	10	10	10	10
Air Cooled Condenser	Total Coil Face Area	m ²	32.7	35	38	44	49
	Number of Tube Rows		3	3	3	3	3
	Number Fins per metre		669	669	669	669	669
	Number Fans (Circuit 1/Ct 2/Ct 3)		6/6	5/4/4	5/5/4	5/5/6	6/6/6
Normal Fans	SE & SE RS Models: Total Air Flow	m ³ /s	73.2	79.3	85.4	97.6	109.8
Dual Speed Fans	LS Models: Norm. Speed Total Air Flow	m ³ /s	73.2	79.3	85.4	97.6	109.8
	LS Models: Low Speed Total Air Flow	m ³ /s	54.9	59.5	64.1	73.2	82.4
Dimensions	Length	mm	8083	9581	9581	10699	11816
	Width	mm	2241	2241	2241	2241	2241
	Height	mm	2384	2384	2384	2384	2384
Weight	SE Models Shipping Weight	kg	6768	9633	10137	10638	11075
	SE Models: Operating Weight	kg	7298	10437	11077	11577	12014
	RS Models Extra Weight	kg	260	520	520	520	520
	LS Models Extra Weight	kg	325	640	640	640	640
	Copper Fins Extra Weight	kg	1085	1179	1270	1451	1632

HIGH EFFICIENCY (HE) MODELS - PHYSICAL DATA

Refrigerant R134a			High Efficiency Chillers					
			YCIV 0590	YCIV 0630	YCIV 0700	YCIV 0760	YCIV 0800	YCIV 0830
Quantity Refrigerant Circuits			2	2	2	2	2	2
Refrigerant Charge	Circuit 1/Circuit 2	kg	77/77	84/77	84/84	87/87	102/87	102/102
Oil Charge	Circuit 1/Circuit 2	kg	19/19	19/19	19/19	19/19	19/19	19/19
Compressor	Quantity		2	2	2	2	2	2
Evaporator	Water Volume	litre	359.6	359.6	359.6	416.4	416.4	416.4
	Water Connections (nominal bore)	inch	10	10	10	10	10	10
Air Cooled Condenser	Total Coil Face Area	m ²	21.8	24.5	27.2	27.2	30	32.7
	Number of Tube Rows		3	3	3	3	3	3
	Number Fins per metre		669	669	669	669	669	669
	Number Fans (Circuit 1/Ct 2)		4/4	5/4	5/5	5/5	6/5	6/6
Normal Fans	HE & HE RS Models: Total Air Flow	m ³ /s	48.8	54.9	61.0	61.0	67.1	73.2
Dual Speed Fans	LS Models: Norm. Speed Total Air Flow	m ³ /s	48.8	54.9	61.0	61.0	67.1	73.2
	LS Models: Low Speed Total Air Flow	m ³ /s	36.6	41.2	45.8	45.8	50.3	54.9
Dimensions	Length	mm	5848	6966	6966	6966	8083	8083
	Width	mm	2241	2241	2241	2241	2241	2241
	Height	mm	2384	2384	2384	2384	2384	2384
Weight	HE Models Shipping Weight	kg	5708	5801	5993	6080	6342	6410
	HE Models: Operating Weight	kg	5962	6161	6353	7404	6758	6826
	RS Models Extra Weight	kg	260	260	260	260	260	260
	LS Models Extra Weight	kg	325	325	325	325	325	325
	Copper Fins Extra Weight	kg	725	910	910	910	1085	1085

Refrigerant R134a			High Efficiency Chillers				
			YCIV 0930	YCIV 1050	YCIV 1120	YCIV 1220	YCIV 1380
Quantity Refrigerant Circuits			2	3	3	3	3
Refrigerant Charge	Circuit 1/Circuit 2 Circuit 3	kg	105/105	84/84/ 77	84/84/ 105	84/84/ 105	105/105 /105
Oil Charge	Circuit 1/Circuit 2 Circuit 3	kg	19/19	19/19/ 15	19/19/ 19	19/19/ 19	19/19/ 19
Compressor	Quantity		2	3	3	3	3
Evaporator	Water Volume	litre	529.9	764.6	764.6	893.3	893.3
	Water Connections (nominal bore)	inch	10	10	10	10	10
Air Cooled Condenser	Total Coil Face Area	m ²	32.7	38	44	44	49
	Number of Tube Rows		3	3	3	3	3
	Number Fins per metre		669	669	669	669	669
	Number Fans (Circuit 1/Ct 2/Ct 3)		6/6	5/5/4	5/5/6	5/5/6	6/6/6
Normal Fans	HE & HE RS Models: Total Air Flow	m ³ /s	73.2	85.4	97.6	97.6	109.8
Dual Speed Fans	LS Models: Norm. Speed Total Air Flow	m ³ /s	73.2	85.4	97.6	97.6	109.8
	LS Models: Low Speed Total Air Flow	m ³ /s	54.9	64.1	73.2	73.2	82.4
Dimensions	Length	mm	8083	9581	10699	10699	11816
	Width	mm	2241	2241	2241	2241	2241
	Height	mm	2384	2384	2384	2384	2384
Weight	HE Models Shipping Weight	kg	6760	9755	10112	10623	11059
	HE Models: Operating Weight	kg	7290	10559	10916	11562	11999
	RS Models Extra Weight	kg	260	520	520	520	520
	LS Models Extra Weight	kg	325	640	640	640	640
	Copper Fins Extra Weight	kg	1085	1270	1360	1451	1632

STANDARD EFFICIENCY (SE) MODELS - ELECTRICAL DATA

YCIV Model	Nominal Amps ⁽¹⁾			Maximum Instantaneous Amps			Maximum Amps ⁽²⁾
	Std Fans	2 Spd Fans	High Static Fans	Std Fans	2 Spd Fans	High Static Fans	All Fans
0600	313	334	362	173	184	198	393
0650	343	360	392	220	230	245	387
0720	367	394	423	228	216	259	438
0770	400	411	462	228	231	259	446
0840	419	450	481	227	242	258	485
0920	461	496	536	268	286	305	540
1000	491	524	553	266	283	303	598
1070	543	576	630	416	439	472	615
1180	595	632	682	420	442	476	672
1340	669	718	774	475	508	543	781
1500	724	775	799	512	549	587	897

(1) Nominal input amps at 35°C ambient and 7°C leaving chilled water 400VAC.

(2) Maximum Amps is the maximum input current draw before the compressor unloads and is the condition that should be used for power cable sizing.

System inrush current is less than RLA due to the use of York Variable Speed Drive technology.

Typical Compressor Starting Current (first four seconds of startup):

Rated Voltage

380-400/50/3

Typical Starting Current per Compressor

17A

HIGH EFFICIENCY (HE) MODELS - ELECTRICAL DATA

YCIV Model	Nominal Amps ⁽¹⁾			Maximum Instantaneous Amps			Maximum Amps ⁽²⁾
	Std Fans	2 Spd Fans	High Static Fans	Std Fans	2 Spd Fans	High Static Fans	All Fans
0590	289	306	338	161	170	186	363
0630	311	323	373	179	186	210	385
0700	342	361	404	218	232	249	415
0760	371	398	433	203	216	234	449
0800	390	411	465	219	231	256	468
0830	397	424	472	216	229	253	491
0930	445	471	513	269	286	306	537
1050	509	545	596	388	411	450	624
1120	539	572	632	376	401	438	659
1220	588	631	693	414	443	476	702
1380	640	679	715	490	521	565	803

(1) Nominal input amps at 35°C ambient and 7°C leaving chilled water 400VAC.

(2) Maximum Amps is the maximum input current draw before the compressor unloads and is the condition that should be used for power cable sizing.

System inrush current is less than RLA due to the use of York Variable Speed Drive technology.

Typical Compressor Starting Current (first four seconds of startup):

Rated Voltage

380-400/50/3

Typical Starting Current per Compressor

17A

2 SYSTEM ELECTRICAL DATA (STANDARD EFFICIENCY)

Model No./Nameplate			System 1							
			Compressor (Std. & UQ fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps ⁽³⁾	Qty.	FLA (EA)	LRA (EA)	Nominal Amps ⁽³⁾	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
0600	400	50	144	4	3.1	18.0	152	4	1.9/3.8	4.5/10.3
0650	400	50	191	4	3.1	18.0	198	4	1.9/3.8	4.5/10.3
0720	400	50	195	5	3.1	18.0	180	5	1.9/3.8	4.5/10.3
0770	400	50	174	5	3.1	18.0	178	5	1.9/3.8	4.5/10.3
0840	400	50	194	5	3.1	18.0	206	5	1.9/3.8	4.5/10.3
0920	400	50	232	6	3.1	18.0	246	6	1.9/3.8	4.5/10.3
1000	400	50	230	6	3.1	18.0	243	6	1.9/3.8	4.5/10.3

Model No./Nameplate			System 2							
			Compressor (Std. & UQ Fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps ⁽³⁾	Qty.	FLA (EA)	LRA (EA)	Nominal Amps ⁽³⁾	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
0600	400	50	144	4	3.1	18.0	152	4	1.9/3.8	4.5/10.3
0650	400	50	127	4	3.1	18.0	132	4	1.9/3.8	4.5/10.3
0720	400	50	144	4	3.1	18.0	180	4	1.9/3.8	4.5/10.3
0770	400	50	195	4	3.1	18.0	195	4	1.9/3.8	4.5/10.3
0840	400	50	194	5	3.1	18.0	206	5	1.9/3.8	4.5/10.3
0920	400	50	192	5	3.1	18.0	204	5	1.9/3.8	4.5/10.3
1000	400	50	230	6	3.1	18.0	243	6	1.9/3.8	4.5/10.3

Model	Control	Unit Short Circuit Withstand (KA)	Field Wiring & Protection		
YCIV	KVA ⁽⁴⁾	At 400VAC	Maximum Full Load Current Std, UQ or 2- Spd. Fans ⁽²⁾	Lugs/ Phase ⁽¹⁾	Lug Wire Range
0600	2.4	65KA	393	2	70 - 240 mm ²
0650	2.4	65KA	387	2	70 - 240 mm ²
0720	2.4	65KA	438	2	70 - 240 mm ²
0770	2.4	65KA	446	2	70 - 240 mm ²
0840	2.4	65KA	485	2	70 - 240 mm ²
0920	2.4	65KA	540	3	95 - 195 mm ²
1000	2.4	65KA	598	3	95 - 195 mm ²

- As standard, all units have single point power connection.
- Maximum System Full Load Current is the maximum input current draw before the compressor unloads and is the condition that should be used for power cable sizing.

Conditions 7 Deg. C leaving chilled water, condenser air on increasing, Standard low sound, Ultra-Quiet or 2-Spd. fans, 400VAC.
Multiply current by 1.02 for operation at 360VAC. Size per EN60204.

- Nominal Amps at 35 Deg. C ambient and 7 Deg. C leaving chilled water, 400VAC.
- Control KVA includes operational controls and evaporator heaters.
- System inrush current is less than RLA due to the use of York Variable Speed Drive technology. Typical Compressor Starting Current (first four seconds of startup):

Rated Voltage
380-400/50/3

Typical Starting Current per Compressor
17A

- Voltage Utilization Range:

Rated Voltage
380-415/50/3

Utilization Range
360-440

- Values stated are for Slow (star) and Fast (delta) respectively.

3 SYSTEM ELECTRICAL DATA (STANDARD EFFICIENCY)

Model No./Nameplate			System 1							
			Compressor (Std. & UQ fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps (3)	Qty.	FLA (EA)	LRA (EA)	Nominal Amps (3)	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
1070	400	50	175	5	3.1	18.0	186	5	1.9/3.8	4.5/10.3
1180	400	50	177	5	3.1	18.0	188	5	1.9/3.8	4.5/10.3
1340	400	50	192	5	3.1	18.0	204	5	1.9/3.8	4.5/10.3
1500	400	50	229	6	3.1	18.0	243	6	1.9/3.8	4.5/10.3

Model No./Nameplate			System 2							
			Compressor (Std. & UQ Fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps (3)	Qty.	FLA (EA)	LRA (EA)	Nominal Amps (3)	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
1070	400	50	196	4	3.1	18.0	202	4	1.9/3.8	4.5/10.3
1180	400	50	177	5	3.1	18.0	188	5	1.9/3.8	4.5/10.3
1340	400	50	192	5	3.1	18.0	204	5	1.9/3.8	4.5/10.3
1500	400	50	229	6	3.1	18.0	243	6	1.9/3.8	4.5/10.3

Model No./Nameplate			System 3							
			Compressor (Std. & UQ Fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps (3)	Qty.	FLA (EA)	LRA (EA)	Nominal Amps (3)	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
1070	400	50	129	4	3.1	18.0	135	4	1.9/3.8	4.5/10.3
1180	400	50	198	4	3.1	18.0	203	4	1.9/3.8	4.5/10.3
1340	400	50	232	6	3.1	18.0	245	6	1.9/3.8	4.5/10.3
1500	400	50	229	6	3.1	18.0	243	6	1.9/3.8	4.5/10.3

Model	Control	Unit Short Circuit Withstand (KA)	Field Wiring & Protection		
YCIV	KVA ⁽⁴⁾	At 400VAC	Maximum Full Load Current Std, UQ or 2- Spd. Fans ⁽²⁾	Lugs/ Phase ⁽¹⁾	Lug Wire Range
1070	2.4	65KA	615	4	120 - 240 mm ²
1180	2.4	65KA	672	4	120 - 240 mm ²
1340	2.4	65KA	781	4	120 - 240 mm ²
1500	2.4	65KA	897	4	120 - 240 mm ²

- As standard, all units have single point power connection.
- Maximum System Full Load Current is the maximum input current draw before the compressor unloads and is the condition that should be used for power cable sizing.

Conditions 7 Deg. C leaving chilled water, condenser air on increasing, Standard low sound, Ultra-Quiet or 2-Spd. fans, 400VAC.
Multiply current by 1.02 for operation at 360VAC. Size per EN60204.

- Nominal Amps at 35 Deg. C ambient and 7 Deg. C leaving chilled water, 400VAC.
- Control KVA includes operational controls and evaporator heaters.
- System inrush current is less than RLA due to the use of York Variable Speed Drive technology. Typical Compressor Starting Current (first four seconds of startup):

Rated Voltage

380-400/50/3

Typical Starting Current per Compressor

17A

- Voltage Utilization Range:

Rated Voltage

380-415/50/3

Utilization Range

360-440

- Values stated are for Slow (star) and Fast (delta) respectively.

2 SYSTEM ELECTRICAL DATA (HIGH EFFICIENCY)

Model No./Nameplate			System 1							
			Compressor (Std. & UQ fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps ⁽³⁾	Qty.	FLA (EA)	LRA (EA)	Nominal Amps ⁽³⁾	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
0590	400	50	132	4	3.1	18.0	138	4	1.9/3.8	4.5/10.3
0630	400	50	134	5	3.1	18.0	139	5	1.9/3.8	4.5/10.3
0700	400	50	185	5	3.1	18.0	196	5	1.9/3.8	4.5/10.3
0760	400	50	170	5	3.1	18.0	180	5	1.9/3.8	4.5/10.3
0800	400	50	170	6	3.1	18.0	178	6	1.9/3.8	4.5/10.3
0830	400	50	180	6	3.1	18.0	189	6	1.9/3.8	4.5/10.3
0930	400	50	233	6	3.1	18.0	246	6	1.9/3.8	4.5/10.3

Model No./Nameplate			System 2							
			Compressor (Std. & UQ Fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps ⁽³⁾	Qty.	FLA (EA)	LRA (EA)	Nominal Amps ⁽³⁾	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
0590	400	50	132	4	3.1	18.0	138	4	1.9/3.8	4.5/10.3
0630	400	50	146	4	3.1	18.0	154	4	1.9/3.8	4.5/10.3
0700	400	50	126	5	3.1	18.0	131	5	1.9/3.8	4.5/10.3
0760	400	50	170	5	3.1	18.0	180	5	1.9/3.8	4.5/10.3
0800	400	50	183	5	3.1	18.0	195	5	1.9/3.8	4.5/10.3
0830	400	50	180	6	3.1	18.0	189	6	1.9/3.8	4.5/10.3
0930	400	50	178	6	3.1	18.0	187	6	1.9/3.8	4.5/10.3

Model	Control	Unit Short Circuit Withstand (KA)	Field Wiring & Protection		
YCIV	KVA ⁽⁴⁾	At 400VAC	Maximum Full Load Current Std, UQ or 2- Spd. Fans ⁽²⁾	Lugs/ Phase ⁽¹⁾	Lug Wire Range
0590	2.4	65KA	363	2	70 - 240 mm ²
0630	2.4	65KA	385	2	70 - 240 mm ²
0700	2.4	65KA	415	2	70 - 240 mm ²
0760	2.4	65KA	449	2	70 - 240 mm ²
0800	2.4	65KA	468	2	70 - 240 mm ²
0830	2.4	65KA	491	2	70 - 240 mm ²
0930	2.4	65KA	537	3	95 - 195 mm ²

1. As standard, all units have single point power connection.

2. Maximum System Full Load Current is the maximum input current draw before the compressor unloads and is the condition that should be used for power cable sizing.

Conditions 7 Deg. C leaving chilled water, condenser air on increasing, Standard low sound, Ultra-Quiet or 2-Spd. fans, 400VAC.
Multiply current by 1.02 for operation at 360VAC. Size per EN60204.

3. Nominal Amps at 35 Deg. C ambient and 7 Deg. C leaving chilled water, 400VAC.

4. Control KVA includes operational controls and evaporator heaters.

5. System inrush current is less than RLA due to the use of York Variable Speed Drive technology. Typical Compressor Starting Current (first four seconds of startup):

Rated Voltage

380-400/50/3

Typical Starting Current per Compressor

17A

6. Voltage Utilization Range:

Rated Voltage

380-415/50/3

Utilization Range

360-440

7. Values stated are for Slow (star) and Fast (delta) respectively.

3 SYSTEM ELECTRICAL DATA (HIGH EFFICIENCY)

Model No./Nameplate			System 1							
			Compressor (Std. & UQ fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps (3)	Qty.	FLA (EA)	LRA (EA)	Nominal Amps (3)	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
1050	400	50	170	5	3.1	18.0	180	5	1.9/3.8	4.5/10.3
1120	400	50	164	5	3.1	18.0	173	5	1.9/3.8	4.5/10.3
1220	400	50	183	5	3.1	18.0	194	5	1.9/3.8	4.5/10.3
1380	400	50	218	6	3.1	18.0	229	6	1.9/3.8	4.5/10.3

Model No./Nameplate			System 2							
			Compressor (Std. & UQ Fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps (3)	Qty.	FLA (EA)	LRA (EA)	Nominal Amps (3)	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
1050	400	50	170	5	3.1	18.0	180	5	1.9/3.8	4.5/10.3
1120	400	50	164	5	3.1	18.0	173	5	1.9/3.8	4.5/10.3
1220	400	50	183	5	3.1	18.0	194	5	1.9/3.8	4.5/10.3
1380	400	50	218	6	3.1	18.0	229	6	1.9/3.8	4.5/10.3

Model No./Nameplate			System 3							
			Compressor (Std. & UQ Fans)	Std. & UQ Cond. Fans			Compressor (2 Spd fans)	2-Spd. Cond. Fans		
YCIV	Volts ⁽⁶⁾	Freq	Nominal Amps (3)	Qty.	FLA (EA)	LRA (EA)	Nominal Amps (3)	Qty.	FLA ⁽⁷⁾ (EA)	LRA ⁽⁷⁾ (EA)
1050	400	50	126	4	3.1	18.0	132	4	1.9/3.8	4.5/10.3
1120	400	50	164	5	3.1	18.0	173	5	1.9/3.8	4.5/10.3
1220	400	50	169	6	3.1	18.0	178	6	1.9/3.8	4.5/10.3
1380	400	50	167	6	3.1	18.0	175	6	1.9/3.8	4.5/10.3

Model	Control	Unit Short Circuit Withstand (KA)	Field Wiring & Protection		
YCIV	KVA ⁽⁴⁾	At 400VAC	Maximum Full Load Current Std, UQ or 2 Spd. Fans ⁽²⁾	Lugs/ Phase ⁽¹⁾	Lug Wire Range
1050	2.4	65KA	624	4	120 - 240 mm ²
1120	2.4	65KA	659	4	120 - 240 mm ²
1220	2.4	65KA	702	4	120 - 240 mm ²
1380	2.4	65KA	803	4	120 - 240 mm ²

- As standard, all units have single point power connection.
- Maximum System Full Load Current is the maximum input current draw before the compressor unloads and is the condition that should be used for power cable sizing.

Conditions 7 Deg. C leaving chilled water, condenser air on increasing, Standard low sound, Ultra-Quiet or 2-Spd. fans, 400VAC.
Multiply current by 1.02 for operation at 360VAC. Size per EN60204.

- Nominal Amps at 35 Deg. C ambient and 7 Deg. C leaving chilled water, 400VAC.
- Control KVA includes operational controls and evaporator heaters.
- System inrush current is less than RLA due to the use of York Variable Speed Drive technology. Typical Compressor Starting Current (first four seconds of startup):

Rated Voltage

380-400/50/3

Typical Starting Current per Compressor

17A

- Voltage Utilization Range:

Rated Voltage

380-415/50/3

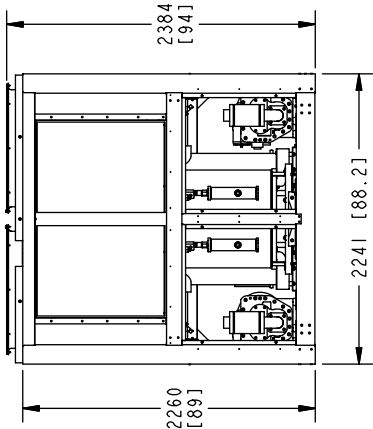
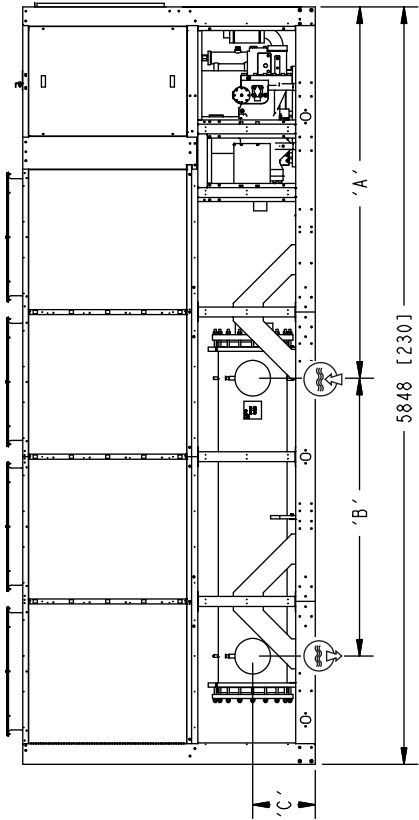
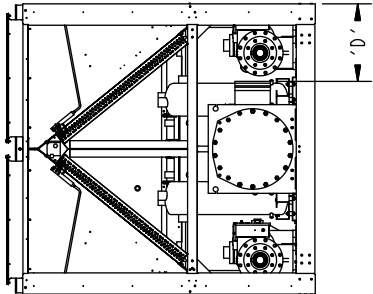
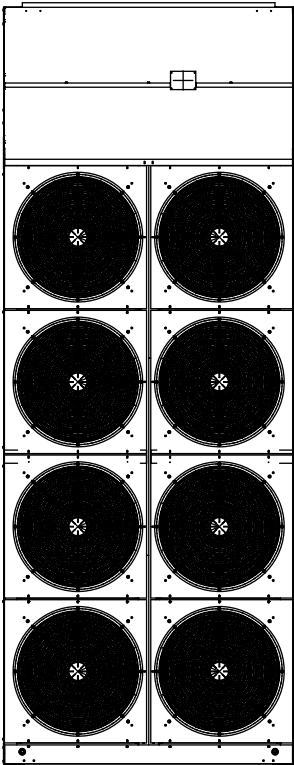
Utilization Range

360-440

- Values stated are for Slow (star) and Fast (delta) respectively.

YCIV0590HE, 0600SE AND 0650SE - DIMENSIONS

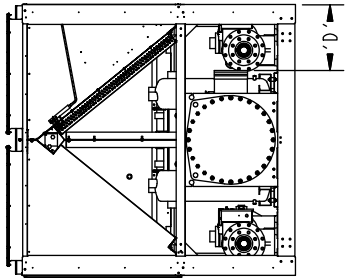
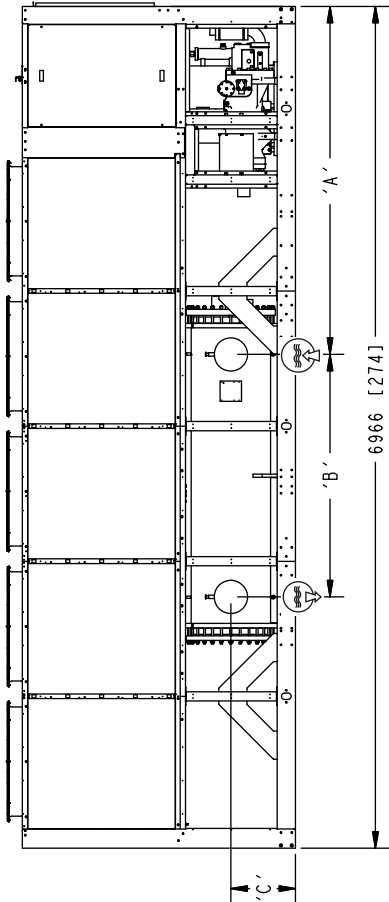
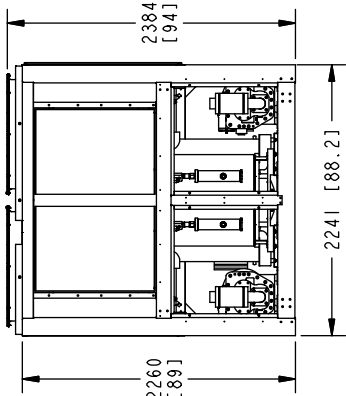
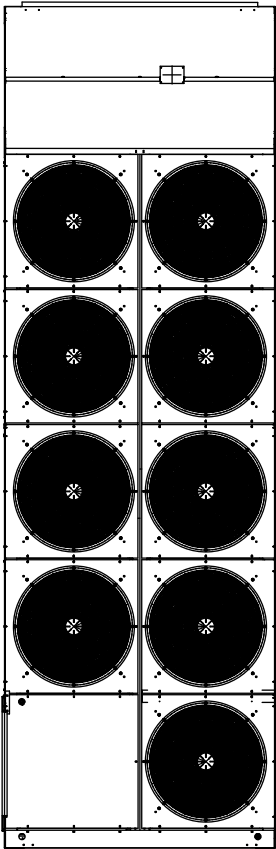
Drawing shows lefthanded cooler
For ease of installation evaporator
water connections are left or right
handed when viewed from the control
panel end. Left handed water
connections are standard.



Model	A	B	C	D
YCIV0590HE	2865.9 (112.8)	2146.3 (84.5)	484.5 (19.1)	714.0 (28.1")
YCIV0600SE	2796.9 (110.1)	2286 (90.0)	441.6 (17.4)	739.4 (29.1")
YCIV0650SE	2865.9 (112.8)	2146.3 (84.5)	484.5 (19.1)	714.0 (28.1")

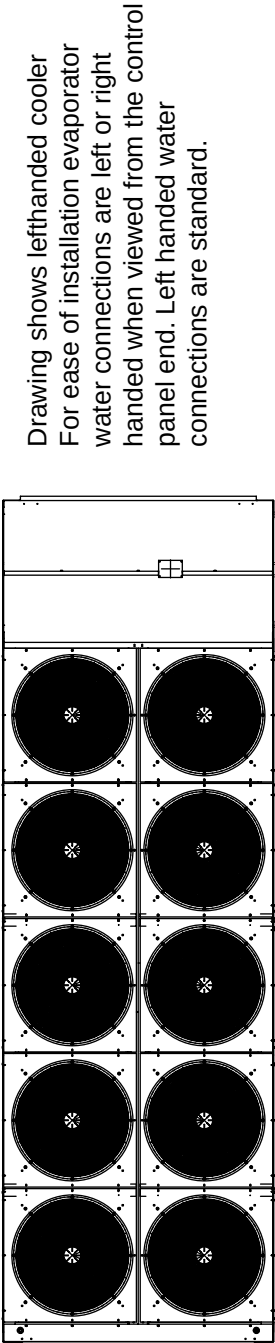
YCIV0630HE, 0720SE AND 0770SE - DIMENSIONS

Drawing shows lefthanded cooler
For ease of installation evaporator
water connections are left or right
handed when viewed from the control
panel end. Left handed water
connections are standard.

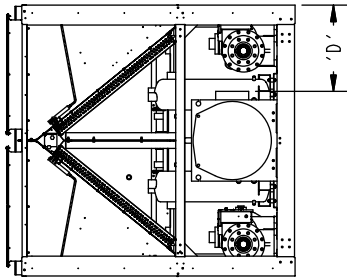
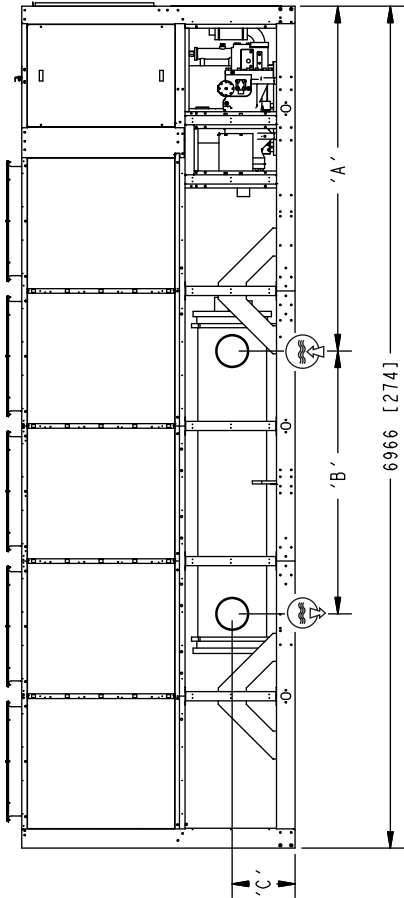
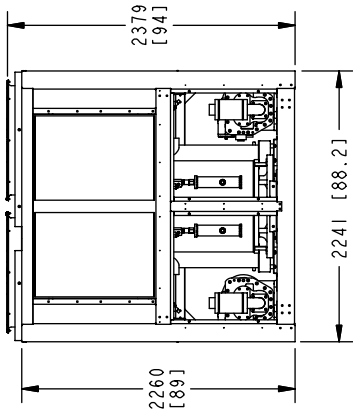


Model	Dimension			
	A	B	C	D
YCIV0630HE	2865.9 (112.8)	2146.3 (84.5)	484.5 (19.1)	714.0 (28.1")
YCIV0720SE	2865.9 (112.8)	2146.3 (84.5)	484.5 (19.1)	714.0 (28.1")
YCIV0770SE	2878.6 (113.3)	2009.9 (79.1)	535.3 (21.1)	660.6 (26.0")

YCIV0700HE, 0760HE AND 0840SE - DIMENSIONS

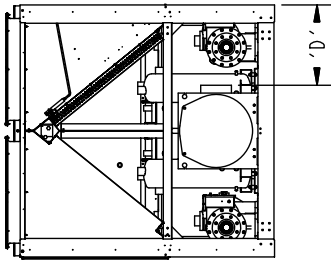
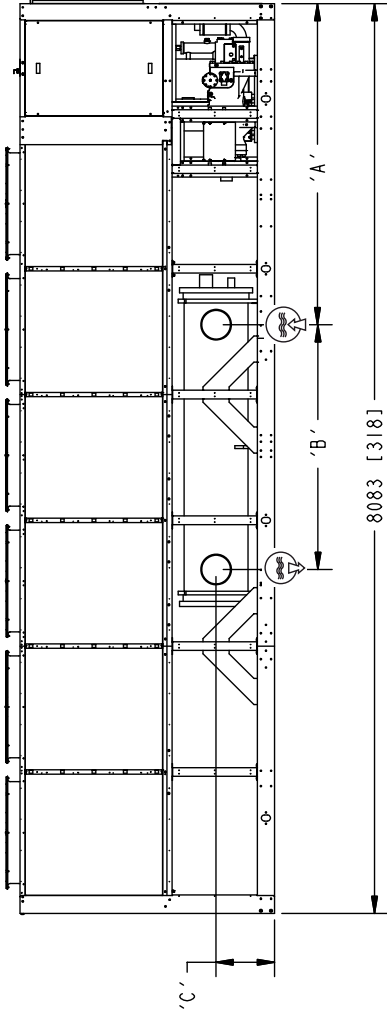
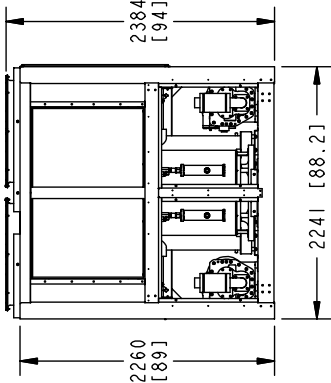
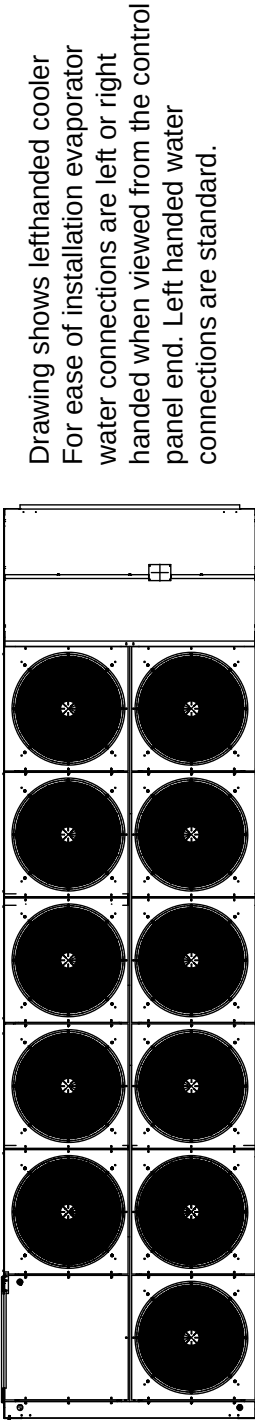


Drawing shows lefthanded cooler
For ease of installation evaporator
water connections are left or right
handed when viewed from the control
panel end. Left handed water
connections are standard.



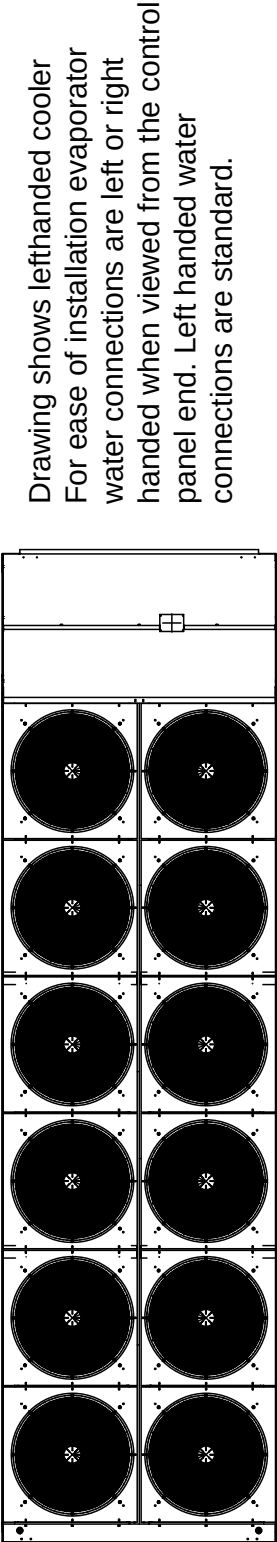
Model	Dimension			
	A	B	C	D
YCIV0700HE	2865.9 (112.8)	2146.3 (84.5)	484.5 (19.1)	714.0 (28.1")
YCIV0760HE	2853.3 (112.3)	2174.8 (85.6)	519.4 (20.4)	714.0 (28.1")
YCIV0840SE	2878.6 (113.3)	2009.9 (79.1)	535.3 (21.1)	660.6 (26.0")

YCIV0800HE AND 0920SE - DIMENSIONS

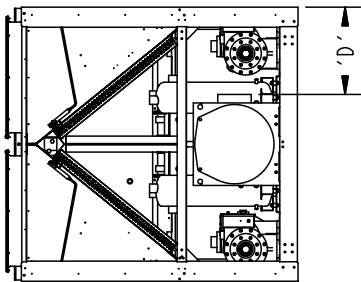
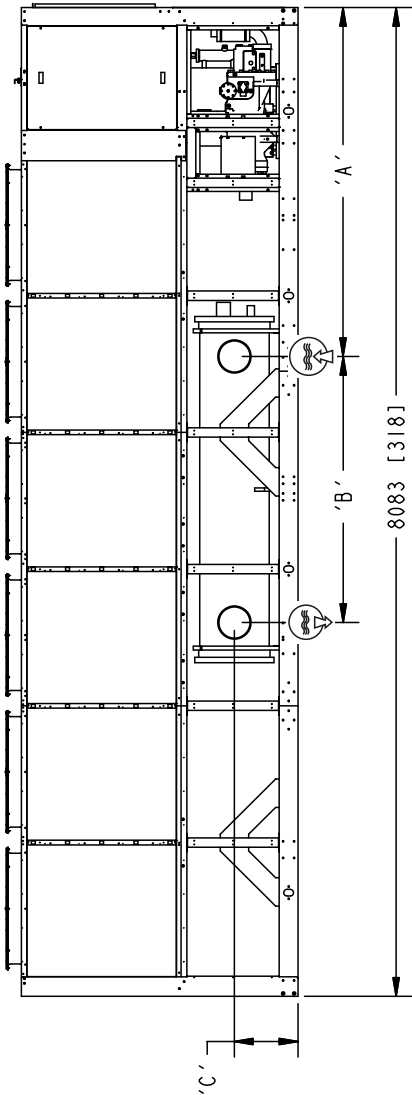
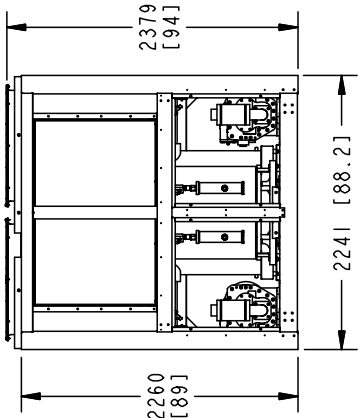


Model	Dimension			
	A	B	C	D
YCIV0800HE	2853.3 (112.3)	2174.8 (85.6)	519.4 (20.4)	714.0 (28.1")
YCIV0920SE	2878.6 (113.3)	2009.9 (79.1)	535.3 (21.1)	660.6 (26.0")

YCIV0830HE, 0930HE AND 1000SE - DIMENSIONS

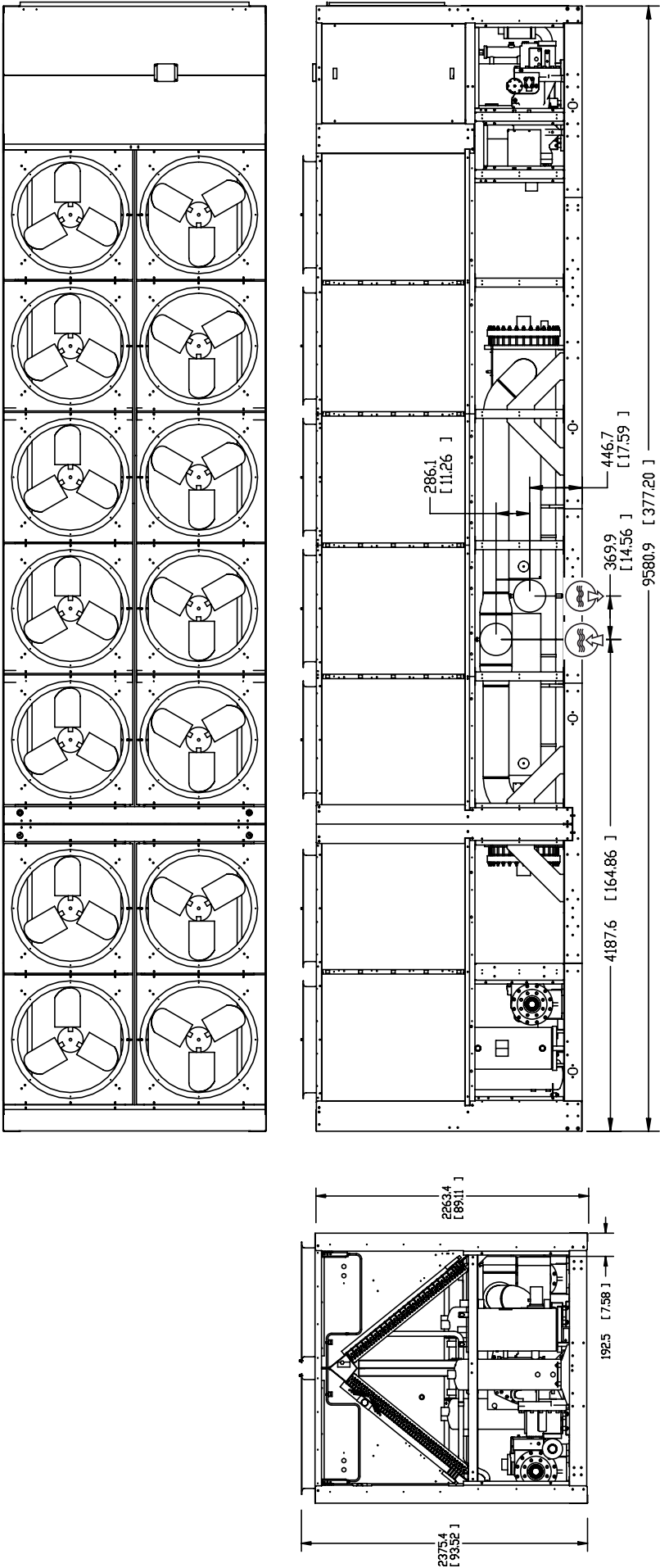


Drawing shows lefthanded cooler
For ease of installation evaporator
water connections are left or right
handed when viewed from the control
panel end. Left handed water
connections are standard.



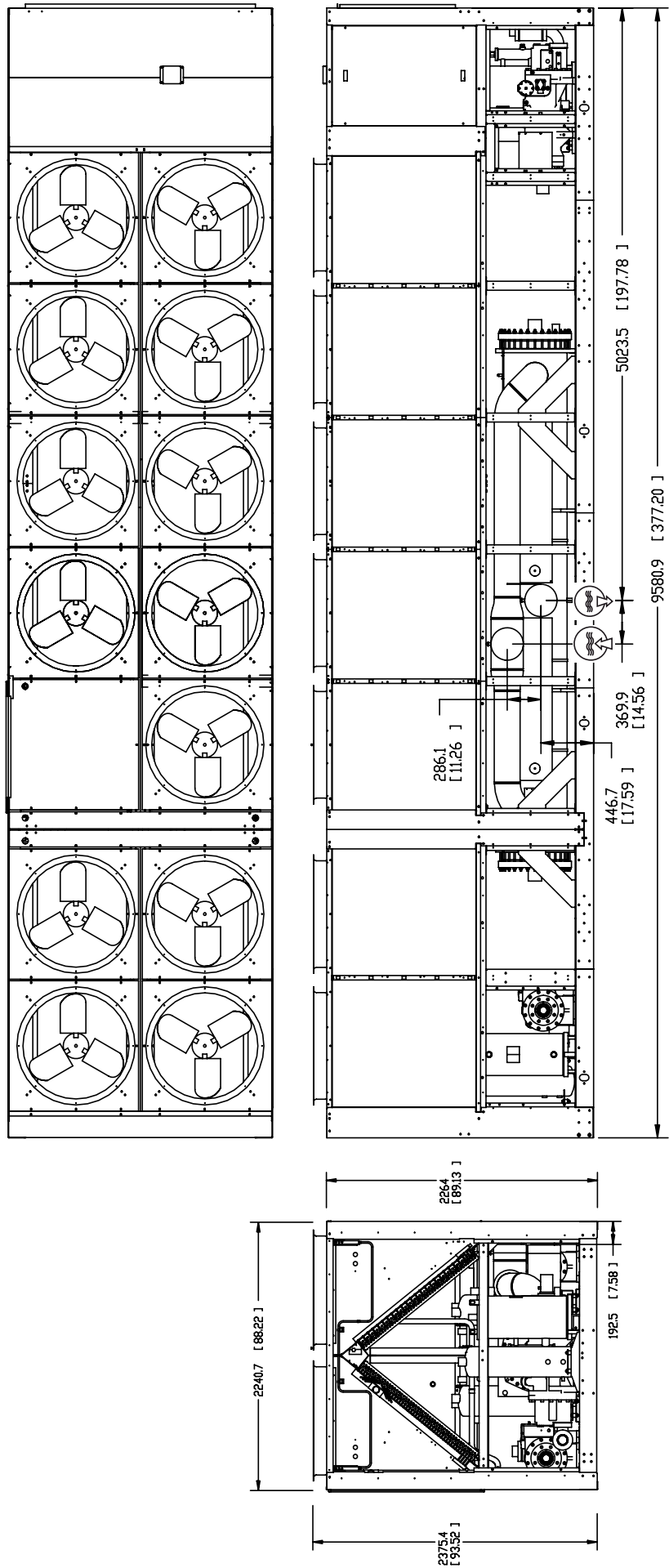
Model	Dimension			
	A	B	C	D
YCIV0830HE	2853.3 (112.3)	2174.8 (85.6)	519.4 (20.4)	714.0 (28.1")
YCIV0930HE	2878.6 (113.3)	2009.9 (79.1)	535.3 (21.1)	660.6 (26.0")
YCIV1000SE	2878.6 (113.3)	2009.9 (79.1)	535.3 (21.1)	660.6 (26.0")

YCIV1050HE - DIMENSIONS



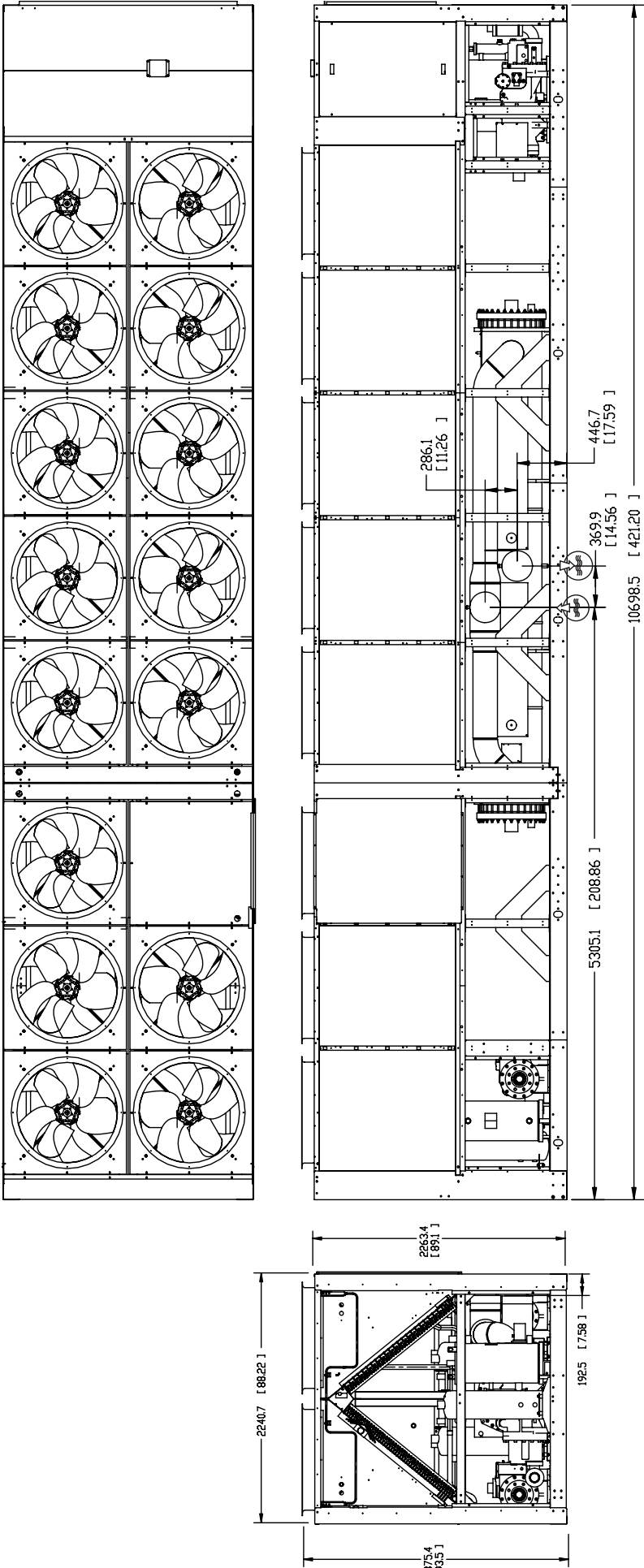
Drawing shows lefthanded cooler. For ease of installation evaporator water connections are left or right handed when viewed from the control panel end. Left handed water connections are standard.

YCIV1070SE - DIMENSIONS



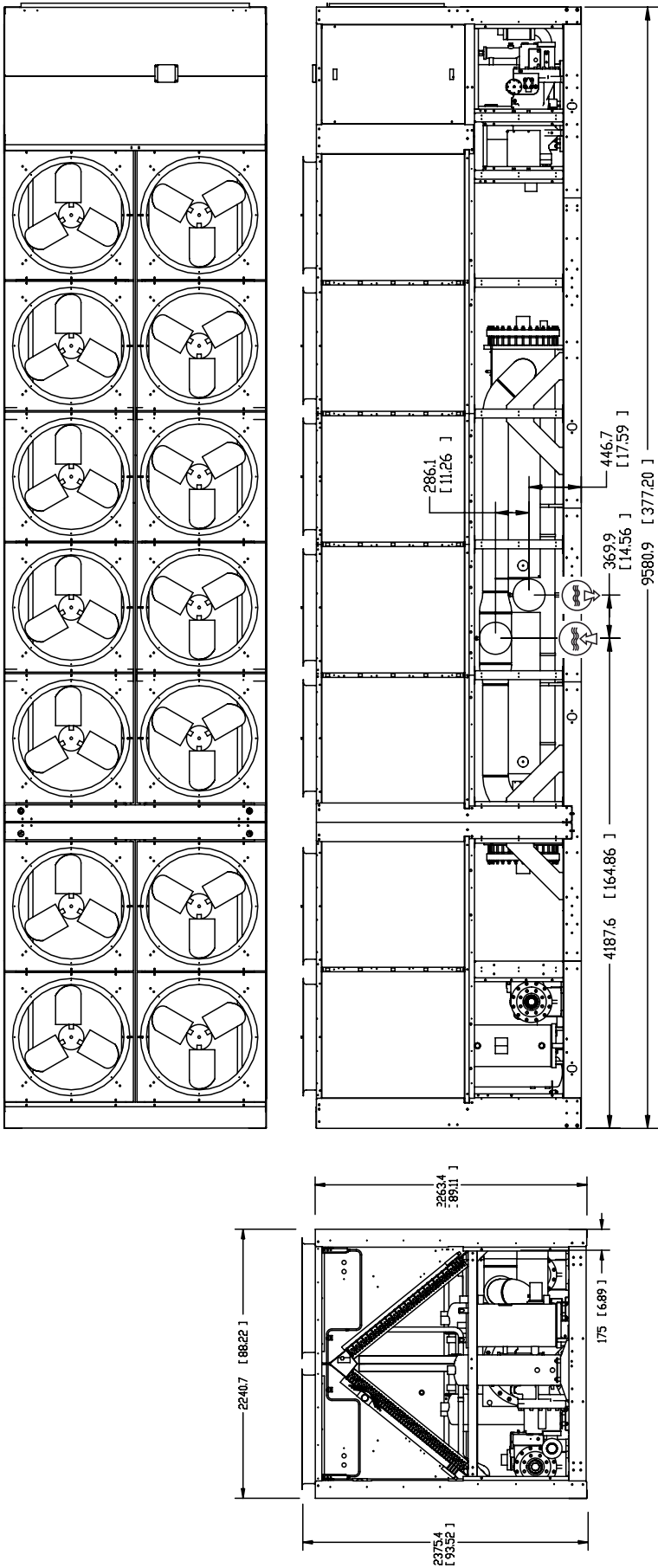
Drawing shows lefthanded cooler.For ease of installation evaporator water connections are left or right handed when viewed from the control panel end. Left handed water connections are standard.

YCIV1120HE - DIMENSIONS



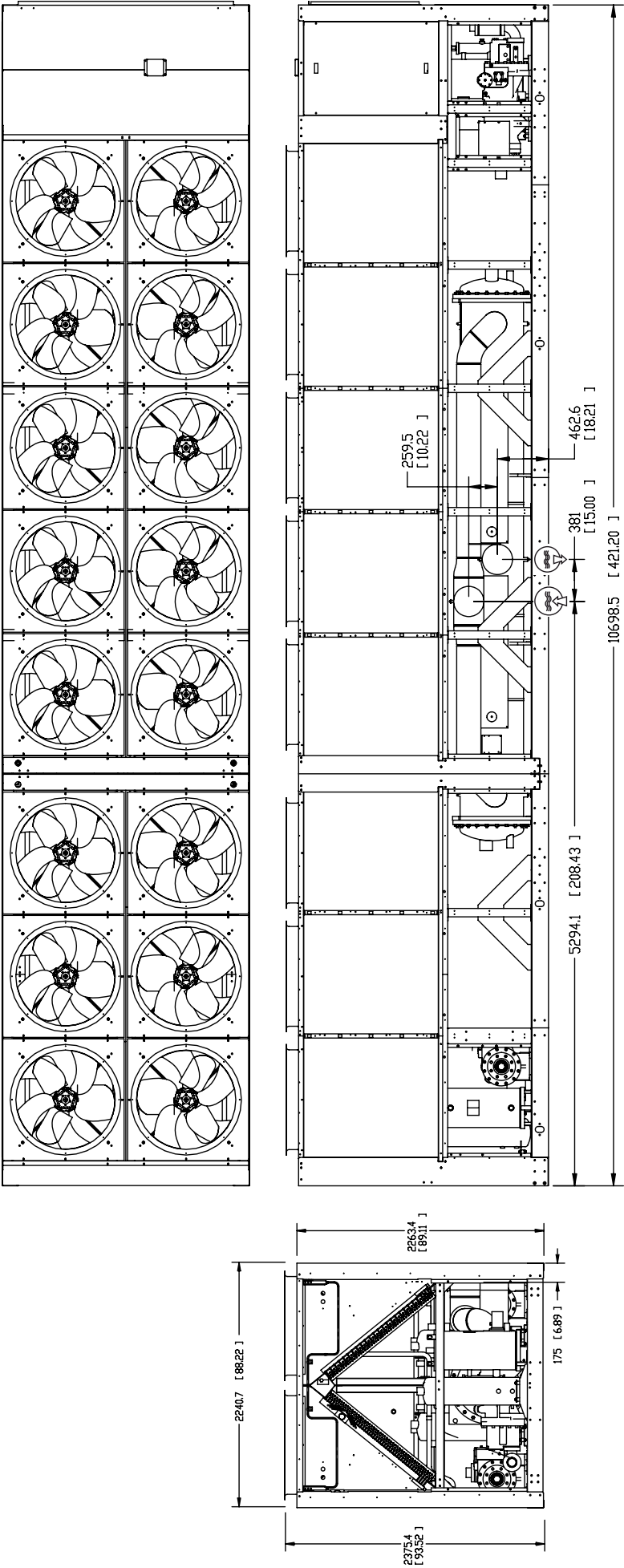
Drawing shows lefthanded cooler.For ease of inst it evaporator water connections are left or right handed when viewed from the control panel end. Left handed water connections are standard.

YCIV1180SE - DIMENSIONS



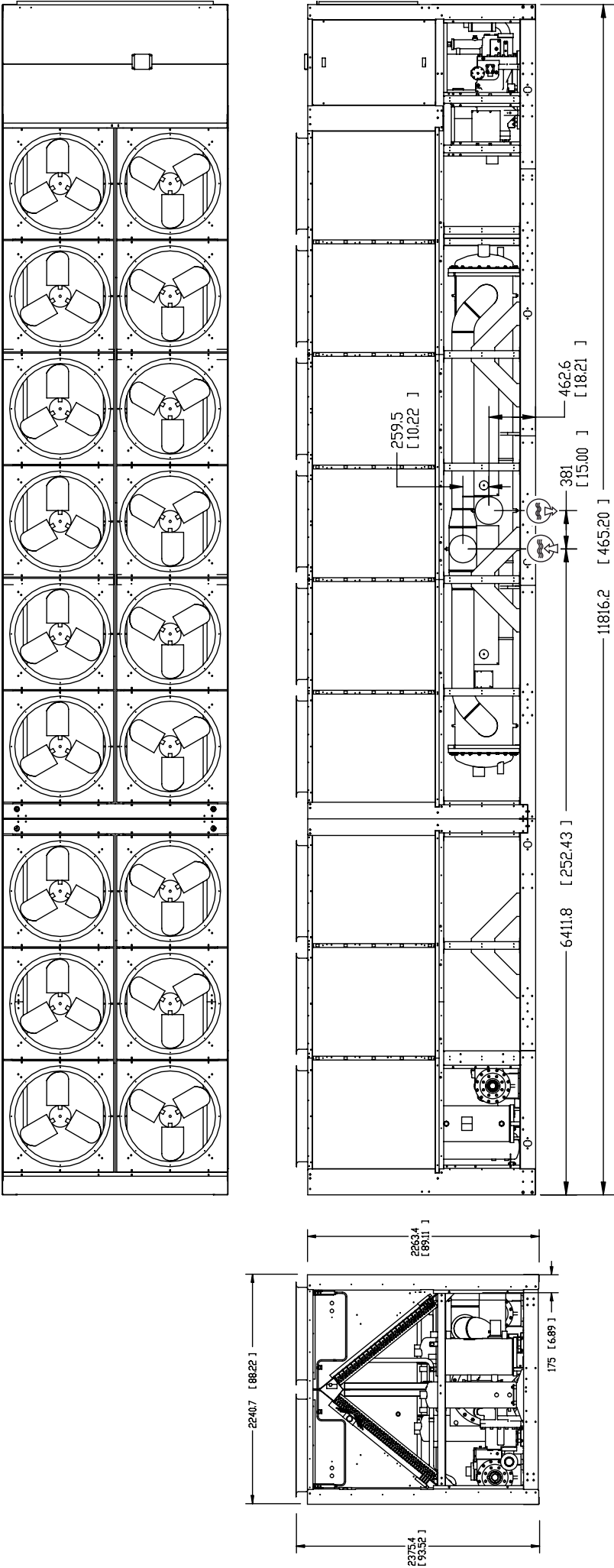
Drawing shows lefthanded cooler. For ease of installation evaporator water connections are left or right handed when viewed from the control panel end. Left handed water connections are standard.

YCIV1220HE AND 1340SE- DIMENSIONS



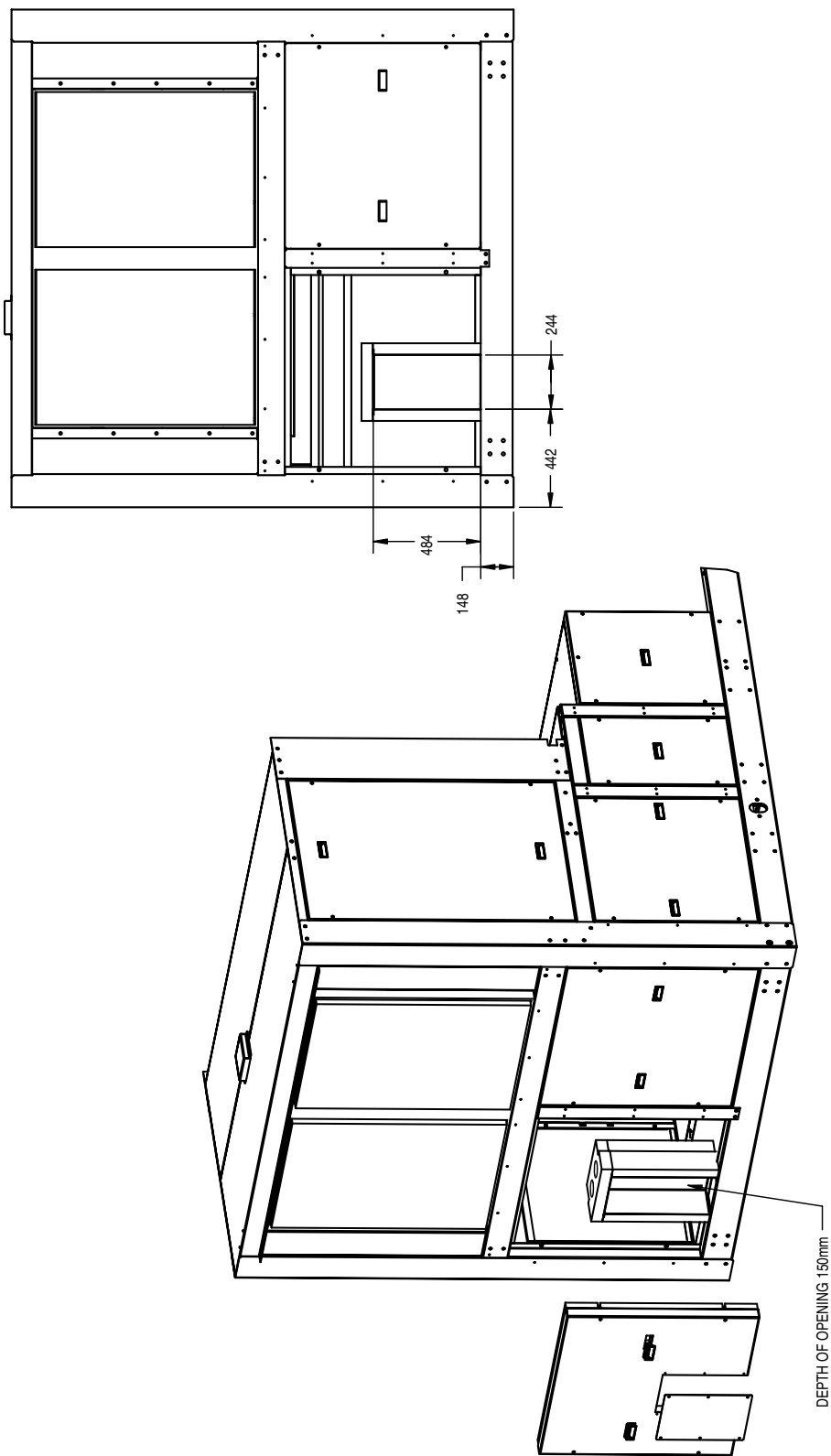
Drawing shows lefthanded cooler.For ease of installation evaporator water connections are left or right handed when viewed from the control panel end. Left handed water connections are standard.

YCIV1380HE AND 1500SE- DIMENSIONS

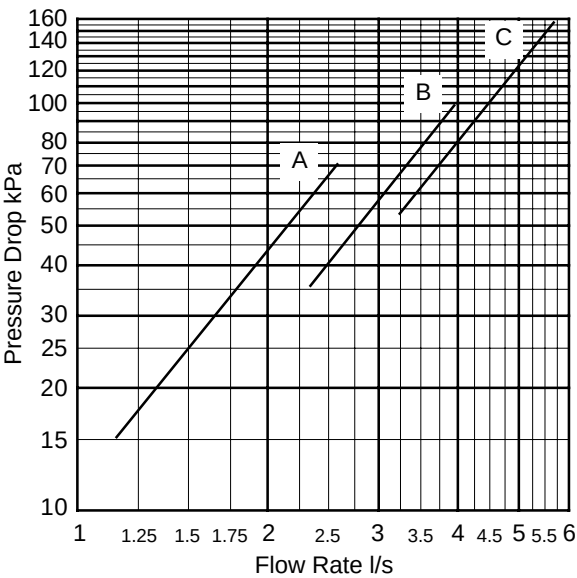


Drawing shows lefthanded cooler. For ease of installation evaporator water connections are left or right handed when viewed from the control panel end. Left handed water connections are standard.

ELECTRICAL CABLE ENTRY



DESUPERHEATER OPTION WATER PRESSURE DROP

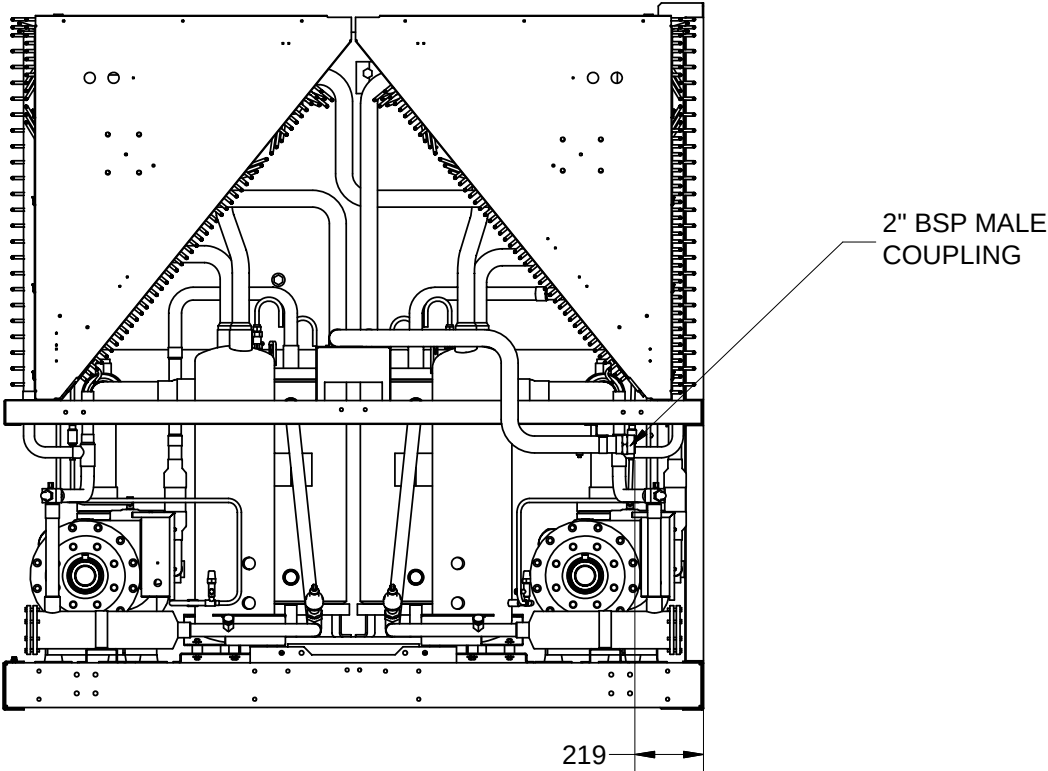
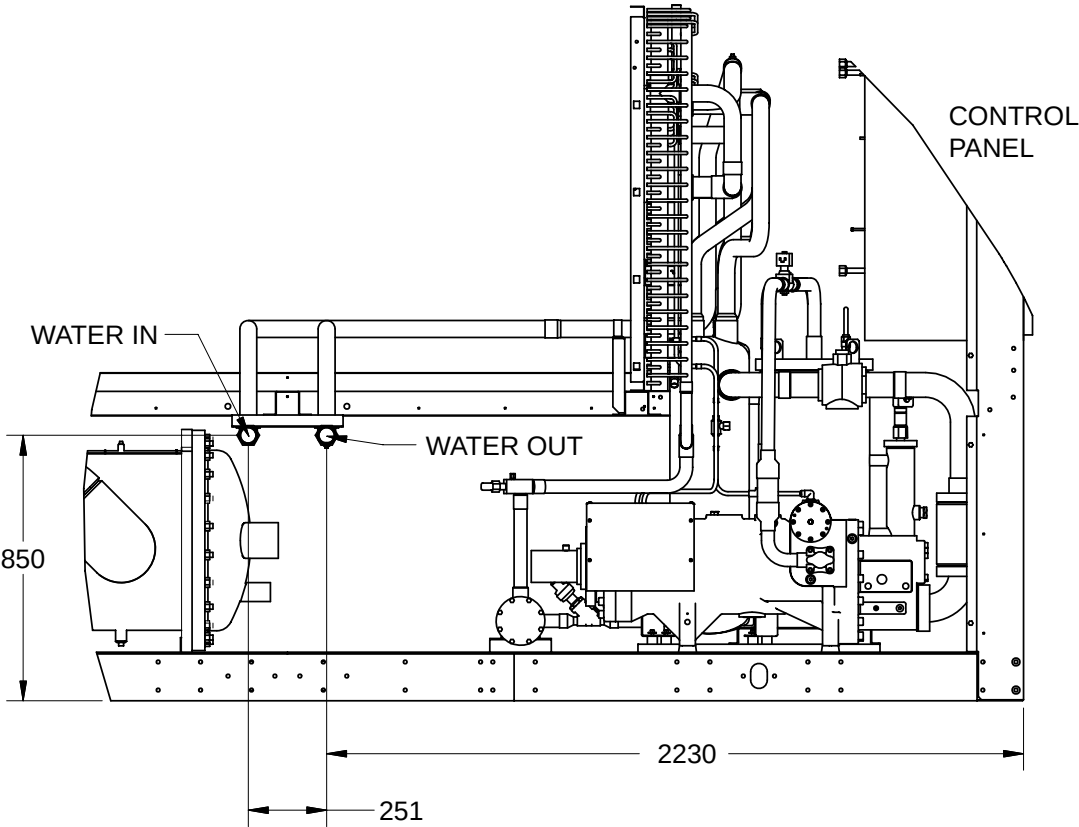


Line	Pressure Drop Calculation
A	Pressure Drop [kPa] = 11.5132 x (Flow Rate [l/s]^1.9187)
B	Pressure Drop [kPa] = 6.8514 x (Flow Rate [l/s]^1.9400)
C	Pressure Drop [kPa] = 5.6073 x (Flow Rate [l/s]^1.9209)

Line	YCIV Model
A	0590HE, 0600SE, 0630HE 0650SE
B	0700HE, 0720SE, 0760HE, 0770SE, 0800HE, 0830HE, 0840SE, 1050HE, 1070SE, 1120HE, 1180SE, 1220HE, 1340SE
C	0920SE, 0930HE, 1000SE, 1380HE, 1500SE

Note: Desuperheaters are not fitted on System 3 on Models 1050HE, 1070SE, 1120HE, 1180SE, 1220HE, 1340SE, 1380HE, 1500SE

DESUPERHEATER OPTION WATER CONNECTIONS



CONSULTANTS GUIDE SPECIFICATION**PART 1 — GENERAL****1.01 SCOPE**

1. The requirements of the General Conditions, Supplementary Conditions and Drawings apply to all work herein.
2. 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:
 - Chiller package
 - Charge of refrigerant (Except remote evaporator applications) and oil
 - Electrical power and control connections
 - Chilled water connections
 - Start-up by manufacturers personnel.

1.02 QUALITY ASSURANCE

1. Products shall be Designed, Tested, Rated and Certified in accordance with, and installed in compliance with applicable sections of the following Standards and Codes:
2. Chillers will be designed within an EN ISO 9002 and built within an EN ISO 9001 accredited manufacturing organisation and in conformity with the following European Directives:
 - Machinery Directive (2006/42/EC)
 - EMC Directive (2004/108/EC)
 - Pressure Equipment Directive (97/23/EC)
 - Safety Code for Mechanical Refrigeration (EN378-2 (2008))
1. 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.
2. Chiller manufacturer shall have a factory trained and supported service organization.
3. Warranty: Manufacturer shall Warranty all equipment and material of its manufacture against defects in workmanship and material for a period of eighteen (18) months from date of availability.

1.03 DELIVERY AND HANDLING

1. Unit shall be delivered to job site fully assembled and charged with refrigerant (except remote evaporator applications) and oil by the Manufacturer.
2. A protective covering, over vulnerable components, shall be provided during shipment. Fit nozzles and open ends with plastic enclosures.
3. The chiller shall be protected, and its accessories, from the weather and dirt exposure during shipment.

4. Unit shall be stored and handled per Manufacturer's instructions.

PART 2 — PRODUCTS**2.01 GENERAL**

1. Manufacturers: The design shown on the drawings is based on York International. Alternate equipment will be acceptable if their equipment meets the scheduled performance and complies with these specifications. If equipment manufactured by a manufacturer other than that scheduled is utilised, then the Mechanical Contractor shall be responsible for coordinating with the General Contractor and all affected Subcontractors to insure proper provisions for installation of the unit supplied. This coordination shall include, but not be limited to, the following:
 - Structural supports for units.
 - Piping size and connection/header locations.
 - Electrical power requirements and wire/conduit and over-current protection sizes.
 - Chiller physical size impact on plant layout.
 - Site noise considerations.
1. The Mechanical Contractor shall be responsible for all costs incurred by the General Contractor, Subcontractors, and Consultants to modify the building provisions to accept the units supplied.
2. Description: Install and commission, as shown on the schedules and plans, factory assembled, charged, and operational tested air-cooled screw compressor chiller(s) as specified herein. Chiller shall include, but is not limited to: a complete system with not less than two independent refrigerant circuits, semi-hermetic twin screw compressors, shell and tube type evaporator, air-cooled condenser, R134a refrigerant, lubrication system, interconnecting wiring, safety and operating controls including capacity controller, control centre, motor starting components, and special features as specified herein or required for safe, automatic operation.
- C. Operating Characteristics:
 1. Provide low ambient control and high ambient options as required to ensure unit is capable of operation from -18°C to 52°C ambient.
 2. Provide capacity control system capable of reducing unit capacity to (10% for 2 compressor units and 7.5% for 3 compressor units) of full load. Compressor shall start in unloaded condition.

3. Cabinet: Unit panels, structural elements and heavy gauge structural base shall be constructed of galvanised steel. Unit panels, control boxes and structural base are finished with a baked on powder paint. All painted surfaces shall be coated with baked on powder paint which, when subject to ASTM B117, 1,000 hour, 5% salt spray test, yields minimum ASTM 1654 rating of "6".
4. Unit shall ship in one piece and shall require installer to provide evaporator inlet and outlet pipe connections. If providing chiller model that ships in multiple pieces, Contractor shall include all the material and field labour costs for factory authorised personnel to install a trim kit to connect the pieces as well as all interconnecting piping and wiring.

2.02 COMPRESSORS AND MOTORS

1. Compressors: Shall be direct drive, semi-hermetic, rotary twin-screw type, including: muffler, temperature actuated 'off-cycle' heater, rain-tight terminal box, discharge shut-off service valve, and precision machined cast iron housing. Design working pressure of entire compressor, suction to discharge, shall be 24 bar.
2. Motors: Refrigerant suction gas cooled accessible hermetic compressor motor, full suction gas flow through mesh screen, with inherent internal thermal overload protection and external current overload on all three phases.
3. Lubrication: External oil separators with no moving parts, 24 bar design working pressure. 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.
4. Capacity Control: Compressors shall start at minimum load. Provide Microprocessor control to command compressor capacity to balance compressor capacity with cooling load.

2.03 REFRIGERANT CIRCUIT COMPONENTS

1. Each independent refrigerant circuit shall include: liquid line shutoff valve with charging port, low side pressure relief device, removable core filter-drier, sight glass with moisture indicator, and electronic expansion valve.
2. Chiller manufacturer shall provide independent circuit for each compressor to provide maximum redundancy. If equipment does not have independent circuits per compressor, manufacturer shall provide owner one spare compressor of each unique size.
3. Discharge lines shall be provided with manual compressor shutoff service valves. Suction line shall be covered with closed cell foam insulation.

2.04 HEAT EXCHANGERS

Evaporator:

1. Direct expansion type or flooded type shell and tube evaporator with high efficiency copper tubes. Independent refrigerant circuits shall be provided per compressor.
2. The design working pressure of the cooler on the shell side shall be 10.3 bar, and 16 bar for the tube (refrigerant side). The evaporator shall be constructed and marked in accordance with the Pressure Equipment Directive and pressure tested to Refrigerant Safety Standard EN 378.
3. The shell shall be covered with 19 mm, flexible, closed-cell insulation. The water nozzles shall have grooves for mechanical couplings, and be insulated by the Contractor after pipe installation.
4. Vent and drain fittings, and thermostatically controlled heaters to protect to -29°C ambient in the off-cycle, shall be provided.

Air Cooled Condenser:

1. Coils: Internally enhanced, seamless copper tubes, mechanically expanded into aluminium alloy fins with full height collars. A subcooling coil shall be provided as an integral part of the condenser. Design working pressure shall be 24 bar.
2. Fans: Shall be dynamically and statically balanced, direct-drive, corrosion-resistant glass-fibre-reinforced composite blades moulded into low noise, full airfoil cross section, providing vertical air discharge from extended orifices. Guards of heavy gauge, PVC (polyvinyl chloride) coated steel wire.
3. Fan Motors: High efficiency, direct drive, 3 phase, insulation class "F", current protected, Totally Enclosed Air Over (TEAO), with double sealed, permanently lubricated ball bearings.

2.05 POWER AND ELECTRICAL REQUIREMENTS

Power/Control Panel:

1. IP55 powder painted steel cabinets with hinged, latched, and gasket sealed outer doors equipped with wind struts for safer servicing. Provide main power connection, compressor starters and fan motor contactors, current overloads, and factory wiring.
2. Panel shall include control display access door.

Single Point Power

(As standard for 2 and 3 compressor chillers)

1. Provide a single point power connection to chiller, shall be 3 phase of scheduled voltage.
2. Circuit breaker shall be provided at point of incoming single point connection to provide means of disconnecting and short circuit protection. Circuit breaker shall be equipped with lockable operating handle that shall extend through power panel door so that power may be disconnected without opening any panel doors.

3. Control Transformer: Power panel shall be supplied with a factory mounted and wired control transformer that will supply all unit control voltage from the main unit power supply. Transformer shall utilize scheduled line voltage on the primary side and provide 115 V/1 phase on secondary.
4. Starting current shall not exceed compressor full load amps.
5. Exposed compressor and fan motor power wiring shall be routed through conduit.
6. Power Factor:
 - Provide equipment with power factor correction capacitors as required to maintain a displacement power factor of 95% at all load conditions.
 - The installing contractor shall be responsible for additional cost to supply and install power factor correction capacitors if they are not factory mounted and wired.

2.06 CONTROLS

General:

1. Provide automatic control of chiller operation including compressor start/stop and load/unload, anti-recycle timers, condenser fans, evaporator pump, evaporator heater, unit alarm contacts and run signal contacts.
2. Chiller shall automatically reset to normal chiller operation after power failure.
3. Unit operating software shall be stored in non-volatile memory. Field programmed set points shall be retained in lithium non-rechargeable battery backed real time clock (RTC) memory for minimum 5 years.
4. Alarm contacts shall be provided for remote alert of any unit or system safety fault.

Display and Keypad:

1. Provide minimum 80 character liquid crystal display that can be viewed in both direct sunlight and has LED backlighting for night-time viewing. A unit mounted keypad and display panel shall be provided.
2. Display and keypad shall be accessible through display access door without opening main control/electrical cabinet doors.
3. Display shall provide a minimum of unit setpoints, status, electrical data, temperature data, pressures, safety lockouts and diagnostics without the use of a coded display.
4. Numeric data in Metric (or English) units.
5. Sealed keypad shall include unit On/Off switch.

Setpoints, Data and Safeties

1. Programmable Setpoints: display language; leaving chilled liquid temperature: setpoint, control range; local or remote control; units of measure; compressor lead/lag; and maximum chilled water setpoint reset temperature range.
2. Display Data: Chiller liquid return and leaving temperatures, ambient, lead compressor identification, clock and schedule, (variable) out of range, remote input indication, chilled liquid reset setpoint, and history data for last ten shutdown faults. Compressor suction, discharge, and oil pressures and temperatures, suction and discharge superheats, percent of full-load, 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 timer.
3. Predictive Control Points: Unit controls shall avoid safety shutdown when operating outside design conditions by optimising the chiller controls and cooling load output to stay on-line and avoid safety limits being reached. The system shall monitor the following parameters and maintain the maximum cooling output possible without shutdown of the equipment: motor current, suction pressure and discharge pressure.
4. 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 motor temperature, high pressure switch, high / low differential oil pressure, high oil temperature, low suction superheat, critical sensor malfunction, low or high current, phase loss/single phase power, overload of motor windings, and low voltage.
5. 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.

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.

2.07 ACCESSORIES AND OPTIONS

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

Sound Reduction

Provide the following options as required to meet scheduled sound performance data at all load points.

- Normal speed fans and unlined compressor enclosure (Factory Mounted)
- Two speed fans and acoustically lined compressor enclosure (Factory Mounted)

Sound Power Levels

Sound power octave band data, dB in accordance with ISO 3744, at 35°C ambient and 7°C leaving chilled water.

Provide optional control input to limit sound output of the chiller based on time of day. Shall be programmable at the chiller panel or controlled remotely via signal (4-20 mA or 0-10 Vdc) from BAS system. Chillers without this feature shall be provided with the necessary sound attenuation to meet the scheduled sound performance data at all load points.

Condenser Coil Environmental Protection:

1. PRE-COATED FIN CONDENSER COILS – The air-cooled condenser coils are constructed of epoxy-coated aluminium fins.
2. COPPER FIN – Provide condenser coils with copper fins in lieu of aluminium fins.
3. POST-COATED EPOXY DIPPED CONDENSER COILS – The unit is built with dipped-cured condenser coils.

Protective Chiller Panels (Factory Mounted):

1. Louvered Panels (condenser coils only): Painted steel to match unit panels, over external condenser coil faces.
2. Wire Panels (full unit): Heavy gauge, welded wire mesh, coated to resist corrosion, to protect condenser coils from incidental damage and restrict unauthorized access to internal components.
3. Louvered Panels (full unit): Painted steel to match unit panels, to protect condenser coils from incidental damage, visually screen internal components, and prevent unauthorized access to internal components.
4. Louvered/Wire Panels: Louvered steel panels on external condenser coil faces, painted to match unit panels. Heavy gauge, welded wire-mesh, coated to resist corrosion, around base of machine to restrict unauthorized access.

Evaporator options:

1. Provide 38 mm cooler insulation in lieu of standard 19 mm.
2. Provide raised Face Flange Accessory for cooler nozzles:
3. 10.3 bar welded flanges.

4. 10.3 bar companion weld flanges.
5. 20.7 bar welded flanges.
6. 20.7 bar companion weld flanges.
7. 10.3 bar Victaulic™ Flanges (field kit, matching pipe flange by contractor).

Flow Switch (Field Mounted):

Vapour proof 10.3 bar or 20.7 bar, -28.9°C to 121.1°C.

Building Automation System Interface:

1. Chiller to accept 4 to 20 mA or 0 to 10 Vdc input to reset the leaving chilled liquid temperature, or percent full load amps (current limit). (Factory Mounted)
2. Provide chiller with microgateway for an interface to other systems that can share data via BACNet™ (Factory Mounted)

Vibration Isolation (Field Mounted):

1. Neoprene Isolators - 1 Inch Deflection Spring Isolators: Level adjustable, spring and cage type isolators for mounting under the unit base rails.
2. 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 1.0 g accelerated force in all directions to 50 mm.

Service Shut-off Valve

Provide suction service shut-off valve for each compressor. (Factory Mounted)

PART 3 — EXECUTION**3.01 INSTALLATION**

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



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